Presence and potential for puberty education in the Australian Curriculum, from Foundation to Year 10: A socio-educational analysis of knowledge content and cognitive patterns

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Abstract

All children need quality puberty education. The earlier onset of puberty, the burdens and costs of ignorance, ill-health, and inequality, exponential increases in technological connectivity, and global health and educational evidence, confirm that this need is great, growing, and urgent. This thesis is about the timely provision of school-based puberty education for girls and boys in Australia.

Schools are the logical and most cost-effective sites to educate all children about puberty, relationships and values, sexuality development, reproductive health, and personal safeguarding, optimally integrated through all school year levels and across the silos of curricula disciplines. The literature shows that normalisation and integration of such puberty education content would greatly benefit students’ learning progress, their relationships and social values at all levels, their sexuality and reproductive health needs, their development of individual ethical rationality (phronesis, after Aristotle), and their future lifechances. Evidence-based guidelines and professional standards for quality school curricula supporting early, continuous, inclusive, and equitable puberty education have been developed for global use. However, in Australia, very little, if any, timely or effective education about students’ puberty or sexual health is currently delivered in schools. The existing state/territories’ Health and Physical Education (HPE) curricula, nominal site of such programs, has poorly served girls and boys, so that children glean what they can from their peers, the playground’s hidden curriculum, and media sources.

Now, in Australia, a rare opportunity to implement nation-wide standards of quality knowledge, teaching, and learning achievement in puberty education has arisen, with the development of the first Australian Curriculum. The Australian Curriculum, Assessment and Reporting Authority (ACARA) has a brief to determine quality and equitable learning entitlements, and Learning Area (LA) curricula, for all Australian children, aged 5-16, in the compulsory school Years 1-10, across all educational jurisdictions.

Accordingly, this thesis aims to provide a Mixed Method audit, analysis, and evaluation, based on Anderson and Krathwohl’s (2001) theoretical framework, of the presence of puberty education knowledge and cognition evident in the new Australian Curriculum LA Content descriptions, and their potential for integrated puberty education. In a socio-educational exploration, this thesis addresses the is/ought dichotomy of puberty education in Australia, and through quality evidence-based transnational curriculum documents, around the world. The literature and conceptual parameters for this theoretical and empirical examination include children’s earlier puberty, an
evolutionary developmentalist perspective, international and Australian educational frameworks as mentioned, and global sociological and philosophical contexts.

A Mixed Method, using quantitative and qualitative Content Analyses, gathered data from compulsory teaching Content descriptions and other ACARA documents, providing three-stage analytical audits of the new Australian Curriculum that show what, where, and how much puberty education there is, or presence, and if, what, and where puberty education might be integrated, or potential. The hierarchical nature and two-dimensional structure of Anderson and Krathwohl’s (2001) theoretical framework, revising Bloom (1956), provides the means of data generation, organisation and evaluation. Audit One, then, is a quantitative incidence and qualitative positional Content Analysis of puberty education presence, using a tabular form of that framework’s knowledge dimensions and cognitive processes. Audit Two is a qualitative strength Content Analysis of puberty education presence, using both tabular and curriculum text-box forms. Audit Three is a quantitative and qualitative Content Analysis of potential for integrated puberty education, extending the same curriculum text-box form.

The results of Audits One and Two revealed evidence, in patterns of quantitative incidence and qualitative position, and in qualitative curriculum Content Analyses, of negligible levels of specific puberty education presence, even in the traditionally-used HPE LA, but moderate, precursory, levels of presence in the knowledge and cognitive vocabulary of English and three Humanities subjects. Audit Three revealed evidence of immense quantitative and qualitative potential for the integration of puberty education in all audited LAs, although to a lesser extent in Mathematics. These, and other results, were meta-analysed within and across LAs.

During puberty, brain structures and organisation are permanently changed, and neural and behavioural systems are, perhaps only temporarily, changed. Students’ earlier pubertal development, their educational requirements, and school curricula occupy overlapping, contested terrain. International curriculum documents, existing programmatic evidence, and global socio-technological imperatives indicate a path to better outcomes. An enhanced and integrated program of puberty education will be recommended for re-iterations of the Australian Curriculum. More, and higher quality puberty education content, consistent with global best practice standards, and professionally implemented by well-trained teachers, would benefit the health, wellbeing, capabilities, and educational outcomes of all girls and boys.
Statement of Originality

This work has not previously been submitted for a degree or diploma in any university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

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Chapter 1: Introduction

This chapter provides an examination of the *Gestalt*, that is, the overall pattern or form of the research structure, and the research direction. Section 1.1 presents the research context, focus, and significance. Sections 1.2 to 1.4 present the aim, the broad and specific research questions, and the research hypotheses, respectively. Section 1.5 provides the research rationale, justification and validity. Section 1.6 provides a chapter summary, and forecasts the contents of Chapter 2.

Preamble

This thesis is about the timely provision of school-based puberty education for girls and boys in Australia, including education for personal development, relationships, sexuality, reproductive health, and safety/protection. It aims to audit most of the new Australian Curriculum, currently version 7.3 (Australian Curriculum, Assessment and Reporting Authority (ACARA), 2015), for quantitative and qualitative documentary evidence of relevant puberty education knowledge and cognition *presence*, and analyse the *potential* for its inclusion, as may be consistent with the literature, international guidelines and educational praxis, and sociological challenges. This three-part analytical audit of teaching and learning Content descriptions consists of a diagnostic and evaluative Mixed Method based on Anderson and Krathwohl’s (2001) theoretical framework. The first audit is a quantitative incidence and qualitative positional Content Analysis of puberty education *presence*, using a tabular form of that framework’s hierarchical cognitive processes and knowledge dimensions. The second audit is a qualitative strength Content Analysis of puberty education *presence*, using both tabular and curriculum text-box forms. The third audit is a quantitative and qualitative Content Analysis of *potential* for integrated puberty education, extending the same curriculum text-box form. Evidence garnered from these analytical audits and related documents may, then, lead to recommendations regarding age-appropriate, integrated puberty education content and cognition in future Australian Curriculum iterations, thus rounding the *Gestalt*, or shape of the research as a whole.

1.1 The Research Context and Focus

1.1.1 Puberty in the life-course framework

All children experience a “pubertal cascade... of hormonal, psychological and social processes” (Mundy et al., 2013, p. 160-161). These include sexuality development, physical growth, sexual orientation, identity and relationship transitions, achievement of
reproductive fertility, and brain structure/function development (Patton & Viner, 2007; Peper & Dahl, 2013; Simmons et al., 2014; Spear, 2013). However, in this 21st century, pubertal processes are occurring at earlier ages than ever before (Boynton-Jarrett et al., 2013; Dorn & Biro, 2011; Gluckman & Hanson, 2006; Lalwani, Reindollar & Davis, 2003; Mensah et al., 2013), usually while children attend primary school, or lower secondary school (Goldman, 2012, 2013, 2014). As well as physiological changes, the “critical transitional period… [of puberty includes] the need to negotiate key developmental tasks, such as increasing independence and normative experimentation” (United States Department of Health and Human Services (USDHHS), 2010, p. 3). Pubertal processes and changes fluctuate in significance, tempo, and profundity through the school years, and beyond (Section 1.1.4; see Baams, Dubas, Overbeek, & van Aken, 2015; Englund, Kuo, Puig, & Collins, 2011; Markham et al., 2010).

All children and adolescents need to have knowledge and understanding about these life-changing transitions, which have “tremendous” and long-lasting impacts on their health and wellbeing (Dorn & Biro, 2011, p. 181), their academic success (Ashcraft, 2008; Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Osotimehin, 2011), and their future as productive citizens (Gavin, Catalano, David-Ferdon, Gloppen, & Markham, 2010; Munoz, 2010; Sawyer et al., 2012). The long-term sociological, health, and economic benefits arising from timely puberty education are manifold and incalculable. In this thesis, the term puberty education includes all aspects of personal development, relationship education, sexuality education, reproductive health, safety, and protection, as further explored in Chapter 2.1.5. International Human Rights law mandates sexuality education as “indivisible” from the right to education, and “key” to the rights of life, health and non-discrimination (Munoz, 2010, p. 19).

Global evidence shows that school is the most efficacious place and the optimal time-period for children and adolescents to acquire this invaluable knowledge and cognitive development (Kirby, 2011; United Nations Economic, Scientific and Cultural Organisation (UNESCO), 2009; Wellings et al., 2006; World Health Organisation (WHO), 2010). Further, evidence from 105 countries also shows that the single key driver of economic growth in developing countries is improved educational attainment, particularly for girls (Crespo Cuaresma, Lutz, & Sanderson, 2014). Education reduces fertility rates and maternal morbidity/mortality rates, postpones childbirth, and increases health standards and economic participation, so that the perceived “demographic dividend” traditionally structured by working age is actually a cost-beneficial education dividend
starting at school entry level (2014, p. 313). Education for girls is “the silver bullet” (Albright, 2014) against poverty and disease (see Germain, Dixon-Mueller, & Sen, 2009).

New research, and contemporary strategic priorities about child/adolescent futures and global development policies such as the Millennium Goals, situate an effective education for adolescent health, wellbeing, and harm-prevention at the centre of “a life-course framework” (Lancet, 2012, p. 1561; see United Nations Children’s Fund (UNICEF), 2012; United Nations Millennium Development Goals (UNMDG), 2015; United Nations Population Fund (UNFPA), 2014; WHO, 2012). This policy framework increasingly acknowledges the lifelong benefits and reduced costs of early, positive guidance and/or interventions in health and education, for citizens, their nations, and global participation. For the vast and increasing majority of children, school is a universal experience. Compulsory schooling provides a globally recognised milieu for socialising and educating children aged 5-10, young adolescents aged 10-14, and for middle/late adolescents aged 15-19, while higher education is increasingly desirable and feasible for older adolescents/young adults aged 20-24 (Sawyer et al., 2012), who are still experiencing late stage puberty (see Section 1.1.4; Chapter 2.1.1.4). As Dodge and Albert (2012) note, “The rocky ride [of puberty] is longer than ever” (p. 624).

In Australia, the first nation-wide curriculum and teaching/learning standards for the school years Foundation to 12, students aged 5-18, may be seen as part of such a citizen-based life-course framework. For example, the Australian Curriculum focuses strongly on literacy and numeracy skills, and “student wellbeing through health and physical education in particular” (ACARA, 2012c, p. 14, emphasis added). Indeed, the conceptualisation document of the Health and Physical Education (HPE) Learning Area (LA) acknowledges that “Learning to move and enjoying the freedom of movement is a human right” (ACARA, 2012f, p. 4). However, education for Sexuality and Reproductive Health is not acknowledged as a human right in Australian Curriculum documents. Rather, it is just one of 12 Focus Areas for HPE students aged 10-16, in the compulsory teaching and learning Content descriptions with integrated General capabilities and Cross-curriculum priorities. It has thus become necessary to explore and analyse the evidence of practice, as presence, and of potential, for age-appropriate and integrated puberty education in the new Australian Curriculum.

1.1.2 Parents and puberty
While most parents may provide a loving, nurturing, and trusting environment for their babies and young children, very few parents, around the world and over time, provide
adequate or relevant puberty education for children and adolescents (see Goldman & Bradley, 2004; Goldman & Goldman, 1982; Gresle-Favier, 2013; Irvine, 2002; Schalet et al., 2014). Parental embarrassment, reticence and communicative inhibitions about this education appear to be strongly associated with the evolutionary incest taboo (Levine, 2002; Lemish, 2011; WHO Regional Office for Europe & [Germany’s] Federal Centre for Health Education (BZgA), 2010). Such inhibitions are often exacerbated by confusing ignorance with innocence, a lack of parental knowledge, gendered double standards, and traditional or customary prohibitions against educational provision (Bott, 2010; Goldman, 2008; Renold, 2005; Wyckoff et al., 2008; see Chapter 2.1.5). Consequently, most children remain ignorant about their “normative sexuality development” (Tolman & McClelland, 2011, p. 243), their changing bodily and relationship configurations, and the often-lifelong ramifications of reproductive health and safety (Aggleton, Ball, & Mane, 2006; Blake, 2008; Halstead & Reiss, 2003; Sidibe, 2009).

Other complex pubertal changes experienced by girls and boys include the growth of psychosocial autonomy in meaning- and decision-making, the need for new communication competencies, formation of subjectivity through self-concept, self-esteem, self-regulation and efficacy, issues of social dominance, peer pressure and resilience, intimacy challenges, and development of reflective abilities (Berger, 2014; Dahl, 2004; Hawley, 2011; Mendle & Ferrero, 2012; Steinberg, 2005). Many of these pubertal changes are also left unaddressed by parents, and by teachers (see Barr et al., 2014). Yet, children’s processes, experiences and outcomes of puberty have significant influences and direct, often obvious, impacts on schools and schooling (Ivinson, 2007). Most adults remember their pubertal experiences of transitional emotions, tensions, behaviours, and events for the rest of their lives; and too often these memories are negative ones.

1.1.3 Plasticity during puberty
A mismatch between the mean age of puberty and psychosocial maturity in previous generations and in the contemporary phenomena and experience of puberty has become evident (Bellis, Downing, & Ashton, 2006; Gluckman & Hanson, 2006; see Dixon-Mueller, 2008). Crucial, albeit expected and ‘hardwired’, genetic and hormonal changes of puberty (Peper & Dahl, 2013) are now hastened, complicated, and exacerbated by unprecedented sociological changes in child/adolescent environments including family structure, food production and consumption, technological innovations, education requirements, health care, and work conditions. Epigenetic, or ‘software’ factors of physiological plasticity that turn genetic and hormonal expression on or off, are identified
through an evolutionary developmentalist approach (see Buss, 2009; Ellis & Essex, 2007; Gluckman, Hanson, & Beedle, 2007; Patchev, Rodrigues, Sousa, Spengler, & Almeida, 2014). These factors include environmental conditions and individual events, such as malnutrition or obesity, exposure to toxins, stress or attention deficits, illness, injury and trauma, maltreatment and sexual abuse. Such epigenetic changes, which literally overwrite the genetic code, can have a lifetime impact on individuals’ cognitive function, health, sexuality development and timing of puberty, behaviour, and life chances (National Scientific Council on the Developing Child (NSCDC), 2010; Reddy, 2013), and some are passed on to future generations (Gapp et al., 2014). The tensions and trade-offs resulting from this pubertal mismatch may also be evidenced in broad demographic traits for brain development and learning, morphology and mental health, risk, reproduction, morbidity and mortality (see Ellis, 2004; Hochberg, 2011; Hochberg & Belsky, 2013; Wang, Walker, Hong, Bartell, & Wang, 2013).

A wide-ranging developmentalist approach may thus be useful in developing a greater understanding of puberty, and its earlier onset, by examining the often-unintended consequences of contemporary social constructions and interventions on the forms and function of reproduction (see Mundy et al., 2013; Patchev et al., 2014). One example of social construction is the delayed mean age of marriage and parenting, which creates a gap of about 15 years between reproductive fertility and traditional markers of adulthood. The developmentalist approach may aid the explanation of sometimes-polarising social impacts, or rather, adaptive strategic differentiations, by recognising that coping with or ameliorating generational tensions about sexuality is best achieved by educating all school students about their changing bodies, relationships, and the dynamic socio-technological context of their extended puberty (see Giami et al., 2006; Gluckman & Hanson, 2006; Goldman, 2008; Kirby, 2011; Levine, 2002).

### 1.1.4 The processes and earlier onset of puberty

Puberty is a dual but overlapping process that takes about 18-20 years to complete, from its normal (but often unnoticed) onset at about age eight (Dorn & Biro, 2011; Peper & Dahl, 2014; Pinyerd & Zipf, 2005). The first phase is adrenarche, the slow maturation of the adrenal glands, which often becomes apparent by age 10 through feelings of sexual attraction, but continues to impact on neural development into the third decade of life (Blakemore, 2010; Patton & Viner, 2007; Siegler, DeLoache, & Eisenberg, 2010; Sisk & Zehr, 2005) as the brain matures. The second phase is the relatively rapid onset of gonadarche, signifying reproductive maturation, with girls’ menstrual periods usually
occurring at about age 12, and boys’ viable ejaculation at about age 13 (Dorn & Biro, 2011; Parent et al., 2003). Most of the obvious changes of gonadarche are complete by about age 16 for girls and 18 for boys, but the baseline phase of pubertal adrenarche continues through later adolescence and young adulthood, to about ages 26-28 respectively, as the brain’s pre-frontal cortex matures into its full potential for critical thinking, rational decision-making, and subjective self-awareness (Kaplan & Gangestad, 2005; Luna, Garver, Urban, Lazar, & Sweeney, 2004; Sawyer et al., 2012).

However, significant proportions of girls and boys experience visible pubertal growth stages, or even reproductive competence, earlier than these average ages. By age eight, when most Australian children are enrolled in Year 3 of primary school, 10% of girls already have pubertal hair, and a total of 18% have reached Marshall and Tanner’s stage 2 in breast growth, which defines the onset of pubertal maturation (Biro et al., 2010). By age nine, 6.3% of boys have definite indications of pubertal onset, including skin changes, body hair and adult-type body odour (Mensah et al., 2013). By age 10, a significant proportion of boys achieve viable sperm emissions, or spermarche (Dixon-Mueller, 2008; Goldstein, 2011; Marcell, Wibbelsman, & Seigel, 2011). By age 11, 22.3% of girls have reached menarche, as evidenced by ovulation and menstrual bleeding (Morris, Jones, Schoemaker, Ashworth, & Swerdlow, 2011). Globally (without China), 9% of all girls aged 14 are child brides, rising to 29% of all girls aged 17 (UNICEF, 2014a, p. 2). In Europe and North America, 29% of boys aged 15 have had sexual intercourse (Currie et al., 2012, p. 174).

The literature shows there is now an unprecedented and extended time-lapse between earlier reproductive development and the emotional-cognitive development of later adolescence (Dixon-Mueller, 2009; Goldman, 2008; Hawley, 2011; Hochberg, 2011; Tolman & McClelland, 2011). Further, a growing body of evidence exposes a disparity between motivation/reward and control/experience centres in the young adolescent brain (Albert & Steinberg, 2011; Blakemore, 2010; Gopnik, 2012; Luna et al., 2004; Spear, 2013). Puberty also marks a rise in modern psychosocial conditions, such as anxiety and depressive disorders, self-harm and suicide, and anti-social/addictive behaviour, for adolescents and young adults (Patton & Viner, 2007; see also Currie et al., 2012; Mendle & Ferrero, 2012; Mensah et al., 2013; Mills et al., 2011). Childhood obesity is now at an epidemic scale (Biro & Wien, 2010). Comorbid overweight and dysfunctional mood/emotional states appear to become entrenched during the “peripubertal window”, particularly for girls (Patchev et al., 2014, p. 51), while boys who mature earlier and significantly faster than their peers have the greatest risk of depressive
symptoms (Mendle, Harden, Brookes-Gunn, & Graber, 2010). Sexually transmitted infections (STIs), pregnancy/maternity complications, and sexual/gender-based violence are primary causes of morbidity and mortality for adolescents aged 10-25, while for girls aged 15-19, suicide leads (UNFPA, 2014).

1.1.5 Sociological influences on adolescents
At present in the world, there are about two billion pubertal children, adolescents, and young adults aged between eight and 25, and they comprise almost one-third of the world’s population of seven billion (Osotimehin, 2011; Sawyer et al., 2012; UNFPA, 2014). Contemporary and global socio-economic factors have irrevocably changed the context of relationships, sexuality and decision-making milieux for all children and young people (Currie et al., 2012; Goldman & Collier-Harris, 2012; Porter, 2013; Viner et al., 2012). These 21st century factors include instant personalised and social communications, multiple new media forms, the rampant and ubiquitous commodification of sexuality (Bragg, Buckingham, Russell, & Willett, 2011; Goldman, 2006a, Reid, 2014), the rise of the “super-peer” or a global internet-enabled cohort consciousness (Patton & Viner, 2007, p. 1136), long-term age segregation and role restriction (Hawley, 2011), delayed age of marriage, contraceptive security, and international Millennium Goals promoting human rights of equality, information and safety (see International Planned Parenthood Federation (IPPF), 2011). These factors join long-standing but newly-heightened threats posed by revealed child sexual abuse (McClellan, 2014), gender-based exploitation/violence (Berelowitz, Clifton, Firimin, Gulyurtlu, & Edwards, 2013), early/forced marriage (Le Strat, Dubertret, & Le Foll, 2011), premature parturition (Dixon-Mueller, 2009), ubiquitous access/exposure to hardcore pornography (Horvath et al., 2013), and increased STI incidence (genital herpes and Chlamydia to HIV-related diseases and AIDS) (Miedema, Maxwell, & Aggleton, 2011).

In many societies, information about puberty, sexuality, and reproductive health and safety for children and young adolescents is regarded as inappropriate or morally deviant, and is stifled accordingly (Allen, 2008; Sidibe, 2009; WHO, 2010). Organised religions, and social ideologies such as patriarchalism (Munoz, 2010) and culturalism (Goldman & Collier-Harris, 2012), have always used sexuality, and information about it, as means of social control and hierarchical order (see also Lottes, 2013). However, a plenitude of global meta-surveys and longitudinal studies on adolescent sexual development, behaviour and risk (Baams et al., 2015; Buhi & Goodson, 2007; de Graaf, Vanwesenbeeck, Woertman, & Meeus, 2011; Paul-Ebhohimhen, Poobalan, & van
Teijlingen, 2008; Wellings et al., 2006; Zimmer-Gembeck & Helfand, 2008) has developed a “critical mass” of research and evidence, reflecting a conceptualisation and assumption of adolescent sexuality as “normative and developmentally expected” (Tolman & McClelland, 2011, p. 242; see also Currie et al., 2012; USDHHS, 2010). Identity, intimacy and status are adolescents’ most common dating goals, with sexual intercourse ranked only fourth (Kelly, Zimmer-Gembeck, & Boislard-Pepin, 2012; see Collins, Welsh, & Furman, 2009; Waylen, Ness, McGovern, Wolke, & Low, 2009). Individual levels of autonomous decision-making and self-efficacy vie with socio-cultural pressures as determinants of first-intercourse timing (Hubley & Arim, 2012; Koo et al., 2011; Pelligrini & Long, 2003; Rissel et al., 2014). Further, “risk” behaviours do not necessarily or always correlate with negative outcomes (Hawley, 2011, p. 312; see Bay-Cheng, 2013; Chapter 2.1.1.4; Fine & McClelland, 2006; Fortenberry, 2013).

1.1.6 School-based puberty education
The impacts of puberty on school-aged children’s wellbeing, health and adjustment are “profound and paradoxical” (Patton & Viner, 2007, p. 1130; see Dorn & Biro, 2011; Mensah et al., 2013; Sawyer et al., 2012). In light of such significant changes for girls and boys, and the crucially shortened time-scale before pubertal gonadarche (Gluckman & Hanson, 2006; Pinyerd & Zipf, 2005), the role of the primary school becomes paramount in educating children to cognitively integrate (noesis) a curriculum of knowledge (episteme), and to participate in learning pedagogies (techne), that are relevant, appropriate and timely for enhanced pubertal adolescent ethico-sexual rationality, as practical wisdom (phronesis) (Birmingham, 2004; Blake, 2002; Gustavsson, 2002; Halstead & Reiss, 2003; Lamb, 2010a).

There is a large body of evidence in the literature on the universal need for timely and effective puberty education for primary and secondary school students (Ayres, Quinn & Stovall, 2009; Bearinger, Sieving, Ferguson, & Sharma, 2007; Berelowitz et al., 2013; Marques & Ressa, 2013; Huck, 2012). The multiple and long-term benefits of such education are well documented (Ashcraft, 2008; Blake, 2008; Dilley, 2009; Halstead & Reiss, 2003), as is its parlous state in Australia (Arnold & Maio-Taddeo, 2008; Goldman, 2010a, 2012; Johnson, Sendall, & McCuaig, 2014; Mitchell et al., 2011). Schools provide structured opportunities for clear, evidential and scientifically accurate, age-specific and relevant knowledge based on values of respect and rights (Halstead & Reiss, 2003; Munoz, 2010; WHO & BZgA, 2010; UNESCO, 2009; UNFPA, 2010). Girls, in particular, gain multiple health benefits and improved lifechances “simply from being in
school” (Temin & Levine, 2009, p. 60: see UNICEF, 2012). Teachers are child professionals with the ability, motivation, skills and opportunities to deliver relevant, effective and sustainable puberty education (Baginsky & Macpherson, 2005; Barr et al., 2014; Formby, 2011; Goldman, 2008; Wight, 2008). Parents and children trust teachers to provide accurate and non-judgemental information for the students’ best interests (WHO & BZgA, 2010). It is now possible to argue for the necessity of comprehensive and integrated puberty education as a school-based citizenship entitlement (Kirby, 2011: Lloyd, 2010; Parker, Wellings, & Lazarus, 2009; Sex Information and Education Council of Canada (SIECCAN), 2009; Sidibe, 2009). Universal curricula, content/learning standards, professional teacher preparation standards, and operationalisation and implementation strategies are being actively addressed (Barr et al., 2014; DeJong, 2012; Sexuality Information and Education Council of the United States (SIECUS), 2004; UNESCO, 2009; WHO & BZgA, 2010).

As previously noted, this thesis uses the term puberty education to denote quality school-based, age-appropriate, continuous, and normalised education about “the feelings, identities, relationships and interactions... norms and inequities” (Schalet et al., 2014, pp. 1596, 1601) surrounding puberty and sexuality development (Tolman & McClelland, 2011). Students’ experiences of these inevitable, and unavoidable, pubertal processes, transitions, affects, and impacts occur throughout all their school years, as should puberty education. The names currently used, particularly sex/sexuality education, often cause concern for some parents and conservative groups (Goldman, 2008; see Chapter 2.1.5).

The best and most highly trusted quality school puberty education curricula in the world are implemented in some Western European countries, notably Sweden and the Netherlands (Centrewall, 2000; Ferguson, Vanwesenbeeck, & Knijn, 2008; Parker et al, 2009; Williams & Davidson, 2004; WHO & BZgA, 2010). Other nations, e.g. Mongolia, Kenya, Brazil, and Thailand, are implementing specific curricula (DeJong, 2012; Kay, Jones & Jantzaraweragul, 2010; Population Council, 2012; Rogow et al., 2013; UNFPA, 2010). How can Australian education meet the high quality benchmarks set by these multi- or trans-disciplinary puberty education curricula? An opportune moment has arrived in Australia with the development and implementation of the very first Australian Curriculum (ACARA, 2012c, 2014, 2015), giving the nation the ideal opportunity to validate and implement quality, timely and sustained puberty education. How does the new national curriculum evidence its alignment with such world’s best practice?

The literature shows that puberty education will lack legitimacy, and hence curriculum allocation, funding, and teacher training, until it is included in an assessment
matrix and tied to national education standards (Alldred, David, & Smith, 2003; Blake, 2008; Chan, Hay & Tinning, 2011; Goldman, 2010a; Smith et al., 2011). Both UNESCO (2009) and WHO and BZgA (2010) recognise that sexuality education needs to be implemented and supported by national health and educational laws, and by inclusive institutional policies, in order to demonstrate unity of purpose, sustain participation, and bring about effective health outcomes (see also Australian Senate, 2008; Council of Australian Governments (CoAG), 2009; DeJong, 2012; UNICEF, 2011).

Traditionally, in the eight distinct Australian State and Territory education jurisdictions, the Learning Area (LA) curriculum of Health and Physical Education (HPE) has been the default, and only, site for puberty education (Goldman, 2010a), e.g. in Queensland (Health and Physical Education Curriculum Team (HPECT), 2008) and Victoria (Department of Education and Early Childhood Development (DEECD), 2010). However, this curriculum quarantine is no longer sufficient, relevant or effective for students’ educational needs and entitlements, including health and wellbeing, personal, social, and technological competencies, and equitable lifechances (see Allen, 2004, 2008; Epstein & Ward, 2008; Giami et al., 2006; Kehily, 2002; Wills, Appleton, Magnusson & Brooks, 2008). As well as earlier onset of puberty, students must now contend with the ubiquitous use and sexualisation of social media including sexting, cyberbullying, erotica, and easily-accessed pornography (Horvath et al., 2013; Strasburger, Jordan, & Donnerstein, 2010; Zhang, 2010), and the widespread discourse of child protection including child sexual abuse and STIs (see McGaurr, 2014; Mitchell, Patrick, Heywood, Blackman, & Pitts, 2014). Federal and state government funding available to external professional providers of puberty education, who for decades have been the mainstay of school-based sexuality information (Mitchell et al., 2011), is being curtailed in line with austerity budget measures and conservative responses to “socio-scientific controversies” (Stewart, 2009, cited in Carrion & Jensen, 2014, p. 624; see Chapter 2.1.5; Lottes, 2013).

The first-ever national survey of Australian secondary school sexuality education (Smith et al., 2011) shows as little as one hour per year is taught, if at all, and disappointingly, this is typically implemented only in Years 9-10 when students are aged 15-16. Further, it is usually delivered by younger, female, Health and Physical Education (HPE) teachers, although pre-service University physical education/sport courses are completed equally by male and female teachers. The majority of surveyed secondary school teachers report that sexuality education is not included in their schools’ curriculum, they face negative time constraints and possible adverse community reactions, and they believe students should be taught names and functions of body parts, relationships and
feelings, and reproduction while still attending primary school (2011, emphasis added). There has been no such national survey of sexuality education delivery in Australian primary schools (Smith et al., 2011; see Goldman, 2010a; Johnson, Sendall et al., 2014), where such teaching can, even now, “create moral panic” (Mitchell et al., 2011, p. 4). In England, a nationally representative mapping survey of Personal, Social, Health and Economic education (PSHE) in state primary schools found that teacher avoidance led to school nurses and external providers being mainly responsible for delivering one of its elements, Sex and Relationship Education (SRE), “once a year or less” (Formby, 2011, p. 165) in the majority of schools. Despite its extremely low profile, SRE draws “the most animated and supportive comments from [primary school] pupils” (2011, p. 167), who particularly report wanting to learn about puberty and the changes that are happening to them. School-age children and adolescents in Australia show the same high level of support for puberty education (Goldman, 2011a; Goldman & McCutchen, 2012; McGaurr, 2014; McKee, Watson, & Dore, 2014).

Both the Swedish and Dutch curricula, designed, constructed and implemented decades ago, and made compulsory for all primary and secondary school students, have successfully normalised and integrated puberty education into most school LAs (see Goldman & Goldman, 1985a, 1985b; Sherlock, 2012; Weaver, Smith & Kippax, 2005). Somewhat similar curricula and/or criteria apply in Denmark, the Czech Republic, Finland, France, Germany and Norway (Parker et al., 2009; see also Munoz, 2010). While the vertical integration throughout compulsory school levels is vital for pubertal children/adolescents to achieve relevant and effective outcomes, its horizontal, and transdisciplinary (Graham & Smith, 2007) integration is seen as the ideal mode of delivery (Smith, Lynch, & Knight, 2007; UNFPA, 2010, WHO & BZgA, 2010).

A common goal of education “is for children to learn how to learn” (Robson, 2012, p. 23). Learning appears to be more meaningful and best remembered when students’ questions are answered in “teachable moments” (Wagner, 2011, p. 193), that is, while students are engaged and focused on the particular topic, or interacting through personally relevant (Ivinson, 2007) and contextualised pedagogies (Goldman, 2010b, 2011b; Tunnicliffe & Reiss, 1999). As a primary school student says about interactive delivery, “Every lesson should be fun and then you’d learn more” (Formby, 2011, p. 172). Information delivered in isolation, or didactically as a lecture, or as a “regulative discourse” (Ivinson, 2007, p. 214) privileging control rather than education of students, may rather be seen negatively as distant and unrelated to the learner’s participation. This powerful evidence of horizontal and vertical integration is supported, justified and then
recommended to all nations by UNESCO in its *International Technical Guidance* (2009).

As it argues,

[S]exuality education is the responsibility of the whole school via not only teaching but also school rules, in-school practices, the curriculum, and teaching and learning materials… [It is] an essential part of a good curriculum (2009, p. 3).

Similarly, in the *Standards for Sexuality Education in Europe* (WHO & BZgA, 2010), mandatory, multi-disciplinary and integrated curricula are recommended for “holistic coverage” (2010, p. 14). In providing quality school-based puberty education, the same principles and processes of critical analysis, evidential learning, and creative application that are used within science, technology, engineering, mathematics (STEM) and health subjects, for example, about earlier puberty, can, and should, be used for social, relationship and ethical issues, for example, sexual consent, within studies of the humanities, arts and social sciences (HASS) (see Giami et al., 2006; Horvath et al., 2013; Lamb, 2010a; Lemish, 2011; Reiss, 2008). School curriculum integration through transdisciplinarity is ideal to this purpose (Graham & Smith, 2007; see Chapter 2.2.6).

No literature has been found on the presence and potential of a comprehensive puberty education for all Australian state/territory curricula, nor yet for all school year levels. In response to this lacuna, it is deemed necessary (see Section 1.2, in this Chapter) to examine the new standardised curriculum for both quantitative and qualitative evidence of relevant puberty education presence, and its integrative potential (Anderson and Krathwohl, 2001). If such integrated potential is shown to be sustainable, puberty education may, then, claim and justify its logical, legitimate and equitable place in the Australian Curriculum, theoretically and in practice/praxis, for girls and boys at all school year levels. As Gluckman and Hanson argue, “The challenge is for society to adjust its structures to this [earlier] biology; adjusting the biology to society is impracticable, unethical and potentially dangerous” (2006, p. 11).

1.1.7 Australian school curricula

Australian school education is currently in the process of being configured to implement the first nation-wide Australian Curriculum in all LAs, to replace the numerous and diverse State and Territory curricula. The independent statutory authority commissioned by all state/territory and federal education ministers and successive Commonwealth governments to undertake this task is ACARA, the Australian Curriculum, Assessment and Reporting Authority (see Chapter 2.2.8). The content of this first complete Australian Curriculum (ACARA, 2015, v7.3, January) was contributed by about 20,000 consultative
submissions, and developed by multi-sectorial and professional panels. The approved teaching content, detailed in Content descriptions, is complemented by common achievement standards and a nation-wide student progress assessment, the National Assessment Program Literacy and Numeracy (NAPLAN) tests (ACARA, 2012c). Data collection and reporting programs for parents, educators and governments are operational, for example, in the Myschool website. Thus, ACARA’s role includes educational development, analysis, evaluation, research and accountability. Further, in 2015, children’s age/school year level cohorts, and the Year 7 move from primary to secondary schools (except in South Australia and Western Australia), were synchronised across the nation (see Chapter 2.2.1).

This new Australian Curriculum, focussing on equity and excellence, is being implemented and embedded sequentially, and differentially, by state/territory and by year (ACARA, 2014). It encompasses the LAs of English; Mathematics; Science; Humanities and Social Science, comprising the separate LAs of History, Geography, Civics and Citizenship, and Economics and Business; The Arts (comprising Dance, Drama, Media Arts, Music, and Visual Arts); Health and Physical Education (HPE); Technologies (comprising Design and Technologies, and Digital Technologies); Languages; and Work Studies (ACARA, 2015, v7.3). Further, the learning content of all LAs incorporate, where relevant, seven General capabilities, namely Literacy, Numeracy, Information and communication technology (ICT) capability, Critical and creative thinking, Personal and social capability, Ethical understanding, and Intercultural understanding; and three Cross-curriculum priorities, namely Aboriginal and Torres Strait Islander histories and cultures, Asia and Australia’s engagement with Asia, and Sustainability (ACARA, 2013b, 2015).

Most of these LAs cover every compulsory school level, from Year 1 for children usually aged 5 at year start, to Year 10 for adolescents generally aged 16 at year end (see Chapter 3.4). Some LAs are taught in a variety of Year levels, and circumstances: for example, not all of The Arts’ five subjects are taught to all students for the whole period, while Civics and Citizenship are studied in Years 3-10 (ACARA, 2012c). The LA of Economics and Business applies to Years 5-10, although it is an optional subject for the school Years 9-10. Ten ‘parent’ LAs are sampled for this research, excluding the Languages LA, compulsory only for Years 6-8, and the Work Studies LA, offered to some students in Years 9-10 who do not intend to pursue tertiary education (2012c).

In 2015, in Queensland, for example, schools offered the first five Australian Curriculum LAs of English, Mathematics, Science, History and Geography, while the other LAs followed existing Queensland Curriculum and Assessment Authority (QCAA)

1.1.8 The first Australian Curriculum and puberty education

The introduction of a new and standardised curriculum, in any jurisdiction, is a rare educational development and opportunity. It offers hope for a newly conceptualised, contemporary content update, addressing the rapidly changing social and technological contexts and earlier pubertal maturation of girls and boys. As Groundwater-Smith, Ewing, and Le Cornu (2011) note,

Policy documents at national, state and territory levels regularly introduce new expectations about content, anticipated outcomes at various stages of schooling and mandated frameworks for recording what has been planned and implemented (2011, p. 188, emphasis added).

In 2008, the Australian Senate, Parliament’s upper house of legislative review, recommended that all state and territory governments implement comprehensive and consistent sexuality education for all school students (2008, p. 10). Currently, each educational jurisdiction in Australia mandates some level of puberty education at some stage of students’ lives, but its form, content, timing, and the quality of classroom delivery is generally incoherent, inconsistent and inadequate (Goldman, 2010a; Hillier & Mitchell, 2008; Health and Physical Education Curriculum Team (HPECT), 2007; Johnson, Sendall et al., 2014; Mitchell et al., 2011). Such education is often focused on “the mechanics of reproduction ... and health-related risks” (Robinson, 2012, p. 267). In Australia, and globally, such fragmentary offerings are often dismissively labelled as “puberty programs” but are rarely connected to teaching at other year levels, the rest of the health curriculum, education authority oversight, or standardised resourcing (Ollis, Harrison & Richardson, 2012, p. 16; see DeJong, 2012; McGaurr, 2014).

Due to the intensity and dominance of the pubertal processes of reproductive maturation at gonadarche, and the concomitant complex interactions of sexual identity and hormonal adjustments in girls and boys (Eisenberg, Bernat, Bearinger, & Resnick, 2008; Glasier, Gulmezoglu, Schmid, Marenø, & Van Look, 2006), the primary school years present the ideal opportunity to address and integrate puberty education into nearly all LAs (Goldman, 2010b, 2011b; Goldman & Collier-Harris, 2009; Kirby, 2011; Rowley & Cooper, 2009). This knowledge can no longer be isolated in disciplinary silos (Smith et al., 2007). However, as Allen (2007), Ivinson (2007) and Kehily (2002) argue, teachers, schools and societies must first address the question of whether school discourses,
content structures and pedagogical delivery are primarily used to educate students, or control them (see also Spencer, Maxwell, & Aggleton, 2008).

Sex education often aims to limit and curtail young people’s sexual thoughts, practices and desires rather than expand their imaginative repertoires. Yet, the term ‘sex’ has its own subversive potential. It is an unruly topic because it invokes the body… The topic ‘sex’ represents the ever-present ‘irrational’ that teachers fear can erupt into disorder and chaos (Ivinson, 2007, p. 202).

The operationalisation of this new Australian Curriculum provides a unique, and ideal, opportunity for comprehensive integrated puberty education to be implemented throughout nearly all of these LAs, and in every school year, for every child and adolescent in Australia.

The overt physicality and psychology of puberty, particularly during gonadarche, and the learning need for cognitive skills and knowledge content about puberty, logically and necessarily permeates the teaching of most LAs. For example, puberty may be addressed through essential vocabulary and conceptual articulation in English, e.g. vagina, penis (see Goldman, 1990; Kenny & Wurtele, 2008); number concepts in Mathematics, e.g. 28-day monthly cycle, demographics, game theory (see Bragg, 2007; Wagner, 2011); biological knowledge and process in Science, e.g. contraceptive methods, the Pill, vasectomy (see Johnstone & Cant, 2010; Kaplan & Robson, 2009; Reiss, 2008); historical-political impacts in History, e.g. fertility and later marriage (see Dixon-Mueller, 2008) convict Female Factories in early Australia; and socio-geographical environments in Geography, e.g. poverty, low status of females, high fecundity (see Bearinger et al., 2007). In Civics and Citizenship, puberty may be addressed through the grounds for ethics, patriarchy (see Lamb, 2010b), intimacy (Kelly et al., 2012) and desire (see Fortenberry, 2013); and in Economics and Business, the cost-benefit ratios of deferred parenting including the financial cost of child-raising, and the marketing of sexuality/sex.

Similarly, puberty education content for students will naturally arise through information and communication innovations and influences in Technologies, e.g. search engines, personalised sexual health enquiries, sexting, and pornography (see Goldman & McCutchen, 2012; Goldman & Torrisi-Steele, 2005; Zhang, 2009). Self-expression through The Arts (see Sinclair, Jeanneret, & O’Toole, 2012) includes dance and movement; drama, e.g. role-playing, scenarios; music, e.g. pop, hip-hop; visual arts, erotica, life drawing; and media arts, e.g. advertising, publicity. However, while learning a language other than one’s own will likely entail gendered grammar and puberty vocabulary, the Languages LA is outside the scope of this research. This is because of the diversity and multiplicity of languages studied in Australian schools, the manifest
difficulties of translation, and the relatively small number of students studying any particular language at variable schools/year levels. Similarly, the Work Studies LA, designed for students aged about 14-16 in Years 9-10, who are pursuing vocational education or training for work readiness, will not be examined in this study, because of its non-compulsory nature and its limitation of delivery to relatively few students.

1.1.9 The significance of education for puberty

Children and adolescents cannot control the timing, tempo, nor duration of their biological changes. While experiencing the first stage of adrenarche, the more acute second stage of gonadarche, and then the continuing maturation processes, they remain pubertal during every school or non-school day and in every class. Adverse or traumatic early life events can cause significant and/or permanent physiological, and behavioural, changes during the heightened and “continuous gene-environment dialogue” of puberty (Patchev et al., 2014, p. 46; see Boynton-Jarrett et al., 2013; Hunter, 2014; Mensah et al., 2013; Mills et al., 2011). However, pubertal processes and transitions can be anticipated and managed, through quality education and support. Just as learning and communication technologies are fully integrated requisites for every LA (ACARA, 2013b, 2014), so should be these crucial identity, puberty, relationship, sexuality, and health education requisites (Berelowitz et al., 2013; Biddulph, 2007; Giami et al., 2006; Lamb, 2010a; Robinson, 2012). After all, the development of “personal/emotional and social/relational dispositions, intelligences, sensibilities and learning... [as] effective life skills” is necessary in all LAs (ACARA, 2013b, p. 82) and at every stage of schooling. Personal and social capability, often delivered as Social and Emotional Learning (SEL) programs (Durlak et al., 2011), is mandated as one of the seven integrated General capabilities in the new Australian Curriculum. Here, alone, it may not be sufficient.

Ideally, age-appropriate puberty education should be delivered at every year/year level in a cumulative spiral or vertical integration (Goldman, 2008; Smith & Lovat, 2006; UNESCO, 2009; UNFPA, 2010; WHO & BZgA, 2010). Through relatively minor reorientations or revisions in knowledge, curricula, and pedagogies, such puberty education would be normalised in a multi/trans-disciplinary or horizontal integration (Centrewall, 2000; Chapter 2.2.2; Graham & Smith, 2007; Hardman, 2009; Harris & Marsh, 2007). The UN Special Rapporteur on the right to education, Vernor Munoz, notes that the best-practice and world-wide trend in provision of “comprehensive sexual education... [is through] cross-cutting content... from the primary school level” (2010, p. 19), and accordingly, makes this recommendation. Sweden has done this for generations,
and reaps social and economic rewards including low rates of child sexual abuse, STIs, unplanned pregnancies and child marriage (see Ferguson et al., 2008; Parker et al., 2009; Sherlock, 2012; Williams & Davidson, 2004).

To this end, well-respected global organisations have developed evidence-based standards, and curricula, for the provision of puberty education, usually but not exclusively implemented in schools, as part of a life-course framework (Lancet, 2012, p. 1561; see also Goldman, 2012; Huck, 2012). These global organisations include the Future of Sex Education (FoSEI, 2012), the Population Council (Haberland & Rogow, 2011), the Sexuality Information and Education Council of the United States (SIECUS, 2004), the United Nations Economic, Scientific and Cultural Organisation (UNESCO, 2009), and the World Health Organisation Regional Office for Europe with Germany’s Federal Centre for Health Education (WHO & BZgA, 2010).

This thesis research is significant because it addresses the is/ought dichotomy of timely puberty education in compulsory schooling in Australia, and by extension, around the world (see Farrelly, O’Brien, & Prain, 2007; Jones, 2011; Lamb, 2010b; WHO, 2012; Winckle, 2008). Children and young adolescents need the knowledge and skills associated with effective puberty education to be delivered before they reach the experience of gonadal puberty with its reproductive maturity, so they are better able to understand what is happening, exercise agency, and make decisions for their future (see Constantine, 2008; Dixon & Nussbaum, 2012; Lenroot & Giedd, 2010; Mueller, Gavin, & Kulkarni, 2008; Schaalma, Abraham, Gillmore, & Kok, 2004). As UNESCO confirms, [A]ll young people need sexuality education… School settings provide an important opportunity to reach large numbers of young people with sexuality education before they become sexually active… [so that] children and young people become equipped with the knowledge, skills and values to make responsible choices about their sexual and social relationships in a world affected by HIV (2009, pp. 2-3, emphasis added; see also DeJong, 2012).

Students’ early acquisition of knowledge and skills also enhances their self-protection against exploitation and sexual abuse (Center for Reproductive Rights, 2008; Finkelhor, 2009; Goldman, 2008; Reading et al., 2009; see Trickett, Noll, & Putnam, 2011). Further, the curricular integration of puberty education in such a “holistic… life-course framework” (Lancet, 2012, p. 1561; see Blum, Bastos, Kabiru, & Le, 2012) would elevate the education, health and protective safety of Australian children and adolescents to that of world’s best practice, satisfying global trends and actions for enhanced human wellbeing, development and rights (see Hawley, 2011; Levesque, 2008; Miedema, Maxwell, & Aggleton, 2015; UNICEF, 2012; WHO & BZgA, 2010). This life-course
approach was recognised and asserted, in 2012, at the 45th session of the United Nations’ member states, through the Commission on Population Development’s (UNCPD) ground-breaking Resolution on Adolescents and youth. There, governments were called on to provide all young people with “evidence-based comprehensive education on human sexuality, on sexual and reproductive health, human rights and gender equality” (UNCPD, 2012, p. 3; see also Osotimehin, 2012; Munoz, 2010).

1.2 The Research Aim
Based on the significance of education for puberty, the aim of this thesis is, by using quantitative and qualitative analytical audits of documents including teaching and learning Content descriptions in ten Learning Areas of the new Australian Curriculum, to identify the presence of puberty education knowledge and cognition content and the potential sites of age-appropriate integrated puberty education, consistent with the literature, international guidelines and educational praxis, and sociological challenges. Analysis of all evidence of such presence and potential may lead to recommendations for overall curriculum improvement in puberty education. If consistently implemented and professionally delivered, these may, in turn, enhance students’ individual ethical rationality (phronesis) about puberty and sexuality (see Birmingham, 2004; Dixon-Mueller, Germain, Fredrick, & Bourne, 2009; Ivinson, 2010; Lamb, 2010a).

1.3 The Research Questions
1.3.1 One broad research question
In light of the contemporary contextual physiological, sociological, educational and technological changes outlined above, the broad research question posed in this thesis is, “What evidence is found, in ten of the Australian Curriculum Learning Areas (LAs) from Foundation to Year 10, for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years?” This broad research question, encompassing the is/ought dichotomy, relates to documentary evidence including teaching and learning Content descriptions for selected compulsory year levels in the ten LAs (see Sections 1.1.7, 1.1.8; Chapter 5.5).

1.3.2 Ten specific research questions
In operationalising this broad research question, ten specific research questions are generated for exploration in this thesis, namely,
~ What evidence is found, in the new Australian Curriculum LA of English, for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years?
~ What evidence is found, in the new Australian Curriculum LA of Mathematics, for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years?
~ What evidence is found, in the new Australian Curriculum LA of Science, for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years?
~ What evidence is found, in the new Australian Curriculum LA of History, for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years?
~ What evidence is found, in the new Australian Curriculum LA of Geography, for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years?
~ What evidence is found, in the new Australian Curriculum LA of Civics and Citizenship, for the presence of puberty education, and its potential for integration, for girls and boys aged 8-16 years?
~ What evidence is found, in the new Australian Curriculum LA of Economics and Business, for the presence of puberty education, and its potential for integration, for girls and boys aged 10-16 years?
~ What evidence is found, in the new Australian Curriculum LA of The Arts (comprising Dance, Drama, Media Arts, Music, Visual Arts), for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years?
~ What evidence is found, in the new Australian Curriculum LA of Health and Physical Education (HPE), for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years?
~ What evidence is found, in the new Australian Curriculum LA of Technologies (comprising Design and Technologies, Digital Technologies), for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years?

When the five distinct subject LAs within The Arts LA, namely Dance, Drama, Media Arts, Music, and Visual Arts, and the two within the Technologies LA, namely Design and Technologies, and Digital Technologies, are taken into account, there is now a total of 15 subject LAs that will be audited in this thesis.
1.4 The Research Hypotheses

1.4.1 One broad research hypothesis

The one broad hypothesis of this research is that in the sampled Australian Curriculum LAs, little quantitative and qualitative evidence of the presence of puberty education will be found, with none at all in some LAs, but many potential sites for integrated puberty education will be found, even in some LAs not usually considered for it.

1.4.2 Ten specific research hypotheses

The ten specific hypotheses of this research are that,

~ in the new Australian Curriculum LA of English, little quantitative and qualitative evidence will be found for the presence of puberty education, but many potential sites for integrated puberty education will be found, for girls and boys aged 5-16 years.

~ in the new Australian Curriculum LA of Mathematics, little quantitative and qualitative evidence will be found for the presence of puberty education, but many potential sites for integrated puberty education will be found, for girls and boys aged 5-16 years.

~ in the new Australian Curriculum LA of Science, little quantitative and qualitative evidence will be found for the presence of puberty education, but many potential sites for integrated puberty education will be found, for girls and boys aged 5-16 years.

~ in the new Australian Curriculum LA of History, little quantitative and qualitative evidence will be found for the presence of puberty education, but many potential sites for integrated puberty education will be found, for girls and boys aged 5-16 years.

~ in the new Australian Curriculum LA of Geography, little quantitative and qualitative evidence will be found for the presence of puberty education, but many potential sites for integrated puberty education will be found, for girls and boys aged 5-16 years.

~ in the new Australian Curriculum LA of Civics and Citizenship, little quantitative and qualitative evidence will be found for the presence of puberty education, but many potential sites for integrated puberty education will be found, for girls and boys aged 8-16 years.

~ in the new Australian Curriculum LA of Economics and Business, little quantitative and qualitative evidence will be found for the presence of puberty education, but many potential sites for integrated puberty education will be found, for girls and boys aged 10-16 years.

~ in the new Australian Curriculum LA of The Arts (comprising Dance, Drama, Media Arts, Music, Visual Arts), little quantitative and qualitative evidence will be found for the
presence of puberty education, but many potential sites for integrated puberty education will be found, for girls and boys aged 5-16 years.

~ in the new Australian Curriculum LA of Health and Physical Education (HPE), some quantitative and qualitative evidence will be found for the presence of puberty education, but many potential sites for integrated puberty education will be found, for girls and boys aged 5-16 years.

~ in the new Australian Curriculum LA of Technologies (comprising Design and Technologies, Digital Technologies), little quantitative and qualitative evidence will be found for the presence of puberty education, but many potential sites for integrated puberty education will be found, for girls and boys aged 5-16 years.

1.5 The Research Rationale, Justification and Validity

1.5.1 Rationale

Why should puberty education integrate with the new Australian Curriculum? Children are more likely, than in previous generations, to have an earlier, or precocious, onset and experience of puberty. Children and adolescents are more likely, through technologies, to be exposed to sexual activities, abuse, or violence. They are recognised, in many countries, as persons deserving respect, consideration, and opportunities to discover and express themselves subjectively, rather than as objectively unrepresented family subordinates (Dixon & Nussbaum, 2012; Gresle-Favier, 2013; see Hawley, 2011; Porter, 2013). Adolescents are actively engaged in the world and their voices are increasingly being heard (Sawyer et al., 2012) in civil, technological, and mass social situations, including demands that their human rights to sexuality education and health be fulfilled, e.g. in India (DeJong, 2012). The socially transformative power of education is acknowledged in the mass kidnappings, forced conversion, enslavement, or murder of schoolgirls in Nigeria by the Islamist group Boko Haram, literally, “Western education is sinful” (Australian Broadcasting Corporation (ABC) News, 2014a). Malala Yousafzai, the Pakistani schoolgirl and female-education advocate who, in 2012 at age 15, survived an assassination attempt on her school bus, was awarded the 2014 Nobel Peace Prize. Children and adolescents of today are the adults and politicians of tomorrow, and also the generation most impacted by contemporary policy procrastination and obfuscation regarding puberty education, and inequity/inequality of health provision.

Access to education is held as probably the most effective social intervention for improving adolescent health worldwide, with opportunities for employment rated second, and reductions in the risk of transport-related injury rated third (Viner et al., 2012).
Children and adolescents have the ethical and legal right (Center for Reproductive Rights, 2008; Dixon & Nussbaum, 2012; Levesque, 2008), and increasingly urgently, the need and the desire, for well-founded and comprehensive school-based puberty education (Allen, 2008). Contemporary students, who face quantitatively and qualitatively distinctive cognitive, emotional and behavioural demands (Worthman & Kuzara, 2005) during puberty than did previous generations, want educational discourse about relationships, values, and feelings, rather than scare campaigns (Formby, 2011). Teachers, rather, may be concerned about parents’ reactions, and so avoid unassessable and possibly contentious topics (see Goldman, 2011a; Ivinson, 2007; Preston, 2013).

This nation-wide Australian Curriculum, the first in Australia’s history, presents a unique opportunity to apply international research findings about puberty, and quality standards for its education and student agency, through evidential, relevant and effective school-based knowledge and cognition frameworks. In light of the “fundamental… curriculum question, “What is worth learning?” (Anderson & Krathwohl, 2001, p. 236), this thesis is based on the principle that puberty education (the ‘what’), is well worth learning by all students (the ‘who’), at every year level (the ‘when’), and in every school LA curricula (the ‘where’). Thus, the phenomenon of earlier puberty, and its preparatory questions ‘why is puberty education absent (or present) in curricula?’ and ‘so what of it?’ that is, the need for it and potential for integration, are also addressed, along with the embedded theoretical framework appropriate for answering such questions. Pedagogies (the ‘how’) are not addressed in this extensive research due to thesis word limitations.

These socio-educational milieux, then, provide the ideal time and opportunity to normalise multi/trans-disciplinary and integrated puberty education to benefit all Australian girls and boys, as recommended by such authoritative global organisations (IPPF, 2011; Munoz, 2010; WHO & BZgA, 2010), the Australian Senate (2008), teachers (Carman, Mitchell, Schlichthorst, & Smith, 2011; Goldman & Grimbeek, 2015; Smith et al., 2011), parents (Brennan, 2006; Goldman & Bradley, 2004; Macbeth, Weerakoon, & Gomathi, 2008), and adolescents (Giordano & Ross, 2012; Goldman & McCutchen, 2012). Further, applying the concept of transdisciplinary integration (Graham & Smith, 2007; Parker, Heywood, & Jolley, 2012) to puberty education in schools (see Chapter 2.2.6) may promote students’ development of a more innovative, interconnected, and transformative knowledge about themselves and their world.
1.5.2 **Justification**

How should puberty education integrate with the new Australian Curriculum? Rather than suggesting that puberty education be intensified but still continued within its traditional LA of Health and Physical Education (HPE), or perhaps added to the Science LA, this thesis argues that the reverse position should be adopted; that is, the Australian Curriculum should fit into the new international paradigm and technological environment of a child/adolescent “life-course framework” (*Lancet*, 2012, p. 1561), with knowledge content and cognitive competencies integrated at every year level, and in most LAs.

This alignment may help to locate, legitimate and normalise puberty education in schools, whether delivered by internal classroom teachers, external professionals such as family/reproductive health organisations, or through new digital learning platforms (Carrington & Robinson, 2011; Goldman & Torrissi-Steele, 2005; Graham & Smith, 2007; Johnson, Adams, Cummins, & Estrada, 2014; Levine, 2011). Further, it may assist curriculum designers to justify the Australian Curriculum’s conformity and/or concurrence with the intent, content, and aims of the Melbourne Declaration (Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA), 2008) that conceived the Australian Curriculum, Assessment and Reporting Authority (see Chapter 2). In a similar way, the Future of Sex Education Initiative (FoSEI) has aligned its *National Sex Education Standards* (2012) with the USA’s National Health Education Standards for all schools and students, and has developed teacher-preparation professional standards for sexuality and health education (Barr et al., 2014, Appendix K).

Further, the integration of puberty education into every compulsory year level, and in every LA, would obviate the time-constraints involved in single-subject teaching. The structural realities of school-based learning and teaching mean that one hour per week of puberty education, delivered as a single subject, would use half of the notional 80 hours per year (ACARA, 2012b, p. 11) allocated to the whole LA of Health and Physical Education (HPE) for each of the compulsory Years 1-10 (see also Ivinson, 2007; Formby, 2011). This is impractical, and unnecessary, particularly given that the new Australian Curriculum already mandates seven General Capabilities and three Cross-Curriculum Priorities for use across all LAs, wherever possible (ACARA, 2013b).

1.5.3 **Validity**

The validity of this research focus, namely puberty education in the new Australian Curriculum, rests on ethical, equitable and existing human rights principles; philosophical tenets of knowledge, thinking, learning and being; statutes of compulsory free education
for all children and young adolescents; internationally consensual decisions on child and adolescent futures such as the Millennium (and soon, Sustainable) Development Goals; globally applicable puberty education frameworks and programs; and the considerable and significant body of literature calling for puberty education. This research is also supported by the developmentalist approach (see Chapter 2.1.4), seen as a “bridge” (Gluckman et al., 2007, p. 16) between the bio-physiological contexts of earlier puberty (Kaplan & Gangestad, 2005; NSCDC, 2010) and the sociological contexts of fertility, reproduction and parenting (Ellis et al., 2012; Fortenberry, 2013; Hawley, 2011; Robinson, 2012; Worthman & Kuzara, 2005). Understanding such developmental components of early puberty and the widening gap of extended adolescence further validates the case for school-entry level educational intervention.

In another, but crucially related research area, that of pedagogical assessment, Goldman and Bradley (2011) illustrate how Anderson and Krathwohl’s (2001) two-dimensional theoretical framework makes visible and valid the thinking, directing and learning of information/content regarding child/youth sexual abuse and its mandatory reporting, for student-teachers and hence for their future students in classrooms (see also Marsh, 2010). The pedagogic reforms, appropriate assessments, higher cognition and deeper learning outcomes that may be achieved through applying this theoretical framework constitute some of the most often cited valid objectives in higher education (see Hogan, 2007). Thus, Anderson and Krathwohl’s (2001) theoretical and evaluative framework is used for these quantitative and qualitative content research audits.

1.6 Chapter Summary
This chapter has provided an introduction to the thesis. It included an examination of the research Gestalt, that is, the pattern and form of the research structure, and also the context and focus, its aim, the broad and specific research questions and hypotheses; and the research rationale, justification and validity. Next, Chapter 2 Background provides an exploration of the changed impetus behind this research. It presents conceptualisations and definitions that will be used throughout the thesis, the changes in social connections and relationships impacting the adolescent Weltanschauungen or world-view, and the educational Zeitgeist or spirit of the age.
Chapter 2: Background

This chapter presents the background of the research. It provides an exploration of some contexts, conceptualisations, and definitions found in this sociological and educational Weltanschauungen or world-view. Section 2.1 presents key sociological background, including some issues and perspectives particularly relevant to pubertal children and adolescents. Section 2.2 presents key educational background, including some structural and operational considerations, and the impetus for change evident in the educational Zeitgeist, or spirit of the age. Section 2.3 provides a chapter summary, and forecasts Chapter 3 Literature Review.

2.1 Key Sociological Background

Puberty is a “universal transition... with a startling array of new [and individual] challenges” (Mendle et al., 2010, pp. 1342-1350), generally occurring between the ages 8-28 (Catelano et al., 2012; Dodge & Albert, 2012). For this whole period, but most obviously during gonadal puberty (see Chapter 1.1.4), epigenetic factors such as hormonal changes, environmental impacts, and individual experiences combine to adaptively re-program each child/adolescent’s genetic inheritance of somatic (cellular), neural (cognitive), metabolic (energy exchange) and behavioural functionality, with dynamic and sometimes permanent, even transgenerational, effects (see Blakemore, Burnett & Dahl, 2010; Mundy et al., 2013; Sawyer et al., 2012; Simmons et al., 2014; Sisk & Berenbaum, 2013). However, the average timing and tempo of gonadal puberty has advanced, and the mismatch between the timing of reproductive maturity and psychosocial maturity has extended, to the extent that it “constitutes a fundamental issue for modern society” (Gluckman & Hanson, 2006, p. 11; see also Biro et al., 2010; Ellis, 2004; McGaurr, 2014; Tolman & McClelland, 2011). Exploiting this critical “window of interventional opportunity” (Patchev et al., 2014, p. 3) for “predictive, preventive, personalised, and participatory” (Wang et al., 2013, p. 18) education and health outcomes for children and adolescents would seem to be a prudent and positive course of action. It would also enhance global wellbeing, health, education, socioeconomic attainment, and “the mental wealth of nations” (Beddington, 2008, cited in Patchev et al., 2014, p. 49).

Effective education is essential for the preparation and participation of children and adolescents in the social norms and public health of their country (United Nations Population Fund (UNFPA), 2010, 2014), particularly later as responsible sexual citizens. Such education is increasingly seen as a national/global investment (see Crespo Cuaresma et al., 2013; Temin & Levine, 2009: WHO & BZgA, 2010) in the healthy
development of the “largest generation ever” of adolescents (Kirby, 2011, p. 12; see also Belsky, 2013). However, social benefit, ethical rationality, and philosophical argument for fulsome puberty education has rarely been sufficient to overcome the strictures of patriarchalism, “imposing the superiority of men over women” (Munoz, 2010, p. 5); culturalism, privileging “customary/traditional practices over individuals’ health or lives” (Goldman & Collier-Harris, 2012, p. 460); and religious righteousness, authorising humans to subdue the earth and dominate every living thing (Genesis, 1:28). It remains to be seen if economic competition, cost-efficiency ratios, and globalised technological operationalism can bring about the improved educational and public health outcomes that international human rights organisations advocate (see Chapter 1.1.5).

Universal human rights and principles of equality, equity, and justice call for adolescents, who are expected to participate in society as students, workers, consumers, and taxpayers, to be adequately prepared for the “pivotal milestone” (FoSEI, 2012, p. 10) of puberty. For example, in Australia, in 1973, the voting age was lowered from 21 to 18 because adolescent males were old enough to be conscripted for war and possible death, but were not old enough to vote or be represented democratically. As “not yet citizens’ (Moosa-Mitha, 2005, cited in Carmody & Ovenden, 2013, p. 792), adolescents need to be able to make some decisions and have a significant degree of authority over their own reproductive futures well before their legal majority (Giordano & Ross, 2012; Robinson, 2012). The same principles call for children and adolescents worldwide to be educated for sexual health, responsibility, and wellbeing (Berglas, Constantine, & Ozer, 2014).

2.1.1 Earlier puberty and sexuality development

2.1.1.1 Childhood.

Children are sexual beings from conception (see Belsky, 2013). Either an X or Y chromosome from the father combines with the mother’s X chromosome to determine the embryo’s sex, so that XX is female, and XY is male. Sexual identity also begins in utero, with chromosomal, gonadal, hormonal and anatomical developments, and continues at birth with gender assignment, although the physical release of gonadal hormones quietens after the first birthday (Dorn & Biro, 2011). Sex and gender categorisation begins early in life (Johnson, Lurye, & Tassinary, 2010; Leaper, 2010), so that by age 9 months babies can distinguish between males and females, and by age 18 months they have gender-related expectations about objects and activities (Siegler, DeLoache & Eisenberg, 2010). Children’s gendered identities are established by age 3, and they continue to actively negotiate their own sexual identities and cultures within their family circumstances, their
space at school, and the “banter, boasting and bullying” of their peer groups (Goldman, 2012, p. 206; see also Blake, 2008; Renold, 2005). Children develop a theory of mind by age 5, allowing recognition and understanding of their own thought processes and evaluative reasoning, including others’ differences (Gopnik & Schulz, 2004; Robson, 2012; Worobey & Worobey, 2014). By age 7, children reach gender constancy and begin to differentiate gender-role norms for behaviour (Siegler et al., 2010).

Puberty is triggered in the brain, at about age 8, with the reactivation of the hypothalamic-pituitary-gonadal (HPG) axis, sequential hormone releases, and the maturation of a feedback system that continues to operate throughout the reproductive years (Dorn & Biro, 2011; Simmons et al., 2014). If education is conceptualised as a universal entitlement (McCowan, 2012; United Nations Convention on the Rights of the Child (UNCRC), 1990; United Nations Millennium Development Goals (UNMDG), 2015) and a lifelong orientation (Gustavsson, 2002), then the earlier onset of puberty through adrenarche and gonadarche means that children of primary school-entry age need to be informed about the normal and expected changes that they will soon encounter.

### 2.1.1.2 Sexuality development.

Prestigious global organisations, nation states and research collaborations have focussed efforts on improving the lives and futures of children and adolescents for more than two decades (Blum & Dick, 2013; DeJong, 2012; Doek, 2009; UNICEF, 2011, 2012; WHO, 2012), with education seen as the spirit (Zeitgeist) and key to achieving such improvements. Regarding the universal expectations and events of puberty, Tolman and McClelland (2011) argue that the term sexuality development better reflects the significantly expanded theoretical and empirical developments, and the more positive, integrated approaches to adolescent physiological and psychological processes, than does the term sexual development. Similarly, UNESCO (2009) define sexuality development as a process with physical, psychological, emotional, social and cultural dimensions. It is inextricably linked to the development of one’s identity and it unfolds within specific socio-economic and cultural contexts. The transmission of cultural values from one generation to the next forms a critical part of socialisation … [New] sources of information and values … often present [children and adolescents] with alternative or even conflicting values about gender, gender equality and sexuality (2009, v. 1, p. 5).

This conceptualisation of sexuality development is comprehensive, based on evidence, and accommodates contemporary thinking about children and adolescents (see Goldman & Goldman, 1982; Tolman & McClelland, 2011; Sawyer et al., 2012). It supports the
clear and timely need for, and the explanation of, puberty education in all school years
that is used in this thesis (see Chapter 1.1.6; Section 2.1.5).

2.1.1.3 Adolescence.
The term adolescence is used, here, as an amalgamation of international definitions for
teenage, youth, adolescence and young people aged between 10 and 24 (see Catalano et
al., 2012; Dodge & Albert, 2012; Patton et al., 2012; Viner et al., 2012). In the literature,
this demographic is increasingly being conceptualised into three smaller categories
(Sawyer et al., 2012, p. 1632), namely early/young adolescence (aged 10-14), middle/late
adolescence (aged 15-19) and older adolescence/young adulthood (aged 20-24). Early
adolescents (aged 10-14) are cognitively and physically too young to make safe and
voluntary sexual, marital and reproductive transitions from childhood into adulthood,
even though in many less-developed countries they may be forced to do so by customary
or coercive/violent means (Dixon-Mueller, 2008, 2009; see also Goldman & Collier-
Harris, 2012; Temin & Levine, 2009; UNICEF, 2013). The marginal production of
hormones oestrogen and progesterone at menarche, and a lag in build-up that causes
irregular menstrual periods for some time, means “the onset of menses is a poor marker
of a girl’s physiological preparedness for sexual intercourse... [Similarly,] boy’s sperm
production [can] take several years after the onset of ejaculation to reach adult levels”

Adolescence is also the peak time of hormone release, and of neuro-synaptic
remodelling in the cortical grey matter of the brain (Albert & Steinberg, 2011; Blakemore
& Choudhury, 2006; Luna et al., 2004). The overlapping cohorts of adolescents aged
about 10-16 predominantly experience “hot cognition” (Sawyer et al., 2012, p. 1634; see
Reddy, 2013; Spear, 2013), that is, impulsive decisions driven by emotional rewards
including intimate connectivity, sensation-seeking, identity affirmation, peer status, and
dominance, which may also result in unsanctioned or risky behaviours, including sexual
behaviour. Thus, for Dixon-Mueller (2008), middle adolescents (aged 15-17) may or may
not be old enough for transitions into adult social roles, depending on their “evolving
capacities” for cognitive preparedness, agency, physiological responsibility, and their
socio-cultural circumstances (2008, p. 255; see also Reiss, 2008; Spencer et al., 2008).

In many countries, age 16 is the legal age of consent for most sexual activities,
although 18 is often the legal age for adult or citizen activities such as voting, military
service, and commercial or contractual obligations including marriage. Further, in
Australia, mandatory reporting laws (including for teachers) and ethical codes help
protect children and adolescents from suspected sexual abuse until age 18, when most students are in their last year of secondary school, Year 12 (see Lamont & Bromfield, 2010). Reflecting these legalities, this study will divide Sawyer’s (2012) middle/late adolescents and Dixon-Mueller’s (2008) middle adolescents into two cohorts, for those aged 15-16 or aged 17-18. In Australia, the average age at first sexual intercourse is 17 (Rissel et al., 2014; Vella, Agius, Bowring, Hellard, & Lim, 2014).

2.1.1.4 Older adolescence/young adulthood.

Late adolescents (aged 18-19) and older adolescents/young adults (aged 20-24) are physiologically and legally old enough to make sexual and marital decisions for themselves (Dixon-Mueller, 2008). Young women are generally physically developed at age 18, although they continue to mature cognitively and emotionally until at least their middle twenties. Young men in this (still pubertal) cohort gain muscle mass, height and weight, and body hair, and may take significantly longer than equivalent-age females to develop abilities to form serious relationships, defer gratification, reflect deeply on inner experiences, and think independently and critically about ethical dilemmas and future or global concerns (Sawyer et al., 2012). The full brain development of executive control functions, and subjectivity in the male prefrontal cortex, which during late puberty overtakes the limbic system’s governance of appetite, reward processing and pleasure-seeking (Dahl, 2004), may not eventuate until the late 20s (Blakemore and Choudhury, 2006; Englund et al., 2011). Many legal entities and government departments recognise this later development by deferring certain classifications of independent adulthood until age 25 (Goldman, 2008), or even age 30 for car insurance and full unemployment benefits. For example, national and international velodrome cycling athletes are usually selected after age 25, to realise the full maturation of their strategic planning and self-regulation abilities (see Ofoghi, Zeleznikow, MacMahon, & Dwyer, 2013).

The middle/late adolescent and older adolescent/young adult cohorts (aged 15-25) of puberty are internationally recognised as high-risk age cohorts, and are increasingly, if tardily, targeted through protective and preventive policies and public health agendas (see Blum & Dick, 2013). However, as Hawley (2011) argues, many risky pubertal behaviours, including competitive or status-seeking aggression, may result in a net cost or benefit outcome (2011, p. 312, emphasis added). As Sawyer (2012) points out,

Adolescents [including young adults] have an increasing capacity to be active agents of change within their communities…. Investment in education of adolescents… [and alignment with] sex equality… has clear benefits to individuals and their health, but is also a strategy for enhancing employment,
human rights, social capital… and a country’s economic prospects (2012, pp. 1630-1637).

These age cohorts include athletes and sports competitors, scientists, technologists, innovators, performers, writers, explorers, pilots, divers, commercial fishers, fire-fighters, police officers, defence force members, paramedics, aid workers, activists, and entrepreneurs; all take physical, intellectual and/or emotional risks.

2.1.2 Sexual health, including reproductive health

Sexual health is a state of physical, emotional, cognitive and social wellbeing in relation to sexuality development, education and information leading to sexual competencies, respectful attitudes and positive possibilities, human rights and responsibilities including marriage, reproductive health-care services, and sexual safety, for the lifetime of the individual (see WHO, 2010, emphasis added). Sexual health is largely determined by a combination of local and structural factors that may coalesce in individuals (Blum et al., 2012; Viner et al., 2012). Localised or proximal (Sawyer et al., 2012) personal factors include style and quality of parenting, interfamilial acceptance of violence, community and cultural (dis)engagement, peer interactions, and genetic and personality traits (see de Graaf et al., 2011).

Broader socio-structural background factors include economic, educational and employment opportunities, health-care standards, sexual rights or inequalities, cultural roles and norms, and memes (Dawkins, 1976) such as “social contagion” (Sawyer et al., 2012, p. 1635), the 240-year-old phenomenon of media coverage that induces copycat behaviours, events, and suicide (see Marsden, 1998; Stack, 2003). The meme of social contagion may be based on the desire to identify with, or be included in, a ‘cool’ fashionably elite, or ‘hot’ sexually appealing, person or group of people, often those celebrated or made notorious by mass, and now social, media (see Sawyer et al, 2012). In similar ways, media-saturated adolescents, in particular, follow the behaviours of celebrities, such as Princess Diana’s bulimia, Kurt Cobain’s existential angst and suicide, or Lance Armstrong’s drug-fuelled cycling successes. Followers may then copy cognitive or physical behaviours, for example, through accessing ‘ana’ (anorexic) or ‘thinspo’ (thin inspiration) Internet sites, or taking performance-enhancing drugs.

Social contagion may also be the mechanism behind the uptake of re-virginisation campaigns and chastity pledgers in the USA, although typically these in-group strategies collapse when membership reaches about 30% of the cohort (Goldman, 2008; Levine, 2002). Social contagion, and celebrity emulation, may also promote adolescent
acts of violence such as the Columbine High School massacre in Colorado in 1999, allegedly planned by the perpetrators to rival the Waco (1993) and Oklahoma (1995) events (see Block, 2007), or acts of terror such as the serial Bali bombings of 2002-2005 and the Boston Marathon bombing in 2013, allegedly perpetrated to claim the status of jihadist (Bizina & Gray, 2014).

However, Ballen (2011) argues that, rather than Islamic religious fervour, males’ sexual repression, sexual frustration, and consequent social alienation may be among the principal reasons for contemporary radicalised behaviours including suicide bombing. In 2014, in California, a white adolescent suicide-murderer claimed a state of sexual frustration and sexual jealousy starting at [gonadal] puberty, in his YouTube confession, to justify killing six young people and wounding 13 (ABC, 2014b). Perhaps proscribed and lifelong gender segregation, where “a woman is a thing you keep at home” (Bus conductor Ejaz, in Pakistan), increases rates of child sexual abuse (ABC, 2014d), and sexual jealousy. Rates of gender-based violence are higher in societies with “unequal gender roles, where ‘manhood’ is defined in terms of dominance and ‘womanhood’ is constrained by the fulfilment of... rigid codes of conduct” (UNICEF, 2014b, p. 147). In Nigeria, Boko Haram allocated most of the kidnapped schoolgirls as brides to its landless, uneducated fighters (ABC, 2014c). Perhaps the sexual divisions, gender inequalities, and promised rewards for martyrdom in radically fundamentalist sects, combined with youth-targeted social media campaigns, have contributed to the ultra-violent rise of the self-styled Islamic State, or DAIISH.

Social contagion may also be evident in the middle-1990s nexus between accessible Internet pornography and “trends” (Remez, 2000, p. 298) in sexual behaviours for Generations Y and Z, that is, those born after 1977. Such trends include genital hairlessness, with about 75% of females and 50% of males aged 16-29 removing their pubic hair (Richters, de Visser, Rissel, & Grulich, 2014). Simulated strangulation appears to be a newer feature of pornography’s overwhelming focus on male gratification and domination, a focus that is very different to that of erotica (see Goldman, 2008). Pornography negatively impacts the sexual beliefs and behaviours of children and adolescents (Horvath et al., 2013). Further, there appear to be increasingly polarising situations (see Section 2.1.5), where public needs/social goods, arbitrary personal beliefs, and scientific evidence may be difficult to reconcile, particularly about female sexuality and reproductive health. For example, in 2012, a USA Congressman and member of the House [of Representatives] Committee on Science, said that female bodies could “shut down” pregnancy after a “legitimate rape” (British Broadcasting
Corporation (BBC), 2012). In 2006, an Australian Health Minister said that the Gardasil human papillomavirus (HPV)/cervical cancer vaccination program could result in increased cancer rates (Stevens, 2006; see also Read et al., 2011). Such scientific obduracy is of grave concern to those advocating improved puberty, sexuality and reproductive health education and services. A far more dangerous meme is ‘denialism’, where the logic and validity of scientific evidence is rejected outright; to assert, for example, that infant vaccines cause autism, or that HIV does not cause AIDS.

However, the memes of social contagion and celebrity emulation may also work positively for sexual health, for example, in 2013, with actor Angelina Jolie’s widely publicised double mastectomy to forestall breast cancer. Sexual health, ethical sexual responsibility, and all the associated individual and social benefits that accrue from a holistic “life-course framework” (Lancet, 2012, p. 1561) for adolescents (see also Bustreo & Chestnov, 2013: Resnick, Catalano, Sawyer, Viner, & Patton, 2012; UNCDP, 2012), is one goal of puberty education. More broadly, education for sexual health, wellbeing and safety is relevant to all stages of the lifecycle, not only during the reproductive years (Goldman & Bradley, 2001; Kirkman, Kenny & Fox, 2013). Reductions in socio-sexual vulnerability, discrimination, exploitation, abuse, violence, and ill health or death, including maternal mortality and morbidity, are needed in all countries, and particularly urgently in less developed countries. Significant increases in sexual safety and protection, access and use of health and education services, respect and implementation of human rights, and autonomy of decision-making and consensuality, provide life-long benefit to all citizens and societies (see Bennett, Hart, & Svevo-Cianci, 2009; Glasier et al., 2006; Reading et al., 2009; Reichenbach & Roseman, 2009). To this end, “mandatory and comprehensive education on sexuality [and] training in sexual health and sexuality counselling for health [and education] providers” are designated indicators for measuring national/international standards of sexual health (WHO, 2010, p. 6; see Barr et al., 2014).

### 2.1.3 Child sexual abuse and child protection

Child sexual abuse is “a heinous act of power that betrays a fundamental species-survival tenet; protect the children, and hence, the future” (Goldman & Grimbeek, 2015, p. 1). The peak age of onset for sexual abuse of females is 7-9 years (Hinkelman & Bruno, 2008; Putnam, 2003; Trickett, Noll & Putnam, 2011), just before the average age at the start of the pubertal process at 8-10 years, so school-entry education programs for puberty, sexuality and self-protection are vital (Briggs, 2006). Evidence shows that these early and normalised programs deliver knowledge and competencies that help children protect
themselves against child sexual abuse and exploitation (see Bessell, 2011; Ferguson, et al., 2008; Kirby & Laris, 2009; Wurtele, 2009), which school teachers in many countries are mandated by legislation or professional protocols to report (Goldman & Grimbeek, 2011; Walsh et al., 2011). In Australia, and many countries, a child may be defined as a person who has not reached the legal age of sexual consent, which is often 16 years, although the age of consent in relation to mandatory reporting legislation is usually 18 years (Higgins. Bromfield, Richardson, Holzer, & Berlyn, 2009). However, in some countries marriage overrides consent/age legalities (UNICEF, 2011), so that girls may marry at age 14 or 15 in some American states (Le Strat et al., 2011). In the South Asian region, 25% of girls aged 14 are married (UNICEF, 2014a).

Child sexual abuse may be defined as any contact or non-contact sexual experience perpetrated on a child by an adult, or by a peer of unequal power (Berelowitz et al., 2013; Goldman & Grimbeek, 2011). Acts considered to be contact sexual abuse include kissing, fondling, intercourse and oral sex, while acts considered to be non-contact sexual abuse include sexual remarks made to a child, online solicitation, voyeurism, exhibitionism, grooming, and showing a child exploitative material (Goldman & Grimbeek, 2014). Research shows that many children experience sexual abuse, and that it is very often undetected or not reported to authorities (CoAG, 2009; Goldman & Goldman, 1988a; Hunter, 2014; Lamont, 2011). In Australia, fewer than 30% of “all sexual assaults on children” (CoAG, 2009, p. 31) are ever reported to authorities. However, retrospective studies and international meta-analyses show that up to 40% of women and 20% of men experienced sexual abuse during their childhood (Goldman & Padayachi, 1997; Watson, 2007; Jenny, 2008; WHO, 2014).

2.1.4 Puberty and a developmentalist perspective

Reproduction is the prime imperative of every species of life, and humans are the only beings able to consciously control their individual, family, and social circumstances of sexuality and reproduction. New areas of knowledge about adolescent sexuality development, and its obvious signs during gonadal puberty, have emerged in the last decade (Tolman & McClelland, 2011, p. 243; see also Spear, 2013).

A developmentalist approach takes an evolutionary perspective framing natural selection and human development/behaviour, and may be useful in examining some factors involved in earlier puberty and reproduction (Hawley, 2011; Stearns, 2000), and also their implications for education and schooling (Blakemore, 2010). Such an approach applies “biological thinking… [about] form and function” to human behaviour (Hawley,
2011, p. 307), for individuals as well as demographic cohorts and societies. Epigenetics may be characterised as the study of factors “on top of genetics” (Crossley, 2013) that turn genes on or off at different times, or in particular circumstances (see Chapter 1.1.3, Reddy, 2013). Such expressive factors and processes may cause individual differences even in identical twins who have grown up in the same environment, thus providing a mechanism for a type of “Lamarckian inheritance… [resulting in] stable cellular memory that persists after cell division and, in some cases, even through sexual reproduction” (Crossley, 2013, p. 1; see also Buss, 2009; Gapp et al., 2014).

This evolutionary-epigenetic developmentalist approach describes growth, development, and reproduction “as a lifelong stream of adaptive trade-offs for allocating finite resources toward competing life functions” (Hawley, 2011, p. 309; see Ellis & Essex, 2007; Hochberg & Belsky, 2013; Kaplan & Robson, 2009). These ‘trade-offs’ are competing evolutionary priorities between species’ genetically similar phenotypes (physical and behavioural characteristics, reactive/predictive responses) and prevailing epigenetic and/or local socio-environmental factors (famine/war, overpopulation, parental investment, sleep restriction) that must be leveraged, even down to the individual organism’s level, to maximise the species’ reproductive and sometimes territorial imperatives. This strategic differentiation (Reddy, 2013) in genetic expression is vividly demonstrated in grasshoppers, whereby conditions of resource scarcity and population density result in hatchings of locusts that travel as an army in search of food, but are so different in phenotype that they were thought to be a different species (Hawley, 2011).

Some species, for example mice, live for a short time but breed relatively early and frequently, or in multiples, while species at the other end of the spectrum, for example elephants, have a protracted maturation, longer lifespan and delayed reproduction, with a much greater investment in a few offspring. For these animals, a ‘trade-off’, where mortality rates decrease early in life to promote a relatively long reproduction phase, but then increase later, is evolutionarily optimal (Kaplan & Robson, 2009). This is particularly relevant to the human case, where “intergenerational transfers [of parental care and]... “learning by doing” (2009, pp. 1839-1843) do not end at any particular age of the offspring, and the social group supports ageing male and female individuals until death. Further, as Ellis et al. (2012) point out, human individuals strive for tangible life factors and chances such as “food, safety, status and sex... [and then] optimal parental investments” (pp. 599-600). Uniquely among land organisms, human females promote and protect their genetic legacy through grandmothering (Johnstone & Cant, 2010). Human societies are further complicated by additional layers of culturally defined goals
that may not always contribute productively to genetic fitness and maximal offspring numbers, such as celibate religious orders or sex-selective abortion.

The developmentalist approach, then, offers insights into some human phenomena and behaviours during puberty, which are traditionally seen as high-risk and maladaptive, but may rather be symptomatic of the widening schism for adolescents between evolutionary puberty and social adulthood (see Ellis et al., 2012). For example, pre-natal or early childhood environmental conditions such as harsh or unpredictable food supplies, social disruption, and father absence, are likely to trigger an evolutionary strategic differentiation or adaptive trade-off, whereby female children are ‘encoded’ (Hawley, 2011, p. 310) for scarce resources. This may result, at the individual level, in earlier puberty, sexual precocity and higher quantity, but possibly lower quality, offspring. In contrast, female children with committed paternal relationships are more likely to experience delayed puberty, stable sexual partnerships, and deferred, spaced reproduction resulting in fewer but healthier offspring (Hawley, 2011; see also Goldstein, 2011).

There has been a largely global and consistent decline, in the last half of the 20th century, in average ages of gonadal puberty down to ancestral human levels (Bellis et al., 2006; Gluckman & Hanson, 2006; see also Boynton-Jarrett et al., 2013). Average age at gonadal puberty for girls, and its rapid-response plasticity, is relatively easily measured by the age at first menstruation (see DeRose, Shiyko, Foster, & Brooke-Gunn, 2011), although for boys, more self-reported and indirect measurements are used. For example, choirboys’ average age at voice change has fallen from 18 years in the middle 1800s to 13 years now, while the short-term adaptability of puberty is demonstrated by a voice change age rise during the nutritionally deprived time of war (Goldstein, 2011). Further, the average age of the exclusively male ‘accident hump’, a peak in violent, accidental, and disease mortality likely to be concurrent with high testosterone production and risk-taking behaviours that occur about five years after spermarche, has fallen from 23 years in the middle 1700s, to 18 years now. Such risks include addictive, violent and/or status-seeking behaviours such as drinking excessive alcohol, picking fights, or driving beyond one’s skill level. Just as earlier menarche is often seen as “an unmitigated social disaster” (Goldstein, 2011, p. 4), so earlier male risk-taking is becoming a major problem and policy issue for authorities (Sawyer et al., 2012).

While the observed fall in average puberty ages may be, in large part, attributed to coordinated, international increases in child nutrition, and welcome reductions in childhood diseases, the contemporary oversupply of high-kilojoule and relatively cheap processed foods has also contributed to epidemics of obesity and diabetes. The high sugar
and/or fat content of these foods make them addictive to children already evolutionarily primed to seek sweetness and store calories in case of food shortage. These conditions now jeopardise the health and lifespan of children and adolescents in developed countries (Biro & Wien, 2010; Viner et al., 2012; Wang et al., 2013), but likely to a lesser degree and extent than the devastating impacts of STIs, child marriage and pregnancy, and sexual violence in less-developed countries. At the same time, adolescents’ social environments have dramatically diverged from those of their grandparents. Causal factors include employment as a third role for women (Crespo Cuaresma et al., 2013); saturating, instant and personalised media (Giedd, 2012); greatly increased equality for female education, decreased activity levels and long-term age-segregation during the school years, demographic and sexual redistributions in “social dominance, aggression, and cooperation” that include female- and cyber-bullying (Hawley, 2011, p. 310), and the deferral of adult roles and responsibilities until the late 20s (Goldman, 2008).

The need for a developmentalist approach to earlier puberty and deferred adulthood may be highlighted in the often-unintended consequences of contemporary social interventions and constructions on the forms and function of reproduction (see Blakemore, 2010; Bustreo & Chestnov, 2013; Wang et al., 2013). For example, in the case of China, in 1981, the population control measure of one child per reproductive couple was introduced. This necessitated the mass education and paid employment of girls, so they could fulfil the traditionally male filial responsibility of supporting parents and possibly grandparents in a country without welfare payments. However, programs of sexual and reproductive health education are oriented almost exclusively to married couples, rather than to school students or unmarried adults (Aresu, 2009; Goldman, Zhang & Collier-Harris, submitted), and the traditional preference for male descendants will likely abide for generations. The birth demographic male-to-female balance has been shattered, with ratios of 1.4 males to 1 female in some areas (Goldman, Zhang & Collier-Harris, submitted). Perhaps 50 million “low-status” males are unlikely to ever marry (Ellis et al., 2012, p. 612), with the armed forces providing an alternative life. The introduction of age pensions for people without descendants, and the decision, in 2013, to widen eligibility for second births, may offer some delayed relief for China’s demographic inversion (see Gu & Cai, 2011).

Thus, perhaps the best way to ameliorate some of the tensions associated with these polarising impacts, or rather, adaptive strategic differentiations, is to educate all children and adolescents about their bodies, the extended time of puberty, and a comprehensive range of relationships, including socio-sexual ones. As Dodge and Albert (2012) note, the
task of the “socialising environment” is to maximise gene-environment fit, rather than to “weed out unsavoury [maladaptive] characters” (p. 627; see also Fortenberry, 2013).

2.1.5 Puberty education: A comprehensive explanation
As previously noted (Chapter 1.1.6) the term puberty education will be used instead of sexuality education or personal development, or sexual and reproductive health education. This is because every child goes through the processes of puberty, and all pubertal children/adolescents need knowledge and skills for a competent and healthy psycho-social-sexual transition that continues through all of their compulsory school years (Blake, 2002; Halstead & Reiss, 2003; Sidibe, 2009, emphasis added), and beyond. Further, the term puberty education may be used to effectively cover all phases, learning needs, topics, and issues traditionally addressed in curriculum content and pedagogies regarding sexuality development, relationships, personal safety, rights and values, reproductive health and safety, and child protection, in the 20-year time-span. Puberty education is a term that is accurate, inclusive, and immediate to the purpose for schools, and one that appears to be relatively less contentious.

Twenty years ago, the SIECUS President defined school-based, comprehensive, and quality sexuality education as:

a lifelong process of acquiring information and forming attitudes, beliefs, and values about identity, relationships, and intimacy. It encompasses sexual development, reproductive health, interpersonal relationships, affection, intimacy, body image, and gender roles. Sexuality education addresses the biological, sociological, psychological and spiritual dimensions of sexuality from the cognitive domain, the affective domain, and the behavioural domain, including the skills to communicate effectively and make responsible decisions (Haffner, 1992, p. 55).

That definition stands the test of time, although it fails to mention the appropriate human rights involved, specifically, information, education, and health (Doek, 2009; Reading et al. 2009), the special entitlement of children/adolescents to sexual protection and safety (Dixon & Nussbaum, 2012), and new technological dimensions of sexuality, e.g. virtual sex, avatars. Further, the contemporary understanding of such education is an ethical, holistic, positive and subjective view of sexuality as a life-long human potential, and a source of solace, satisfaction and pleasure (WHO, 2010). “The clearly recognised need for knowledge and skills required to prevent sexual ill-health comes second to this overall positive approach… the right to know[ledge] precedes prevention of ill-health” (WHO & BZgA, 2010, p. 20). The UN Special Rapporteur, Vernor Muñoz, in his Report on education for the 65th Session of the General Assembly in 2010, describes sexual
education as a “human right in itself and an indispensable means of realising other human rights” (2010, p. 7), referring to the basis for this in international law and in other international documents and treaties (see also UNFPA, 2010). Thus, the term puberty education addresses the new and wider range of these needs, rights, sociological contexts, developmentalist perspectives, ethical considerations, and factors, that meet schools’ duty of care and protection for children and adolescents (see Berglas et al., 2014; Blake, 2002; Carmody & Ovenden, 2013; Lamb, 2010a; Miedema et al., 2015).

Traditionally, informing children about their prospective sexual, and inevitably reproductive, opportunities and obligations was undertaken by respected elders as cultural custodians, or by extended family members, that is, the ‘aunties’ of the society (Levine, 2002). However, “Direct intergenerational communication about sex is rare” (Marston & King, 2006, p. 1583) within families, because of the incest taboo; and since the implementation of universal education after World War II, school teachers have become the adults best suited to provide this information (see Briggs, 2006; Goldman, 2008; SIECCAN, 2009). “Learning about sex is a core part of school life” (Blake, 2008, p. 34), although such learning is most beneficial and effective if delivered professionally in the classroom through integrated, evidence-based curricula, rather than in the playground with a hidden curriculum (Blake, 2008; Giordano & Ross, 2012; Smith & Lovat, 2006) of repression, stereotyping, misinformation and possible vilification (Reid, 2014).

The word sex is very often, and in many languages, used in the performative or illocutionary sense of verbs to mean sexual activity (WHO, 2010, p. 10). Like the words order or repeat, it is “an utterance which constitutes an act” (Macquarie Dictionary, 2001, p. 947; see Goldman, 2012). The noun may also have a subversive undertone, so that in schools, the topic of sex “is an expression of ‘risk-taking’ requiring broad social efforts to suppress and control” (Fortenberry, 2013, p. 281; see Allen, 2007; Kehily, 2002). However, just as common vocabulary usage associates and habituates modes of cognition and consciousness, experiences and memories (Deutscher, 2010; Sobel & Corriveau, 2010), and behaviours, for example, as stereotyping, the word sex nearly always triggers a subconscious headline effect.

For many adults, the words sex, sexual and sexuality are commonly, and often immediately, associated with saturating media presentations of penetrative intercourse, risk, a confusion of erotica and pornography, and sometimes paedophilia (see Goldman, 2008; Irvine, 2002; Remez, 2000). More traditionalist associations would be with immorality, shame, procreation and dishonour. Parents, in particular, may often interpret the words sex and sexuality in the narrow sense of intercourse, and they are already
constrained by an evolutionary well-founded interfamily discomfort and anxiety about discussing ‘sex’ with their children. However, by their silence or negative messages, or just not speaking positively about bodies, sexuality and other pubertal changes, parents may impart feelings of disgust, confusion or fear to their children (Bay-Cheng, 2013; WHO & BZgA, 2010). Parents may also mistakenly transfer this fear to matters of children’s formal puberty education, wellbeing and protection (Goldman, 2008; Goldman & Goldman, 1982). As one professional external provider of school programs says,

Many parents hear ‘sexuality education’ … and they think of sexual activity, and they get very anxious. If we could [just] broaden it out to issues of gender, issues of personal safety, issues of feeling good about yourself. Maybe it means not using the word sexuality (Goldman, 2011a, p. 162).

In the UK, the Office of the Children’s Commissioner report has recommended renaming the country’s Sex and Relationships Education (SRE) program to “relationships and sex education (RSE)”, to emphasise the importance of positive, respectful, relationship development, and to better reflect the program’s broad and lifelong scope (Horvath et al., 2013, p. 13). For young children, birth education has been suggested (Tunnicliffe & Reiss, 1999), while in some countries, life education is used (see Beyers, 2013; Parker et al., 2009). Nomenclature, then, adds to the content and pedagogical challenges faced by teachers and curriculum authorities, when puberty education is regarded, or is constructed by some, as a “socio-scientific controversy” (Carrion & Jensen, 2014, p. 624). That is, an issue, or a policy discussion, that transects “the boundaries of technical, public, and personal considerations” and, so, may unduly shape curriculum implementation (2014, p. 624), or government decision-making (see also Australian Senate, 2008; Lottes, 2013).

Notwithstanding these appellations, very high proportions of parents in Western societies, and in Australia, approve of comprehensive education programs during the compulsory school years (Boonstra, 2011; Macbeth et al., 2009; Mitchell et al. 2011; SIECCAN, 2009). Thus, to label this invaluable, even life-saving knowledge (Glasier et al., 2006) as sex or sexuality education seems to confuse or sensationalise public opinion, galvanise the conservative forces that oppose harm-reduction strategies (Wellings et al., 2006), infuriate those who hold “morally absolutist values about sex” rather than pragmatic, consequentialist values (Constantine, 2008, p. 325), and raise unnecessary barriers to its implementation and effectiveness (Goldman & Collier-Harris, 2012).

### 2.1.6 Puberty education: More than abstinence and prevention

By 2005, in the USA, most of the 50 states guided locally elected school boards in whether, and how, to teach sexuality education (Stanger-Hall & Hall, 2011). Most states...
used federal funding that mandated abstinence-only-until-marriage (AOUL) programs, some included abstinence in the context of comprehensive sexuality education (CSE), and nine self-funded states had laws/policies promoting CSE without mentioning abstinence (2011; see Chapter 3.2.5). However, abstinence education is positively, rather than negatively, correlated to higher teenage pregnancy/birth rates (see Dailard, 2006), and although federal funding became available for both approaches in 2010, there have been no dramatic changes to biomedical indicators (Stanger-Hall & Hall, 2011). It appears that, in the USA, the term sex or sexuality education is so fraught with negative meanings and controversial politics that the term positive youth development (PYD), although “practically oxymoronic” (Bay-Cheng, 2013, p. 135), is now used for publicly funded strategies promoting adolescent sexual and reproductive health (ASRH) (Birkhead, Riser, Mesler, Tallon & Klein, 2006). One of these strategies is moral education in connectedness, competence, confidence and character (Gavin et al., 2010). However, if the names moral or character education, as mandated by 80% of USA states (Nucci & Narvaez, 2008), or values education (Cogan, Sternberg & Subotnik, 2006; Halstead & Reiss, 2003) are used to subsume and subvert education about puberty and sexuality development, they may be no better than the term sex education; all are loaded with contested meanings, implications and standards.

For the past two decades, “prevention science” (Catalano et al., 2012) professionals have been designing policies and programs of health promotion, prevention, intervention, and treatment for troubled youth, to “reduce the burden of adolescent mortality and morbidity worldwide” (p. 1653). Adolescent problems targeted through prevention science are named, presumably in order of importance, as obesity, violence, sexually transmitted infections (STIs), mental health, vehicle crashes, substance misuse and abuse, and pregnancy (Catalano et al., 2012). However, Ellis et al. (2012) argue that while some interventionists assume a pathologising perspective of risk, seeing much adolescent behaviour as dysfunctional and costly; prosocial programs and policies that recognise evolutionary mismatches and attend to adolescents’ motivations and goals, “for peer status, acceptance, and related mating opportunities” (p. 606), are more likely to succeed (see also Allen & Carmody, 2012; Spencer et al., 2008). In many countries, information needed for efficacious interventions is often unavailable (Blum et al., 2012).

Many people assume that educating children and adolescents about the spectrum of normative/expected pubertal changes and their inevitable sexuality development causes or encourages students to engage in sexual activity, but this assumption is illogical and evidentially wrong (Goldman, 2008; UNESCO, 2009, WHO & BZgA, 2010). Rather, it is
ignorance that causes a state of danger for children and adolescents (see Briggs, 2006). Knowledge and education about water activities, road traffic, and covering up from the sun helps protect children from being drowned, run over, or painfully sunburned, before they develop the requisite abilities and agency to swim strongly and safely, get a driver’s licence, or avoid disfiguring, potentially deadly, skin cancers. Similarly, much evidence shows that timely and accurate puberty education ameliorates the distress of transitional, often transformational, sexuality and relationship changes, promotes practices of metacognition and informed decision-making, delays the onset of sexual activity, encourages responsible behaviours, and helps prevent harmful consequences (Bearinger et al., 2007; Finkelhor, 2009; Hubley & Arim, 2012; Schaalma et al., 2004).

Schools have a duty, under the principle of universal education, to develop children’s knowledge, rationality, understanding and skills to the fullest extent possible (Halstead & Reiss, 2003; Munoz, 2010), and to encourage children to develop their own values framework of expression, responsibilities and choices (UNCRC, 1990). Puberty is a critical factor in school-aged children’s growth and learning capabilities, and education about it may be normalised and integrated throughout compulsory multi- or transdisciplinary curricula (DeJong, 2012; Haberland & Rogow, 2011; UNESCO, 2009). Children of even school-entry age are able to judge the reliability and relevance of knowledge they receive from authoritative sources (Goldman, 2012; Goldman & Goldman, 1982; Robson, 2012; Sobel and Corriveau, 2010).

2.2 Key Educational Background

Local and national frameworks for puberty education differ in orientation and approach. For example, Farrelly et al., (2007) discern three underlying sexuality education discourses in Australia, namely cultural preservation, risk minimisation, and cultural emancipation. Internationally, Jones (2011) identifies at least 27 separate discourses for such education, with values that distinguish four orientations, namely pre-1960 conservative, liberal in the 1960s, critical in the 1970-80s, and post-modern after 1990. For education specific to the HIV pandemic, Miedema, Maxwell and Aggleton (2011, 2015) identify scientific, rights-based, and moral values approaches. Other writers take a social justice and/or ethical approach to puberty education (Ivinson, 2010; Lamb, 2010a; Nussbaum, 1999, 2012; Sears, 2005), while Dixon and Nussbaum (2012) identify a capabilities approach. The following section explores some of this educational background including evidence for puberty education, curriculum integration, and the organisation of Australia’s new curriculum (see also Chapter 3.2.2).
2.2.1 School grade-age levels in Australia

The year/grade and age levels of girls and boys in Australian schools are described as,
~ Foundation, for children who must be age 5 by 30 June in the attending year. This year before Year 1 is not compulsory, but is strongly recommended. It is also called Prep[aratory Year] or Preschool in Queensland, Victoria, and Tasmania; Kindergarten in New South Wales and the Australian Capital Territory; Pre-Primary in Western Australia; Transition in the Northern Territory; and Reception in South Australia.

~ Primary school, for students in Year/Grades 1-6, aged about 5-12. Year 1 is compulsory for children aged 6 years and 6 months. In Western Australia and South Australia, Year 7 is situated in primary schools.

~ Secondary school, for students in Years 7-12, aged about 12-18. Under the National Youth Participation Requirement, school is compulsory for adolescents to the end of Year 10, age about 16, but then they must participate full-time in education or training, employment, or a combination of these activities, until age 17 (ACARA, 2013a). In 2014, the apparent retention rate for students from Year 7/8 to Year 12 was 87% for girls and 80% for boys, averaging 83.6% (Australian Bureau of Statistics (ABS), 2015). While this proportion of the continuing student cohort from any particular base year increases every year, the disaggregated rates for Aboriginal and Torres Strait Islander students are significantly lower, at 63.8% for girls and 55.1% for boys. One aim of the Council of Australian Governments’ National Education Agreement (CoAG, 2008) was that 90% of all Australians aged 20-24 would achieve Year 12 or its equivalent, by 2015.

2.2.2 Knowledge

Knowledge may be conceptualised as an ever-expanding catalogue of perceptions, experiences, memories and ideas that are “rationally worthy of belief” (Honderich, 1995, p. 241). In this philosophical context, the word belief means representational thought itself, as the primary cognitive state of consciousness, which then deploys propositional content, such as a concept, and motivational factors, such as an intent, to direct voluntary behaviour (pp. 82-83). Epistemology, the study of knowledge that began with ancient Greek philosophers, may be defined as “the study of our right to the beliefs we have”, their general basis in justification and truth, and what, whether and how we take as “our knowings” (p. 245). Aristotle maintained “we think [believe] we have knowledge proper (episteme) of something when we know its reason or cause” (cited in Honderich, 1995, p. 243), but after the introduction of Descartes’ doubt in 1641, we search on the one hand
for objectivity and certainty of knowledge, and on the other, for its meaning. This inherent dichotomy feeds division and confusion, rather than holistic fulfillment. For Bowell and Kemp (2010, p. 274), then, a person knows a proposition only if s/he believes it, it is true, and s/he is justified in that belief.

In education, learners construct knowledge and reorganise their conceptual framework to accommodate new understandings, experiences, social negotiations and reflections, with active doing taking precedence over passive listening (see Goldman, 2006b; Gopnik & Schultz, 2004). While Piaget emphasised the importance of individual discovery and learning in a biological model of cognition and knowledge development, the educator Vygotsky endorsed an interactive, social model of Constructivism (see also Section 4.5) in which successive layers of learning drive development, and further, “transforms the meaning of previous understanding” (Wood & Attfield, 2005, cited in Robson, 2012, p. 30).

This continuous construction of knowledge, learning, outcomes/experiences and reflection is analogous to philosophy’s hermeneutic spiral, where every interpretive experience contains an inherent reciprocity between knowledge, its means of delivery, and its social context that pushes cognition beyond the “horizon of intelligibility” (Honderich, 1995, p. 353), at least initially (see also Schwandt, 2000). “Knowledge involves life, not only reason: we affirm an external world because our will meets resistance” (Dilthey, cited in Honderich, 1995, p. 201). Meaning is thus attributed through our own lived, and learned, experience, and while it is continually subject to change, we can never escape our own world-view or Weltanschauungen to achieve truly objective self-knowledge. However, the philosopher Scheler argues that we should choose our world-view reflectively, and by a valid, rational method (cited in Honderich, 1995, p. 909). This argument both justifies and supports the study of compulsory, holistic and integrated puberty education in schools as a central part of this world-view, in keeping with global recommendations.

In the context of modernity (the age of doubt and democracy, reason and railways) and 25 years into the Information Revolution (Keen, 2015), knowledge may be defined as “information that is acted upon cognitively... [Knowledge] refers to what we do with the information we process and how we make meaning from it... [thus it] is broader, deeper and richer than information” (Krause, Bochner, Duschene, & McMaugh, 2010, p. 165). Knowledge is accepted as the basis of much education (Brady & Kennedy, 2003; Smith & Lovat, 2006), and is identified in many curricula as the starting point for planning and objectives. In learning, teaching and assessing, many teachers use Anderson and
Krathwohl’s (2001) revised theoretical framework, which employs four general types of knowledge (Factual, Conceptual, Procedural and Metacognitive) cross-referenced against six levels of cognitive process verbs (Remember, Understand, Apply, Analyse, Evaluate and Create), themselves based on Bloom’s (1956) noun categories (see Chapter 4).

Knowledge content that is developmentally appropriate, scientifically accurate, realistic, and non-judgemental is central to education for puberty. “Sexuality education should be based on internationally accepted human rights, in particular the right to know, which precedes prevention of ill health” (WHO & BZgA, 2010, p. 20). Knowledge of the human body, and skills in personal and social relationships, are not intuitive or immutable concerns; they need to be learned, discussed, and reflected upon. The significance of puberty knowledge to health and wellbeing means that teachers have an obligation to ensure their educational responses to children’s rights, needs, and their questions, are open, accurate, and of the highest quality (Goldman, 2010a, 2012; Blake, 2008).

For example, one external provider of sexuality education to primary schools has noted that knowledge of puberty is so poor that some Australian primary school-age girls, “and a surprising number of parents and female adults” (Goldman, 2011a, p. 23), do not even know that they have three openings between their legs rather than just two. In puberty education, as in other learning areas (LAs), children learn what they can, and switch off when they cannot. It is educationally wise to provide more knowledge rather than less, to enable those with the cognitive capacity to progress further. When a curriculum is sequential, with regular revisions built in, and is constructivist, that is, built on children’s prior knowledge, students can return to knowledge that was poorly cognitively integrated the first time, to construct and enhance their subsequent learning. That is how children and adolescents learn continuing subject matter such as mathematics (Goldman, 2008; Krause et al., 2010), and puberty education is, similarly, best integrated when it is delivered in a similarly normalised and sequential way (Blake, 2002; Ollis et al., 2012; SIECCAN, 2009).

There was one attempt to implement a more substantial form of puberty education knowledge into mandated curricula, in South Australia. Between 2003-2005, the government, health authorities, State (public) schools, Catholic and Independent education authorities, research institutions, parents, and students participated in a comprehensive, integrated trial program for Years 8-10, students aged about 13-16. That trial, implemented in eight rural and seven metropolitan secondary schools, was judged by all involved to be exemplary in quality, successfully implemented, engaging, and effective (SAshine, 2006). However, its initially widespread public support was
relentlessly eroded and finally scuttled by a few conservative religious and political organisations including Right to Life, Festival of Light, Australian Family Association, Assemblies of God Church and the Family First Party, using homophobic, exclusionist, and fear-generating strategies from the USA’s Christian Right/Tea Party global theocratic agenda (Peppard, 2008; see di Mauro & Joffe, 2007; Goldman, 2008; Irvine, 2002).

2.2.3 Cognition

If the maxim that ‘knowledge is power[ful]’ is accurate, it is not just because the powerful define and distribute knowledge, but because knowledge offers thoughtful understanding (*noesis*) to those who can access it (Young, 2011, pp. 268-269). In regard to puberty education, particularly for early and middle adolescents experiencing the significant and relatively compressed changes of gonadal puberty on a number of fronts, however, unmediated information is necessary but insufficient (WHO & BZgA, 2010). Children already have their own sets of values, attitudes and meaningful discourses about sexuality (see Section 2.1.1.1), and adolescents may not “recognise themselves in or through” (Ivinson, 2007, p. 205) information that is dispensed in abstract, isolated or negative chunks (see also Kehily, 2002). Cognitive processes and skills of engagement, participative learning and expression should be promoted and enhanced through a continuous stream of knowledge content, and also through the appropriate curriculum pedagogies and learning outcomes that are implemented.

Cognition covers the domain of representational processes and states, including conscious and active processes of thinking, seeing, expressing through language, reasoning, forecasting, controlling behaviour, and also of the underlying or dispositional states of intention, belief and desire (Honderich, 1995, p. 138). In education, most cognitive processes have at least one, but optimally two, important goals or objectives. The first is retention, according to Anderson and Krathwohl’s (2001) theoretical and evaluative framework, where information presented to the student is later recognised and recalled by the student. In this way something once learned is contextualised and fixed, and when prompted later, it is recalled as a past occurrence, as exemplified by Anderson and Krathwohl’s (2001) simplest Cognitive Process, that of Remember (see Table 1). This kind of learning outcome is called “rote” or habituated learning (2001, pp. 64), and it is the main pedagogy of explicit or Direct Instruction (Luke, 2013; see Chapter 4.5.1).

However, the second cognitive goal of education is transfer, whereby the student finds sense and meaning in the information, and is able to link and integrate what has been learned in the past to advantage in the present, and into the future. Thus, Anderson
and Krathwohl’s (2001) progressively complex Cognitive Processes of Understand, Apply, Analyse, Evaluate and Create facilitate retention, but more importantly, emphasise and promote the transfer of learning to new questions, problems, or experiences (see Chapter 4.5.2). Such meaningful, extended and useful learning is consistent with the view of “learning as knowledge construction” (2001, p. 65).

2.2.4 International documents, and Knowledge, Skills, and Attitude (KSA)
Puberty education is well covered in comprehensive and continuous curricula/standards such as those provided by SIECUS (2004), first published in 1991, UNESCO (2009), WHO and BZgA (2010), and the Population Council (Haberland & Rogow, 2011). These frameworks address a variety of puberty education issues and topics that are developmentally appropriate for different age cohorts and aligned with cognitive understandings and holistic affects, while creating an environment of inquiry to include contemporary factors such as earlier puberty and technological connectivity. These high-quality frameworks and standards (see also FoSEI, 2012) are structured according the Knowledge, Skills, and Attitudes (KSA) model of learning goals in schools. Developed from 1948 onwards by a committee of USA college academics led by Professor Benjamin Bloom, this model identifies three domains of learning outcomes that should be achieved by the end of any learning episode. That is, learners should have acquired new intellectual and cognitive knowledge (K), new psychomotor skills (S), and affective growth in emotional states and behaviours (A). The domain of cognitive knowledge development or K, formulated by the original higher education committee to standardise educational foci and vocabulary, gave rise to Bloom’s (1956) widely-used hierarchical compilation (see Section 4.2), and more recently, to Anderson and Krathwohl’s (2001) revision of Bloom used in this thesis (see Chapter 3.4).

2.2.5 Curricula
High quality curricula are complex documents, difficult in construction and lengthy in gestation and implementation, and constructed by human agency within social and political constraints (Brady and Kennedy 2003; see also Marlowe & Page, 2005). Puberty education issues, discussion, and vocabulary are daunting to many individuals and education authorities (Carrion & Jensen, 2014; Goldman, 2008, Goldman & Collier-Harris, 2012; Peppard, 2008; WHO & BZgA, 2010). Education addressing some of the structural determinants of sexual behaviour “demands a broader definition of public health than many might feel comfortable working within” (Wellings et al., 2006, p. 1718;
see also Parker et al., 2009). Puberty education frameworks, their standards and curricula, need to take into consideration, first, the educational needs of children and adolescents; second, teaching and learning research advances in cognition, theory and praxis; third, changing contextual issues such as social, economic and political changes; fourth, new research in sexuality development including earlier puberty; fifth, institutional capacity and teacher preparedness; sixth, stakeholders’ consultations; and seventh, the educational policies of governments (see Blake, 2002; Eby, Herrell, & Jordan 2006; Farrelly et al., 2007; Jones, 2011; Luke, Weir & Woods, 2008).

### 2.2.6 Puberty education normalisation/integration

Topics and issues about the body, intimacy and relationships covered by puberty education are normalised when they are included in the natural course of teaching and pedagogical interaction, rather than taught in irregular isolation or with an esoteric, exaggerated emphasis (see UNESCO, 2009; WHO & BZgA, 2010). As Ivinson (2007) argues, “schools need to understand and legitimate common-sense knowledge [about puberty and sexuality, and then] they have to find ways to encourage two-way traffic between common-sense and scientific discourses” (p. 202; see also McKee et al., 2014).

Ideally, puberty education integration may occur in all primary school learning areas (Goldman, 2010b, 2011b; Kay et al., 2010; Ollis et al., 2012), delivered by the classroom teacher after pre-service preparation or in-service professional development (Barr et al., 2014; Goldman & Grimbeek, 2015; Sinkinson, 2009; see Appendix K), and by specialist teachers, or school nurses. The average period of gonadal puberty occurs at the end of primary school and the beginning of secondary schooling, and care should be taken to ensure a continuous level of teaching in puberty education (DeJong, 2012).

Although integration in all learning areas is preferable for efficacy and consistency, the proliferation of speciality subjects at secondary school level may favour a specific time and/or teacher for puberty education, which then carries its own set of problems. In state primary schools in England, “where discrete lessons were not in place for PSHE [Personal, Social, Health and Economic] education, there was the potential for it to be squeezed out of the curriculum” (Formby, 2011, p. 164; see Formby & Wolstenholme, 2012). However, Sweden’s integrated education system is effective and well regarded (Centrewall, 2000; Ferguson et al., 2008; Parker et al., 2009).

In contemporary Australia, Victoria is the only educational jurisdiction with a policy espousing sexuality education at each compulsory year level in all government schools (Mitchell et al., 2011, p. 9). This jurisdiction’s policy, at least, is in broad
alignment with the strong recommendations for continuous and comprehensive education programs made by SIECUS (2004), UNESCO (2009), WHO and BZgA (2010), the Population Council (Haberland & Rogow, 2011), and FoSEI (2012). However, normalisation and serious implementation of the policy may be confined to the Northern Bay P-12 College in Geelong, Victoria, which is building the capacity for classroom teaching of sexuality education in all primary school year/grade levels, and later, all secondary school levels (Ollis et al., 2012). Even if successfully implemented, the program will still be located in the Health and Physical Education LA rather than delivered through an integrated curriculum approach (2012, p. 49; see also Goldman 2010b, 2011b; Graham & Smith, 2007; Smith et al., 2007).

Scaling-up strategies (DeJong, 2012) include extending puberty education through year levels, assessments/examinations, geographic areas, and teacher training. Similarly, curriculum integration, as the alternative to knowledge isolation in specific disciplines, can be implemented in a variety of ways (Harris & Marsh, 2007). Multidisciplinary frameworks use knowledge and understandings ‘in-between’ two disciplines, after De Leo (2006, cited in Harris & Marsh, 2007, p. 4), to introduce new or more productive cognition or activities. An example could be the evolution of multi-cellular life forms in Biology as analogous with the modelling of village establishment in Geography, or roles and ‘work’ stratification of early civilisations in History. In contrast, interdisciplinarity uses ‘overlapping’ (p. 4) knowledge and skills to benefit more than one distinct area of knowledge, so that, for example, Geography, History, Biology, and Civics and Citizenship inform the Common Era development of female human rights through land inheritance and literacy, rather than as food gatherers/growers, breeders of sons, or witches. However, transdisciplinarity goes further to integrate knowledge between and within, to ‘cover’ (p. 4) whole areas, so that, for example, puberty education infuses all LAs, in the same way that information and communication technologies (ICTs) do now.

For Graham and Smith (2007), transdisciplinarity has three major benefits. These are, first, the potential for students to understand and know a disciplinary specialisation, such as Mathematics’ three-dimensional spatial orientation, and the “transdisciplinary ability to make sense of [such] knowledge in application” (p. 59), for example, in the LAs of Geography, Dance, Drama, Visual Arts, and HPE. Second, this transdisciplinary integration is unpredictable in that it operates with multiple agendas, leading students in more open or unknown directions, and so generating “a futures perspective” (p. 59). Third, transdisciplinarity has the potential to integrate the student’s subjective intuition, through reflexive and ethical praxis, into the impartial research process, to produce
comprehensive yet contextualised “knowledge in application” (2007, p. 60). In these ways, “individuals are able to articulate their [heterogeneous, participative, immediately connected, transformative] role[s] in solving the problems of a complex society… to create a better society” (pp. 57-60). Integrating puberty education, including issues of identity, relationships, sexuality, safety and later, reproduction, with all other school LAs through transdisciplinarity, then, is necessary and cost-effective for students’ health and protection, as well as satisfying human rights and wellbeing criteria.

2.2.7 Pedagogies

Pedagogy may be defined as “Any conscious activity designed by one person to bring about learning in another” (Ireson, Mortimore, & Hallam, cited in Mortimore, 1999, p. 213). It is “the art and science of educating … the strategies for using teachers’ professional knowledge, skills and abilities in order to foster good learning outcomes” (Teaching Australia, 2008, p. 3). Pedagogy includes the ways in which teachers and students interact, such as teachers’ questioning and response practices, their use of students’ ideas, and connections to students’ diverse backgrounds and activities, the social and intellectual environment that teachers create, and the types of learning that are promoted, as well as the use of physical features of the classroom such as access, connectivity, layout and mobility (see Marsh, 2010; Mortimore, 1999). Pedagogies play a crucial role in students’ knowledge acquisition, deep learning, higher cognition, skills competency and transference, and meaningful outcomes (Anderson & Krathwohl, 2001).

Effective pedagogies are based on clear learning goals, which carry high expectations for students, encourage or provide motivation, are technically competent and appropriate to purpose, and are theoretically sophisticated (Mortimore, 1999, p. 213). They may be seen to work in a cycle of comprehension, transformation, instruction, evaluation, and reflection, leading to new comprehension (Schulman, 1992). The new Australian Curriculum does not provide or recommend pedagogies, leaving teachers to source and choose, but it does require their alignment with evidence-based best practice. In Queensland, authentic pedagogies, after Newmann, are grounded in constructivist, critical and problem-based methods of teaching, called Productive Pedagogies, and are central to all state (public) school curricula frameworks (Zyngier, 2005). Such pedagogies emphasise intellectual quality, inquiry, connectedness, supportive classroom environments and the recognition of difference (see Goldman & Grimbeek, 2015; Marsh, 2010; Woolfolk & Margetts, 2010). Pedagogies specifically designed for puberty
education are already available, including from global organisations such as the Population Council (Haberland & Rogow, 2011).

New technological pedagogies and practices support student engagement, inquiry, and discourse in the creation of meaning through digital technologies, in accord with many young peoples’ preferred style of learning. Digital pedagogies and online resources available through tablets, smart phones, notebooks, cameras and media editing software, reflective blogs, chat rooms, discussion groups and wiki documents, and Internet search engines and social media sites, will further influence student-teacher power dynamics as students assume more personal control over their learning experiences (Carrington & Robinson, 2011; Doherty, 2007; Edwards & Usher, 2008; Johnson, Adams et al., 2014).

2.2.8 Australian Curriculum, Assessment and Reporting Authority (ACARA)

The development of a nation-wide Australian Curriculum had been under consideration for decades until, in 2006, the conservative Prime Minister John Howard instigated a draft national History curriculum. In April 2008, the progressive Prime Minister Kevin Rudd established the interim independent National Curriculum Board to develop curriculum documents in four subject LAs, namely English, Mathematics, Science and History. The Melbourne Declaration, in December 2008, emphasised the importance, to all Australian students, of educational quality and adaptability/flexibility in response to major global changes (ACARA, 2012c, pp. 6-7), particularly in information and communication technologies (ICTs). In May 2009, the statutory Australian Curriculum, Assessment and Reporting Authority (ACARA) was established to implement a nation-wide set of education curricula, achievement standards, an assessment program, and data collection/reporting mechanisms (see Chapter 1.1.7). In 2011, the next, also progressive, Prime Minister Julia Gillard, implemented the first tranche of four subject LAs in some state jurisdictions. Just as significantly, that PM also legislated an equitable, student-centred, national schools funding program developed by businessman David Gonski.

ACARA answers to the Education Council, itself owned by Education Ministers from all federal, state and territory jurisdictions. The Australian Curriculum stems primarily from a social efficiency orientation (see Talbot & Mockler, 2013) for the post-modern, globalising economy, thus recognising the significance of ICT, the reconfiguration of manufacturing, and the automation of the nation’s economic productivity including farm and quarry. In this view, Australian students have to perform better in the Organisation of Economic Co-operation and Development’s (OECD) Program for International Student Assessment (PISA) tests; educational resources can be
standardised across jurisdictions, with less duplication and wastage; teachers will benefit from uniform and enhanced Professional Learning, and Standards (Australian Institute for Teaching and School Leadership Ltd (AITSL), 2012, 2014; Barr et al., 2014); and families’ interstate movements will no longer be hindered by different requirements in age, school year level and curriculum expectations (see also Reynolds, 2012).

ACARA states that its world-class curriculum and assessment program is necessary to meet the evolving educational, intellectual, social, and personal needs of all young Australians, and provide them with the means to become “successful learners, confident and creative individuals, and active and informed citizens” in the 21st century (ACARA, 2012c, p. 8). Similarly, education for puberty, sexuality, relationships, and reproductive health and safety, is a “cornerstone” (Bearinger et al., 2007, p. 1226) in this global endeavour of participative inquiry, and in students’ ability to learn and grow. In contemporary times of instant communications and vast data access, the value of such timely, accurate and effective school-based knowledge with cross-curricular priority, delivered by trained professionals with a continuing interest in the students’ wellbeing and future productivity, can no longer be denied or avoided.

However, after the election of a conservative federal Government in September 2013, education policy and funding priorities are being redirected or eliminated. Major changes may impact compulsory schooling and the Australian Curriculum after full consideration of the Review of the Australian Curriculum (Donnelly & Wiltshire, 2014).

2.3 Chapter Summary

This chapter has provided the background of the research. The examination of the Weltanschauungen, or world-view of this background, included conceptualisations and definitions used throughout this thesis. This chapter focussed on some key sociological factors anchoring children, adolescents and puberty in the 21st century, including a developmentalist perspective of puberty, as addressed in Section 2.1.4 and previously, in Chapter 1.1.3. The chapter also focussed on some key educational factors reflecting the educational Zeitgeist, or spirit of the age. Next, Chapter 3 provides an exploration of the literature crucial to the research, including the conceptualisations underpinning international puberty education, and the new Australian Curriculum’s LAs.
Chapter 3: Literature Review

This chapter provides a review of the literature identified as relevant to the research in this thesis. Section 3.1 presents a reiteration of the research aim and questions. Section 3.2 presents a review of the literature on contemporary international curriculum frameworks that address puberty education in primary and secondary schools. Section 3.3 provides a single-study discussion of the education dividend for global economic growth. Section 3.4 presents an overview of the conceptualisations supporting the new Australian Curriculum LAs that are selected for examination in this thesis. Section 3.5 provides a chapter summary, and forecasts Chapter 4 Theory.

3.1 Research Aim and Research Questions

The aim of this thesis is, by using quantitative and qualitative analytical audits of documents including teaching and learning Content descriptions in ten Learning Areas of the new Australian Curriculum, to identify the presence of puberty education knowledge and cognition content and the potential sites of age-appropriate integrated puberty education, consistent with the literature, international guidelines and educational praxis, and sociological challenges. Analysis of all evidence of such presence and potential may lead to recommendations for overall curriculum improvement in puberty education. If consistently implemented and professionally delivered, these may, in turn, enhance students’ individual ethical rationality (phronesis) about puberty and sexuality (see Dixon & Nussbaum, 2012; Dixon-Mueller et al, 2009; Ivinson, 2007, 2010; Lamb, 2010a; Robinson, 2012).

To reiterate, the one broad research question posed in this thesis is, “What evidence is found, in ten of the Australian Curriculum Learning Areas (LAs) from Foundation to Year 10, for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years?” This broad research question, encompassing the is/ought dichotomy, relates to documentary evidence including teaching and learning Content descriptions for selected compulsory year levels in the ten parent LAs audited in this thesis (see Chapter 1.1.7; Chapter 5.5). Accordingly, the operationalisation of this broad research question calls for ten specific research questions, one for each LA. These specific questions are first posed in Chapter 1.3.2 on pages 18-19.
3.2 Literature on Contemporary International Curriculum Frameworks for Puberty Education in Primary and Secondary Schools

3.2.1 Changing paradigms in puberty education curricula

Research into ‘what’ and ‘how’ children learn, specifically about puberty, sexuality and reproduction, was formalised in the mid-1960s, in the USA, with the founding of SIECUS, the Sexuality Information and Education Council of the United States (Irvine, 2002). Such research became sociologically controversial in the early 1970s, as a “moral panic” (Cohen, 1972, cited in di Mauro & Joffe, 2007, p. 68) broke out in the USA in a response to perceived attacks on the family wrought by the contraceptive Pill, women’s liberation, gay rights, and legalised abortion, or women’s “choice” (2007, p. 73).

Research into children’s sexual understandings, which had existed for decades in Europe, intensified from the late 1970s, after the USA doctor C. Henry Kempe exposed child sexual abuse as a medical problem (Jenny, 2008), and revelations about its endemic nature in religious institutions and residential care began to come to light. However, such research was stigmatised, and then banned outright, by radical conservatives (see Dailard, 2006; di Mauro & Joffe, 2007) in the 1980s, in new reactions of moral outrage over homosexuality and the HIV pandemic. This research stigma was also fuelled, from the 90s, by a ‘paedophile panic’ focused on mobile phone cameras, and Internet and social media access to child exploitation material. Ongoing media sensationalism has resulted in a pernicious perception that almost any unchaperoned adult male and child interaction is suspect, and children and adolescents are routinely criminalised for relatively innocuous offences including self-exposure and peer sexting (Zhang, 2010; see also Walker, Sanci, & Temple-Smith, 2011; Yeung, Horyniak, Vella, & Hellard, 2014).

Even so, wide-ranging research in medicine/health, biology, sociology, psychology, criminology, education, other care professions, and in human rights organisations, has documented many of the lifelong impacts, possible contributing factors, and preventative measures against the ignorance surrounding normative sexuality development and behaviour of children/adolescents (Berelowitz et al., 2013; Blum & Dick, 2013; Bustreo & Chestnov, 2013; Horvath et al., 2013, Kirby, 2011; Rice et al., 2014). According to UNICEF (2011), the most urgent research focus, and likely the most cost-effective in monetary and mortality/morbidity terms, is preventing the spread of STIs (see also Sidibe, 2009; UNMDG, 2015). Like the increasing rate of child-marriage in the least developed countries of the world, already averaging 20% of girls aged 14, and 52% of girls aged 17 (UNICEF, 2014a, p. 2), the proportion of adolescents dying of HIV-related disease, already the second-highest cause of death worldwide, is also rising (UNFPA, p. 9).
Violence is the leading cause of death for males aged 10-24; while the leading cause of death for females aged 15-19 is suicide, followed by obstetric/maternal complications (UNICEF, 2014a, 2014b). High proportions of girls and boys engage in sexual activity through neglect, exploitation, violence, family disruption, and systemic social failures. Global long-term protection and care goals for adolescents now focus on harm-reduction interventions and comprehensive education for positive health and wellbeing (UNICEF, 2011; see also Currie et al. 2012; UNCPD, 2012; WHO, 2012). Such programs advocate postponing sexual activity and childbirth until both parents are themselves fully developed in physical, psychosocial and economic terms (see Bayer & Germany Social Healthcare Programs, 2011; Dixon-Mueller, 2009; Goldman & Collier-Harris, 2012; Lamb, 2010a). Even so, this raises new problems for rights-based arguments and real-world circumstances, by ignoring the negative causes of activity already mentioned, and normative development (Tolman & McClelland, 2011), adolescent agency or empowerment (Carmody & Ovendon, 2013; Spencer et al., 2008), desire (Cameron-Lewis & Allen, 2012; Fine & McClelland, 2006), intimacy, pair-bonding, and other factors/feelings stemming from the pubertal production of oxytocin in adolescent girls and vasopressin in adolescent boys (Peper & Dahl, 2013; see also Lamb, 2010b; Lottes, 2013). In this chapter, evidence from literature and implemented programs shows that timely and universal puberty education is a key solution to some of these dilemmas.

Over 30 years ago, in 1982, international research in the USA, the UK, Canada, Sweden and Australia found that while many children in many countries are ignorant about important pubertal and sexual matters, those who have received consistent, mandatory education, for example, in Sweden, are capable of a high level of sexual cognition and knowledge (Goldman & Goldman, 1982). By age five, all children are capable of performing processes of inductive causal logic, learning from evidence, and forming scientific theories of the biological, physical and psychological world, with research identifying very young children’s use of causal Bayes net learning algorithms (Gopnik & Schulz, 2004; see also Blakemore, 2010; Legare, Gelman & Wellman, 2010).

Children aged five to seven years are well able to understand how babies begin, know the stages and processes of pregnancy and birth, conceptualise sex differences between girls and boys, and between men and women, and about 100 other life, sexuality, and death topics (Goldman & Goldman, 1982; Tunnicliffe & Reiss, 1999). Pubertal children and adolescents aged nine to 11 are capable of understanding about male and female sex organs, conception and contraception, and the basis of love for human relationships (Goldman & Goldman, 1982). Moreover, young adolescents (aged 10-14)
are insistent in their demands for this knowledge (Blake, 2008; Formby, 2011; Goldman, 2008; Goldman & McCutchen, 2012).

However, Goldman and Goldman (1988b) also found that children who are not exposed to accurate explanations for biological and sexual processes often make up mythologies about them. These are often magical or supernatural ones, where ‘stars come down from heaven into the mother’, or agricultural ones where ‘the mother swallows a seed and the father waters it’ (1988b, pp. 22-30; see also Goldman & Collier-Harris, 2012). By the time these children and young adolescents reach puberty they will likely have misinformed, unintended, or implicit learnings about sexuality and reproduction, which are likely to cause or increase their risk of sexual harm, and loss of life chances (see Blake, 2008; Halstead & Reiss, 2003). Worse still, the plethora of pornography on accessible world-wide platforms, and the online/cyber world’s removal of bodily place, time, and consequence, have enormously distorting and damaging effects on traditional social values of respect and civility, and on formal teachings about gender inequality and inequity, violence, reproductive health, sexual rights/safety, and citizenship (see Horvath et al., 2013; Nussbaum, 1999; Willard, 2007).

Crucially, the contemporary balance of information-as-power appears to be shifting towards adolescents, as the Internet and social media break down traditional age/location barriers to information access. This new Zeitgeist or spirit of the age favouring change in the status and delivery of puberty education may well have been initiated and facilitated by global campaigns against the HIV pandemic (Germain et al., 2009; Giedd, 2012; Sidibe, 2009). However, traditional information gatekeeping methods have been overtaken by the exponentially faster and deeper growth of digital connectivity, and its attractiveness to young people with unparalleled purchasing power. Profit is likely to trump voting rights in determining educational policy and implementation.

But even when excluded from critical services and denied their basic rights, adolescents can be resourceful, courageous, and well aware that their futures depend not only on what we can do for them, but on what they can do for themselves... [D]igital technology, mobile communications and social media are connecting young people as never before – not only to one another, but to the world of information and ideas – and inspiring them to find innovative ways to improve their own lives (Lake, 2011, p. 3).

As Sears points out, “Research and scholarship on sexualities, youth and education have exploded in North America, Oceania and Europe” (2005, p. xvii). A new era of global research and international strategic priorities about child and adolescent futures reflects an assumption of adolescent sexuality as “normative and developmentally expected” (Tolman & McClelland, 2011, p. 242), and gives a high priority to their continuing
education and health development “life-course framework” (Blum et al., 2012, p. 1567; Bustreo & Chestnov, 2013; Sawyer et al., 2012). However, discussion of “human rights related to sexuality” involves ambiguity, complexity, and conflict (Lottes, 2013, p. 383).

Awareness and activism around sexual rights dates from the sexual liberation and feminist movements of the 1960s, with sexual rights and responsibilities first codified in 1976, and first used internationally in 1994 (Lottes, 2013). The core obstacles are identified as patriarchalism and gender inequality (Munoz, 2010; Reiss, 2006). Since the United Nations Convention on the Rights of the Child (UNCRC) was ratified in 1990, international policy has increasingly focused on young people’s rights to sexual health and information. “[S]tandards are being formulated for the creation and maintenance of a sexually healthy society, invoking values of dignity, respect and choice” (Wellings et al., 2006, p. 1707). The UNCRC is now the most universally ratified human rights treaty (Doek, 2009), thereby adding a legal dimension to sexuality as a fundamental aspect of human life. For example, the UNCRC (1990) has given United Nations political and legal endorsement, and thus rights-based power, binding Member States to all its Articles that deal with HIV-related disease and AIDS (Reading et al., 2009). As Goldman (2012) notes, international bodies have the best chance of implementing, albeit slowly through “progressive realisation” (Reading et al. 2009, p. 339), significant reforms in children’s and adolescents’ health and wellbeing. Programs such as vaccination and puberty education meld rights-based and scientific public health models to facilitate changes in policy, professional activities and community values (Goldman, 2012, p. 215; see Berglas et al., 2014; Read et al., 2011).

In 2009, Parker, Wellings and Lazarus carried out an overview and cross-national comparison of sexuality education policies and curriculum content, or presence, in 26 European countries, showing that there was “considerable scope for sharing lessons learned” (2009, p. 241) between countries. Their study showed that difficulties in sexuality education provision arising from differences in population density between urban and rural areas, and differences in cultural diversity between national and migrant populations, were as common as differences in religious and political adherences. That study recommended involving faith-based organisations in curriculum development and implementation, improving the provision and sustainability of sexuality [puberty] education by sharing expertise, regulatory pressure, and campaigns of ‘joint action’ between countries such as proactive media advocacy and defence of STI initiatives.

While politicians, religious authorities, and neo-conservatives from many different cultural traditions combined to undermine the aims and outcomes of the UN International
Conference on Population and Development, held in 1994 in Cairo, devastating maternal mortality figures for early (aged 10-14) and middle adolescent (aged 15-17) cohorts make it hard to argue against safe motherhood, married or not, as a human right (Reichenbach & Roseman, 2009; see also Bertrand, 2010; Lottes, 2013). Strengthening children’s chances against poverty through education, and protecting them from violence, exploitation, and sexual abuse, are the two major challenges for implementation of the UNCRC in the 21st century (Doek, 2009; see Bennett et al., 2009).

Further, in 2012, the UN Commission on Population and Development (UNCPD) devoted its year’s work to ‘Adolescents and youth’, urging governments around the world to provide young people (defined as aged 12-24) with “evidence-based comprehensive education on human sexuality, on sexual and reproductive health, human rights and gender equality” (2012, p. v). Other resolutions recommended making youth rights, health, and development a priority in all sectors, included enforcing laws on minimum age at marriage “as an imperative” (p. iii), eliminating all forms of gender discrimination, and providing universal and equitable access to sexual and reproductive health care services such as contraception. The UN Millennium Development Goals (UNMDG, 2015) mandate sexual health and education for all young people (see Munoz, 2010), and these rights are increasingly viewed as a cost-effective investment rather than a cost burden (Dixon & Nussbaum, 2012; see Section 3.3). Although work on these goals and rights continues (Rogow et al., 2013; UNICEF, 2014b), new questions are being raised about the post-2015 MDG successors, the Sustainable Development Goals (Berer, 2013; Berglas et al., 2014; IPPF, 2014).

3.2.2 Orientations in puberty education curricula

There are many and varied discourses, theoretical orientations, and approaches surrounding puberty education frameworks and curricula (see Chapter 2.2). As broad generalisations, SIECUS’s (2004) Guidelines framework is “educationalist”, according to UNESCO (2009, p. 3). UNESCO’s (2009) Technical Guidance framework has a self-admitted public health orientation (Sidibe, 2009; see also Schaalma et al., 2004; Wight, 2008). The WHO and BZgA (2010) Standards for Europe are oriented towards comprehensive, positive, and holistic life skills. Haberland and Rogow’s (2011) One Curriculum framework is firmly rights-based (Dixon-Mueller et al., 2009), while the FoSEI (2012) Standards: K-12 are focused primarily on preventative health and academic success. These documents present optimised curriculum positions, predicated on levels of educational and individual liberalism that may be unpalatable to many international
jurisdictions. However, all of these documents are indicative of the new international life-course framework and focus on children/adolescents’ sexuality development, health, knowledge, and safety (Sawyer et al., 2012), and so each is examined, below, as a global exemplar of comprehensive sexuality education. These five documents will be addressed in chronological publication order.

3.2.3 SIECUS, 2004
This 112-page document, titled Guidelines for Comprehensive Sexuality Education: Kindergarten-12th Grade (3rd ed.) was written, in 2004, by the National Guidelines Task Force of the Sexuality Information and Education Council of the United States (SIECUS), New York. Founded in 1964, the non-government, not-for-profit SIECUS affirms that sexuality is a fundamental part of being human, and so, worthy of dignity and respect. It advocates for every person’s right to accurate, comprehensive information and education about sexuality, sexual health services, and social justice and sexual rights. The Guidelines’ goal of sexuality education is “to promote adult sexual health” (2004, p. 19, emphasis added), by developing, in students, a positive view of sexuality based on accurate information and understandings of attitudes, values, relationships, interpersonal skills, and the exercise of responsibility. The document provides a framework of contemporary concepts, topics, knowledge outcomes, developmental messages, and professional resources to help educators create or enhance school-based sexuality education curricula. Its educationalist approach values knowledge for its own sake, as well as for improved academic and health outcomes (see also Goldman, 2012). Although the document’s hierarchical structure and learning measures are applicable to many educational jurisdictions, SIECUS’ uncompromising use of accurate vocabulary means the content is unlikely to be fully implemented. Pedagogies are not included.

The Guidelines (2004) apply to four age-appropriate knowledge levels; children aged 5-8 (Level 1), children/early adolescents aged 9-12 (Level 2), early/middle adolescents aged 12-15 (Level 3), and middle/late adolescents aged 15-18 and over (Level 4). Six key concepts guide content or presence, and optimal outcomes or potential; namely, Human development, Relationships, Personal skills, Sexual behavior, Sexual health, and Society and culture. Each concept includes relevant behavioural outcomes and discussion topics (N=39), with multiple developmental messages for every age level. For example, in Key Concept 1 Human development, Topic 3 Reproduction, Level 1 students aged 5-8, content includes “Vaginal intercourse – when a penis is placed inside a vagina – is the most common way for a sperm and egg [sic] to join” (2004, p. 26). For Level 3
students aged 12-15, content includes “People should use contraception during vaginal intercourse unless they want to have a child” (p. 27). Many other specific names and terms are used.

3.2.4 UNESCO, 2009

This two-volume document (30 and 57 pages, respectively), titled *International Technical Guidance on Sexuality Education: An Evidence-Informed Approach for Schools, Teachers and Health Educators* (2009), was commissioned by the United Nations Educational, Scientific, and Cultural Organisation (UNESCO), Paris. Largely developed by SIECUS-based experts, the document uses independent evidence from 13 countries, an international consultation, a meta-analysis of 87 studies, professional practitioners’ experiences, and input from prestigious organisations such as UNICEF, UNAIDS, UNFPA, and WHO. The *Technical Guidance* provides an educational framework of sexuality, relationship and STI knowledge that is adaptable for children/adolescents in every country, from any cultural or ethnic heritage, and at all school year levels. It identifies the aims, rationale, evidence, justification, characteristics, stand-alone or integrated curriculum delivery practices, learning objectives, and the key concepts and topics for age-appropriate discussion that constitute the presence of puberty education, although pedagogies are not included. It also provides efficacy/assessment benchmarks and professional protocols/resources for curriculum construction that envision the potential of puberty education (Goldman, 2012, 2013, 2014; Goldman & Collier-Harris, 2012). However, its primary anti-STI orientation and global reach means that UNESCO’s (2009) *Technical Guidance* is more sensitive to “the impact of cultural values and religious beliefs” (p. 1), than the SIECUS (2004) Guidelines.

The *Technical Guidance* (2009) applies to four age-appropriate knowledge levels; children aged 5-8 (Level I), children/early adolescents aged 9-12 (Level II), early/middle adolescents aged 12-15 (Level III), and middle/late adolescents aged 15-18 and over (Level IV). The six key concepts for content or presence, and optimal outcomes or potential, are Relationships, Values, attitudes and skills, Culture, society and human rights, Human development, Sexual behaviour, and Sexual and reproductive health. Each concept includes some discussion topics (N=23), each with multiple learning objectives and key ideas for every age level. For example, in Key Concept 2 Values, attitudes and skills, Topic 3 Decision-making, Level I students aged 5-8, content includes “Individuals deserve to be able to make their own decisions... Identify examples of good and bad decisions and their consequences” (2009, v. 2, p. 14). For Level III students aged 12-15,
content includes “Alcohol and drugs can impair rational decision-making... Apply the decision-making process to address sexual and/or reproductive health concerns” (p. 14).

As Dixon-Mueller (2010) and Goldman (2012) both note in their analyses of UNESCO’s (2009) *Technical Guidance*, particular content vocabulary and emphases evident in the first draft, published online earlier that year for public comment but condemned by some in terms of “hostility... [and] hysteria” (Dixon-Mueller, 2010, pp. 159-161), were deleted or amended for the final document. Some examples of vocabulary deletions include pleasure, virginity, nakedness, male/son preference, gender bias, self-determination, abuse of power, and gay. However, the similarly controversial terms masturbation, abortion (albeit in a teacher-only footnote), emergency contraception where legal and available, genital mutilation/cutting, same-sex, and homophobia, were retained (see Goldman, 2012). Similarly, some key ideas in the draft document were deleted or altered, e.g. ‘Knowing that sexual abuse in the family is always wrong’ now reads ‘All cultures have different ways of respecting privacy and bodily integrity’ in the final document (2012, p. 213). Both reviewers conclude that the *Guidance*, although it has no legal mandate for implementation, makes an authoritative, worthy and valid contribution to the sexuality [puberty] education of children and adolescents, both in content presence and teaching potential. Goldman (2012) further argues that, without the compulsory teaching of sexuality [puberty] education at every school year level, the contemporary “status quo of [knowledge] delay and censorship will not change” (p. 204).

### 3.2.5 WHO and BZgA, 2010

This two-part document (31 and 32 pages, respectively), titled *Standards for Sexuality Education in Europe: A Framework for Policy Makers, Educational and Health Authorities and Specialists* (2010), was initiated by the World Health Organisation’s (WHO) Regional Office for Europe, and developed with Germany’s Federal Centre for Health Education (BZgA), Cologne. The document responds to the need for uniform educational standards and solutions to new challenges such as globalisation and migration, new media cultures, the HIV pandemic, child sexual abuse, and changing sexual rights, attitudes and behaviours. These “holistic sexuality education” *Standards for Europe* (2010, p. 5) are applicable from birth to the end of school life, in 53 countries, and to parents and schools of many cultural/ethnic heritages, thus providing a valuable source of learning for other world regions and circumstances (p. 10). The document identifies the philosophical perspective, rationale, definitions, learning objectives, internationally recognised evidence, and a detailed matrix of themes and topics for age-
appropriate discussion that constitute the presence of puberty education. The document does not provide specific pedagogies, but it exceeds UNESCO’s (2009) preventative provenance by actively promoting the introduction and/or upgrading, of positive, equitable, rights-based, and integrated knowledge, starting from birth, focussed on “an understanding of sexuality as an area of human potential” (WHO & BZgA, 2010, p. 5, emphasis added). Further, this document is structured according to the Knowledge, Skills, and Attitudes (KSA) model of learning goals (see Chapter 2.2.4).

These Standards for Europe (2010) apply to six age-appropriate knowledge levels; babies and toddlers aged birth to 3-4 (Stage 1), children aged 4-6 (Stage 2), children aged 6-9 (Stage 3), early adolescents aged 9-12 (Stage 4a), early/middle adolescents aged 12-15 (Stage 4b), and middle/late adolescents aged 15-18 and over (Stage 5) (2010, pp. 24-26). The eight themes for content or presence, and optimal outcomes or potential, are Human body and human development; Fertility and reproduction; Sexuality (in terms of body, intimacy and sexual experience); Emotions; Relationships and lifestyles; Sexuality, health, and well-being; Sexuality and rights; and, Social and cultural determinants of sexuality (values/norms) (pp. 38-50). These themes cover a varying number of topics, with an average of 75 standards for the topic set of Information, or Knowledge (K), Skills (S) and Attitudes (A) in each age group. While many of these are main topics or minimal standards of sexuality education curricula, some are additional and optional. Further, some topics are repeated across age groups to consolidate previous learning, or to extend particular learnings.

For example, in the eighth theme Social and cultural determinants of sexuality (values/norms), in knowledge (K) for Stage 2 children aged 4-6, content includes “gender, cultural and age differences; values and norms differ by country and culture; all feelings are ok, but not all actions taken as a result of these feelings”, and, consolidating previous learning, “social rules and cultural norms/values” (2010, p. 41). Teaching standards’ content for skills (S) and attitudes (A) are also provided. In knowledge (K) for Stage 4b students aged 12-15, content extending previous learning includes “the influence of peer pressure, media, pornography, (urban) culture, religion, gender, laws and socioeconomic status on sexual decisions, partnership and behaviour", also with accompanying skills (S) and attitudes (A) (p. 47). These Standards for Europe (WHO & BZgA, 2010), then, promote the four essential, interconnected elements of rights-based sexuality education, according to Berglas et al. (2014). The founding principle, that adolescents hold inalienable sexual rights, is developed and implemented through the second element, that is, praxis in knowledge, or “content addressing larger contextual issues that affect sexual
decision making... “. The third element, skills, includes “…critical thinking about how these complex topics affect their sexual lives”, and the fourth, attitudes and/or goals, includes positive sexual health, participation and empowerment (Berglas, 2014, p. 68).

3.2.6 Haberland and Rogow, 2011
This two-volume document (296 and 196 pages, respectively), titled It’s All One Curriculum: Guidelines and Activities for a Unified Approach to Sexuality, Gender, HIV, and Human Rights Education (Rev. ed.) was edited, in 2011, by Nicole Haberland and Deborah Rogow for the Population Council, New York. Developed by an International Sexuality and HIV Curriculum Working Group of organisations and specialists for the Population Council, a USA-based, non-profit, international organisation, the One Curriculum is based on evidence identifying “gender inequality as a key factor driving the AIDS pandemic” (2011, v. 1, p. iv). Its pedagogical activities were field-tested in eight countries, with the “ultimate goal… [of developing] the capacity of young people to enjoy – and advocate for their rights to – dignity, equality, and responsible, satisfying, and healthy sexual lives” (2011, v. 1, p. 2). The document identifies the why, what and how of puberty and sexuality education, both in presence and potential, and so exceeds the SIECUS, UNESCO, and WHO and BZgA documents’ positions, by including comprehensive details of effective teaching methods, critical thinking skills, agency through advocacy, and sample pedagogies that are closely correlated with the content (see Anderson & Krathwohl, 2001; Chapter 4). However, the less-than-sufficient aspect of this document is the narrower age-range of pedagogies, nominally aimed at middle adolescents aged 15, although many activities are adaptable for students aged 10. The publishers offer the prospect of future versions for younger students “pending demand” (2011, v. 1, p. 15), but the significance of education for puberty (see Chapter 1.1.9) is that the earlier onset of puberty and the ubiquity of digital communications make such multi-age versions a necessity, and the highest-order priority, for students at all school levels.

The One Curriculum (2011) applies to early and middle adolescents aged 10-18. Its eight units for content or presence, and optimal outcomes or potential, are Sexual health and well-being require human rights, Gender, Sexuality, Interpersonal relationships, Communication and decision-making skills, The body, puberty, and reproduction, Sexual and reproductive health, and, Advocating for sexual health, rights, and gender equality. In Volume 1, these topic units comprise 77 sub-topics, with 22 fact sheets supporting technical reference sources. For example, the second topic, Gender, addresses gender definition, identity, norms and roles, education, media stereotypes, how gender affects
mobility, safety in public places, civic and political participation, work and economic resources, marriage, religion, bodily autonomy, violence, sexual coercion, and more. Volume 2 contains corresponding activities in a bank of 54 sample classroom pedagogies, with background information and answer prompts for teachers, handouts or worksheets for students. For example, activities for Gender include 12 pedagogies for students aged 10-18, such as Male and female word webs, a Memory journey about gender, a Research project about gender in the school environment, Altering bodies, Speaking truth to power, and more. Specifically, in Male and female word webs, small single or mixed-sex groups of students “create word webs about what society says it means to be a ‘man’ or a ‘woman’ and discuss where these ideas come from…” (2011, v. 2, pp. 32-33).

The *One Curriculum* (Haberland & Rogow, 2011) is very focused on gender and equality because global evidence confirms that adolescents and young adults who accept the rights and principles of gender equality have better sexual health outcomes, including lower STI rates, than do their peers who hold less egalitarian attitudes (2011, v. 1, pp. 4; see also Cottingham, Germain, & Hunt, 2012; UNICEF, 2014b). Further, Rogow et al. (2013) show, through 423 global responses and five nation-based program evaluations, that a sexuality education “empowerment approach” integrating a gender perspective, human rights focus, critical thinking skills, and interactive teaching methods, is taking place in “diverse geographic and programmatic contexts” (pp. 154-155). The global dissemination of this approach is contributing to better sexual health outcomes, although teacher capacity and preparedness remain a key challenge (2013, p. 165).

In a review of the first print of Haberland and Rogow’s *One Curriculum* (2009), Hallgarten (2010) noted that while the case for sexual and reproductive health education is very often argued solely on public health grounds, it is, rather, the “universally relevant” (p. 192) human rights issues such as discrimination and gender [in]equality that have the highest impacts on an individual’s lifelong health chances. Hallgarten argues that such education is ultimately a moral, or as Lamb (2010a) prefers, ethical, issue. That is, whether it is dangerous and corrupting to talk to young or unmarried people about sexuality, or whether it is worse to intentionally deprive them of their rights and needs for education that will help them determine their own health, wellbeing, and futures. However, ‘universally relevant’ human rights were devised and promulgated, under the UN General Assembly’s Presidency of Dr H.V. ‘Doc’ Evatt, former Attorney-General of Australia, with the express intention of superseding dictates of patriarchalism, culturalism, and religious dogmatism.

Cottingham et al. (2012) point out that when international and national human
rights charters, or agreements such as the Millennium Development Goals (UNMDG, 2015) are ratified by states, processes of provision, both immediate and progressively realised, and of accountability, both practical and visible, become legally binding. Some of these global rights, for example, access to family planning information and contraceptive services, eliminating discrimination against women in the field of health care, and the Millennium target 5B that mandates universal access to reproductive health by 2015 (Cottingham et al., 2012, pp. 1-7), necessitate the provision of comprehensive sexuality and reproductive education to adolescents and unmarried adults (see also Huck, 2012). Many countries, notably Brazil (Cottingham et al., 2012), and Estonia (UNICEF, 2011), have responded positively to these legal obligations (Munoz, 2010). Although UN rights/entitlements and global public health approaches are complimentary, they can still be highly effective, because intra-national interventions can be motivated, financed and monitored by international aid organisations (Reading et al., 2009). However, the USA has been slow to convert its federally-funded abstinence-only-until-marriage programs to evidence-based approaches, even after the Society for Adolescent Medicine’s decision, in 2006, that such exclusive funding laws were “ethically flawed and interfere with fundamental human rights” (cited in Cottingham et al., 2012, p. 5; see also Levesque, 2008; Levine, 2002).

The USA has the highest rates of teenage pregnancy and STIs of all developed countries (Preston, 2013; Stanger-Hall & Hall, 2011). Its preferred model of abstinence-only-until-marriage sex education (Stanger-Hall & Hall, 2011), since 1981, is based on the premise that engaging in “any type of genital contact or sexual stimulation between two persons” before marriage is morally wrong, emotionally/physically deleterious to personal and public health, and “…can undermine the capacity for healthy marriage, love and commitment” (Dailard, 2006, p. 1). That model, which evidence shows to be, at the very least, ineffective (see Kirby, 2011), and increasingly, unnatural, unethical and legally divisive, continues to be funded by the federal government, although funding for other models is no longer prohibited. In 2010, USA President Obama instituted the first evidence-based federal investment in reducing teenage pregnancies and STIs (Stanger-Hall & Hall, 2011). Educators are now focused on prevention-oriented programs based on risk-aversion strategies, to keep adolescents and unmarried young people “safe” (Boonstra, 2011, p. 3). However, the prevention ‘science’ model still considers sexual activity as inimical or inherently risky to personal and public health, with “unsafe sex” categorised as a “problem behaviour” on par with substance misuse, unsafe driving, violence, and mental health problems (Catalano et al., 2012, p. 1653). Programs of Moral
or Character Education may be part of this prevention ‘science’ model (Gavin et al., 2010), or perhaps, rebadged abstinence-only-until-marriage programs.

**3.2.7 FoSEI, 2012**

This 42-page document, titled *National Sexuality Education Standards: Core Content and Skills, K-12*, was published in 2012, in New York, by the Future of Sex Education Initiative (FoSEI). It provides “a baseline of information that is grounded in the benefits of abstinence” (p. 8), with essential sexuality education core content, skills, and standards for students in all USA school levels from Kindergarten to Grade 12. The non-government organisation Future of Sex Education (FoSE), formed in 2008 by staff members of the organisations SIECUS, Advocates for Youth (founded in 1980), and Answer (founded in 1981) funds the advancement of comprehensive sexuality education in USA public schools.

These *Standards: K-12* (FoSEI, 2012) are based on existing USA documents including SIECUS’ own *Guidelines* (2004), as discussed in Section 3.2.3. Like their European counterpart, previously discussed in Section 3.2.4, these USA Standards: K-12 (2012) present age-specific core knowledge and skills treating sexuality as a normal, natural, healthy part of human development that is highly relevant to students. However, in stark contrast to the fulsome wellbeing and rights-based European approach that applies from birth, the Standards: K-12 are more narrowly aimed at delaying the onset of sexual activity, preventing sexually risky behaviours, addressing harassment and violence in schools, and supporting schools in “improving academic performance… [and] high school graduation rates” (2012, p. 6).

The Standards: K-12 (2012) apply to four age-groups and USA school grades, namely children aged 5-8 (Grades K-2), children/early adolescents aged 9-11 (Grades 3-5), early/middle adolescents aged 12-14 (Grades 6-8), and middle/late adolescents aged 15-18 (Grades 9-12). The seven topics for content or presence, and optimal outcomes or potential, are Anatomy and physiology, Puberty and adolescent development, Identity, Pregnancy and reproduction, Sexually Transmitted Diseases (sic) and HIV, Healthy relationships, with special emphasis on new technologies, and, Personal safety (pp. 24-36). The eight Standards are Core concepts, Analysing influences, Accessing information, Interpersonal communication, Decision-making, Goal-setting, Self-management, and, Advocacy (2012, p. 11). These three elements are presented in two tabular formats (pp. 12-23). The first table set is categorised by age/grade, with standards on the horizontal x-axis and topics on the vertical y-axis. The second table set is categorised by topics, with
standards on the horizontal x-axis and age/grade achievement levels on the vertical y-axis.

As with all the other sets of guidelines or standards for sexuality education that have been canvassed above, the Standards: K-12 (2012) are voluntary. Stanger-Hall and Hall (2011) support the connection to established academic standards, having already recommended that the goals of educated and responsible adolescent decision-making, and reduced teenage pregnancy/STI rates, may be more quickly achieved by aligning and integrating sexuality education with the USA National Science Standards. Still, this document has a very different, much narrower, orientation and focus than the international guidelines already addressed. Bay-Cheng (2013) points out that the moralist, gendered and heteronormative “deficit- and fear-based notions” (p. 2) of adolescent sexuality in the USA, so characteristic of its abstinence-only programs, are indicative of a perpetuating cycle of apprehension, risk, and problematisation of sexual behaviour. It may be that the moral negativity and practical denial of adolescents’ normative sexuality development and rights in the USA (Stenger-Hall & Hall, 2011), which has not signed the UN Convention of the Rights of the Child (Bay-Cheng, 2013), will defeat hopes of “normalisation instead of dramatisation… provision instead of restriction… [and] transformation instead of accommodation” (2013, pp. 6-9) regarding ethical parenting, sexuality education and access to health services for adolescents. As Lamb (2010a) argues, “Educating about rights... and harms… in a democracy is critical to citizenship” (p. 93). The UN Special Rapporteur on the right to education, Vernor Munoz (2010), states “comprehensive [sexuality] education acts as a guarantor of a democratic and pluralistic environment” (p. 4).

Further, it may be argued that this fear of female and/or adolescent sexuality, and its consequent moral hypocrisy, discrimination and violence, stems from what Bay-Cheng (2013, pp. 3-4) identifies as deeply “entrenched… resource and power inequalities… based on gender, [economic] class, race, and age” apparent in USA society. Schalet (2011) notes that American parents denigrate adolescent sexual behaviours, assert their status as unilateral authorities owed obedience over behaviour codes, and then fully expect parental/child conflicts to ensue. These attitudes are, in each circumstance, in direct contrast to the Dutch approach of negotiated parenting that accepts normalised sexuality development (Schalet, 2011, see also Gresle-Favier, 2013).

3.3 The Education Dividend
It has long been known that decreasing fertility rates are directly linked to higher workforce participation and increases in national or regional economic growth, as a
demographic bonus or dividend from changes to overall population size and age structure. However, a new global study (Crespo Cuaresma et al., 2014) shows that these labour productivity benefits are predominantly caused by educating young people, and specifically, females (p. 3). Using an enhanced data set of 105 countries for the period 1980-2005, with state-of-the-art estimation methods that overcome bias from the worker number ‘productivity effect’ and age structure ‘translation effect’, researchers find that educational improvement resulting in higher levels of cognitive skills, knowledge accumulation, technology innovation, and educational attainments of young people is the key driver of lower fertility rates, improved health status of the population, and accelerated economic development (pp. 13-14). In countries where fertility rates fell, but education attainment levels, particularly of girls, did not rise, the economic, health and human capital indicators barely improved.

The findings of that study demonstrate the multiple and exponentially valuable effects of universal education to each nation, and to the world (see also Dixon & Nussbaum, 2012; Munoz, 2010). Education attainment, age, and sex are now the three paramount factors of global population policy (Lutz, 2010), and thus of international discussions and determinations on social, economic and health issues, such as those driving the eight Millennium Development Goals (see UNMDG, 2015). In September 2015, the United Nations will adopt 17 new, universally applicable Sustainable Development Goals (SDGs) extending to 2030 (IPPF, 2014). These focus on the pillars of economically, environmentally, and socially sustainable development, and possibly another of peace and security, but do not necessarily insist on sexual and reproductive health and rights such as comprehensive sexuality education (2014; see also Elley, 2011).

Indeed, the lack of political, professional, and public will appears to be the only, albeit major, impediment to the implementation of comprehensive, and integrated, puberty education in many countries of the world (see Goldman & Grimbeek, 2011; Lake, 2011; Sidibe, 2009). Representatives often agree, separately, that such education is necessary and beneficial, but few countries manage to achieve a consensus of need, will, and opportunity. DeJong’s (2012) report for UNESCO, titled Comprehensive Sexuality Education: The Challenges and Opportunities of Scaling-Up, shows that, when the determining factors of professional preparation, sufficient school funding, and political/public approval are in place, the scaling-up of proven, cost-effective and sustainable programs into primary and secondary school curricula is successful. One of the six national case studies, in this third follow-up report to UNESCO’s (2009) International Technical Guidance (Section 3.2.4), is Thailand, where comprehensive
sexuality education is “transversal”, integrated in several subjects in the core curriculum (DeJong, 2012, p. 72) from Year 1, in a majority of schools (see also Kay et al., 2010).

3.4 Overview of LA Conceptualisations in ACARA’s Australian Curriculum

This Literature Review now focuses on the underlying conceptualisations of the Australian Curriculum Learning Areas (LAs). As subjects to be analytically audited they are central to the architecture and logic of this thesis. In each section, an examination of the conceptualisations of each LA is followed by a selection of contemporary and relevant literature focusing on that particular LA. Note that all ACARA LAs address seven General capabilities, namely, Literacy, Numeracy, Information and communication technology (ICT) capability, Critical and creative thinking, Personal and social capability, Ethical understanding, and Intercultural understanding. These General capabilities reference themes and authors used in this thesis, including Anderson and Krathwohl (2001), and are detailed in a 129-page online document (ACARA, 2013b), as well as in each LA’s conceptualising Shape document and online file. Further, each LA is oriented, at varying levels, to three Cross-curriculum Priorities, namely, Aboriginal and Torres Strait Islander histories and cultures, Asia and Australia’s engagement with Asia, and Sustainability. Thus, many concepts underlying puberty education foci, aims, cognition, and attitudes/outcomes (see FoSEI, 2012; Haberland & Rogow, 2011; SIECUS, 2004; UNESCO, 2009; WHO & BZgA, 2010) are contiguous, and aligned, with those of each LA (see also Chapter 2.2.4). Further, a section in each LA curriculum document Overview acknowledges and affirms student diversity, such that “teaching about reproduction and sexual health... ensure[s] that the needs of all students are met, including students who may be same-sex attracted, gender diverse, or intersex” (ACARA, 2015, variable page numbers; see also Aggleton et al., 2006).

3.4.1 English, Foundation-Year 10

The new Australian Curriculum for English (ACARA, 2015) is now in version 7.3 (January) online. It has three Strands with a total of 13 Sub-strands. Learning is recursive and cumulative, and is oriented through receptive modes of Listening, Reading, Viewing, productive modes of Speaking, Writing, and Creating, or multi-modalities.

~ Language: Knowing about the English language.

Sub-strands: Language variation and change; Language for interaction; Text structure and organisation; Expressing and developing ideas; Sound and letter knowledge.
Literature: Understanding, appreciating, responding to, analysing and creating literature.

Sub-strands: Literature and context; Responding to literature; Examining literature; Creating literature.

Literacy: Expanding the repertoire of English usage.

Sub-strands: Texts in context; Interacting with others; Interpreting, analysing, evaluating; Creating texts.

Within these 13 Sub-strands there are 33 Thread foci, which in turn contain varying numbers of Content descriptions for different year levels, as shown in the Scope and sequence chart (ACARA, 2015; see also Table 3). English v7.3 contains many expanded features, including Content elaborations that illustrate content for teachers’ assistance, General capabilities and Cross-curriculum perspectives denoted by icons (see also ACARA, 2013b), and a Glossary. The architecture is informed by the conceptualisation document, titled Shape of the Australian Curriculum: English (National Curriculum Board (NCB), 2009a), published by the precursor organisation to ACARA.

The integrative principle for puberty education at every year level of the English LA is that language, which in the case of the Australian Curriculum means Standard Australian English, is our basic form of communication, meaning-making, relationship building, and identity/values formation. Similarly, puberty education is central to developing an ethico-sexual rationality or phronesis, including understanding the self and others (noesis), knowledge of physio-social information and concepts (episteme), and interactional competencies (techne). Speaking and viewing, like listening (Music LA) and moving (Dance, HPE LAs), are learned viscerally as well as intellectually, and are intrinsic to Husserl’s (1936) lifeworld (Lebenswelt) of consciousness, meaning, intentionality, and pre-given judgment (cited in Honderich, 1995, p. 382-384). “Literacy is not just about decoding marks on a page; it is also about performing social acts of meaning…” (Carrington & Robinson, 2009, p. 29). Just as English, “central to the learning and development of all young Australians” (ACARA, 2015, p. 4), fosters engagement and progress in every LA, students’ cognitive enhancement and knowledge acquisition in puberty education benefits learning in all LAs, carrying through lifetime benefits in communication, interaction, and self-esteem. Indeed, high-level cognitive skills and engaged understandings (Anderson & Krathwohl, 2001) are recommended General capabilities for all students, in all LAs. There may be many opportunities for puberty education presence and potential for integration in this English curriculum.

As Simpson and White note, “communication is a delicate balance” (2013, p. xxvi). Their book for student-teachers, Language, Literacy and Literature, argues that forming
agentic pedagogies for learning and teaching English through the new Australian Curriculum hinges on a combination of three factors. These are the curriculum’s qualities of theory/knowledge strength, and praxis/skills flexibility; its triangular structure of Language, Literacy and Literature Strands; and the spiral nature of its (originally) four learning processes, namely Investigating, Engaging, Enacting, and Reflecting, carried on through time. ACARA’s English curriculum now names six learning modes. The aim of Derewianka and Jones’ (2012) book, *Teaching Language in Context*, is to introduce teachers to the new Language Strand, and its applications and *integrations*. These include speaking, reading, understanding, writing and interacting with others/audiences, “students’ awareness of interpersonal issues” (2012, p. 4) and wider contexts, and the more defined forms of evidence, argument, reportage, analysis and evaluation.

### 3.4.2 Mathematics, Foundation-Year 10A

The new Australian Curriculum for Mathematics (ACARA, 2015) is now in version 7.3 (January) online. It has three content Strands with a total of 13 Sub-strands. Learning is recursive and cumulative, with four proficiency threads, namely Understanding, Fluency, Problem solving, and Reasoning. Extra content, named Year 10A, offers enriched learning within the compulsory Year 10 level. This option is advantageous for students intending to pursue higher Mathematics (Courses A or B), Mathematical Methods (Course C), or Specialist Mathematics (Course D) in the senior secondary Years 11-12, aged 16-18.

*~ Number and Algebra: Number sense and strategies for counting and representing numbers.*

*Sub-strands:* Number and place value; Fractions and decimals; Real numbers; Money and financial mathematics; Patterns and algebra; Linear and non-linear relationships

*~ Measurement and Geometry: Size, shape, relative position and movement of 2-dimensional figures in the plane and 3-dimensional objects in space.*

*Sub-strands:* Using units of measurement; Shape; Location and transformation; Geometric reasoning; Pythagoras and trigonometry

*~ Statistics and Probability: Representation, collection and interpretation of data.*

*Sub-strands:* Chance; Data representation and interpretation.

Within these 13 Sub-strands there are varying numbers of Content descriptions relevant to each year level, as shown in the Scope and sequence chart (ACARA, 2015; see also Table 3). Mathematics v7.3 contains many other features, including Content elaborations,
General capabilities and Cross-curriculum perspectives (see also ACARA, 2013b), and a Glossary. The architecture is informed by the conceptualisation document, titled Shape of the Australian Curriculum: Mathematics (NCB, 2009c).

The integrative principle for puberty education at every year level of the Mathematics LA is that information interpretation, clarity of reasoning and judgement, and problem-solving skills are basic to meaning making, relationship building, evaluative and judgement criteria, and decision-making. The 21st century is information driven, and Mathematics develops the numeracy and quantification capabilities necessary for daily life and work. Mathematics studies develop spatial, conceptual and procedural confidence, logically sophisticated understandings, creative explorations and strategies that benefit all young Australians (see Bragg, 2007; Zevenbergen & Zevenbergen, 2009), and optimally, an appreciation of the power, beauty and elegance of mathematical reasoning (ACARA, 2015). Students use Mathematics for clear thinking, measured analysis, and problem-solving in every LA, just as puberty education provides crucial and generalised benefits for interactive clarity, and responsible action, as ethico-sexual rationality or phronesis. Thus, many opportunities for puberty education presence and potential may be available for integration in this Mathematics curriculum.

3.4.3 Science, Foundation-Year 10

The new Australian Curriculum for Science (ACARA, 2015) is now in version 7.3 (January) online. It has three content Strands, with a total of 11 Sub-strands. Learning is recursive and cumulative, addressing six overarching ideas that frame and support a scientific view of the world, namely, Patterns, order and organisation, Form and function, Stability and change, Scale and measurement, Matter and energy, and Systems.

~ Science Understanding: Facts, concepts, principles, laws, theories and models that have been established by scientists over time.

Sub-strands: Biological sciences: Chemical sciences; Earth and space sciences; Physical sciences.

~ Science as a Human Endeavour: Science as a unique way of knowing and doing, and the role of science in contemporary decision-making and problem solving.


~ Science Inquiry Skills: Investigating ideas, evaluating claims, solving problems, drawing valid conclusions and developing evidence-based arguments.

Sub-strands: Questioning and predicting: Planning and conducting: Processing and analysing data and information: Evaluating: Communicating:
Within these 11 Sub-strands there are varying numbers of Content Descriptions relevant to each year level, illustrating the “closely integrated” (2015, p. 7, emphasis added) nature of learning content and science practice, as shown in the Scope and sequence chart (see also Table 3). Science v7.3 contains many expanded features, including Content elaborations, General capabilities and Cross-curriculum perspectives (see also ACARA, 2013b), and a Glossary. The architecture is informed by the conceptualisation document, titled *Shape of the Australian Curriculum: Science* (NCB, 2009d).

The integrative principle for puberty education at every year level in the Science LA is that curiosity, rationality, collaboration and problem-solving skills are basic to meaning making, a sense of oneself in the world, and a forward-looking openness. It is imperative that a futures-oriented curriculum helps students participate in an adaptable, efficient, creative, and complex society. “Science is a powerful human endeavour” (NCB, 2009d, p. 4), fuelled by wonder, questioning, and the joy of discovery that meets the need for all young Australians to make personal and social decisions on the basis of an informed, scientific worldview (see also Reiss, 2008). Just as the study of Science helps students think objectively but collaboratively, turn observation into evidence, and seek truth and transparency in every LA, puberty education is central to learning in every LA, promoting understanding of the self and others (*noesis*), knowledge of biosocial information and concepts (*episteme*), and interactional competencies (*techne*). Accordingly, there may be many opportunities for puberty education presence and potential for integration in this Science curriculum.

Talbot and Mockler’s (2013) book, *Australian Curriculum Classroom Approaches: Science*, identifies progressive learner-centred ideology as the major, but not only, Science LA curriculum design and implementation orientation. In line with already embedded Constructivist approaches and policies (see Chapter 2.2.2, Chapter 4.5), it promotes individual transformation through agentic meaning making, authentic understanding, real-world contexts and problem-solving pedagogies, higher-order thinking, and evidential assessment. The book uses a “backward design” (2013, pp. 12-14) of inquiry, task, and assessment in four Science units for students in Years 7-10, aged 12-16. This design eschews ‘content coverage’ in favour of teaching and learning that emulate the real work of scientists, engaging high-level cognition and informed decision-making with evidence-based issues, e.g. an ethical inquiry into DNA testing, or GM food.

### 3.4.4 History, Foundation-Year 10

For more than 20 years, Australian students were offered history combined with
geography as Social Studies in primary schools, and Studies of Society and the Environment (SOSE) in secondary schools. However, History is now the premier component in the development of separate Humanities and Social Sciences disciplines in the Australian Curriculum, after the insistence of former conservative Prime Minister John Howard, in 2007, that Australian students are unaware of Australian history and their national heritage (Reynolds, 2012, p. xvi).

The new Australian Curriculum for History (ACARA, 2015) is now in version 7.3 (January) online. It has two content Strands, with a total of 10 Sub-strands. Its recursive and cumulative learning comprises six broad concepts for developing historical understanding, namely, Evidence, Continuity and change, Cause and effect, Perspectives, Empathy, and Significance and contestability.

~ Historical Knowledge and Understanding: Personal, family, local, state or territory, national, regional and world history.

Sub-strands: For Foundation to Year 6, there are four elements, namely, Year level focus; Key questions; Key concepts; and Knowledge and understanding. For Years 7-10, there are five elements, namely, Year level focus; Key questions; Key concepts; Overview content; and the student’s choice of one of three Depth studies for the historical period at each year level.

~ Historical Skills: Skills used in the process of historical inquiry, interpretation and the use of evidence.

Sub-strands: Chronology, terms and concepts; Historical questions and research; Analysis and use of sources; Perspectives and interpretations; Explanation and communication.

Within these Sub-strands there are varying numbers of Content descriptions relevant to each year level, as shown in the Scope and sequence chart (ACARA, 2015; see also Table 3). History v7.3 contains many other features, including Content elaborations, General capabilities and Cross-curriculum priorities (see also ACARA, 2013b), and a Glossary. Again, its architecture aligns with the conceptualisation document, titled Shape of the Australian Curriculum: History (NCB, 2009b).

The integrative principle for puberty education at every year level in the History LA is that storytelling, pattern- and evidence-seeking, and critical reasoning skills are basic to meaning making, identity/agency formation, and relationship building. “Through an understanding of their own and others’ stories, students… tap into their innate curiosity about the world… [to] develop an appreciation of the richness of the human past” (NCB, 2009b, p. 16), the power of human agency and diversity, and the impacts of social
forces on the future. History develops necessary conceptual and procedural confidence, and perspectival, reflective and interactive skills, for all young Australians. History helps students understand continuity and causality, encompass change, and future-orient themselves in every LA, just as puberty education helps in understanding the self and others (noesis), and developing an ethico-sexual rationality (phronesis) that applies in every LA. This curriculum may hold many opportunities for puberty education presence and potential for integration.

In Mockler and Talbot’s (2013) book, Australian Curriculum Classroom Approaches: History, their “backward design” (pp. 12-14) is applied to four History units for students in Years 7-10, aged 12-16. Deep thinking and active questioning leads to rich tasks and evidence-based assessments where students work as cold-case “history detectives, piercing together evidence to make judgements about a past event” (p. 16). Similarly, in Reynolds’ (2012) book Teaching History, Geography & SOSE in the Primary School (2nd ed.), “[C]urriculum integration begins with the idea that the sources of curriculum should be problems, issues and concerns posed by life itself” (Beane, 1995, cited in Reynolds, 2012, p. 261, emphasis added), supporting primary school students’ knowledge, understanding, and appreciation of their own and other cultures, in the past, in the present, and joining the debate for the future (p. xvii).

3.4.5 Geography, Foundation-Year 10

The new Australian Curriculum for Geography (ACARA, 2015) is now in version 7.3 (January) online. It has two content Strands with a total of 11 Sub-strands. Learning is recursive and cumulative, with seven concepts developing geographical understanding, namely, Place, Space, Environment, Interconnection, Sustainability, Scale, and Change.

~ Geographical Knowledge and Understanding: Facts, generalisations, principles, theories and models developed in geography.

Sub-strands: For Foundation to Year 6, there are four Sub-strands, namely, Year level focus; Key inquiry questions; Key concepts; Content descriptions. For Years 7-10, the same four elements are used, namely, Year level focus; Key inquiry questions; Key concepts; Content descriptions; but the foci and descriptions apply to two Units of study at each year level, thereby making a total of six Sub-strands.

~ Geographical Inquiry and Skills: Processes by which students learn about and deepen their understanding of geography.
Sub-strands: Observing, questioning and planning; Collecting, recording, evaluating and representing; Interpreting analysing and concluding; Communicating; Reflecting and responding. Within these Sub-strands there are varying numbers of Content descriptions relevant to each year level, as shown in the Scope and sequence chart (ACARA, 2015; see also Table 3). Geography v7.3 contains many expanded features, including Content elaborations, General capabilities and Cross-curriculum priorities (see also ACARA, 2013b), and a Glossary. The architecture aligns with the conceptualisation document, titled Shape of the Australian Curriculum: Geography (ACARA, 2011a).

The integrative principle for puberty education at every year level in the Geography LA is that exploring dynamic spatial/temporal interrelationships and questioning the given world are central to identity and agency formation, and active participation in shaping sustainable futures, for all young Australians. “Geography integrates knowledge from the natural sciences, social sciences and humanities to build a holistic understanding of the world... [and a] socially just and sustainable future” (ACARA, 2015, p. 13, emphasis added). This includes the vital relationships and dependencies between people and their place, their space, through long time and into the future, and the diverse and dynamic understandings of these relationships. Consider, for example, the new ‘place’ of cyberspace, and digital navigation of its landscape. Just as students learn Geography to develop personal perspective in conjunction with global patterns, and help meet the challenges of the future in every LA, puberty education provides cognitive enhancement and knowledge acquisition towards an ethico-sexual rationality or phronesis beneficial in every LA. Accordingly, there may be many opportunities for puberty education presence and potential for integration in this Geography curriculum.

After 23 years of composite Social Studies/SOSE, or Human Society and its Environment (HSIE) subjects, the new Australian Curriculum embraces the discipline-based teaching of Geography, and History, for Years 1-10. In their book, Place and Time: Exploration in Teaching Geography and History, Taylor, Fahey, Kriewaldt, and Boon (2012) address questions such as what changes in a disciplinary approach? and, why does geography matter? as well as major investigative themes, inquiries and issues, and contemporary professional challenges entailed in this separation, in particular the impacts on pre-service teacher education. In Teaching History, Geography & SOSE in the Primary School (2nd ed.), Reynolds (2012) asks, “Is Geography a safer integrative discipline than the more suggestive ecologically sustainable development studies?” (p. xviii), discussing first, the foundations of Geography for primary schools, second, its
specific knowledge and understandings, and third, the ways in which Geography is linked and integrated with other LAs, as well as assessment.

3.4.6 Civics and Citizenship, Years 3-10

Citizenship is defined as the legal relationship between an individual and a state, but more broadly, it is the condition of belonging to social, religious, political or community groups, in local, national and global contexts (ACARA, 2012d). Belonging, and constructing an identity, involves active participation in the rights, responsibilities, duties and privileges of the group, according to mutually agreed values and obligations. In the new Australian Curriculum, citizenship incorporates the civil, in rights and responsibilities; the political, through participation and representation; and the social, as values, identity, and community involvement. Civics is defined as the broad body of knowledge, skills and understandings relating to the organisation and working of society. It includes Australia’s political and social heritage, democratic processes, federal system of government, public administration, and judicial system, viewed from local, state, national and global perspectives (2012d).

The new Australian Curriculum for Civics and Citizenship (ACARA, 2015) is now in version 7.3 (January) online, ready for use and awaiting final endorsement. It has two content Strands with a total of six Sub-strands. Learning addresses three key foci, namely Government and democracy, Laws and citizens, and Citizenship, diversity and identity.

~ Civics and Citizenship Knowledge and Understanding: Political and legal systems and effective participatory citizenship.

Sub-strands: Key inquiry questions, Content descriptions divided into three foci.

~ Civics and Citizenship Skills: Develop knowledge, understanding, skills, values and dispositions to become beneficiaries of and contributors to society.

Sub-strands: Questioning and research; Analysis, synthesis and interpretation;

Problem solving and decision making; and, Communication and reflection.

Within these Sub-strands there is a varying number of Content Descriptions relevant to each year level, as shown in the Scope and sequence chart (ACARA, 2015; see also Table 3). Civics and Citizenship v7.3 contains many other features, including Content elaborations, General capabilities and Cross-curriculum priorities (see also ACARA, 2013b), and a Glossary. The architecture is aligned with the conceptualisation document, titled The Shape of the Australian Curriculum: Civics and Citizenship (ACARA, 2012d).

The integrative principle for puberty education at every year level in the Civics and Citizenship LA is that “a lifelong sense of belonging to and engagement with civic
life… as a secular democratic nation with a dynamic, multicultural and multi-faith society” (ACARA, 2015, p. 12) is desirable for all young Australians. Consider, for example, the need for understanding democratic values such as freedom, equality, justice and the rule of law, and the Australian interpretation of equity as ‘the fair go’. The Civics and Citizenship LA builds on a strong values component, futures orientation, and an inquiry approach, with opportunities for students to explore their rights and responsibilities in Australia’s representative democracy, develop their senses of belonging and becoming in this diverse society, and reflect on the role of the contemporary citizen within an interconnected world. Studying Civics and Citizenship helps students develop perspective and participation in every LA, in conjunction with wider societal positions and obligations. Similarly, features of puberty education including understanding the self and others (noesis), knowledge of biosocial information and concepts (episteme), and interactional competencies (techne) are useful in every LA. This curriculum may include many opportunities for puberty education presence and potential for integration.

In Teaching History, Geography & SOSE in the Primary School (2nd ed.), Reynolds (2012) addresses questions of citizenship, such as who should have it? and, what does it entail? At this time, national boundaries around the world are being eroded by a global digital economy, and there is a huge displacement of peoples to other countries. Reynolds (2012) suggests factors for reflection and planning in relation to teaching Citizenship and Civics, with SOSE as its transitional pathway (see also Marsh & Hart, 2011, pp. 333-353).

3.4.7 Economics and Business, Years 5-10
The new Australian Curriculum for Economics and Business (ACARA, 2015) is now in version 7.3 (January) online, ready for use and awaiting final endorsement. It has two content Strands with a total of six Sub-strands. Learning addresses four key foci, namely Resource allocation and making choices, Business environment, Consumer and financial literacy, and Work and work futures. At the same time students are exposed to, and are expected to develop, a range of Enterprising behaviours and capabilities, with transferable skills, in areas such as embracing change; seeking innovation; working with others; showing initiative, flexibility and leadership; using new technologies; planning and organising; managing risk; and using resources efficiently.

~ Economics and Business Knowledge and Understanding: Facts, principles, theories, and models, and the interdependence of sectors.

Sub-strands: Key inquiry questions, Content descriptions.
Economics and Business Skills: The foundation for developing and applying enterprising behaviours and capabilities.

Sub-strands: Questioning and research; Interpretation and analysis; Economic reasoning, decision-making and application; Communication and reflection.

Within these Sub-strands there is a varying number of Content descriptions relevant to each year level, as shown as the Scope and sequence chart (ACARA, 2015; see also Table 3). Economics and Business v7.3 contains many expanded features, including Content elaborations, General capabilities and Cross-curriculum priorities (see also ACARA, 2013b), and a Glossary. Curriculum architecture is aligned with the conceptualisation document, titled The Shape of the Australian Curriculum: Economics and Business (ACARA, 2012e).

The integrative principle for puberty education at every year level in the Economics and Business LA is that, perhaps counter-intuitively, both fields use knowledge, develop skills, and explore attitudes, beliefs and values that infuse the daily lives of young Australians. Students need to learn how to make informed decisions, evaluate and communicate their understandings, appreciate the socio-economic interdependence and consequences of their actions and choices, be adaptable, resilient, and innovative, and consider the allocation of personal, local and global resources. Students need to learn to ask questions, for example, how much or when is enough? and, what is the measure of success or failure? Is ego a ‘dirty’ word? What is the ‘work/life balance’? The study of Economics and Business helps students develop ethical behaviours and capabilities in every LA, and understand the impacts of society-wide decisions on individual/family wellbeing. Likewise, puberty education values, cognition, knowledge, skills, and attitudes form students’ lifechances and futures, in every LA, home and work. There may be many integrative opportunities for puberty education presence and potential in this curriculum.

In Chapter 11 (pp. 285-308) of Teaching the Social Sciences and Humanities in an Australian Curriculum (6th ed.), Marsh and Hart (2011) aim to assist students to understand the questions surrounding economic problems, events and issues they study. Some classroom economic questions could be, for example, why do some countries have old-age pensions, while others do not? Why do recessions and depressions often lead to wars? What happens to a nation’s economy when a demographic imbalance occurs? This chapter includes a short discussion about the role of Economics and Business, the state of existing programs, and teaching/learning ideas, in anticipation of the LA’s inclusion in the Australian Curriculum.
3.4.8 The Arts, Foundation-Year 10

The new Australian Curriculum for The Arts (ACARA, 2015) is now in version 7.3 (January) online, ready for use and awaiting final endorseement. It comprises five distinct subject LAs, namely Dance, Drama, Media Arts, Music, and Visual Arts. From Foundation to Year 6, students aged 5-12 will study all five subjects. For Years 7 and 8, students aged 12-14 may continue to learn in one or more subject, as determined by the school and the educational jurisdiction. During Years 9 and 10, students aged 14-16 may have the opportunity to choose and specialise in one or more subject. Each LA is unique, with distinct knowledge, symbols, language, processes, skills and practices. However, design thinking connects and informs the different subjects, providing possibilities for students to make and respond in traditional, contemporary, innovative, and hybrid forms, using materials, techniques, and technologies from one LA to support learning in another.

Each subject LA has two Strands, with a total of four Sub-strands in each of the primary school years Foundation-Year 6, and seven Sub-strands in the secondary school Years 7-10, shown here by rationale and title. Learning in the Arts subjects also combines a range of Viewpoints, e.g. students consider artwork interpretation, or its impacts, as artists, and also as audience members.

~ Making: Students learn as artists, by using knowledge, techniques, skills and processes in Arts practices and making art works that communicate to audiences.

Sub-strands: Foundation-Year 6: Exploring ideas and improvising with ways to represent ideas; Developing understanding of practices; and, Sharing artworks through performance, presentation or display.

Years 7-10: Exploring ideas and improvising with ways to represent ideas; Manipulating and applying the elements/concepts with intent; Developing and refining understanding of skills and techniques; Structuring and organising ideas to form; and, Sharing artworks through performance, presentation or display.

~ Responding: Students learn as audiences, by exploring, analysing and interpreting artworks and responding critically to the Arts.

Sub-strands: Foundation-Year 6: Responding to and interpreting artworks.

Years 7-10: Analysing and reflecting upon intentions; and, Responding to and interpreting artworks.

These Sub-strands each contain at least one detailed Content description, as shown in the Scope and sequence chart (ACARA, 2015; see also Table 3). The Arts v7.3 contains many other features, in general, and specifically for each subject, including Content elaborations, General capabilities and Cross-curriculum priorities (see also ACARA,
2013b), and a Glossary. The architecture of each subject LA is aligned with the conceptualisation document, titled *Shape of the Australian Curriculum: The Arts* (ACARA, 2011b).

In *Education in the Arts: Teaching and Learning in the Contemporary Curriculum* (2nd ed.), Sinclair, Jeanneret, and O’Toole (2012) note that for the first time in Australia, teachers will “embrace the arts as a key learning area [and equal entitlement] within the mainstream school curriculum” (p. xix), rather than teaching arts appreciation. These editors present a collection of resources, in both theory and practice, for pre-service teachers in the “artistic arts” (p. 4). They find that the aim of compulsory Arts study is that all students make artwork and communicate it to audiences, with those audiences responding first by experiencing and then comprehending it. However, these Arts practices, and their assessments, will be pursued in a sometimes overlapping and recursive way, possibly confounding the disciplinary structure (2012).

### 3.4.8.1 Dance.

The new Australian Curriculum for Dance (ACARA, 2015, v7.3) combines the Strands of Making and Responding. Dance helps develop individual and collaborative expression “using the body as the instrument and movement as the medium” (p. 39). Its praxis integrates choreography, performance, appreciation of, and responses to dance and dance making. Notably, the Health and Physical Education (HPE) LA also uses dance as a key movement medium for lifelong physical activity.

The integrative principle for puberty education at every year level of the Dance subject is that, through communicative movement, Dance represents, questions and celebrates human experience and imagination, and promotes personal, social and cultural identity, wellbeing, and inclusion. Just as students learn Dance to engage with the world, move with its rhythmic patterns and express themselves, enhancing their studies in every LA, their cognitive enhancement and knowledge acquisition in puberty education also provides benefits in every LA, and, crucially, for a lifetime of interpretive/creative interaction. There may be many opportunities for puberty education presence and potential for integration in the Dance curriculum.

### 3.4.8.2 Drama.

The new Australian Curriculum for Drama (ACARA, 2015, v7.3) also combines the Strands of Making and Responding. Students explore, depict, and create “real and
imagined worlds” through use of body language, gesture and space to make meaning (p. 76), as performers and audience members.

The integrative principle for puberty education at every year level of the Drama subject is that, through the exploration of story, situation and role representation, Drama celebrates human experience and imagination, develops meaning, context and narrative, and promotes personal growth and social inclusion. Drama provides a safe way of imagining, inquiring into, and exploring others’ worlds. Just as students study Drama to develop their own identities and engage, inspire, empathise and enrich their interactions with others and the world, enhancing their studies in every LA, puberty education also provides learning benefits for every LA, and for life. So, there may be many opportunities for puberty education presence and potential for integration in the Drama curriculum.

3.4.8.3 Media Arts.
The Australian Curriculum for The Arts LA: Media Arts (ACARA, 2015, v7.3) also combines the two Strands of Making and Responding. Students explore and interpret the “diverse and dynamic cultural, social, historical and institutional factors that shape contemporary communication through media technologies and globally networked communications... [and learn] to reach their creative and expressive potential” (p. 108).

The integrative principle for puberty education at every year level of the Media Arts subject is that personal, social and cultural agency is now largely informed and extended through a wide variety of media. From rock art and cuneiform to television, and now through ubiquitous, wearable, continuously connected devices, the content tells stories, creates meaning, represents individuals and the world, and opens windows into other experiences and cultures. However, the nature of digital technologies and the unrelenting commodification of public cyberspaces also creates an “asymmetry of power... a place ‘where everyone is as virtual as the shadows in Plato's cave’ (Barlow, 1991, cited in Poier, 2015, pp. 206-209), or, trapped in a “radically transparent prison” (Keen, 2015). Students study Media Arts to communicate and network with each other and the world, experience dynamic and diverse perspectives, and enhance their studies in every LA, just as the study of puberty education benefits every LA by encouraging understanding the self and others (noesis), knowledge of bio-social information and concepts (episteme), and interactional competencies (techne), towards an ethico-sexual rationality or phronesis. There may be many opportunities, then, for puberty education presence and potential for integration in this Media Arts curriculum.
3.4.8.4 *Music.*

The Australian Curriculum for The Arts LA: Music (ACARA, 2015, v7.3) also combines the two Strands of Making and Responding. Music connects us, through the underlying rhythm of our own life, literally the heartbeat, to the meaningful patterns of sound, speech and movement humans encounter in the ‘always-already there’ intersubjectivity of the lifeworld, or *Lebenswelt* (Husserl, 1936, and Habermas, 1987, cited in Honderich, 1995, p. 488). Musical exposure, listening, and participation promote intra-generational relationships, multi-cultural/temporal appreciation, and critical thinking skills. Learning Music has a significant impact on students’ “cognitive, affective, motor, social and personal competencies” (ACARA, 2015, p. 143).

The integrative principle for puberty education at every year level of the Music subject is that, through the purposeful listening and/or performance of aesthetically pleasing sound, students participate both laterally and logically in the richness of human experience. Just as students study Music to develop self-disciplinary and collaborative techniques for critical and cultural understanding, promoting intellectual growth and social inclusion in every LA, puberty education provides crucial benefits in every LA, and for lifelong wellbeing (see also Agbo-Quaye & Robertson, 2010). Accordingly, there may be many opportunities for puberty education presence and potential for integration in this Music curriculum.

3.4.8.5 *Visual Arts.*

The Australian Curriculum for The Arts LA: Visual Arts (ACARA, 2015, v7.3) also combines the two Strands of Making and Responding. Visual Arts is the original recorded form of externalised memory and inter-generational communication, complementing the oral history of song and story, and it inspires and enriches the human experience from infancy onwards. Students experience and explore the concepts of artists, artworks, world, and audience. They learn in, through, and about visual arts praxis, with design thinking as a fundamental strategy, and practical skills and critical thinking as their tools.

The integrative principle for puberty education at every year level of the Visual Arts subject is that the use of traditional, new and virtual technologies of image and shape to represent the world, tell stories and create meaning is invaluable to the task of promoting learning, agency and wellbeing. Just as students learn Visual Arts to experience dynamic and diverse perspectives, communicate with each other and the world, and enhance their studies in every other LA, their cognitive enhancement and
knowledge acquisition through puberty education helps to develop an ethico-sexual rationality or *phronesis*, including interactional competencies (*techne*) useful in every LA. There may be many opportunities for puberty education *presence* and *potential* for integration in this Visual Arts curriculum.

3.4.9 **Health and Physical Education (HPE), Foundation-Year 10**

ACARA holds this LA to be very important in the new Australian Curriculum. Nurturing student wellbeing “through health and physical education *in particular*” is the third-highest priority for intended educational outcomes, after literacy and numeracy skills (Melbourne Declaration on Educational Outcomes for Young Australians, 2008, cited in ACARA, 2012c, p. 14, emphasis added). “Movement is a powerful medium for learning, through which students can acquire, practise and refine personal, behavioural, social and cognitive skills... physical fitness, healthy body weight” (ACARA, 2015, p. 4). For many years Dance has been a key movement medium in the HPE curriculum, but it is now also a separate subject within The Arts LA, providing extra opportunities for skills acquisition.

The Australian Curriculum for Health and Physical Education [HPE] (ACARA, 2015) is now in version 7.3 (January) online, ready for use and awaiting final endorsement. It has two Strands with a total of six Sub-strands. Learning is approached through five interrelated propositions, namely, a Focus on educative purposes, Take a strengths-based approach, Value movement, Develop health literacy, and Include a critical inquiry approach. The curriculum also describes 12 Focus areas addressing explicit learning opportunities and teaching elaborations for various year levels. These are Alcohol and other drugs [AD], Food and nutrition [FD], Health benefits of physical activity [HBPA], Mental health and wellbeing [MH], Relationships and sexuality [RS], Safety [S], Active play and minor games [A], Challenge and adventure games [CA], Fundamental movement skills [FMS], Games and sports [GS], Lifelong physical activities [LLPA], and Rhythmic and expressive activities [RE] (p. 8). Further, HPE content may be delivered in a range of ways in secondary schools, for example, through Home Economics and/or Outdoor education (p. 18).

*~ Personal, social and community health:* Health comprises physical, social, emotional, mental and spiritual dimensions, and its status varies across dimensions, time and contexts.

  *Sub-strands:* Being healthy, safe and active; Communicating and interacting for health and wellbeing; Contributing to healthy and active communities.

*~ Movement and physical activity:* Develop movement competence and confidence in a
range of physical activities in a variety of contexts and environments.

Sub-strands: Moving our body; Understanding movement; Learning through movement.

Within these Sub-strands there is a varying number of Content descriptions relevant to each year level, as shown in the Scope and sequence chart (ACARA, 2015; see also Table 3). HPE v7.3 contains many expanded features, including Content elaborations that exemplify content for teachers’ assistance, General capabilities and Cross-curriculum priorities (ACARA, 2013b), and a Glossary. The architecture is aligned with the final conceptualisation document, titled *The Shape of the Australian Curriculum: Health and Physical Education* (ACARA, 2012f).

The integrative principle for puberty education at every year level in the HPE LA is that enhanced participation, dispositions for advocacy, and healthy choices taught in HPE are vital to a strengthened and resilient sense of self, and the ability to “build and manage satisfying relationships” (ACARA, 2015, p. 4). HPE and puberty education both provide students with crucial benefits for a lifetime of “psychological wellbeing, cognitive capabilities... productivity and personal satisfaction, [and] pro-social behaviour” (p. 1). It appears, though, that ACARA’s community consultation rounds for HPE, seeking feedback on draft documents, have given voice to two distinct interest sectors. One seems to favour health and wellbeing, and approves the contemporary curriculum reorientation from the previous harm minimisation approach to a strengths-based approach, while another sector advocates for more outdoor education and sports. Changes made to drafts after submission and consultation rounds also appear to reflect the broader conservative turn in Australian society that has become obvious since the election, in 2010, of a female, unmarried, atheist, progressive party Prime Minister.

The first draft of the conceptualisation document *Shape of the Australian Curriculum: Health and Physical Education* (or HPE) was released in March 2012. The Consultation Report on this draft, released in July 2012, showed that specific representations of “concern” about the inclusion of puberty in Years 3-4 were raised by “stakeholders from the Catholic Education sectors” (ACARA, 2012b, p. 43). Puberty was also mentioned in Years 5-6, while recognising sexual feelings and behavioural expectations was included in Years 7-8, and sexual health in Years 9-10. However, the final version *Shape of the Australian Curriculum: Health and Physical Education*, released in August 2012, eliminated all of these except for puberty, in Year 5 (ACARA, 2012f). Similarly, the Glossary in the final HPE Shape document included “dimensions of health”, namely, “physical, social, emotional, mental and spiritual”, but contrary to
international education definitions, it excluded the sexual dimension, and any mention of puberty or sexuality, altogether (2012f, p. 30). Further, it described “spiritual health” as “a positive sense of belonging, meaning and purpose in life... nature and beyond” (p. 32), but this definition of the noumenal, usually associated with religion, could also apply to Australian civic life, defined in the Civics and Citizenship LA (Section 3.4.6, above), or even to the subjective transcendence that some people find in the HPE activity of surfing.

The first Australian Curriculum Health and Physical Education: Foundation to Year 10 Draft for Consultation was released in December 2012. This draft curriculum document contained the standard short paragraph on student diversity, but nothing related to puberty education in the Glossary. The draft Content descriptions did contain the words ‘discrimination, harassment and bullying based on gender, sex’ and other factors, and puberty, for students in Years 5-6, and for those in Years 9-10, ‘stereotypes, prejudice, marginalisation, homophobia, discrimination, harassment and exclusion’. However, the HPE Australian Curriculum version 6.0, released in February 2014, then v7.0 in July 2014, and currently, v7.3 in January 2015, show that the Content descriptions were minimised in length and vocabulary, while the Glossary now includes definitions for Discrimination, Intersex, Gender, Sexuality, and Sexual Health. Puberty education presence and potential should be well represented in this curriculum.

3.4.10 Technologies, Foundation-Year 10

The Australian Curriculum for Technologies (ACARA, 2015) is now in version 7.3 (January) online, ready for use and awaiting final endorsement. It comprises two distinct subject LAs, namely Design and Technologies, and Digital Technologies. From Foundation to Year 8, students aged 5-14 will study both subject LAs. For Years 9 to 10, students aged 14-16, school authorities will decide whether students can access one or both subjects, or other technologies specialisations. The modern phenomenon of digital pubertal, sexual and reproductive literacy as developed and promoted by ubiquitous information and communications technologies has been named sexeracy by Goldman and Goldman (1982). Sexeracy is implicitly addressed, in this research, through all the LA audits in the Australian Curriculum, although it is also explicitly addressed in the LAs of English (see Chapter 6.1), The Arts: Media Arts (see Chapter 6.7.3), HPE (see Chapter 6.9), and particularly, in Technologies: Digital Technologies (see Chapter 6.10.2).

Each subject LA has two Strands, namely Knowledge and understanding, and Processes and production skills, shown here by rationale and title. Further, each subject includes varying numbers of Sub-strands, Contexts, and Content descriptions relevant to
year levels, as shown in its Scope and sequence chart (ACARA, 2015; see also Table 3). Learning in the Technologies subjects is approached through two overarching ideas, namely, Creating preferred futures, and Project management, with Systems thinking, Design thinking, and Computational thinking, applying in different degrees and interrelated ways to each subject. Technologies v7.3 contains many other features, in general, and specifically for each subject, including Content elaborations, General capabilities and Cross-curriculum priorities (see also ACARA, 2013b), and a Glossary. The architecture of each subject LA is aligned with the conceptualisation document, titled *The Shape of the Australian Curriculum: Technologies* (ACARA, 2012g).

In *Teaching With ICT: Digital Pedagogies for Collaboration and Creativity*, Howell (2012) argues that, with the implementation of the new Australian Curriculum, “the intention now is that every teacher, regardless of discipline area, is a technology-based teacher” (p. 187). Certainly, most students will be digitally-proficient when they start secondary school Year 7, aged 12, standardised across states/territories (except South Australia and Western Australia) in 2015. The most valuable asset in education may be “a positive attitude and aptitude in learners [of any age] that will help them engage with new developments… a mindset of techno-fearlessness and positive inquiry” (2012, p. 199). Further, if every teacher can be expected to integrate technology with any/all discipline areas, it follows that they can also be expected to integrate puberty education, particularly that delivered through new technologies, with most LAs. Teachers’ readiness to engage with emerging technologies and apply them to every LA would thus greatly expand and enhance the learning, and teaching, opportunities for puberty education throughout the Australian Curriculum (see Smith & Lynch, 2010).

### 3.4.10.1 Design and Technologies.

The new Australian Curriculum for Design and Technologies (ACARA, 2015, v7.3) has two Strands and a total of three Sub-strands, one with contexts, and another with processes, namely,

- **Knowledge and understanding**: Analyse critically and respond creatively to challenges in a highly technological and complex future.

  **Sub-strands**: Technologies and society; and, Technologies contexts, within which students create a varying number of design solutions according to their year level, choosing from up to four contexts, namely, Engineering principles and systems; Food and fibre production; Food specialisations; and, Materials and technologies specialisations.
~ *Processes and production skills:* Producing quality designed solutions to identified problems or opportunities.

*Sub-strands:* Creating designed solutions, using five cognitive processes, namely, Investigating, Generating, Producing, Evaluating, and, Collaborating and managing.

The integrative principle for puberty education at every year level of the Design and Technologies subject is that learning about the use and development of products, services and solutions is now vital to sustainable patterns of living, and livelihoods, in all our “natural, managed, constructed and digital environments” (ACARA, 2015, p. 23). Students identify opportunities, develop innovative solutions, evaluate multiple theoretical and functional factors, and learn to manage projects that meet the existing and emergent technological needs of society. Design and Technologies promotes participation in transformative technologies, integrated ‘systems’ thinking, conceptual and procedural confidence, and collaborative and transferable skills, for all young Australians as they future-orient themselves in every LA, in the same ways that puberty education provides vital skills/benefits for a responsibly engaging and sustainable life. There may, then, be many opportunities for puberty education presence and potential for integration in this curriculum.

### 3.4.10.2 Digital Technologies.

The new Australian Curriculum for Digital Technologies (ACARA, 2015, v7.3) has two Strands and a total of four Sub-strands, one with processes, namely,

~ *Knowledge and understanding:* Empower students to shape change through use of contemporary and emerging information systems and practices.

*Sub-strands:* Digital systems; and, Representation of data.

~ *Processes and production skills:* Provide practical opportunities for innovation and development of digital solutions and knowledge.

*Sub-strands:* Collecting, managing and analysing data; and, Creating digital solutions, using five cognitive processes, namely, Defining, Designing, Implementing, Evaluating, and, Collaborating and managing.

The integrative principle for puberty education at every year level in the Digital Technologies subject is that, in the development of social and intellectual capital, and “platforms of hegemony” (Poier, 2015, p. 214) arising from these transformative technologies, privacy consequences (Keen, 2015) and risk management will be critical in the ‘ethical’ exploitation of information systems (ACARA, 2015, p. 69). Just as studies of
Digital Technologies promote “curiosity, confidence, persistence, innovation, creativity, respect and cooperation” (p. 69) useful in every LA, to meet the existing and emergent technological needs of society, so sexeracy, and puberty education (Goldman & Goldman, 1982; see also Goldman, 2003; Goldman & Bradley, 2001), provides the same crucial knowledge, skills and benefits for a lifetime. So, there may be many opportunities for puberty education presence and potential for integration in this curriculum.

3.5 Chapter Summary
This chapter has provided a review of the literature that infuses the aim, and the one broad and ten specific questions, as identified in this research. The literature concerning the contemporary international curriculum frameworks addressing school-based puberty education, adaptable for all countries, has been examined. Further, literature concerning the conceptualisations and structure of selected LAs in the new Australian Curriculum has been examined. Next, Chapter 4 Theory will provide the theoretical conceptualisations used to address the one broad and ten specific research questions in this thesis.
Chapter 4: Theory

This chapter provides the theoretical conceptualisations used to address the one broad research question, and ten specific research questions. The principal theory used is Anderson and Krathwohl’s (2001) theoretical framework for learning, teaching and assessing, and the objectives of their Taxonomy are presented in Section 4.1. Section 4.2 presents an exploration of the origins of Bloom’s (1956) theoretical framework. Section 4.3 presents an analysis of the adjustments to Bloom made by Anderson and Krathwohl in their revised theoretical framework. Section 4.4 presents an outline of the theoretical framework’s structure and processes, as illustrated in Tables 1 and 2. Section 4.5 presents the six cognitive process categories, and Section 4.6 presents the four knowledge dimension categories, in detail. Section 4.7 presents the role of Anderson and Krathwohl’s theoretical framework in auditing puberty education in the Australian Curriculum. Section 4.8 provides a chapter summary, and forecasts Chapter 5 Method.

4.1 Objectives of Anderson and Krathwohl’s (2001) Theoretical Framework

Schools and teachers face many changes and challenges in their efforts to provide an excellent and equitable education, including new technologies, a globally competitive workplace, and in Australia, the first-ever national curriculum. Teaching is an intentional and reasoned act (Anderson & Krathwohl, 2001, p. 3), but “We don’t yet know how to teach self-direction, collaboration, creativity, and innovation the way we know how to teach long division” (Rotherham & Willingham, 2009, cited in Marsh, 2010, p. 36). In this Information Revolution, teacher guidance for content, intent, and praxis rests largely in the curriculum. Many educational curricula for schools appear to have three key foci, namely, learning, teaching and assessing. A review of contemporary educational theoretical literature reveals a comprehensive, hierarchical, diagnostic, and evaluative theoretical framework addressing all these key foci, that of Anderson and Krathwohl, titled A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom’s Taxonomy of Educational Objectives (2001).

This theoretical framework is applied to the ten specific research questions posed here because it aligns with the deep thinking, inquiry approach, educational objectives, engaged and authentic pedagogies, and the life-modelling assessment requirements of many Australian Departments of Education, including Education Queensland (EQ) as the schools division of Queensland’s Department of Education, Training and Employment. Education Queensland has implemented, after Bernstein (1971) and Newmann (1996), the New Basics curricula or “what counts as valid knowledge”, Productive Pedagogies or
“what counts as a valid transmission of knowledge”, and Rich Task assessments or “what counts as a valid realisation of this knowledge on the part of the taught” (Bernstein, cited in Zyngier, 2005, p. 226; see Carrington, 2006; Chapter 2.2.2).

Similarly, Anderson and Krathwohl’s theoretical framework, or Taxonomy, is used by a number of Australian universities for its teaching and learning principles, including for pre-service teachers in Faculties of Education (see Goldman & Bradley, 2011). Many student-teachers appear to respond positively to this theoretical framework with its comprehensive, yet logical and transparent, two-dimensional model, and are able to use it productively, for themselves and their students (Goldman, 2010b, 2011b). It provides ready organisation, evaluation, and transfer of learning, teaching, and assessment objectives and requirements in any/all LAs, including content, pedagogies and outcomes (see Goldman & Coleman, 2013; Goldman & Collier-Harris, 2009).

4.2 Origin of Bloom’s (1956) Theoretical Framework
The original and best-known investigation into improving academic foci and communications, classifying learning outcomes, and standardising examination measurement, began in 1948. Professor Benjamin Bloom, from the University of Chicago, led a higher education committee of USA examiners in establishing a consistent and meaningful vocabulary to address the curriculum question, “What is worth learning?” (Anderson & Krathwohl, 2001, p. 236) and hence its corollaries, ‘What is to be examined?’ and ‘How will teaching and learning occur?’

Bloom’s committee identified three domains of learning processes, namely, the cognitive domain of knowledge and the development of intellectual skills (now called Knowledge), psychomotor domain of physical skills (now called Skills), and the affective or behavioural domain (now called Attitude). Thus, teachers applying the Bloom classification of educational objectives and goals to a learning experience would expect students to acquire new knowledge, skills and attitudes, commonly referred to as KSAs (see Chapter 2.2.4). In 1956, Bloom developed a theoretical Taxonomy of Educational Objectives, Handbook 1: The Cognitive Domain, identified as constituting “a centralising device which acts as a core theme for developing appropriate assessments, pedagogic reform and teacher professional learning” (Carrington, 2006, p. 141; see also Hogan, 2007). Commonly called the Handbook (Anderson & Krathwohl, 2001, p. xxi), its linear compilation for the cognitive domain identifies knowledge and intellectual skills in a “cumulative, hierarchical system for describing, classifying, and sequencing learning activities” (Orlich, Harder, Callahan, & Gibson, 2001, p. 97). Its six categories use
cognitive process nouns, ranging from the lowest and fairly simply conceived Knowledge, through Comprehension, Application, Analysis, and Synthesis, to the complex category of Evaluation. This list of categories, where students’ lower levels of thinking can be identified, quantified, analysed and directed towards higher levels, has been found to be one of the most cited and widely referenced sources in education (Hogan, 2007, p. 132; see also Light & Cox, 2001). However, Bloom always anticipated his *Handbook’s* taxonomic adaptation to new knowledge and changing fields of education (Anderson & Krathwohl, 2001, p. xxviii).

### 4.3 Anderson and Krathwohl’s (2001) Adjustments to Bloom (1956)

There are at least 19 alternative taxonomic structures for the cognitive processes of learning, teaching and assessing, although none has attained Bloom’s breadth and depth of use (Hogan, 2007, p. 136). Lorin Anderson, a PhD student of Bloom, now a curriculum theorist and instructional researcher, and David Krathwohl, one of the original authors of Bloom’s cognitive compilation, lead the team that has constructed an explicit update and revision of the *Handbook* (1956). This revised *Taxonomy for Learning, Teaching, and Assessing* (2001) is partly based on adjusting the names of the six categories from nouns to verbs for cognitive agency, alternately positioning Bloom’s top categories of Synthesis and Evaluation, and altering the names of three categories, namely, Knowledge to Remember, Comprehension to Understand, and Synthesis to Create.

Additionally, and most significantly, Anderson and Krathwohl separate the cognitive and knowledge components of Bloom’s relatively rigid continuum and show them in a two-dimensional hierarchical model (see Table 1), by cross-linking the categories into sub-categories and quadrants. This emphasises the specificity, flexibility, connectivity, and ease of use, and clarifies the overall and comprehensive quality, of the cognition and knowledge being addressed. Verbs denote the actions associated with increasingly complex cognitive processes, while the nouns identifying object or content dimensions of representational knowledge are similarly graduated towards higher learning. Further, these knowledge dimensions separate the abstracted, isolated, and “inert” (Anderson & Krathwohl, 2001, p. 42) pieces of information in the lowest, basic category, named Factual Knowledge, from the ideas and larger, organised forms in the second category Conceptual Knowledge, and the third category Procedural Knowledge, while adding a new, fourth, and highest category of Metacognitive Knowledge. These changes refocus the theoretical framework as an *active* diagnostic and evaluative tool.
aligning curriculum planning, pedagogies, and assessment (p. 305), that may also help to define what, and how, students actually learn (p. 232).

In these ways, Anderson and Krathwohl’s (2001) two-dimensional revision of Bloom’s (1956) theoretical taxonomic compilation is an extension of the one familiar to educators, but one with contemporary features making it student-oriented, learning-based, user-friendly and more effective (2001, pp. 23, 302). It is an “advantageous” framework (p. 301) because it identifies the location, substance, direction and strengths/weaknesses of teachers’, and students’, knowledge and cognitive processes. For example, the added highest level of Metacognitive Knowledge, or thinking about your own thinking (Hogan, 2007, p. 138), “enables the possessor to look from a distance, monitoring and regulating action proposed in response to instruction or assessment in other cells” (Anderson and Krathwohl, 2001, p. 301), promoting learning that is meaningful. This revised theoretical framework may be applied across any and all curriculum areas, at primary school, secondary school or tertiary education (see Goldman & Bradley, 2011). This Taxonomy can help to provide analytical guidelines and purposeful objectives/goals for curricula, programmes and teaching resources, and evaluative processes, which are then developmentally, psychologically, and educationally sound (see Carrington, 2006; Hogan, 2007). Further, the two-dimensional structure and its hierarchical, diagnostic, evaluative processes are easily presented as a comprehensive, yet clear, template or model for teachers’ use, as shown in Table 1, below.
4.4 Structure and Processes in Anderson and Krathwohl (2001), including Tables 1 and 2

This section illustrates how the three educational foci of Anderson and Krathwohl’s (2001) theoretical framework, namely, learning, teaching and assessing, may be planned, diagnosed, evaluated, and activated in a two-dimensional hierarchical model.

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<tr>
<th>Knowledge Dimensions</th>
<th>Cognitive Processes</th>
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<td>1. Remember</td>
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<td>2. Understand</td>
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<td>6. Create</td>
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<td>A. Factual Knowledge</td>
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<td>C. Procedural Knowledge</td>
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<td>D. Metacognitive Knowledge</td>
<td>complex, deeper</td>
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Table 1: Anderson and Krathwohl’s (2001) theoretical framework with 24 cross-linked sub-categories.

Source: Anderson, L.W., & Krathwohl, D.R. (Eds). (2001). *A Taxonomy for Learning, Teaching and Assessing*. New York: Addison Wesley Longman. Written permission has been sought from the publisher, Pearson Education, so that this modified representation of Taxonomy Table 3.1, p. 28, can be included in the digital copy of this thesis.

Table 1 identifies the graduated complexity of six cognitive processes on the horizontal x-axis of the *Taxonomy* (2001), denoted by verbs ranging from the simplest category at Remember to the more complex process of Create. Four learning object nouns, denoting knowledge content, are ranked on the vertical y-axis, from the basic category of Factual Knowledge to the deeper dimension of Metacognitive Knowledge.

This theoretical framework generates 24 graduated sub-categories denoting conjunctions of cognition and knowledge. For example, the sub-category 4C is where the fourth cognitive level, Analyse, intersects with the third knowledge type, Procedural, as shown in Table 1. The model may be sectioned into quadrants aligned with the compass points, for greater clarity, so there are six sub-categories in each of four quadrants, namely, the top-left or north-east, the top-right or north-east, the bottom-right or south-east, and the bottom-left or south-west. Thus, the intersections of the most simple cognitive processes with the most basic knowledge levels are found in the top-left corner or north-west quadrant, with intersections of the cognition and knowledge dimensions.
becoming more complex and deeper along a diagonal line towards the bottom-right corner or south-east quadrant as shown in Table 1.

Teachers using this tri-alignment of curricular learning objectives, teaching or pedagogic activities, and experiential assessments may thus produce a clear theoretical plan underlying their teaching, including starting points, content and goals, and the optimal route of students’ focus and learning outcomes/evaluations. For example, a teacher may construct the theoretical framework for a particular Learning Area (LA), so that individual students’ starting points and progressions to goals in assignments or learning outcomes are quickly and transparently modelled, identified, and assessed. Or, a teacher may plot all the students’ requirements for learning elements, content scaffolding, pedagogies and assessments derived from the theoretical framework, to assist with planning and delivery logistics, for example, across a whole school term of ten weeks.

Further, within the four quadrants and 24 sub-categories, Anderson and Krathwohl’s (2001) theoretical framework provides a more detailed list of cognitive and knowledge intersections. When the six Cognitive Process verb sub-categories are divided into a total of 19 cells, and these are cross-linked with the four Knowledge Dimension noun sub-categories, themselves divided into a total of 11 cells, the theoretical framework generates 209 more-specifically graduated cells in which various aspects of the three educational foci, learning, teaching and assessing, may be situated. Table 2, below, shows all these 209 graduated cells, by cross-linking the types and levels of cognition and knowledge.
### Cognitive Processes

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<td>A. Factual Knowledge</td>
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<td>D. Meta-Cognitive Knowledge</td>
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**Legend for Cognitive Processes:**

1. Remember
   - 1.1 Recognising
   - 1.2 Recalling

2. Understand
   - 2.1 Interpreting
   - 2.2 Exemplifying
   - 2.3 Classifying
   - 2.4 Summarising
   - 2.5 Inferring
   - 2.6 Comparing
   - 2.7 Explaining

3. Apply
   - 3.1 Executing
   - 3.2 Implementing

4. Analyse
   - 4.1 Differentiating
   - 4.2 Organising
   - 4.3 Attributing

5. Evaluate
   - 5.1 Checking
   - 5.2 Critiquing

6. Create
   - 6.1 Generating
   - 6.2 Planning
   - 6.3 Producing

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**Table 2:** Anderson and Krathwohl’s (2001) theoretical framework with 209 cross-linked graduated cells.

In Table 2, above, the 209 specific cells shown denote the sub-category conjunctions of cognition and knowledge, again following a diagonal line from the simpler intersections in the top-left or north-west quadrant, towards the deeper intersections in the bottom-right or south-east quadrant of the model. For example, the cell 4.2 – Cc, as shown in Table 2, is where the Cognitive Process Analyse, sub-category Organising, intersects with the Knowledge Dimension Procedural Knowledge, sub-category Criteria.

4.5 Cognitive Processes Evident in Anderson and Krathwohl (2001)

In Education, two important cognitive learning goals or objectives include the promotion of retention, and of transfer (Anderson & Krathwohl, 2001, p. 63). Cognitive objectives promoting retention are those whereby information presented to the student is later recognised, recalled and re-presented by the student. In this way, something once learned is embedded, and when prompted it is recalled as a past occurrence, as exemplified by the Taxonomy’s (2001) simplest Cognitive Process of Remember (see Table 1). This kind of learning outcome is called rote learning (2001, pp. 64-65; see Section 4.5.1 Cognitive processes for retention). An extension of this basic memorising is called explicit or Direct Instruction (Luke, 2013). However, a second important cognitive goal of education is transfer, whereby the student finds sense and meaning in the information, and is able to link and use what has been learned and remembered in the past to advantage in the present, and into the future. Thus, Anderson and Krathwohl’s (2001) progressively complex Cognitive Processes of Understand, Apply, Analyse, Evaluate and Create facilitate retention, but more importantly, they emphasise and promote the transfer of learning to new questions, problems, or experiences (pp. 63-64; see Section 4.5.2 Cognitive processes for transfer). Such meaningful, extended and useful learning is consistent with the view of learning as knowledge construction (p. 65).

This view of learning, called Constructivism, is a step-by-step progression of cognitive experience and knowledge integration analogous to building. Learners need real, everyday contexts, a variety of opportunities for interactive participation, and motivation. When learners are immersed or motivated to engage in an experience or activity, and this is modelled and/or scaffolded by a teacher or other facilitator, the learner is helped to build on previous knowledge and cognition to construct relevance, meaning and new knowledge that can stand alone, or be transferred, that is, used to consolidate, manage, and predict future learning (see Groundwater-Smith, Ewing & Le Cornu, 2011, pp. 74-5).

In this analysis of the cognitive processes for retention and transfer that are evident in Anderson and Krathwohl’s (2001) theoretical framework, the verbs, transitive verbs,
adjectives and nouns denoting the 24 cross-linked categories (Table 1) and their 209 sub-category cells (Table 2) will be capitalised. For example, Cognitive Process level 4 is Analyse, and its three sub-categories are Differentiating (4.1), Organising (4.2) and Attributing (4.3). Within each sub-category, alternative and supplementary vocabulary will be italicised, so that, within the sub-category Differentiating, alternative cognitive verbs suggested by Anderson and Krathwohl are *discriminating, distinguishing, focusing, selecting*, while supplementary synonyms may include *discerning, discovering, contextualising, interrogating* and *highlighting*.

### 4.5.1 Cognitive processes for retention

The simplest, most fundamental cognitive category on the horizontal x-axis in Anderson and Krathwohl’s (2001) theoretical framework, and the one that addresses only the goal of retention, is Remember. The Cognitive Process of Remember involves the memorising of information in long-term memory, and then locating and retrieving the material in much the same way as it was learned, often by rote (rotation or repetition). This material is often related to questions at a relatively low level of abstraction, that is, who, what, when, where and which (see Bloom, 1956), as found in Anderson and Krathwohl’s (2001) correspondingly basic Factual Knowledge Dimension, but may also be from the Conceptual, Procedural or even Metacognitive categories (see Section 4.6). When the cognitive practices of Remember occur at an appropriate age/grade level, the relevant information element becomes habituated, and it forms the foundations of knowledge and higher cognition. For example, this cognitive process is essential for learning to spell and then to read, for the foundations of mathematics such as multiplication tables, and for basic anatomy such as names and locations of unseen internal body parts. It is also necessary for further learning, as in the memorisation of formulae for Chemistry and Physics, or dates and places of important events in History, the reading of Music notation, or to remember the stages and timing of hormonal cycles in puberty.

#### 4.5.1.1 Remember.

The Cognitive Process of Remember at the lowest level 1 in Anderson & Krathwohl’s (2001) theoretical framework has two sub-categories, the first of which is Recognising (1.1). This concerns the learner’s process of *identifying* (2001, p. 67), and also *locating* and *confirming* the relevant knowledge in the memory, so that, for example, a student is able to *reconcile* the spelling of a list of homonymic words with the correct sounds and meanings such as bear/bare, or sell/cell. The second sub-category is Recalling (1.2),
where a learner is able to display the feat of memorisation when prompted, by *retrieving* (p. 67) the knowledge, and also *repeating, stating, listing or describing* it as it was originally found, for reinforcement or assessment. In this way a student is able to *recite* a poem, *name* the symbols and atomic weights of the Periodic Table of Elements, or *place* a picture of a foetus in the correct position for birth, as part of a body jigsaw puzzle.

### 4.5.2 Cognitive processes for transfer

The five progressively more complex cognitive processes that are identified, in Anderson and Krathwohl’s (2001) theoretical framework, for the transfer and extension of learned knowledge to new situations are those of Understand, Apply, Analyse, Evaluate and Create (see Table 1). The transferred information is often related to the more sophisticated, interrogative questions of how and why, in addition to those abstract questions from the Remember process, who, what, when, where and which. Each of these five transfer process categories will now be examined.

#### 4.5.2.1 Understand

The first of these categories, and the largest in terms of transfer-based educational goals usually emphasised in schools, is Understand. This is where learners are able to “construct meaning from instructional messages, including oral, written and graphic communication” presented in any format (Anderson & Krathwohl, 2001, p. 70). As with the single retention category Remember, learners can Understand material from any level of the Knowledge Dimension, including Factual, Conceptual, Procedural or Metacognitive Knowledge. However, the cognitive process of Understand is usually closely linked to Factual and Conceptual Knowledge, and the goal of transfer-based cognition in these knowledge levels is most often convergent, that is, to arrive at a single meaning or answer (p. 86). There are seven sub-categories of verbs, arranged in hierarchical order, which include many terms defining Understand (level 2 in Anderson & Krathwohl’s (2001) theoretical framework) as comprehending and integrating new learning into existing cognitive/knowledge schemas, thereby extending such schemas (see Table 2). These seven sub-categories will be briefly delimited here.

The simplest Understand sub-category, namely Interpreting (2.1), alternatively *clarifying, paraphrasing, representing, translating* (Anderson & Krathwohl, 2001, p. 67), and also *describing*, means that a learner is able to *comprehend* and *convert* information from one representational form, for example, a street sign or work of art, to another form such as words, to instruct children in a road safety session, or discuss with people in an
art gallery. Further, a student is able to *rephrase* a set of words, for example, by *condensing* and *exchanging* a whole document into dot-point form.

The next Understand sub-category of Exemplifying (2.2), covering *illustrating*, *instantiating* (Anderson & Krathwohl, 2001, p. 67), and also *specifying, demonstrating*, and *highlighting* means that a learner is able to give a particular “example or instance of a general concept or principle” from material that has not already been taught (p. 71). For example, a student is able to *select* and *highlight* the name of a body part that changes during puberty, from the set of all body part names. The third sub-group of Understand, Classifying (2.3), is complementary to that of Exemplifying, in that they both involve detecting samples or patterns of fit between the specific and the general. Thus, Classifying or *categorising, subsuming* (p. 67), and also *determining and codifying*, is shown where a learner is able to *place* a particular element into its overall group, by, for example, a student *sorting* the names of body parts into their functions, such as the reproductive, digestive and circulatory systems.

The fourth sub-category in the transfer-based cognitive process of Understand is Summarising (2.4), alternatively, *abstracting and generalising* (Anderson & Krathwohl, 2001, p. 67), and also *thematising, outlining, and representing*. Summarising occurs as a learner finds a theme, meaning, or related sequence of points in a set or information format, and is able to *represent* it in a concise thematic or précised form. For example, a student is asked to *abstract* and *outline* an appropriate title from a text passage in a novel about pubertal teenagers and their surfie sub-culture.

The fifth highest of the seven Understand sub-categories is Inferring (2.5), alternatively *concluding, extrapolating, interpolating, predicting* (Anderson & Krathwohl, 2001, p. 67), and also *inducing and extending*. This sub-category indicates some of the higher cognitive processes involved in the extension of thinking and knowledge into new and forthcoming situations, and clearly builds on the previous sub-category Summarising. Inferring is drawing a logical *conclusion* from presented material, and thus occurs when a learner is able to *induce* a relationship or pattern from the given instances within a set and abstract a rule for further use. A student, then, is be able to construct an *extension or prediction* of the pattern, for example, in providing a different ending to a story, perhaps an episode of surfing wave rage between teenage protagonists, based on the circumstances, narratives and expectations already established in the text.

The sixth sub-category in the transfer-based cognitive process of Understand is that of Comparing (2.6), alternatively, *contrasting, mapping, matching* (Anderson & Krathwohl, 2001, p. 67), and also *correlating and corresponding*. In Comparing, a learner
is able to detect correspondences between elements and/or patterns in any two events, objects, problems or ideas, to help construct a pattern of similarities, differences, congruity and nexus, and so aid reasoning by analogy. In this way, a student is able to consider and estimate, for example, the possible consequences of an unplanned pregnancy as opposed to those of a planned pregnancy within a stable relationship.

The seventh and highest sub-category of Understand is Explaining (2.7), alternatively, constructing a cause-and-effect model (Anderson & Krathwohl, 2001, p. 67) of a system. Such modelling may be formal and theoretical, or physically grounded in research or experience, but a learner is able to all construct the components, affects and consequences of change within a system. For example, a young student is able to reveal the elements and processes of the hydrological cycle, or clarify the menstrual cycle, while an older student is able to model the anthropogenic impact of water in an ancient civilisation, or impute and expound the physiological impacts of fertilisation, or not, on an ovum during the menstrual cycle.

4.5.2.2 Apply.

Of the five progressively more complex Cognitive Processes that are identified in Anderson and Krathwohl’s (2001) theoretical framework for the transfer, and thus extension, of learned knowledge to new situations, the second category is Apply (see Table 1). This is where learners are able to carry out or use a procedure in a particular situation (p. 67). Apply includes performing a known, even routinised, task or exercise, and also includes solving a new problem with learned but as yet unselected knowledge. As with the sole retention Cognitive Process of Remember, and the first transfer Cognitive Process of Understand, learners can Apply information or material from any level of the Knowledge Dimension, including Factual, Conceptual, Procedural or Metacognitive Knowledge. However, the cognitive practice of Apply, at level 3 in Anderson & Krathwohl’s (2001) model, is closely linked with Procedural Knowledge (p. 77). There are two sub-categories of verbs that include terms and aspects defining Apply (see Table 2), and they will be briefly elucidated here.

The first sub-category of Apply is Executing (3.1), alternatively, carrying out (Anderson & Krathwohl, 2001, p. 67), and also calculating, whereby a learner performs a familiar procedure on information at hand, for example, a student doing whole-number long division exercises. Executing is often associated with the Procedural Knowledge sub-category of Skills and algorithms, rather than the sub-categories of Techniques or
Criteria (see Section 4.6.3), as Skills and algorithms usually consist of sequences or fixed-order steps that have a predetermined or accurate, even correct, outcome.

The second sub-category of Apply is Implementing (3.2), alternatively, *using* (Anderson & Krathwohl, 2001, p. 67), and also *developing*, which stands in some degree of contrast to the routine nature of Executing. Implementing occurs when a learner, faced with an unfamiliar problem or situation, must first Understand the Factual circumstances and Conceptual Knowledge involved in the problem, *select* an appropriate and effective procedure, or if none have previously been learned, *modify* or even cognitively Create another procedure to *solve* the problem (pp. 77-79). Implementing is often associated with the Procedural Knowledge sub-category of Techniques and methods, as these procedures are more likely to consist of flow chart-like multiple routes and decision points, with no single correct or predetermined result. An example of this Apply sub-category is where a student is given the task of *developing* a budget to finance a family’s new car, so that the result is a car with some petrol as well as a table with some food, or *modifying* a conflict-resolution strategy to suit designated pubertal youth groups at school, to solve a particular problem.

### 4.5.2.3 Analyse.

Analyse is the third of the five more complex Cognitive Processes addressing the transfer and thus extension and growth of knowledge that are identified in Anderson and Krathwohl’s (2001) theoretical framework (see Table 1). In this category, at level 4 in the framework, learners are able to “break material into its constituent parts and determine how the parts relate” to each other, and to the structure and purpose of the whole (p. 68). To Analyse may be viewed by many teachers as an educational goal in itself, but it is arguably better to consider this category as an interrelated and necessary cognitive process sandwiched between Understand and Evaluate, and as a prelude to Create (pp. 79-80). There are three sub-categories of verbs that include terms and aspects defining Analyse (see Table 2), and they will be addressed here.

The first sub-category of Analyse is Differentiating (4.1), alternatively, *discriminating, distinguishing, focusing, selecting* (Anderson & Krathwohl, 2001, p. 68), and also *contextualising, investigating, discovering, interrogating*, whereby a learner separates and sorts through parts of a whole information structure in terms of their contextualised relevance and importance, and then attends to those selected parts. Differentiating is cognitively different to the category of Understand because it involves a determination of parts in a whole organised structure, and Differentiating is specifically
different to the sub-category of Comparing because it uses the larger context to determine relevance and importance. An example of Differentiating is where a student discerns the crucial points or steps in an occupational-workplace health and safety (OHS) text for operating a drop-saw, or interrogates the ultimately tragic steps taken by Romeo and Juliet to continue their relationship.

The second sub-category of Analyse is Organising (4.2), alternatively, finding coherence, integrating, outlining, parsing, structuring (Anderson & Krathwohl, 2001, p. 68), and also interrelating, discussing, and fitting. Organising involves a learner identifying the connections between parts of information material, determining how they fit and function together, and imposing a systematic and coherent structure on the elements. Organising usually occurs in conjunction with Differentiating, so that a learner first distinguishes the relevant and important pieces of presented material, and then integrates the selected parts into a functional pattern. For example, a student is able to structure an expedition blog of volunteers tracking uninfected Tasmanian Devils into a coherent scientific report, presented according to research problem, hypothesis, method, data/results, analysis, and conclusion. Alternatively, a student could collate and interrelate a sample of diaries from female class members into a report investigating the phenomenon of group menstrual alignment.

The third sub-category of Analyse is Attributing (4.3), alternatively, deconstructing (Anderson & Krathwohl, 2001, p. 68), and also deducing, inferring, arguing, and finding perspective, so that a learner is able to discern a point of view, bias, values, or intent underlying presented material. This reading of the messenger and the context, as well as the actual message, is part of hermeneutics (see Chapter 1.7.11). Attributing, that is, taking the perspective of the author to deconstruct and then infer the motivation and intention behind the material, stands in contrast to Interpreting, where the learner merely seeks to Understand the meaning of the presented information. For example, a student may be able to deduce and Attribute the political inclination of a television commentator by deconstructing the words and the direction of questions, the tone of voice, and the body language observed in the commentator’s interviews with politicians from different political parties. Similarly, it may be helpful for a student to deduce another student’s learning motivation, or to find perspective and infer meaning after a relationship break-up, so that displays or patterns of dysfunctional behaviour in class, or in private, can be avoided.
4.5.2.4 *Evaluate.*

The Cognitive Process of Evaluate is the fourth-highest of the five transfer categories identified in Anderson and Krathwohl’s (2001) theoretical framework (see Table 1). These five cognition categories address the transfer of learning to new questions, problems, or experiences, and they all build on the foundational cognition category addressing the retention of learning, namely, Remember. In the Cognitive Process of Evaluate, at level 5 in the framework, learners are able to make value judgements based on clearly defined criteria and standards of performance. The criteria often used are quality, consistency, efficiency, and effectiveness, and the standards that are applied to the criteria may be quantitative or qualitative (2001, p. 83). Although most cognitive processes require some simple form of *judgement*, for example, the quantity of chocolate sufficient to satisfy without causing pimples, the processes of Evaluate are cognitively different to the Understand verbs *categorising* or *estimating*. For example, a student is able to Evaluate biological, demographic and socio-economic contexts to make a value judgement about the most efficient operation and most consistently reliable method of contraception to suit a given couple’s circumstances.

As with the only retention Cognitive Process of Remember, and the previously examined transfer Cognitive Processes of Understand, Apply, Analyse, learners can Evaluate information or material from any level of the Knowledge Dimension, including Factual, Conceptual, Procedural or Metacognitive Knowledge. However, the more complex Cognitive Processes of Evaluate, and also of Create, arguably draw more upon Metacognitive Knowledge than do the simpler processes, as value judgements and the creative impetus appear to require a higher degree of self-knowledge and thinking about thinking. There are two sub-categories of verbs that include terms and aspects defining Evaluate (see Table 2), and they will be briefly outlined here.

The first sub-category of Evaluate is Checking (5.1), alternatively *coordinating*, *detecting*, *monitoring*, *testing* (Anderson & Krathwohl, 2001, p. 68), and also *researching* and *diagnosing*. Checking is when learners *verify* the internal relevance and the supported or logical progress of a procedure, and when they *detect* inconsistencies, contradictions, mistakes or fallacies within a process or product. For example, a student is able to *research* unfamiliar vocabulary, such as infibulation or fistula, in a class-viewed documentary on early/forced marriage, or *coordinate* and *monitor* a group Science experiment and *ratify* its subsequent report for in-school publication.

The second sub-category of Evaluate is Critiquing (5.2), alternatively, *judging* (Anderson & Krathwohl, 2001, p. 68), and also *appraising*, *determining*, *justifying*, and
validating. This core feature of critical thinking occurs when learners appraise the appropriateness, significance, merits and flaws, and consequences of an operation or product, to judge its value “based on externally imposed criteria and standards” of performance (p. 84). Critiquing is thus complementary to the sub-category of Checking for internal consistency and coherence, by adding another, external, layer of diagnosis and validation regarding quality, consistency, efficiency, and effectiveness. For example, a student is able to research an environmental issue, such as coal seam gas mining or fracking, justify or dispute its main features and its agricultural and socio-economic consequences, and come to a determination about its viability and sustainability. Similarly, a student is able to research, reflect and appraise the causes and impacts of China’s One Child policy on the status of females in China.

4.5.2.5 Create.
Create is the highest of all the six Cognitive Processes identified in in Anderson and Krathwohl’s (2001) theoretical framework (see Table 1). Create involves learners putting elements together in a coherent, functional and new structure or pattern to meet the criteria and demands of the learning task. This calls for creation in the sense of insight, generation and synthesis. The Created material is something observably new, is relative to the learner’s prior knowledge, and is presented using previously taught and age/grade appropriate material with known criteria, rather than through irrelevant or completely unconstrained expression. Originality and uniqueness are clearly emphasised in creative thinking, but in terms defined by educators to indicate deep understanding and complex knowledge. Further, the mere summarising of remembered ideas or the paraphrasing of learned material is insufficient, as Create calls for Aristotle’s noetic, that is, intellectually perceptive or insightful, reorganisation or construction of parts into a new whole (see 2001, p. 85). Create is at level 6 in the Taxonomy (2001).

For Atherton (2011), Gestalt learning concentrates on wholes, the mind’s insistence on finding patterns, and the development of learning and problem-solving, in particular, the phenomenon of insight. For example, when the brain decides if the classic Gestalt silhouette shows a vase or two faces, there is a release of tension because a previously “non-sensical” (2011, p. 1) image has been assimilated into a frame of reference.

Gestalt emphasises that the mind abhors non-sense… It is clear that some kind of cognitive re-structuring has taken place, which may then become apparent in behaviour, but seemingly precedes that behaviour… The learning "curve" (where x=time and y=skill) is more like a single step. The learning happens in a few moments, and is permanent – although it may have taken a long time to get to that step with little seeming progress (2011, p. 1).
Gestalt thus underpins all the cognitivist theories, and, perhaps consequently, Gestalten or the patterns of perception/organisation of the world, once formed in the brain, are not easily dislodged or replaced (Atherton, 2011, p. 1).

As with the sole category of knowledge retention, the Cognitive Process of Remember, and the other four transfer-and-grow Cognitive Processes of Understand, Apply, Analyse and Evaluate, learners can Create knowledge or material from any level of the Knowledge Dimension, namely Factual, Conceptual, Procedural or Metacognitive Knowledge. However, it may be that Metacognitive Knowledge is used more often in tandem with the highest cognitive categories of Evaluate and Create, as these processes involve higher degrees of deep thinking, reflection and self-knowledge. There are three sub-categories of verbs that include terms and aspects defining Create (see Table 2), and they will be briefly addressed here.

The first sub-category of Create is Generating (6.1), alternatively hypothesising (Anderson & Krathwohl, 2001, p. 68), and also imagining and visualising, whereby learners represent or redefine a problem in order to arrive at scenarios or hypotheses that meet certain criteria for a solution. When Generating “transcends the boundaries or constraints of prior knowledge and existing theories, it involves divergent thinking” (p. 86), that is, it may arrive at various possibilities or answers. Thus, hypothesising joins originality and uniqueness at the core of creative thinking. For example, a student is able to posit factors and reasons why adolescents may be reluctant to use male and/or female condoms.

The second sub-category of Create is Planning (6.2), alternatively designing (Anderson & Krathwohl, 2001, p. 68), and also devising, formulating and proposing, so that learners devise a procedure or solution that meets the problem’s criteria and standards, or achieves the given task. For example, a student is able to submit a stepped proposal for a funded research project, for example, regarding the likelihood and means of contraceptive usage in a community of adolescents. However, the sub-category of Planning may often be passed over by teachers who subsume it, or make it implicit, in the last sub-category of Producing.

The third sub-category of Create is Producing (6.3), or alternatively constructing (Anderson & Krathwohl, 2001, p. 68), and also synthesising, inventing, actualising and originating. In Producing, learners actualise a solution plan for a given problem within specific criteria, or construct a product that satisfies the design brief. The criteria for Producing may or may not include originality or uniqueness in the ordinary sense, but
will very likely specify perspicacity, novelty, functionality and utility. Such criteria can and often do require the coordination of all four Knowledge categories, namely Factual, Conceptual, Procedural and Metacognitive Knowledge. For example, a student is able to design cat-proof back-yard habitats for the protection of different species of birds. Or, a student is able to write a short story accurate in facts and chronology as researched for a designated historical event, but with the creative element of new invented characters interacting with established figures. Similarly, a student is able to synthesise their peers’ feelings and attitudes towards conception and contraception, and actualise methods of promoting reproductive responsibility.

All these cognitive processes, whether they promote retention alone, or seek to transfer understanding and meaning to new situations, are ‘how’, and hopefully ‘why’ means of learning. The more complex transfer cognitive processes are particularly valuable because they may be taught directly, for student achievement of higher-order learning, or used as activities to facilitate student learning in a range of cognitive processes (Anderson & Krathwohl, 2001, p. 236). However, these processes are not ends in themselves, but must be combined with a ‘what’, a knowledge form or content body, to become an educational end or objective, that is, something worth learning. The dimensions of knowledge used in Anderson and Krathwohl’s (2001) diagnostic and evaluative theoretical framework will now be addressed.

4.6 Knowledge Dimensions Evident in Anderson and Krathwohl (2001)

In Anderson and Krathwohl’s (2001) Taxonomy, the differentiation of knowledge into four dimensions is based on cognitive science and cognitive psychology’s perspectives on knowledge representation; that is, rationalist-constructivist knowledge is organised in domain-specific and contextualised ways by active learners (pp. 40-1). The four dimensions identified on the vertical y-axis of the model in order, are namely, the lowest and most basic Factual Knowledge, through Conceptual Knowledge, and Procedural Knowledge, to Metacognitive Knowledge as the highest, yet deepest and most complex form of knowledge (see Table 1, Section 4.4).

The relationship between the basic Factual Knowledge Dimension and the other three integrative Knowledge Dimensions may be seen as the equivalent of that between the simplest, and sole retentive Cognitive Process of Remember and the other five transfer Cognitive Processes. That is, Factual Knowledge is inert and exists evidentially outside the learner, for example, “knowing that” (Anderson and Krathwohl, 2001, p. 41) prime numbers can only be divided by themselves and 1, or, human beings are mammals.
However, concepts, schemas or Gestalten (see Atherton, 2011), and theories are products of active, systematically integrated and non-arbitrary, sometimes even counter-intuitive bodies of Conceptual, Procedural, and Metacognitive Knowledge that require the learner’s constructivist and contextual understanding, or insight. In this way Isaac Newton and Gottfried Leibniz separately but almost simultaneously formulated calculus, and Charles Darwin and Arthur Russel Wallace did the same for natural selection and evolution.

Similarly, just as the Cognitive Process verbs in Anderson and Krathwohl’s (2001) theoretical framework are capitalised, so are the nouns in the Knowledge Dimension categories. For example, Knowledge Dimension level C is Procedural knowledge, and its three sub-categories are Skills (Ca), Techniques (Cb) and Criteria (Cc). Within each sub-category, alternative and useful supplementary vocabulary will be italicised, consistent with previous practice, above.

**4.6.1 Knowledge dimensions for facticity**

The first, and lowest, knowledge category on the vertical y-axis in Anderson and Krathwohl’s (2001) theoretical framework, and the one that addresses only the elements of declarative knowledge, or subjects of ‘knowing that’, is Factual Knowledge. This category involves small and discrete information elements or subjects, with relatively low levels of abstraction and variability, which may be memorised or listed. Although these subjects are valuable in themselves, the quantum of such information is too vast for any person to know. While objectivity may be attempted, and a cost-worth may be attributed, the significance or value of an information subject derives from its facticity, that is, its contingency, constructed meaning, and social referents. For example, a visiting alien may note two items, both constructed of inorganic shaped metal joined to organic shaped lignin, where any human would know one as a hammer and the other as a knife, the first hominid tools. Their facticity is different again for carpenters and blacksmiths, soldiers and chefs.

Heidegger holds that the factical life cannot be objectified (Campbell, 2012). The accumulated knowledge about constructing, obtaining and using tools is a definition of technology, but, in more than a historical or even hermeneutical situation, after Heidegger (1962), technology is a mode or attitude of ‘being-in-the-world’. The facticity of technology is ‘always already’ beyond our determination, as how things matter to us rather than what things matter to us. Thus, children and young adolescents are “always already participants in their own socio-sexualised global contexts of technology and
commerce” (Goldman, 2014, p. 8). This participation appears to be different in kind and significance to that of Baby Boomer adults, who represent the first generation of the Information Revolution, albeit through neutered, scripted, patriarchal family television. In this way, even small information subjects on puberty and sexuality, such as accurate vocabulary for body parts including the internal and hidden/private ones, if delivered sequentially and consistently in every school year, become normalised into a body of knowledge likely to enhance children’s and adolescents’ overall health and lifechances.

Factual Knowledge, in Anderson and Krathwohl’s theoretical framework, means the basic elements of an LA or academic discipline, revising Bloom’s (1956) questions of who, what, when, where and which, that students need to know in order to solve problems and progress in learning. For example, as with the simplest Cognitive Process of Remember, vocabulary as Factual Knowledge is essential for spelling and reading, number arithmetic is the foundation of Mathematics, and place names are necessary for Geography. Factual Knowledge is at level A in Anderson & Krathwohl’s (2001) theoretical framework, in the top-left corner or north-west quadrant (see Table 1).

4.6.1.1 Factual Knowledge.
The Factual Knowledge Dimension has two sub-categories, the first of which is knowledge of Terminology (Aa). This refers to verbal and non-verbal symbols and labels, vocabulary such as letters and words, pictures, signs, numbers and other phenomena used in any particular discipline to express knowledge between practitioners (Anderson & Krathwohl, 2001, p. 45). For example, Terminology for botany includes Latin plant names, while puberty education vocabulary includes names of body parts and processes such as ovary, sperm, uterus and penis. The second sub-category of Factual Knowledge is knowledge of Specific details and elements (Ab). This may refer to knowledge of certain events and situations, discrete items and sources such as texts or social media, important people and their legacies, significant dates or times, other particularities of information or ideas and parcels of evidence. These Specific details and elements usually originate in “observation, experimentation, and discovery” (p. 45). For example, in botany, the knowledge sub-section Specific details and elements includes the growth rings visible in a cross-sectioned tree trunk. In puberty education, such details and elements include periodic menstrual bleeding, or periods, caused by non-fertilised ovum and the preparatory but unused lining of the uterus leaving a girl’s body.
4.6.2 Knowledge dimensions for integration

The three progressively more complex dimensions that are identified in the Taxonomy’s (2001) theoretical framework for active, systematically integrated and non-arbitrary knowledge are those of Conceptual, Procedural, and Metacognitive Knowledge (see Table 1). These dimensions are related to the deeper and wider questions of why and how, as well as those of what, who, when, where, and which, commonly derived from Factual Knowledge. These three remaining dimensions will now be examined.

4.6.2.1 Conceptual Knowledge.

The first of these extended and integrative dimensions, Conceptual Knowledge, moves beyond specific and isolated information elements to generalise, relate and formulate structures of knowledge. Conceptual Knowledge is at level B in Anderson & Krathwohl’s (2001) theoretical framework. This Knowledge Dimension contains and articulates the complexities and interrelationships between the basic elements, and how they function systematically within concepts, ideas, schemas, mental models, and theories as used in various knowledge disciplines.

Conceptual Knowledge has three sub-sections, with the first named Classifications and categories (Ba). This includes the collections, classes, divisions, arrangements and systematisations of knowledge that are “largely the result of agreement and convenience… a reflection of how experts in the field think and attack problems” (2001, p. 49). The Specific details and elements found under Factual Knowledge need to be collected, linked, organised and named so they can be used in a coherent way, by any persons, and accessed again at any time. For example, the relative abstraction of described botanical facts, including the particular lignin cells and grain growth in different species of trees, into broader groupings under Classification and categories results in a Linnaean structure of plant classification. An example from puberty education could be the classification of different types of muscles in the body, or the different distributions of muscle and lipid tissue in male and female bodies at puberty. The connections and names of knowledge as Classification and categories are much less arbitrary than that of Factual Knowledge, but a student’s “conceptual change” reflects a more appropriate understanding of the extent of knowledge in a discipline and is therefore “a classic sign of learning and development” (2001, p. 49). In this way, knowledge of Classifications and categories forms the basis for principles and generalisations.
The second sub-section of Conceptual Knowledge is knowledge of Principles and generalisations (Bb). These include particular and deeper abstractions that summarise observations of phenomena into generalised, succinct and, crucially, meaningful patterns of directed action or study. Knowledge of Principles and generalisations thus goes beyond that of Classifications and categories in describing, explaining, determining or predicting the most appropriate or valued course of action to operationalise study or solve problems. Knowledge of Principles and generalisations “tend to dominate an academic discipline” (Anderson & Krathwohl, 2001, p. 51). For example, in botany, the anthropogenic principle may be useful in examining rates of change to plants caused by natural mutations, as opposed to those caused in the last 12,000 years by human selection and cultivation, and now by industrial-scale genetic engineering. An example from puberty education could address the lunar pattern of female menstrual periods, or the ecological patterns and impacts of oestrogen in waterways. In this way, knowledge of Principles and generalisations forms the basis for theories, structures and models.

The third sub-section of Conceptual Knowledge is knowledge of Theories, Models and Structures (Bc). This represents a discipline’s collection of Factual Knowledge, organised in the least arbitrary and most abstract formulations of categories and principles, and all their meaningful interrelationships, to enable structured inquiry and productive avenues of problem solving. Knowledge of Theories, Models and Structures includes perspectives, epistemologies, frameworks and overarching paradigms used by a discipline to research and predict related phenomena (Anderson & Krathwohl, 2001). Models are metaphorical or analogous structures of contingency. However, theories such as evolution, gravity, matter (particle physics), and quantum mechanics, as evidential, compelling, as-yet-unfalsified, and successful, even if incomplete, descriptions of how the world really works, stand on their own as discoveries. Theories need confirmation, but not justification (Derman, 2011). For example, in the discipline of biology, botanical knowledge of plant selection is essential to research the production of foodstuffs for future population growth, while knowledge of germ theory, properly called bio/pathogenesis, is essential to understand how the body manages its nutrient intake, waste disposal, cell growth and disease protection. Such knowledge would greatly enhance pubertal children’s and adolescents’ abilities and incentives to plan for, act on, and appreciate their sexual health and safety.
4.6.2.2 Procedural Knowledge.

The second of the three integrative Knowledge Dimensions is Procedural Knowledge, that is, how to do things, methods of inquiry, and criteria for deciding on appropriate subject-specific procedures. This knowledge is usually represented in a range of regularised, scientific means from a simple series or sequence of steps up to a set of complex and variable factors, and may be used in a diverse range of activities from routine exercises to novel problem solving. Procedural Knowledge includes knowledge of skills, algorithms, techniques, methods, and the conditional criteria for determining which, and when, procedures are carried out. However, this Dimension represents only the knowledge of these procedures, rather than their application, analysis or evaluation, which are covered under Cognitive Processes in previous sub-sections of Section 4.5 in this chapter. Further, the ‘how’ of Procedural Knowledge about, for example, logical and sequential research processes on tree rings, or on adolescent brain development, often results in the ‘product’ of Factual Knowledge or Conceptual Knowledge, and sometimes both (Anderson & Krathwohl, 2001, pp. 52-53), say, as a scientific report for publication.

Procedural Knowledge, level C in the theoretical framework, has three sub-sections, with the first named as knowledge of Subject-specific skills and algorithms (Ca). This includes the steps of a procedure either as a series or sequence, to be carried out in a fixed order or pattern, that usually ends in a specific result or answer. For example, knowledge of Subject-specific skills and algorithms is necessary to prepare a particular number of plant samples for microscopic study, or to understand and analyse the hormone markers in a urine sample for a pregnancy test.

The second sub-section of Procedural Knowledge is knowledge of Subject-specific techniques and methods (Cb). These techniques and methods include knowledge that is most likely reached by “consensus, agreement or disciplinary norms” (Anderson & Krathwohl, 2001, p. 54) rather than from mainly observation and discovery. While still using sequential and scientific methods, this knowledge reflects and orients its practitioners in a more inquiring scientific “way of thinking” (p. 54), so that the experimental designs resulting from this knowledge are more flexible and variable, and are more likely to end in a relatively open or unexpected answer. For example, a scientific report may identify a variety of techniques for testing a botanical sample to determine its age, or a student may design a class experiment to test the absorbency of tampons compared to that of pads and pantyliners.

The third sub-section of Procedural Knowledge is knowledge of Criteria for determining when to use appropriate procedures (Cc). This knowledge is often historical.
or encyclopaedic in that practitioners need to know which, when and why procedures have, or have not, worked in the past (Anderson & Krathwohl, 2001). The knowledge of Criteria for determining when to use appropriate procedures is thus conditional on the discipline itself, the individual’s knowledge of Subject-specific techniques and methods (Cb), aims and meaning of the research, and relationships between methods used by other practitioners and those decided on by the individual. For example, knowledge of the Criteria for determining when to use appropriate procedures in a botanical study may result in the researcher choosing to use carbon dating on a particular sample, over other methods of age-fixing. In the same way, knowledge of the Criteria for the manufacture of condoms refutes the absurd and illogical claims that condoms are permeable to HIV, to the extent that using them to prevent STIs is “the equivalent of playing Russian roulette with a loaded gun” (Feldt, with Fraser, 2004, p. 74; see Goldman, 2008).

4.6.2.3 Metacognitive Knowledge.

Metacognitive Knowledge is the third integrative Knowledge Dimension in Anderson and Krathwohl’s (2001) theoretical framework, added to reflect research directed, after Bloom’s (1956) Handbook, on learners’ knowledge about their own cognition. Contemporary research in cognitive psychology “and social constructivist models of learning” (2001, p. 43) reflects and emphasises the importance of consciousness, self-reflection and awareness of one’s own mind/thinking. It therefore includes noesis, deeper understanding, and may thus lead to the ethical rationality of phronesis, or practical wisdom (Ivinson, 2010). Metacognitive Knowledge builds on Bloom’s “teaching for ‘higher-order’ objectives” (cited in Anderson and Krathwohl, 2001, p. 44), and includes knowledge of general strategies for various tasks, the conditions and contingencies for the use of such strategies, their effectiveness, and their relevance to learners’ self-knowledge and future action.

The Factual, Conceptual and Procedural Knowledge Dimensions in Anderson and Krathwohl’s (2001) theoretical framework follow Bloom’s (1956) Handbook in that they concern subject matter content, whereas the added Metacognitive Knowledge Dimension concerns knowledge of cognition itself, one’s awareness of and responsibility for cognitive development, and knowledge “about oneself in relation to various [academic] subject matters… in general” (2001, p. 44). However, the aspect of metacognition that concerns learners’ active control, monitoring and regulation of their thinking processes is already covered under Cognitive Processes in previous sub-Sections of 4.5 in this chapter.
Metacognitive Knowledge is at level D in Anderson & Krathwohl’s (2001) theoretical framework, and it has three sub-sections.

The first sub-section of Metacognitive Knowledge is Strategic knowledge (Da), that is, knowledge of general strategies and trial-and-error heuristics for thinking, learning and problem solving. This includes knowledge of strategies of rehearsal and recitation, of elaboration such as mnemonics, and the usually more effective strategies of organisation such as outlining, mapping and note-taking. Knowledge of heuristics includes means-ends analysis, representative sampling, deductive/inductive thinking, and reverse engineering of a problem by “working backwards from the desired goal state” (Anderson & Krathwohl, 2001, p. 57). For example, a learner who has Strategic knowledge may make a mind-map representing the various elements and their relationships in a complex problem, to look for patterns or themes. An example of Strategic knowledge specific to puberty education could be student research on the historical, psychological and ideological background of the abstinence-only-until-marriage legislation in the USA.

The second sub-section is named Contextual and conditional cognitive knowledge (Db), that is, knowledge about the conditions, tasks, relevance and appropriate times for the use of cognitive strategies from the previous sub-section. This includes the local situational requirements and the “general social, conventional, and cultural norms” (2001, p. 58) for using various cognitive strategies or heuristics. For example, a learner who has Contextual and conditional cognitive knowledge may decide that a reverse-engineering heuristic may be the most useful cognitive tool for solving a problem in the absence of specific Procedural Knowledge. An example of Contextual and conditional cognitive knowledge specific to puberty education could be a student project investigating the impacts of political and religious interference, such as the Global Gag Rule, on international funding for women’s reproductive health.

The third, final, sub-section of Metacognitive Knowledge is Self-knowledge (Dc), whereby a learner is accurately aware of his/her own knowledge levels and cognitive capacities, forms a consistent perception about their own motivations, and takes responsibility for changing or acquiring learning strategies in response to this self-knowledge. The Self-knowledge component addressing personal motivations includes emerging research on the importance of social cognitive beliefs to learners (Anderson & Krathwohl, 2001, p. 59). Self-efficacy beliefs are learners’ judgments of their capacity to accomplish a certain task; ends-based beliefs are the reasons or goals learners have for undertaking a certain task; and value/interest beliefs are learners’ perceptions of their interest preferences and judgements on the worth of certain tasks. Experts in every
discipline are aware of what they do not know, why they need to know it, and how they need to go about finding it out. Learners in every discipline who develop accurate Self-knowledge, particularly about their own motivations, may therefore be more adaptive and successful. “Learning should feel good, and the student should become aware of those feelings” (Zull, 2004, p. 70). For example, a learner who has a high degree of Self-knowledge and skills in outdoor sports may decide that s/he prefers to strive for higher academic credentials in botany by specialising in fieldwork, rather than laboratory work. Similarly, an example of Self-knowledge specific to puberty education could be student expositions of what reproductive rights and responsibilities mean to them individually, and, mindful of the fact that about one-third of people in the world are pubertal adolescents aged 8-28 (see Chapter 1.1.2), if, why and how other nations should recognise, apply, or rescind such rights.

4.6.3 Approaches and perspectives of developing, learning, and teaching

Modes of learning that promote extended neuronal activity and deep thinking are ones that frame cognitive processes and objectives with students’ emotions in mind, rather than trying to ignore or prohibit them. Such modes of learning use interactive learning strategies such as reasoned/argumentative discussion, visual modelling or mapping, and actively experienced pedagogies (Davis, Shoveller, Oliffe, & Gilbert, 2012; Guse et al., 2012; Johnson, Adams et al., 2014; Pifarre & Li, 2012; Wagner, 2011; Walker et al., 2011). Contemporary education requires, and advocates, a ‘beyond the school gate’ pedagogical approach, that connects school learning with students’ online life worlds, thereby “replicating the hyperlinked, non-linear and flexible thinking skills young people currently employ as researchers and members of online communities... and promoting students’ learning and sense of self-worth” (Goldman & McCutchen, 2012, p. 359; see also Cousineau et al., 2010; Rees, Oliver, Woodman, & Thomas, 2011; Worobey & Worobey, 2014).

Further, a deep and constructivist approach to learning is supported by many educators and theorists, including Bain, Ballantyne, Mills, and Lester, who note, when students adopt a deep approach, that is, when they seek the meaning of what they are learning and intentionally relate it to their existing knowledge, then quite different learning outcomes are likely to occur; the knowledge is relationally structured, it is integrated with the procedures required to put the knowledge into practice, it corrects misconceptions, and it can be applied adaptively to new circumstances (2002, p. 10, emphasis added).
Such a deep, constructivist approach encourages learners to examine the structure, patterns and problems of the knowledge area, develop an overview of it, and facilitate the phenomena of insight and reflection (see also Guthrie, 2010).

In contemporary society, much knowledge is generated in complex, unpredictable and subjective contexts of application (Graham & Smith, 2007). Multidisciplinarity is the concurrent teaching of two or more separate disciplines, to produce a variety of new learning connections, insights, and actions, as attempted in the teaching of Studies of Society and the Environment (SOSE) (Harris & Marsh, 2007; see Chapter 2.2.6). Interdisciplinarity, a Venn-set diagrammatic overlapping of the knowledge, values, and mandates of two disciplines to raise questions and seek ground relevant to both, is another such educational overview. Transdisciplinarity overlays the knowledge production and learning management of many disciplines, with a common action and/or mode of thinking (Graham & Smith, 2007; Harris & Marsh, 2007). Such an overlay relationship is now mandated for information and communication technologies (ICTs), seven General capabilities, and three Cross-curriculum priorities, across all the Australian Curriculum LAs (ACARA, 2012c, 2013b). Another overlay is the universal and constant student experience of puberty (see also Goldman, 2010b, 2011b).

The developmental perspective is a broader, biosocial, overview that may be useful in research about early puberty and beneficial educational responses to it. As discussed in Chapter 2.1.4, this is a metatheoretical framework derived from developmental biology and epigenetics, evolutionary psychology, and behavioural ecology that applies “biological thinking… [about] form and function” to human behaviour (Hawley, 2011, p. 307). Recent research on adolescence identifies the significant and relatively sudden changes in the reward centres of the brain that occur with gonadal puberty, so that peer status, social rewards and group norms begin to overtake familial routines as behavioural determinants (Gopnik, 2012; Hawley, 2011, Viner et al., 2012). This process is occurring earlier than in previous generations (Gluckman & Hanson, 2006). However, the complimentary developmental changes in the control centres of the adolescent brain, where planning and decision-making strategies develop through experiential knowledge and practice, are often delayed, as are adult responsibilities and commitments. “For most of our history, children have started their [adult] internships when they were seven, not 27” (Gopnik, 2012, p. 17; see also Bellis et al., 2006; Giedd, 2012).

In contemporary society, risk and safety considerations, and insurance requirements for any and all organised activities, including schooling, play and sport, mean that many parents choose and constrain their children’s movements, and opportunities for
friendships. Conversely, adolescents spend less time with their families or multi-generational groups and are largely segregated by age cohort, with consequent ‘hot-house’ exposure to media and super-peer pressures, so that many young people are either unprepared or have misconceived expectations about intimacy, sexual relationships and negotiation/decision-making skills (see Carmody & Ovendon, 2013; Hawley, 2011, Lamb, 2010a). In this thesis, then, such overviews of the sociological context will be directed to the analysis of school-based delivery of puberty education, how such education may benefit all students, and how it is proposed to be included in the new Australian Curriculum.

4.7 The Role of Anderson and Krathwohl’s (2001) Theoretical Framework in Auditing Puberty Education in the Australian Curriculum

Anderson and Krathwohl’s (2001) Taxonomy for Learning, Teaching, and Assessing provides a conceptually well-established theoretical framework, effective-in-praxis, that promotes meaningful learning (Goldman & Bradley, 2011). The traditional way of assessing student learning is by teaching, testing, diagnosing, and then carrying out remedial work on student weaknesses. Some contemporary approaches include testing first, to diagnose, then teaching to remediate, and this is conceptualised as “assessment for learning” (ACARA, 2012c, p. 5). Similarly, the terminology of results and scores is now replaced with “evidence-based practice… and reporting” (p. 5) Accordingly, this thesis will provide an analytical audit or test report of the Australian Curriculum, using Anderson and Krathwohl’s (2001) theoretical framework to diagnose what and how much puberty education there is, its presence, and its absence. Remediation may now rather be seen as “data-driven pedagogy” (p. 5), particularly through new technologies, so this thesis will provide recommendations on the evidence of identified potential of pedagogical sites for integrated puberty education.

Anderson and Krathwohl’s (2001) Taxonomy for Learning, Teaching, and Assessing identifies a consistent and meaningful vocabulary for addressing the curriculum questions, what is worth learning? and then, how should it be taught? (Anderson & Krathwohl, 2001, p. 236). In this thesis, such questions pertain to the principle (see Chapter 1.1.9) that puberty education is worth learning at every year level, as ‘when’, in every LA curricula, as ‘where’, and by all students, as ‘who’, in the steps of ancient Greek argumentation. The questions ‘why’ and ‘so what’ have been addressed in Chapter 1 Introduction, Chapter 2 Background, and Chapter 3 Literature Review. As shown in this Chapter, the chosen theoretical framework, Anderson and Krathwohl’s
(2001) *Taxonomy*, provides an established means of demonstrating ‘how’ evidence may be determined, while Chapter 5 Method, next, provides an established means of demonstrating ‘how’ the chosen theoretical framework may be applied. The new Australian Curriculum is ‘what’ will be examined, in Chapter 6 Results, for evidence of presence of puberty education in existing curricula, and its potential for integration, with any such evidence analysed in Chapter 7 Analysis. The implications of the analysis, or ‘so what’, and directions for future research, will be addressed in Chapter 8 Conclusion.

### 4.8 Chapter Summary

This chapter has provided an elucidation of the main theory used in the research, namely, Anderson and Krathwohl’s (2001) hierarchical, diagnostic, and evaluative theoretical framework for learning, teaching, and assessing, applicable for school-based child and adolescent development (see Tables 1 and 2). The approach of transdisciplinarity in education was addressed in this Section 4.6.3, and previously, in Chapter 2.2.6. Chapter 5 will provide an explication of the research method used here.
Chapter 5: Method

This chapter provides an explanation of the method used to collect data to address the ten specific research questions of the thesis, regarding puberty education *presence* and *potential* in the Australian Curriculum parent LAs. Section 5.1 presents an examination of the research method conceptualisation. Section 5.2 presents a reiteration of the research aim and questions. Section 5.3 presents the research design. Section 5.4 presents an explanation of the sampling frame, with its component parts and overview illustrated in Table 3, and Section 5.5 presents the sample. Section 5.6 presents details of the method of three text analytical audits using Content Analyses, the first for *quantitative* incidence and *qualitative* positional/relational strength, the second for *qualitative* presence, and the third for *quantitative* sites of *potential qualitative* integration. Section 5.7 presents the ethical issues relevant to this study. Section 5.9 provides a chapter summary, and forecasts Chapter 6.

5.1 Research Method Conceptualisation

This thesis employs a sociological and philosophical perspective. It embraces Weber’s (1917, cited in 1949) methodological ‘break’ regarding the value and conduct of scientific enquiry, such that the goal of research in the social sciences is “the interpretive understanding of the subjective meaning of social practices and cultural artefacts, within [the researcher’s] lifeworld… [or] milieu of meaning” (Mottier, 2005, p. 4). The specific orientation used in the thesis is one of Gadamer’s hermeneutics and Gusdorf’s spiral nature of observation, interpretation and explanation (cited in Mottier, 2005, p. 8). In Gadamer’s hermeneutics, the activity of understanding links Aristotle’s *praxis*, as doing rather than making, with his *phronesis*, the personal and experiential form of knowledge and reasoning that constitutes practical wisdom. “Understanding is an adventure, and like any other adventure is dangerous…” (Gadamer, cited in Schwandt, 2000, p. 196). That is, humans are interpretative beings, always already constructing their own reality within a lived tradition of meaning (see also Chapter 2.2.2). The social researcher attempts a “fusion of horizons [of meaning]”, by dialogue between the epochal “fore-meanings” already embedded in text and data collections, and the continuing, personal “revaluation of prejudice[s]” already extant in the interpreter, towards a more egalitarian model of knowledge (Gadamer, cited in Mottier, 2005, p. 6). However, this engagement in “double hermeneutics” (Giddons, cited in Mottier, 2005, p. 7), or reflexive re-interpretation of such understandings as may be
achieved, is never fixed or final, but continues in a spiral through time and circumstance (Gusdorf, cited in Mottier, 2005).

This research topic is itself derived from three contemporaneously blossoming research areas. These are educational curricula (particularly the new, nation-wide Australian Curriculum), research insights into child and adolescent development (particularly puberty and epigenetics) through evolutionary psychology and neurophysiology, and global recognition of the profound, even revolutionary, shifts in personalised technologies and demographics that are happening within a single generation. The ethical context is the contested territory between human and children’s rights (Berer, 2013; IPPF, 2014; UNMDG, 2015), and generational inequity, inequality and injustice, as driven by patriarchalism and “control of sexuality” (Munoz, 2010, p. 5). The problem is earlier puberty, longer adolescence, and the non-provision of timely education that is based on global evidence of immense, multiple and long-lasting benefits to children and adolescents. It is a socially constructed problem, where there are almost no remaining physical, legal, financial or logistic barriers to the provision of this education, only ‘cultural’ ones. Culturalism is the prioritisation of culture (Oxford English Dictionary [OED] 2010), as determined by national, political and religious gatekeepers, to censure individual/radical behaviour and condone traditional/customary mores, all in the maintenance of the status quo (see also Goldman, 2012, 2013, 2014). In this case, cultural objections to the provision of timely and effective school-based puberty education are the last, but successful, resort of those opposed to the implementation of equity, social justice, and human rights for females, the sexually diverse, and the poor (Goldman, 2008; Goldman and Collier-Harris, 2012).

This thesis uses a Mixed Methods approach that aims to provide a high degree of quantitative accuracy in content identification and relational positioning, combined with a high degree of qualitative validity in the consistency and examination of subject interpretations, contexts, patterns and meanings, from this broad research canvas. The chosen analytical text audit and Content Analysis methods use the wide view of deduction to search for quantitative data that supports or refutes the thesis’s premise of worth, value and benefits of puberty education, and its questions about the presence, and potential, of puberty education in the first-ever Australian Curriculum (ACARA, 2015). These audits and analyses are based on Anderson and Krathwohl’s (2001) revision of Bloom’s taxonomy for the educational curriculum goals of knowledge and cognition (see Chapter 4.3). The analytical audit and analysis methods also use the narrowly focussed gaze of induction, to ground, and then to qualitatively explore the
context, relationships and meaning of the gathered data within this highly regarded and globally used model of knowledge-cognition teaching, learning and assessment. This in turn extends the theoretical framework, with intent to validate the eventual findings (Zhang & Wildemuth, 2009). Thus, the Mixed Method approach aims to productively address the form and the content of data in order to illustrate the whole picture. As Picasso noted, “If there were only one truth, you couldn’t paint a hundred canvases on the same theme” (1966, cited in Zhang & Wildemuth, 2009, p. 308).

5.2 Research Aim and Research Questions

The aim of this thesis is, by using quantitative and qualitative analytical audits of documents including teaching and learning Content descriptions in ten Learning Areas of the new Australian Curriculum, to identify the presence of puberty education knowledge and cognition content and the potential sites of age-appropriate integrated puberty education, consistent with the literature, international guidelines and educational praxis, and sociological challenges. Analysis of all evidence of such presence and potential may lead to recommendations for overall curriculum improvement in puberty education. If consistently implemented and professionally delivered, these may, in turn, enhance students’ individual ethical rationality (phronesis) about puberty and sexuality (see Dixon & Nussbaum, 2012; Dixon-Mueller et al, 2009; Ivinson, 2007, 2010; Lamb, 2010a; Robinson, 2012).

The one broad research question posed in this thesis is, “What evidence is found, in ten of the Australian Curriculum Learning Areas (LAs) from Foundation to Year 10, for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years?” This broad research question, encompassing the is/ought dichotomy, relates to documentary evidence including teaching and learning Content descriptions for selected compulsory year levels in the ten LAs (see Chapter 1.1.7; Section 5.5). In operationalising this broad research question, the ten specific research questions are,

~ What evidence is found, in the new Australian Curriculum LA of English, for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years?
~ What evidence is found, in the new Australian Curriculum LA of Mathematics, for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years?
What evidence is found, in the new Australian Curriculum LA of Science, for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years?

What evidence is found, in the new Australian Curriculum LA of History, for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years?

What evidence is found, in the new Australian Curriculum LA of Geography, for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years?

What evidence is found, in the new Australian Curriculum LA of Civics and Citizenship, for the presence of puberty education, and its potential for integration, for girls and boys aged 8-16 years?

What evidence is found, in the new Australian Curriculum LA of Economics and Business, for the presence of puberty education, and its potential for integration, for girls and boys aged 10-16 years?

What evidence is found, in the new Australian Curriculum LA of The Arts (comprising Dance, Drama, Media Arts, Music, and Visual Arts), for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years?

What evidence is found, in the new Australian Curriculum LA of Health and Physical Education (HPE), for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years?

What evidence is found, in the new Australian Curriculum LA of Technologies (comprising Design and Technologies, and Digital Technologies), for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years?

When the five distinct subject Learning Areas within The Arts LA, namely Dance, Drama, Media Arts, Music, and Visual Arts, and the two within the Technologies LA, namely Design and Technologies, and Digital Technologies, are taken into account, there is now a total of 15 LAs, from the ten parent LAs audited in this thesis.

5.3 Research Design
This study employs a Mixed Methods approach of quantitative incidence and qualitative text-based analytical audits of the new Australian Curriculum using Content Analysis (see Denzin & Lincoln, 2011; Mottier, 2005). Content Analysis was chosen for this research because of its application to qualitative problem-driven research (see Denzin & Lincoln, 2011), its extensive breadth and historical reach, and its acknowledgment of
the “interpretive… constructed nature of data” (Mottier, 2005, p. 4). Other methods were judged to be inappropriate for this research. For example, a longitudinal social survey takes too long for PhD purposes including temporal and word limits; focus groups and interviews are inappropriate for the research aim; and case studies of other national curricula have been already been carried out by international organisations (DeJong, 2012; Parker et al., 2009; Rogow et al., 2013). Here, it is the curricula themselves that are being interrogated.

The process of Content Analysis is summative. That is, it begins deductively, with quantifiable identification and incidence positioning of the “manifest content” (Zhang & Wildemuth, 2009, p. 309). In Audit One, of selected compulsory year levels in ten compulsory LA curricula, a relevant word/phrase is identified, and its subsequent position located, to signify each curriculum’s pubertal knowledge and/or cognition presence. Such presence consists of cognitive processes (identified by verbs) or knowledge dimensions (identified by content nouns) as defined in Chapter 4 Theory, about puberty education, as defined in Chapter 1.7.4. The identified presence is shown within an Audit Table based on Anderson and Krathwohl’s (2001) hierarchical, two-dimensional, 209-cell theoretical framework of educational objectives, the Taxonomy for Learning, Teaching, and Assessing, in Table 2. This framework provides analytical guidelines and purposeful objectives for curricula, and it helps identify a consistent and meaningful vocabulary for addressing the universal curriculum questions, “what is worth learning?” (Anderson & Krathwohl, 2001, p. 236), and then, when and how should it be taught?

The quantitative actions of identifying and positioning denote relational strength, within each Audit Table, of lower-to-higher knowledge dimensions crossed with lower-to-higher cognitive categories (Anderson & Krathwohl, 2001). However, such evaluation, of itself, illustrates the overlapping and transformational nature of summative content analysis into qualitative and inductive forms. Audit Two, then, is a qualitative strength Content Analysis of puberty education presence, using both Audit Table and curriculum text Box forms of the theoretical framework’s cognitive processes and knowledge dimensions. In this way, the Content Analysis of audit findings is focussed and contextualised to explore “latent meanings and themes… and [their] usage” (Zhang & Wildemuth, 2009, p. 309), and arrive at answers to the broad and specific research questions.

This data of ‘presence’ exposes its corollary, ‘absence’, and thus generates the opportunity for the potential of educationally sound sites of puberty education to be
developed. Such education may, if consistently implemented and professionally delivered, enhance students’ individual ethical rationality (*phronesis*) (Birmingham, 2004) about puberty, sexuality and reproductive health. So, in Audit Three, some examples of *potential* curriculum content for integrated puberty education are identified in the same curriculum text Box, alongside, or in place of, its *presence*. Content Analysis in this form gives illustrative expression to the integrative, quantitative and qualitative positional *potential* of best-practice puberty education in the new Australian Curriculum. These examples of *potential* are generated at higher levels of cognition and knowledge than those found in the curriculum under audit, because evidence from the last 30 years shows that children exhibit higher level sexual thinking than parents and educators acknowledge (Goldman & Goldman, 1982, 1988b).

Further, while the Curriculum content is specifically identified and contextualised through Anderson and Krathwohl’s (2001) *Taxonomy*, the criteria and choice of nouns and verbs denoting *presence*, and *potential*, used in the three audits and their Content Analyses, are informed by those already established and legitimated in the professional, international documents examined in Chapter 3 Literature Review. These include vocabulary and concepts of personal significance, public health, and sociological worth, such as pubertal and reproductive body part names and processes, actions and behaviours, values, ethics/morals, and social issues, challenges and consequences.

### 5.4 Sampling Frame, including Table 3

Theoretical research, evidence from practice, and international recommendations support the integration of puberty education in many learning or subject areas of a state or regional curriculum (Centrewall, 2000; Kay et al., 2010; Munoz, 2010; UNESCO, 2009; WHO & BZgA, 2010). Every school curriculum, by definition, has content covering subjects that are relevant and appropriate (see Chapter 1.1.8) to students, and the great majority of these students are children/adolescents who are experiencing the early dual-phase processes of puberty (see Chapter 1.5; Chapter 3.4).

The crucial and contemporary difference is that these processes are now manifesting at earlier ages (see Chapter 1.1.4), and in vastly different socio-technological contexts (see Chapter 1.1.5), than in previous generations. Accordingly, in this first-ever Australian Curriculum, the following analytical audits of content interrogate the ten LAs of English, Mathematics, Science, History, Geography, Civics and Citizenship, Economics and Business, The Arts (comprising Dance, Drama, Media Arts, Music, and Visual Arts), Health and Physical Education (HPE), and Technologies
(comprising Design and Technologies, and Digital Technologies). As two of these ‘parent’ LAs have multiple subject Learning Areas, the total number of LAs to be audited for this research is 15. Further, as explained in Chapter 1.1.7 and 1.1.8, the remaining two Australian Curriculum LAs, namely Languages (formerly Languages Other Than English or LOTE), and Work Studies, will not be examined for evidence of puberty education.

The documents so audited are the Australian Curriculum documents (v7.3, January) of these 15 LAs (ACARA, 2015), as publically displayed online (see Table 3). These contain Scope and sequence charts, with the teaching requirements for each Strand shown in component Sub-strands (some with extra divisions), and in particular, Content descriptions for every year/grade level. These Content descriptions also contain vocabulary relevant to the integrated technology requirements mandated by the Australian Curriculum, as well as for seven overarching General capabilities, and three Cross-curriculum perspectives, when appropriate. However, while the online Australian Curriculum documents also contain Content elaborations with detailed information and multiple suggestions for teachers about each Content description, and icons denoting the relevant General capabilities and Cross-curriculum perspectives, these features are too numerous to be audited or scanned in this research project, and so are not included.

All LAs are complete and ready for teacher familiarisation and use, although, as at March 2015, the LAs of Civics and Citizenship, Economics and Business, Health and Physical Education (HPE), and Technologies await formal endorsement by the Education Council, the renamed organisation of all education ministers under CoAG. Table 3, below, shows an overview of the sampling frame by Curriculum LA.
<table>
<thead>
<tr>
<th>Australian Curriculum LA</th>
<th>Strands, by name</th>
<th>Sub-strands, further divisions, by number</th>
<th>Content descriptions, by number</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>Language, Literature, Literacy</td>
<td>5, 14 Thread foci, 4, 7 Thread foci, 4, 12 Thread foci</td>
<td>Year 1: 17, Year 5: 13, Year 10, 10A: 11</td>
</tr>
<tr>
<td>Mathematics</td>
<td>Number &amp; Algebra, Measurement &amp; Geometry, Statistics &amp; Probability</td>
<td>6, 5, 2</td>
<td>Year 1: 7, Year 5: 12, Year 10, 10A: 13, 7</td>
</tr>
<tr>
<td>Science</td>
<td>Science Understanding, Science as Human Endeavour, Science Inquiry Skills</td>
<td>4, 2, 5</td>
<td>Year 1: 5, Year 5: 4, Year 10, 10A: 8</td>
</tr>
<tr>
<td>History</td>
<td>Historical Knowledge &amp; Understanding, Historical Skills</td>
<td>Variable by year, 5</td>
<td>Year 1: 3, Year 5: 8, Year 10, 10A: 12</td>
</tr>
<tr>
<td>Geography</td>
<td>Geographical Knowledge &amp; Understanding, Geographical Inquiry &amp; Skills</td>
<td>Variable by year, 5</td>
<td>Year 1: 4, Year 5: 4, Year 10, 10A: 12 (in 2 Units)</td>
</tr>
<tr>
<td>Civics &amp; Citizenship</td>
<td>Civics &amp; Citizenship Knowledge &amp; Understanding, Civics &amp; Citizenship Skills</td>
<td>2, 4</td>
<td>Year 1: N/A, Year 5: 6, Year 10, 10A: 5</td>
</tr>
<tr>
<td>Economics &amp; Business</td>
<td>Economics &amp; Business Knowledge &amp; Understanding, Economics &amp; Business Skills</td>
<td>2, 4</td>
<td>Year 1: N/A, Year 5: 4, Year 10, 10A: 5</td>
</tr>
<tr>
<td>The Arts: Dance</td>
<td>Making, Responding</td>
<td>Variable by year, 3</td>
<td>Year 1: 3, Year 5: 5, Year 10, 10A: 2</td>
</tr>
<tr>
<td>The Arts: Drama</td>
<td>Making, Responding</td>
<td>Variable by year, 3</td>
<td>Year 1: 3, Year 5: 5, Year 10, 10A: 2</td>
</tr>
<tr>
<td>The Arts: Media Arts</td>
<td>Making, Responding</td>
<td>Variable by year, 3</td>
<td>Year 1: 3, Year 5: 5, Year 10, 10A: 2</td>
</tr>
<tr>
<td>The Arts: Music</td>
<td>Making, Responding</td>
<td>Variable by year, 3</td>
<td>Year 1: 3, Year 5: 5, Year 10, 10A: 2</td>
</tr>
<tr>
<td>The Arts: Visual Arts</td>
<td>Making, Responding</td>
<td>Variable by year, 3</td>
<td>Year 1: 3, Year 5: 5, Year 10, 10A: 2</td>
</tr>
<tr>
<td>Health &amp; Physical Education (HPE)</td>
<td>Personal, Social &amp; Community Health, Movement &amp; Physical Activity</td>
<td>3</td>
<td>Year 1: 10, Year 5: 10, Year 10, 10A: 10</td>
</tr>
<tr>
<td>Technologies: Design &amp; Technologies</td>
<td>Design &amp; Technologies Knowledge &amp; Understanding, Design &amp; Technologies Processes &amp; Production Skills</td>
<td>2, 4 Contexts</td>
<td>Year 1: 4, Year 5: 5, Year 10, 10A: 7</td>
</tr>
<tr>
<td>Technologies: Digital Technologies</td>
<td>Digital Technologies Knowledge &amp; Understanding, Digital Technologies Processes &amp; Production Skills</td>
<td>2, 5 Processes</td>
<td>Year 1: 5, Year 5: 5, Year 10, 10A: 5</td>
</tr>
</tbody>
</table>

Table 3: Sampling frame overview of audited Australian Curriculum LAs.
Source: ACARA (2015), at www.australiancurriculum.edu.au
Further, the conceptualising Shape document for each LA, which contains fulsome descriptions of the Learning Area’s aim, structure, and considerations including Links to other LAs, will be scanned, rather than audited, for the presence of such vocabulary. Any such extra data will be provided in Chapter 6 Results, ahead, and addressed in Chapter 7 Analysis, in conjunction with the main audit data on puberty education presence and potential.

The document titled *General Capabilities in the Australian Curriculum* (ACARA, 2013b), details the intended learning contained in seven General capabilities mandated for inclusion, and tagged by icons, in Content descriptions within every LA. Teachers are expected to teach and assess these General capabilities to the extent that they are incorporated within each LA. The capabilities, namely Literacy, Numeracy, Information and Communication (ICT) capability, Critical and creative thinking, Personal and social capability, Ethical understanding, and Intercultural understanding, explicitly address integrated and interconnected knowledge, skills, behaviours, and dispositions that students develop and use in their learning, within and across each LA curriculum, and in their lives outside school (2013b, p. 5). For example, students need Literacy skills and ICT capability to communicate effectively across all LAs; they use Numeracy and Critical and creative thinking to progress satisfactorily in Science-related LAs; and they apply Intercultural understanding, Ethical understanding, and Personal and social capability when they study colonial History, labour Economics, or challenge stereotypes, prejudice, and bullying in social and textual interactions. These General capabilities contain vocabulary that will likely be pertinent to puberty education within most, if not all, Content descriptions in every LA, so this document will be included in the scan for evidence. In particular, Personal and social capability encompasses students’ developing personal/emotional and social/relational dispositions, intelligences, sensibilities, strengths, values, and learning (2013b, p. 82), and so has great import for their lives, and also for their education.

Similarly, three Cross-curriculum priorities are embedded in Content descriptions within every LA, with strong but varying levels of implementation depending on their relevance and applicability to each LA. They are also tagged with icons, for teachers’ attention. These Cross-curriculum priorities are, first, Aboriginal and Torres Strait Islander histories and cultures, embedding their unique sense of identity within the Australian Curriculum through the interconnected aspects of Country/Place, People and Culture; second, Asia and Australia’s engagement with Asia, reflecting the diversity of, and our connections with, Asian social, cultural, political, and economic spheres; and
third, Sustainability, which specifically addresses the ongoing capacity of Earth to maintain all life (ACARA, 2015). Again, some vocabulary from these Cross-curriculum priorities will likely be appropriate to puberty education within most, if not all, Content descriptions in every LA, and any such evidence will be scanned and noted.

5.5 Sample
International research, evidence, and recommendations from best-practice curricula all support the integration of puberty education at every year or grade level of a state or region’s curriculum (FoSEI, 2012; Haberland & Rogow, 2011; SIECUS, 2004; UNESCO, 2009, WHO & BZgA, 2010). Accordingly, three school year levels, each crucial age/curriculum time periods for the majority of pre-pubescent or pubertal students, are chosen for this three-step analytical audit of puberty education presence (Audits One and Two), and potential for integrated application (Audit Three) in the first ever Australian Curriculum. The year levels chosen are Year 1, Year 5 and Year 10, for students aged about 5, 10 and 15 respectively, except in two LAs that are introduced in later school grades. Only Years 5 and 10 will be audited in the Civics and Citizenship LA, which begins in Year 3 for students aged 8, and in the Economics and Business LA, which begins in Year 5.

The first year level chosen for these analytical audits is Year 1, when children are aged about 5, as this is their first full and compulsory year of school, and they are likely to be very curious and relatively settled pre-pubescents. Puberty education and child protection pedagogies are most easily normalised, for girls and boys, at this time (see Centrewall, 2000; Education Queensland [EQ], 2014). Further, girls aged 7-9 are at highest risk of sexual abuse (see Hinkleman & Bruno, 2008; Trickett et al., 2011), and school-entry age is the optimum time for child protection strategies to be introduced.

The second year level chosen for analytical audits is Year 5, for students aged about 10, as this is a major educational and curriculum transitional year between children as pupils, who are teacher-directed and closely supervised while learning/playing, turning into adolescents as students, who are expected to become more self-directed and independent (Pendergast & Bahr, 2005). More importantly, for the purposes of this research, most children aged about 10 are noticing the impacts of adrenarche, the first phase of puberty (see Chapter 1.1.1) that includes feelings of sexual attraction, as they transition into adolescence (Ellis & Essex, 2007; Sawyer et al., 2012). Puberty education for this age/year cohort, before sexual activity begins, is profoundly
important (Sidibe, 2009), and if not already delivered and integrated in earlier school years, it is crucial that it starts at this time.

The third year level chosen for analytical audits is Year 10, for adolescents aged about 15, as this is generally the last time period of standardised school curricula, before students select individual and specialised courses of study for their senior years. Further, the majority of students in this age/level cohort are already reproductively mature, and significant proportions may consider, or engage in sexual activities (Agius, Pitts, Smith, & Mitchell, 2010; Mitchell et al., 2011, 2014; Vella et al., 2014), or impulsive or risky behaviours, or may suffer from anxiety or trauma (Patton & Viner, 2007; Robinson, 2012). These adolescents, then, are in critical need of relevant and effective knowledge (Goldman & Collier-Harris, 2009, 2012).

In this research, all other year levels in the sampled LAs, e.g. Foundation, and Years 2, 3, 4, 6, 7, 8, and 9, are also scanned for the presence of cognitive process verbs and knowledge dimension nouns (see Anderson & Krathwohl, 2001) pertaining to puberty education. The now-defunct Human Relationships Education program (1999) in Queensland schools was based on five areas, namely self-concept, communication, relationships, sexuality and values; and these terms, along with many others relevant to physiology, interactions, social meaning, perspectives, and rights, feature in the search for puberty education content presence, and its potential integration.

5.6 Method

5.6.1 Audit One, by quantitative deduction and summative Content Analysis
Audit One identifies the quantitative incidence and positional/relational strength of any word or phrase denoting puberty education presence that may be found at three separate year levels, namely Years 1, 5 and 10, in the online version 7.3 Scope and sequence charts, as well as the Shape documents, of the Australian Curriculum LAs so examined. Within these selected year levels of each LA, the Strands, their Sub-strands, and Content descriptions are carefully scrutinised for relevant content. Words/phrases are chosen if they are cognitive verbs or knowledge nouns that describe or apply, in any degree, to puberty education content. This vocabulary is contained in Appendices A-J, where Appendix A is English, B is Mathematics, C is Science, and so on to J for Technologies. The criteria for identifying such verbs and nouns are derived from the particular cognitive processes identified by Anderson and Krathwohl (2001), namely, Remember (lowest), Understand, Apply, Analyse, Evaluate and Create (highest), and their constituting 19 sub-processes. The knowledge dimensions used are those also
identified by Anderson and Krathwohl (2001), namely, Factual (lowest), Conceptual, Procedural, and Meta-cognitive (highest), and their constituting 11 sub-processes.

Each of these incidents of presence is recorded and positioned in the tabular form of Anderson and Krathwohl’s (2001) template of 209 cells, shown previously in Table 2 (see Chapter 4.4). Any evidence of presence will be recorded once, initially in one of four quadrants, for each Content description. As discussed earlier, such actions of choosing and positioning words in relational gradients of low-to-high knowing and thinking categories are themselves forms of qualitative evaluation, so it may be argued that there is no pure quantification process, such as counting, in this research method.

Where there is doubt about the appropriate allocation of a word/phrase, the conceptually closest cell is chosen. For example, ‘character’ in the Literacy Strand of Year 1 in the English LA, has a different context and meaning to the same word used in the Civics and Citizenship LA. However, it is anticipated that little doubt or ambiguity will be evident during this audit, as none arose in the pre-test audit (see Section 5.7.4 below). If more than one word/phrase presence instance occurs in a Content description, the highest-level instance will be used to determine the final position of that Content description within the Audit Table. An Audit Table for each audited year level (n=3) is provided for each selected LA (n=15), except in Civics and Citizenship, and Economics and Business, which have only two audited year levels. These Audit Tables (N=43) are located in each LA’s Appendix, from A English to J Technologies.

5.6.2 Audit Two, by qualitative induction and summative Content Analysis
Audit Two identifies the qualitative evidence for presence in the Scope and sequence charts of each LA, and also, by its absence, the qualitative evidence for potential of educationally sound, integrated content and sites of puberty education in future versions of the Australian Curriculum. This audit step uses the same theoretical framework and hierarchical matrix of cognitive process verbs and knowledge dimension nouns (Anderson & Krathwohl, 2001) as are identified in the first audit step of presence incidence and positional/relational strength. However, in this second audit, the word/phrase incidents are qualitatively evaluated and recorded, in context, in three designated Boxes, again one for each audited year level of each selected LA (N=43). Such Boxes are then paired with the relevant Audit Table of the same year level.

Thus, these Boxes show all the Australian Curriculum Strands, their Sub-strands, further divisions if applicable, and their Content descriptions. For example, each audited level (Years 1, 5 and 10) in the English LA documents the presence of puberty
education cognition and/or knowledge within its three Strands, which include 13 Sub-
strands with up to 33 Thread foci, and as many as 34 Content descriptions. Such Boxes
include a ‘presence’ column showing the relevant cognitive verbs (colour-coded in
blue) that may be found, and the relevant knowledge nouns (colour-coded in red) that
may be found. Thus, the absence of colour denotes the lack of any relevant vocabulary.
Each Box also records the specific tabular cell where the word or phrase was located, as
a cross-reference and to increase accuracy. For example, Box 6.10.2.1 within Appendix
J Technologies presents data derived from the Year 1, students aged 5, Content
Descriptions of the Digital Technologies LA, v.7.3 published online in January 2015, so
that the word/phrase incident “Work with others to create and organise ideas and
information using information systems, and share these in safe online environments” is
shown as located in the Anderson and Krathwohl cell 6.3 Cc in the accompanying
incidence Audit Table 6.10.2.1. All other compulsory year levels are scanned, rather
than fully audited, for puberty education cognition and knowledge vocabulary, but only
evidence of puberty-specific words/phrases is recorded. Such terms do not appear in
Audit Tables or Boxes, but are instead shown in the text of Chapter 6 Results, for later
inclusion and discussion in Chapter 7 Analysis. In Chapters 6 and 7, summaries of
Audit Table/Box data will use a graduated ranking of overall Content presence for
comparison purposes, ranging upward from very little, through little-few and some, to
much-many. Similarly, ranking of overall potential will range upward where possible,
from some, through significant and high, to very high.

5.6.3 Audit Three, by qualitative induction and identified integration
In Audit Three, qualitative and inductively-derived examples of potential curriculum-
integrated content are identified for as many Thread foci and/or curriculum Content
descriptions as possible, for the Years 1, 5 and 10 in each audited LA, even if there is no
puberty education presence found in the corresponding Audit Table. These potential
examples are shown as verbs and nouns (colour-coded in green) in the same context and
format as that found in the online Scope and sequence charts, in a separate column of
each Box. For example, in the same Box 6.10.2.1 within Appendix J Technologies, an
improved and integrated puberty education element would be, “Work with others in
mixed gender groups with digital systems (text, images, audio) to plan and create a
strategy of self-protection that each child could use, and then safely share this online”
(Year 1, Digital Technologies LA). These examples of potential cognition and
knowledge are generally set at higher qualitative gradients of Anderson and
Krathwohl’s (2001) theoretical framework, and in higher quantitative instances, than any found evidence of presence, because children and adolescents are capable of deeper thinking and understanding about puberty, relationships and sexuality than is often recognised (Goldman & Goldman, 1982). The examples given will also be in general accordance with the international evidence of students’ learning capabilities and best practice puberty education curricula (see UNESCO, 2009; WHO & BZgA, 2010). However, examples of potential puberty education will not be identified for the remaining scanned compulsory year levels.

While an overview of evidence will be presented in the text of Chapter 6 Results, all Content Analysed evidence, with colour-coded nouns and verbs for presence and potential of puberty education cognition and knowledge, will be provided in year-level pairs of complimentary Audit Tables and Boxes within the relevant LA Appendix. For example, Appendix A contains the English Audit Table 6.1.1 (Audit One quantitative incidence and qualitative positional strength of presence) for Year 1, with its matching Box 6.1.1 (Audits Two and Three qualitative presence and integrated potential). Appendix A also contains the Audit Table-and-Box pair numbered 6.1.2 for Year 5, and the Audit Table-and-Box pair numbered 6.1.3 for Year 10. Appendix B contains three Audit Table-and-Box pairs for Mathematics. Except for Appendix F Civics and Citizenship, and Appendix G Economics and Business with two pairs each, this pattern continues to Appendix J for Technologies.

5.6.4 Pre-test Audit
A pre-test audit was performed on the Australian Curriculum LA of English, by applying the vocabulary criterion of five international curricula/standards (see Chapter 3.2) to the three-phase analytic audit and Content Analysis to Year 1 (children aged about 5), Year 5 (students age about 10) and Year 10 (adolescents aged about 15). Some words or phrases applicable to puberty education, such as ‘expressing emotions’ from Year 1; ‘signal social roles and relationships’ from Year 5; and ‘evaluate the social, moral and ethical positions’ from Year 10, with verbs shown in blue and nouns in red, were found. However, these were relatively scarce, so the scope of the three detailed audits was widened to include any vocabulary that could be appropriated by teachers as entry points for discussions or activities related to puberty education. These included words and phrases such as ‘ask questions, discuss possible changes’ (Year 1); ‘use comprehension strategies, present a point of view’ (Year 5); and ‘influenced by value systems, compare… representations of individuals’ (Year 10).
Consequent to the three pre-test analytical audits, the ambiguity and subject-specificity of much of the Content description vocabulary, and its failure to meet the international criterion, made it necessary for the researcher to, additionally, record whether such words and phrases were used in the context of students’ needs and rights to puberty education. A further decision was made to link and cross-reference the Anderson and Krathwohl (2001) qualitative cell position of quantitative incidences that are recorded in each Audit Table. These cell cross-references are now shown, in bold black, in a Box column between the in-context vocabulary of each Sub-strand and its Content description (see Appendix A English, Year 1: Box 6.1.1).

5.7 Ethics
Ethical approval for this study was sought from the Griffith University Human Research Ethics Committee. The University Ethics Committee responded to the Research Ethics Scope Checker application, and deemed that ethical review was not required. The research was fully literature-based, and posed no psychological, physical, social, or legal risks to any person. No further specific details were then required by the Committee.

5.8 Chapter Summary
This chapter has provided an explanation of the analytic audits used to collect and analyse data found in ten LAs in the new Australian Curriculum. This chapter presented an examination of the research method conceptualisation including the hermeneutical spiral, a reiteration of the aim and research questions, and the research design of Mixed Methods, explaining its quantitative and qualitative grounding. It also presented the sampling frame of all the LAs to be audited, explained by means of a table-and-text-box pairing, while the sample, that is, all the school years and related documents used in the three audits, was identified in detail. Then, this chapter presented the specific processes of each of the three analytical audits, the pre-test results and consequences for the research method, and the ethics requirements. Next, Chapter 6 Results will provide the results of the three-step analytical audits and Content Analyses of the selected Australian Curriculum LAs and year levels, and of all other documents and scans.
Chapter 6: Results

This chapter provides the results, gathered using Anderson and Krathwohl’s (2001) theoretical framework (see Chapter 4.4), in Sections 6.1 to 6.10, one for each of the ten specific research questions (see Chapter 1.3.2) and its ‘parent’ LA (see Chapter 5.5 and 5.6). In Section 6.1: Audits of English, the first sub-section, 6.1.1, presents quantitative and qualitative data evidenced in Australian Curriculum Content descriptions for English Year 1 students aged 5, shown as,

~ Audit One’s evidence of **quantitative** puberty education *presence* incidence and its **qualitative** positional strength, shown in a numbered Audit Table using the 209 cells of Anderson and Krathwohl’s (2001) theoretical framework.

~ Audit Two’s evidence of **qualitative** Content Analysis presence, shown in a correspondingly numbered Box using vocabulary hierarchies from Anderson and Krathwohl’s (2001) theoretical framework, and,

~ Audit Three’s evidence of **quantitative** and **qualitative** potential for integration, shown in the same Box.

Sub-section 6.1.2 presents evidence from these three analytical audits for English Year 5, students aged 10. Sub-section 6.1.3 presents evidence from these three analytical audits for English Year 10, students aged 15. Sub-section 6.1.4 presents overviews of some of the evidence found in scans of other year levels of the English curriculum. Sub-section 6.1.5 presents a summary of all evidence gathered from the English LA. This same formula is applied to all selected LAs. Complete sets of results gathered from the LA year levels (N=43 sets of three analytical audits, shown in Audit Table-and-Box pairs) are presented in Appendices, one for each parent LA, from Appendix A English through to Appendix J Technologies. There are 43 sets rather than 45, because two LAs, namely Civics and Citizenship, and Economics and Business, are not offered in Year 1. Section 6.11 provides a chapter summary, and forecasts Chapter 7 Analysis.

6.1 Audits of English for Presence and Potential, Years Foundation-10

The specific research question here is, What evidence is found, in the new Australian Curriculum LA of English, for the *presence* of puberty education, and its *potential* for integration, for girls and boys aged 5-16 years? Quantitative and qualitative audits of the English curriculum Years 1, 5, and 10 (ACARA, 2015, v7.3, January), for students aged 5, 10, and 15 respectively (see Chapter 3.4.1; Table 3), reveal the data of *presence* and *potential* shown in three Audit Table-and-Box pairs of Appendix A English. A brief summary of evidence gathered from the curriculum including Scope and sequence
charts (ACARA, 2015), the *General capabilities* document (ACARA, 2013b), and the *Shape of the Australian Curriculum: English* conceptualisation document (NCB, 2009a), is now presented. Evidence examples shown here are minimised and/or paraphrased.

### 6.1.1 Audit of Scope and sequence chart for Year 1, students aged 5

Audit Table 6.1.1 (see Appendix A English) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the *presence* of puberty education content for Year 1 students aged 5. This curriculum guides student learning through 34 Content descriptions, with 27 instances found to include noun/verb vocabulary appropriate or useful to puberty education. Almost half of identified *presence* instances (n=13) are located in the lowest (simplest) north-west quadrant of Audit Table 6.1.1, where Remember-Understand-Apply Cognitive Processes intersect with Factual-Conceptual Knowledge. Eight instances are found in the diagonally opposed, highest (more complex) south-east quadrant, where Analyse-Evaluate-Create Cognitive Processes meet Procedural-Metacognitive Knowledge. The remaining instances are located between outlying knowledge/cognition juxtapositions in the diagonally opposed intermediate quadrants, with four in the higher-knowledge south-west, and two in the higher-cognition north-east.

The corresponding Box 6.1.1 affirms that there is some evidence of the *presence* of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “expressing emotions, body language, facial expressions; share personal responses [to texts about] cultures, experiences, people; build literal and inferred meaning; recognising contributions of others; express preferences”. However, little is directly applicable to human body or relationship vocabulary, e.g. uterus, digestion, good/bad touching, and none is proffered in a directly pubertal context.

This quantitative and qualitative evidence indicates that very high *potential* exists for puberty education content to be integrated with the English LA for Year 1. Accordingly, examples for all Content descriptions (N=34) are aligned in this Box 6.1.1.

### 6.1.2 Audit of Scope and sequence chart for Year 5, students aged 10

Audit Table 6.1.2 (see Appendix A English) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the *presence* of puberty education content for Year 5 students aged 10. This curriculum guides student learning through 31 Content descriptions, with 24 instances found to include noun/verb vocabulary appropriate or useful to puberty education. These instances are located in an
almost even split between the lowest north-west (n=8), the intermediate south-west (n=8), and the highest south-east (n=7) quadrants of Audit Table 6.1.2. The single remaining instance is in the intermediate north-east quadrant.

The corresponding Box 6.1.2 affirms that there is some evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “monitoring objective/subjective language; signal social roles and relationships; create… realistic and fantasy settings/characters [drawing on] students’ own experiences; move beyond making bare assertions; express greater precision of meaning”. Little is directly applicable to human body or relationship vocabulary, e.g. semen/sperm, menstruation, bullying, and none appears in a pubertal context.

This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the English LA for Year 5. Accordingly, examples for all Content descriptions (N=31) are aligned in this Box 6.1.2.

6.1.3 Audit of Scope and sequence chart for Year 10, students aged 15
Audit Table 6.1.3 (see Appendix A English) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 10 students aged 15. This curriculum guides student learning through 31 Content descriptions, with 29 instances found to include noun/verb vocabulary appropriate or useful to puberty education. The great majority of identified presence instances (n=22) are located in the highest south-east quadrant of Audit Table 6.1.3. The remaining instances are distributed between the other three quadrants, with two in the intermediate south-west, four in the lowest north-west, and one in the intermediate north-east quadrant.

The corresponding Box 6.1.3 affirms that there is some evidence of the presence of words that could be relevant to puberty education. Such Content description vocabulary includes “inclusive-exclusive social effects [of language use can] empower-disempower people; evaluate [texts’] social, moral and ethical positions; texts… reflect challenging and complex issues, evoke particular emotional responses; analyse [texts’] implicit or explicit values, beliefs and assumptions, higher order concepts”. However, while some words and phrases are directly applicable to human relationships, the vocabulary is subject-specific. None relates to students’ immediate concerns, e.g. desire, contraceptives, dysmorphic body image, and none has a pubertal context.
This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the English LA for Year 10. Accordingly, examples for all Content descriptions (N=31) are aligned in this Box 6.1.3.

6.1.4 Scan of other Scope and sequence year levels
Content descriptions in other compulsory year levels, namely Years 2, 3, 4, 6, 7, 8, and 9, and the optional Foundation Year (ACARA, 2015), contain some evidence of the presence of cognitive process verbs and knowledge dimension nouns (Anderson & Krathwohl, 2001) appropriate or useful to puberty education content.

6.1.4.1 Foundation, aged 4-5.
~ Language Strand: vocabulary “expressing needs, likes, dislikes; personal interests”.
~ Literature Strand: “share feelings for characters”.
~ Literacy Strand: “use interaction skills, body language”.

6.1.4.2 Year 2, aged 7.
~ Language Strand: “interpersonal resources; appreciating people’s qualities”.
~ Literature Strand: “give reasons for personal [texts] preferences”.
~ Literacy Strand: “positive statements, appropriately voicing disagreement”.

6.1.4.3 Year 3, aged 8.
~ Language Strand: “vocabulary for expressing opinion”.
~ Literature Strand: “connections between personal experiences, texts; personal and others’ cultures; establish criteria for personal preferences”.
~ Literacy Strand: “negotiate in collaborative situations; use active listening”.

6.1.4.4 Year 4, aged 9.
~ Language Strand: “social interactions influence engagement/response to ideas; understand different languages of feeling/opinion”.
~ Literature Strand: “share responses about representations of relationships; create texts exploring students’ experiences, imagining”.
~ Literacy Strand: “comprehension strategies build literal, inferred meaning; responses, acknowledge others’ viewpoints”.

6.1.4.5 Year 6, aged 11.
~ Language Strand: “objective/subjective language, bias; social distance; how vocabulary choices express shades of meaning, feeling, opinion”.
~ Literature Strand: “connect students’ experiences with different texts’ historical, social, cultural contexts, characters; language choices influence personal responses”.
~ Literacy Strand: “evaluate experiences/opinions in discussion”.

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6.1.4.6 Year 7, aged 12.

~ Language Strand: “language evolves to reflect changing world, creates personal, social identities; images add/contradict/multiply meaning of words”.
~ Literature Strand: “explore texts from different historical, social, cultural contexts; justify agreement/difference; emotions, opinions; texts’ aesthetic and social value”.
~ Literacy Strand: “evaluate... spoken texts’ power; promote new way of seeing”.

6.1.4.7 Year 8, aged 13.

~ Language Strand: “communities’ speech conventions influence peoples’ identities”.
~ Literature Strand: “ways texts reflect, represent, challenge values of individuals, groups; position readers to groups; enable choices, appreciation of aesthetic qualities”.
~ Literacy Strand: “create texts that raise issues, interpret implied meanings; use evidence in spoken texts to support/challenge different perspectives”.

6.1.4.8 Year 9, aged 14.

~ Language Strand: “roles, relationships, are developed/challenged through language”.
~ Literature Strand: “compare textual representations of people/cultures from different historical, social, cultural contexts; reflect on personal, significant human, experience gained from textual interpretations of life matters”.
~ Literacy Strand: “evaluate how different textual perspectives of an issue, event, group, or individual are constructed to serve specific purposes; influenced by cultural perspectives; how spoken texts position listeners’ responses”.

In summary, the English LA Scope and sequence charts (ACARA, 2015) contain some relevant words/phrases, although none of the identified presence vocabulary is delivered in a pubertal context. However, almost every Content description shows a very high level of potential for puberty education integration, in both incidence and quality.

6.1.5 Overall summary of audit findings in English LA

In these audited curriculum documents, including the detailed audit of the English LA Years 1, 5 and 10, and scan of other year levels up to Year 10 (ACARA, 2015), the seven curricula-wide General capabilities and three Cross-curriculum priorities (ACARA, 2013b), and the conceptualisation Shape document (NCB, 2009a), some words are highly appropriate or useful to puberty education content. While directly applicable phrases and concepts including “body language; students’ own experiences; personal and social identities; individual and group values; life matters; different historical, social, cultural contexts” are identified, no vocabulary addresses children’s, or adolescents’, evidenced preoccupation with pubertal processes and metamorphoses (see
Goldman & Goldman, 1982; Tunnicliffe & Reiss, 1999). Further, there is no vocabulary about students’ needs and rights to such information, although explicit words, concepts and contexts are included in international curricula/standards (WHO & BZgA, 2010).

In English, the call to aesthetic and imaginative sensibilities identified in language cognitive processes of listening, speaking, viewing, reading, and writing, and rich, evolving, knowledge content, provide constant and diverse opportunities for integrating and normalising puberty education. This evidence indicates the eminent suitability and potential of the English LA as a site for puberty education for all Australian students.

6.2 Audits of Mathematics for Presence and Potential, Years Foundation-10A
The specific research question here is, What evidence is found, in the new Australian Curriculum LA of Mathematics, for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years? Quantitative and qualitative audits of the Mathematics curriculum Years 1, 5, and 10 (ACARA, 2015, v7.3, January), for students aged 5, 10, and 15 respectively (see Chapter 3.4.2; Table 3), reveal the data of presence and potential shown in three Audit Table-and-Box pairs of Appendix B Mathematics. A brief summary of evidence gathered from the curriculum including Scope and sequence charts (2015), the General Capabilities document (ACARA, 2013b), and the Shape of the Australian Curriculum: Mathematics conceptualisation document (NCB, 2009c), is now presented. Evidence examples shown here are minimised and/or paraphrased.

6.2.1 Audit of Scope and sequence chart for Year 1, students aged 5
Audit Table 6.2.1 (see Appendix B Mathematics) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 1 students aged 5. This curriculum guides student learning through 15 Content descriptions, with 12 instances found to include noun/verb vocabulary appropriate or useful to puberty education. Half of all identified presence instances (n=6) are located in the intermediate south-west quadrant, where higher Procedural-Metacognitive Knowledge categories intersect with lower Remember-Understand-Apply Cognitive Process categories of Audit Table 6.2.1. Four instances are found in the lowest north-west quadrant, none in the intermediate north-east, and the remaining two in the highest south-east quadrant.

The corresponding Box 6.2.1 affirms that there is little evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description
vocabulary includes “develop [number] confidence; [data, place] value; represent problems, strategies, chance, equal/whole, questions/responses, identify outcomes of familiar events, directions to familiar locations”. However, very little is directly applicable to human body or relationship vocabulary, e.g. stomach, blood circulation, road safety, and none is proffered in a pubertal context.

This quantitative and qualitative evidence indicates that high potential exists for puberty education content to be integrated with the Mathematics LA for Year 1. Accordingly, examples for all Content descriptions (N=15) are aligned in this Box 6.2.1.

6.2.2 Audit of Scope and sequence chart for Year 5, students aged 10
Audit Table 6.2.2 (see Appendix A Mathematics) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 5 students aged 10. This curriculum guides student learning through 25 Content descriptions, with 18 instances found to include noun/verb vocabulary appropriate or useful to puberty education. Half (n=9) of identified presence instances are located in the highest south-east quadrant of Audit Table 6.2.2. The other half (n=9) is distributed between the three other quadrants, with five in the intermediate south-west, one in the lowest north-west, and three in the intermediate north-east quadrant.

The corresponding Box 6.2.2 affirms that there is little evidence of the presence of vocabulary that could be relevant to puberty education. Such Content vocabulary includes “[place] value; find unknown quantities; check reasonableness of answers; mental strategies; transformation; represent probabilities of outcomes; pose questions”. Very little is directly applicable to human body or relationship vocabulary, e.g. ear, balance, water safety, and none appears in a pubertal context.

This quantitative and qualitative evidence indicates that high potential exists for puberty education content to be integrated with the Mathematics LA for Year 5. Accordingly, examples for most Content descriptions (n=19/N=25) are aligned in this Box 6.2.2.

6.2.3 Audit of Scope and sequence chart for Year 10, students aged 15
Audit Table 6.2.3 (see Appendix A Mathematics) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 10 students aged 15. This curriculum guides student learning through 25 Content descriptions, with 15 instances found to include noun/verb
vocabulary appropriate or useful to puberty education. A great majority of identified presence instances (n=12) are located in the highest south-east quadrant of Audit Table 6.2.3. The remaining three instances are divided between the two intermediate quadrants, while the lowest north-west quadrant is empty.

The corresponding Box 6.2.3 affirms that there is little evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “concept of independence; substitute values, determine an unknown; solve problems, inequalities, expressions; congruence; apply logical reasoning/conditional statements; investigate relationships”. However, very little is directly applicable to human body or relationship vocabulary, e.g. memory, breastfeeding, informed consent, and none is presented in a pubertal context.

This quantitative and qualitative evidence indicates that high potential exists for puberty education content to be integrated with the Mathematics LA for Year 10. Accordingly, examples for some Content descriptions (n=3/N=25) are aligned in this Box 6.2.3.

6.2.4 Scan of other Scope and sequence year levels

Content descriptions in other compulsory year levels, namely Years 2, 3, 4, 6, 7, 8, and 9, and the optional years Foundation and Year 10A (ACARA, 2015), contain little evidence of the presence of cognitive process verbs and knowledge dimension nouns (Anderson & Krathwohl, 2001) appropriate or useful to puberty education content.

6.2.4.1 Foundation, aged 4-5.
~ Measurement and Geometry: “everyday language of time, familiar events, actions”
~ Statistics and Probability: “questions”.

6.2.4.2 Year 2, aged 7.
~ Number and Algebra: “solve problems; mental/written strategies; value”.
~ Measurement and Geometry: “use balance scales; order time [categories]”.

6.2.4.3 Year 3, aged 8.
~ Number and Algebra: “[place/money] value, solve problems; mental strategies”.
~ Measurement and Geometry: “relationships... time units; symmetry in environment”.
~ Statistics and Probability: “chance, possible outcomes, recognise variations”.

6.2.4.4 Year 4, aged 9.
~ Number and Algebra: “[place] value, mental strategies; find unknown quantities”.

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~ Measurement and Geometry: “solve simple time problems; interpret map scales, legends, directions; classify [angles] equal to/greater than/less than”.
~ Statistics and Probability: “order chances of occurrence, identify causal blocks/links; construct representations [data] values, variability”.

6.2.4.5 Year 6, aged 11.
~ Measurement and Geometry: “use timetables; translations, reflections, Cartesian coordinate system using all four quadrants”.
~ Statistics and Probability: “conduct chance experiments with trials”.

6.2.4.6 Year 7, aged 12.
~ Number and Algebra: “use equivalence”.
~ Measurement and Geometry: “use formulas… in problem solving; reflections”.
~ Statistics and Probability: “assign probabilities to event outcomes; calculate data sets’ mean, median, mode, range”.

6.2.4.7 Year 8, aged 13.
~ Number and Algebra: “plot [linear] relationships; verify solutions”.
~ Measurement and Geometry: “investigate [circle] relationships; congruence”.
~ Statistics and Probability: “use language of exclusivity, inclusivity”.

6.2.4.8 Year 9, aged 14.
~ Number and Algebra: “explore [rate problems] relationships, non-linear relations”.
~ Statistics and Probability: “identify everyday questions, issues, with numerical, categorical, variables”.

6.2.4.9 Year 10A, aged 15.
~ Number and Algebra: “solve problems; derived from a variety of contexts”.
~ Statistics and Probability: “use information technologies, investigate... data sets”.

In summary, the Mathematics LA Scope and sequence charts (ACARA, 2015) contain some relevant words/phrases, although none of the identified presence vocabulary is delivered in a pubertal context. However, many Content descriptions show high potential for puberty education integration, in both incidence and quality.

6.2.5 Overall summary of audit findings in Mathematics LA
In these audited curricula documents, including the detailed audit of the Mathematics LA Years 1, 5 and 10, and scan of other year levels up to Year 10A (ACARA, 2015), the seven curricula-wide General capabilities and three Cross-curriculum priorities (ACARA, 2013b), and the conceptualisation Shape document (NAB, 2009c), little vocabulary is appropriate or useful to puberty education content. Even though very little
of this *presence* vocabulary, such as “apply logical reasoning, language of exclusivity, inclusivity; interrogating claims”, can be directly applied, it is delivered in a subject-specific technical context. None is presented in the context of students’ pubertal needs or rights (see Haberland & Rogow, 2011). This vocabulary lacuna wastes many opportunities to develop and integrate clear, reasoned thinking with students’ personal lifechances, and it risks the under-development of students’ agency and pubertal preparedness for a healthy, safe future.

In Mathematics, the inherent “value and beauty... elegance and power” (ACARA, 2015, p. 4) of mathematical cognitive processes and knowledge content provides innumerable and diverse opportunities for integrating and normalising puberty education. For example, Game theory could be used to counter students’ perception of mathematical study as boring, or removed from their real lives. This evidence indicates the somewhat surprising suitability and potential of the Mathematics LA as a site for puberty education for all Australian students.

### 6.3 Audits of Science for Presence and Potential, Years Foundation-10

The specific research question here is, What evidence is found, in the new Australian Curriculum LA of Science, for the *presence* of puberty education, and its *potential* for integration, for girls and boys aged 5-16 years? Quantitative and qualitative audits of the Science curriculum Years 1, 5, and 10 (ACARA, 2015, v7.3, January), for students aged 5, 10, and 15 respectively (see Chapter 3.4.3; Table 3), reveal the data of *presence* and *potential* shown in three Audit Table-and-Box pairs of Appendix C Science. A brief summary of evidence gathered from the curriculum including Scope and sequence charts (ACARA, 2015), the *General Capabilities* document (ACARA, 2013b), and the *Shape of the Australian Curriculum: Science* conceptualisation document (NCB, 2009d), is now presented. Evidence examples shown here are minimised and/or paraphrased.

#### 6.3.1 Audit of Scope and sequence chart for Year 1, students aged 5

Audit Table 6.3.1 (see Appendix C Science) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the *presence* of puberty education content for Year 1 children aged 5. This curriculum guides student learning through 14 Content descriptions, with 13 instances found to include noun/verb vocabulary appropriate or useful to puberty education. A majority of identified *presence* instances (n=8) are located in the lowest north-west quadrant of Audit Table 6.3.1, where Remember-Understand-Apply Cognitive Processes intersect with Factual-
Conceptual Knowledge. The remaining instances are distributed between the other three quadrants, with one in the intermediate north-east, four in the highest south-east, and two in the intermediate south-west quadrant.

The corresponding Box 6.3.1 affirms that there is little evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “living things, their needs, observable changes; people… caring for their environment; use senses, role play, ask questions; compare observations, predictions”. Very little is directly applicable to human body or relationship vocabulary, e.g. baby, toileting, germ theory/hygiene, and none relates to a pubertal context.

This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the Science LA for Year 1. Accordingly, examples for all Content descriptions (N=14) are aligned in this Box 6.3.1.

6.3.2 Audit of Scope and sequence chart for Year 5, students aged 10
Audit Table 6.3.2 (see Appendix C Science) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 5 students aged 10. This curriculum guides student learning through 16 Content descriptions, with 15 instances found to include noun/verb vocabulary appropriate or useful to puberty education. A majority of identified presence instances (n=8) are located in the highest south-east quadrant of Audit Table 6.3.2.

Three instances are located in the intermediate south-west quadrant, with the remaining four found in the lowest north-west, and none in the intermediate north-east quadrant.

The corresponding Box 6.3.2 affirms that there is little evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “[scientific knowledge] directly affects people’s lives; informs personal, community decisions; contributions by people from other cultures; fair tests; adaptations… survive in their environment; relationships; potential risks”. However, very little is directly applicable to human body or relationship vocabulary, e.g. aging and menopause, hormones, fungal infections, and none is presented in a pubertal context.

This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the Science LA for Year 5. Accordingly, examples for all Content descriptions (N=16) are aligned in this Box 6.3.2.
6.3.3 Audit of Scope and sequence chart for Year 10, students aged 15

Audit Table 6.3.3 (see Appendix C Science) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 10 students aged 15. This curriculum guides student learning through 21 Content descriptions, with 17 instances found to include noun/verb vocabulary appropriate or useful to puberty education. A majority of identified presence instances (n=11) are located in the highest south-east quadrant of Audit Table 6.3.3. The remaining instances are distributed between the other three quadrants, with one in the intermediate south-west, three in the lowest north-west, and two in the intermediate north-east quadrant.

The corresponding Box 6.3.3 affirms that there is some evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “evidence of… evolution [explains] diversity of living things; origin; transmission of heritable characteristics through generations… involves DNA and genes; values, needs; cycles, interactions, reactions; sources of uncertainty, risk, conventions, evidence-based arguments, validity; contestability”. While some words are directly applicable to human body or relationship vocabulary, they are delivered in abstract and subject-oriented descriptions. None relates to students’ immediate concerns, e.g. vagina, negotiation strategies, intimacy, and none appears in a pubertal context.

This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the Science LA for Year 10. Accordingly, examples for all Content descriptions (N=21) are aligned in this Box 6.3.3.

6.3.4. Scan of other Scope and sequence year levels

Content descriptions in other compulsory year levels, namely Years 2, 3, 4, 6, 7, 8, and 9, and the optional Foundation Year (ACARA, 2015), contain some evidence of the presence of cognitive process verbs and knowledge dimension nouns (Anderson & Krathwohl, 2001) appropriate or useful to puberty education content.

6.3.4.1 Foundation, aged 4-5.
~ Science Understanding: “living things have basic needs; changes affect everyday life”.
~ Science as a Human Endeavour: “explore/observe the world using the senses”.
~ Science Inquiry Skills: “engage in discussions; observations/ideas”.

6.3.4.2 Year 2, aged 7.
~ Science Understanding: “living things grow, change, have offspring”.
~ Science as a Human Endeavour, Science Inquiry Skills: Content descriptions are the same as Year 1.

6.3.4.3 Year 3, aged 8.
~ Science Understanding: “distinguish living/non-living things by observable features”.
~ Science as a Human Endeavour: “patterns, relationships, predictions; effects of people’s actions”.
~ Science Inquiry Skills: “reflect on investigation, including fairness of its test”.

6.3.4.4 Year 4, aged 9.
~ Science Understanding: “living things have life cycles; … depend on each other and the environment to survive; human activity can influence Earth’s surface changes”.
~ Science as a Human Endeavour, Science Inquiry Skills: Content descriptions are the same as Year 3.

6.3.4.5 Year 6, aged 11.
~ Science Understanding: “survival, growth affected by environmental conditions”.
~ Science as a Human Endeavour, Science Inquiry Skills: Content descriptions are the same as Year 5.

6.3.4.6 Year 7, aged 12.
~ Science Understanding: “human activity can affect food chains/web interactions”
~ Science as a Human Endeavour: “scientific knowledge changes with new evidence, significantly changes understandings; may impact society, have ethical considerations”.
~ Science Inquiry Skills: “investigations’ safety/ethical guidelines, fair tests; patterns, relationships”.

6.3.4.7 Year 8, aged 13.
~ Science Understanding: “multi-cellular organisms contain systems of organs… to survive and reproduce”.
~ Science as a Human Endeavour, Science Inquiry Skills: Content descriptions are the same as Year 7.

6.3.4.8 Year 9, aged 14.
~ Science Understanding: “multi-cellular organisms’... coordinated and interdependent internal systems respond to changes; ecosystems consist of interdependent organism communities and abiotic components; matter and energy flows”.
~ Science as a Human Endeavour, Science Inquiry Skills: Content descriptions are the same as Year 10.

In summary, the Science LA Scope and sequence charts (ACARA, 2015) contain some relevant words/phrases, although none of the identified presence vocabulary is
delivered in a pubertal context. Almost every Content description shows a very high level of potential for puberty education integration, in both incidence and quality.

6.3.5 Overall summary of audit findings in Science LA
In these audited curriculum documents, including the detailed audit of the Science LA Years 1, 5 and 10, and scan of other year levels up to Year 10 (ACARA, 2015), the seven curricula-wide General capabilities and three Cross-curriculum priorities (ACARA, 2013b), and the conceptualisation Shape document (NAB, 2009d), some words are highly appropriate or useful to puberty education content. However, none is presented in the context of students’ pubertal needs or rights (see UNESCO, 2009). The words/phrases that can be specifically applied to puberty education, such as “diversity of living things, observable changes, cycles, uncertainty; have offspring; hereditable characteristics through generations” are presented only in a biological context. In particular, the dry objectivity of the teaching description “[Understand that] multi-cellular organisms contain systems of organs and specialised functions that enable them to survive and reproduce” (Year 8, students aged 13), is very significant, given that more than half of the girls and half of the boys aged 13 will already be reproductively mature. This vocabulary lacuna appears to contravene the need, and expectation, that students “make decisions based on science evidence and reasoning about the environment and their own health and wellbeing” (NAB, 2009d, p. 13).

The aim of the Science curriculum, to assist students to harness the “passion, excitement, frustrations, uncertainty and enlightenment” (NAB, 2009d, p. 4) that drive scientific learning and understanding, and the processes of ethical rationality and scientific literacy, provide compelling and diverse opportunities for integrating puberty education. This fulsome evidence indicates the excellent suitability and potential of the Science LA as a site for puberty education for all Australian students.

6.4 Audits of History for Presence and Potential, Years Foundation-10
The specific research question here is, What evidence is found, in the new Australian Curriculum LA of History, for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years? Quantitative and qualitative audits of the History curriculum Years 1, 5, and 10 (ACARA, 2015, v7.3, January), for students aged 5, 10, and 15 respectively (see Chapter 3.4.4; Table 3), reveal the data of presence and potential shown in three Audit Table-and-Box pairs of Appendix D History. A brief summary of evidence gathered from the curriculum including Scope and sequence
charts (ACARA, 2015), the General Capabilities document (ACARA, 2013b), and the Shape of the Australian Curriculum: History conceptualisation document (NAB, 2009b), is now presented. In this LA, the chronological dating designation CE is an abbreviation of Common Era. This replaces the phrase Anno Domini (AD), Latin for ‘the year of our Lord’, with CE 1 as the birth year of Jesus of Nazareth (ACARA, 2015, p. 83). Similarly, the phrase Before Christ (BC) is replaced with Before the Common Era, or BCE. A small ‘c’ before year numbers is an abbreviation of the Latin ‘circa’, or about. Evidence examples shown here are minimised and/or paraphrased.

**6.4.1 Audit of Scope and Sequence chart for Year 1, students aged 5**

Audit Table 6.4.1 (see Appendix D History) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 1 students aged 5. This curriculum guides student learning through 11 Content descriptions, with all found to include noun/verb vocabulary appropriate or useful to puberty education. Almost half (n=5) of identified presence instances are located in the intermediate south-west quadrant of Audit Table 6.4.1, where lower Remember-Understand-Apply Cognitive Processes intersect with higher Procedural-Metacognitive Knowledge. An equal number of instances (n=5) are located in the lowest (simplest) north-west quadrant. The one remaining instance is found in the intermediate north-east, denoting higher cognition/lower knowledge quality, while the highest (more complex) south-east quadrant is empty.

The corresponding Box 6.4.1 affirms that there is much evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “family structures, roles, traditions, change over time; between students’ daily lives, their parents’ and grandparents’ childhoods; present, past, future; dates/changes [of] personal significance, pose questions; oral communication”. While some is directly applicable to human body or relationship vocabulary, e.g. skeleton, birth, friendship, none appears in an unambiguously pubertal context.

This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the History LA for Year 1. Accordingly, examples for all Content descriptions (N=11) are aligned in this Box 6.4.1.

**6.4.2 Audit of Scope and sequence chart for Year 5, students aged 10**

Audit Table 6.4.2 (see Appendix D History) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty
education content for Year 5 students aged about 10. This curriculum guides student learning through 14 Content descriptions, with 13 instances found to include noun/verb vocabulary appropriate or useful to puberty education. Almost half (n=6) of identified presence instances are located in the highest south-east quadrant of Audit Table 6.4.2. Three instances are found in the intermediate south-west quadrant, and the remaining four are in the lowest north-west, with none in the intermediate north-east quadrant.

The corresponding Box 6.4.2 affirms that there is much evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “Aboriginal Peoples, Torres Strait Islander Peoples; economic, political, social reasons for establishment; nature of convict/colonial presence, frontier conflict; contributions, roles played by significant individuals/groups, e.g. explorers, religious/political leaders”. While some vocabulary is directly applicable to human relationships, all is subject-oriented. Very little relates to students’ immediate concerns, e.g. testicles, adrenarche, body hair, and none is delivered in a pubertal context.

This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the History LA for Year 5. Accordingly, examples for all Content descriptions (N=14) are aligned in this Box 6.4.2.

6.4.3 Audit of Scope and sequence chart for Year 10, students aged 15
Audit Table 6.4.3 (see Appendix D History) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 10 students aged 15. This curriculum guides student learning through 20 Content descriptions, with 16 instances found to include noun/verb vocabulary appropriate or useful to puberty education. A majority of identified presence instances (n=12) are located in the highest south-east quadrant of Audit Table 6.4.3. Three more are found in the intermediate south-west quadrant, and the one remaining instance is in the lowest north-west, with none in the intermediate north-east quadrant.

The corresponding Box 6.4.3 affirms that there is much evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “efforts [toward] peace, security, rights, freedoms, [colonial] independence; developments in public health, longevity, standard of living, environment, sustainability; globalising popular culture, migration experiences; historical argument, references”. However, while some vocabulary is directly applicable to human body or relationship vocabulary, e.g. breasts, ejaculation, patriarchy, none is proffered in a pubertal context.
This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the History LA for Year 10. Accordingly, examples for all Content descriptions (N=20) are aligned in this Box 6.4.3.

6.4.4 Scan of other Scope and sequence year levels
Content descriptions in other compulsory year levels, namely Years 2, 3, 4, 6, 7, 8, and 9, and the optional Foundation Year (ACARA, 2015), contain some evidence of the presence of cognitive process verbs and knowledge dimension nouns (Anderson & Krathwohl, 2001) appropriate or useful to puberty education content.

6.4.4.1 Foundation, aged 4-5.
~ Historical Knowledge and Understanding: “family structure differences/similarities; communication/commemoration of family stories; relationships”.
~ Historical Skills: Content descriptions are the same as Year 1.

6.4.4.2 Year 2, aged 7.
~ Historical Knowledge and Understanding: “cultural/spiritual significance of historical site; impact of changing technology on people”.
~ Historical Skills: Content descriptions are the same as Year 1.

6.4.4.3 Year 3, aged 8.
~ Historical Knowledge and Understanding: “change, continuity, symbols, of individuals’/groups’ community contributions; roles of diverse peoples; celebrations, commemorations, e.g. Christmas, ANZAC Day, Harmony Week, Sorry Day”.
~ Historical Skills: “pose questions, identify different points of view, develop narratives, use forms of communication… about the past”.

6.4.4.4 Year 4, aged 9.
~ Historical Knowledge and Understanding: “lives of first peoples; their contacts with other nations; societal impacts of [European] settlement; convict, settler experiences”.
~ Historical Skills: Content descriptions are the same as Year 3.

6.4.4.5 Year 6, aged 11.
~ Historical Knowledge and Understanding: “experiences of Australian democracy, citizenship including status, rights, of Aboriginal and Torres Strait Islander Peoples, migrants, women, children; contributions to societal development”.
~ Historical Skills: Content descriptions are the same as Year 5.
6.4.4.6 Year 7, aged 12.

~ Historical Knowledge and Understanding: “ancient societies [60,000 BCE to c650 CE] origins, characteristics, movement, Out of Africa, artefacts/legacies, subsistence methods, trade, social classes, religion, rule of law”.

~ Historical Skills: “develop questions, sources, acknowledgments, communication forms, texts; identify sources’ points of view, attitudes, values”.

6.4.4.7 Year 8, aged 13.

~ Historical Knowledge and Understanding: “medieval [c650 CE] to modernity [1750 CE] beliefs, values; Roman transformation, Christianity, Islam; feudalism, exploration/conflict; Renaissance, Scientific Revolution, Enlightenment”.

~ Historical Skills: Content descriptions are the same as Year 7.

6.4.4.8 Year 9, aged 14.

~ Historical Knowledge and Understanding: “modernity [1750 CE to 1918 CE] Industrial Revolution; movement of convicts, slaves, settlers; European imperialism; economic, social, political ideas including nationalism”.

~ Historical Skills: Content descriptions are the same as Year 10.

In summary, the History LA Scope and sequence charts (ACARA, 2015) contain some relevant words/phrases, although none of the identified presence vocabulary is delivered in a pubertal context. However, almost every Content description shows a very high level of potential for puberty education integration, in both incidence and quality.

6.4.5 Overall summary of audit findings in History LA

In these audited curriculum documents, including the detailed audit of the History LA Years 1, 5 and 10, and scan of other year levels up to Year 10 (ACARA, 2015), the seven curricula-wide General capabilities and three Cross-curriculum priorities (ACARA, 2013b), and the conceptualisation Shape document (NAB, 2009b), some words are highly appropriate or useful to puberty education content. However, vocabulary that can be directly applied to puberty education, namely “status, rights, of Aboriginal and Torres Strait Islander Peoples, migrants, women, children (Year 6); developments in public health, longevity, standard of living (Year 10)” is presented only in a broad sociological context. This vocabulary lacuna appears to contravene the need, the right (WHO & BZgA, 2010), and the public/curriculum expectation of enhancing students’ agency through an appreciation of humanity’s efforts in the past, and, through our individual and collective abilities, meet the challenges of the future.
In History, the investigation and evaluation of diverse human societies, movements, forces, and events, and their consideration in equipping students “for the world (local, regional and global) in which they live” (ACARA, 2015, p. 4), provide deep and continuing opportunities for integrating puberty education. The rich concepts and integrative practices embedded here indicate the eminent suitability and potential of the History LA as a site for puberty education for all Australian students.

6.5 Audits of Geography for Presence and Potential, Years Foundation-10
The specific research question here is, What evidence is found, in the new Australian Curriculum LA of Geography, for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years? Quantitative and qualitative audits of the Geography curriculum Years 1, 5, and 10 (ACARA, 2015, v7.3, January), for students aged 5, 10, and 15 respectively (see Chapter 3.4.5; Table 3), reveal the data of presence and potential shown in three Audit Table-and-Box pairs of Appendix E Geography. A brief summary of evidence gathered from the curriculum including Scope and sequence charts (ACARA, 2015), the General Capabilities document (ACARA, 2013b), and the Shape of the Australian Curriculum: Geography conceptualisation document (ACARA, 2011a), is now presented. Evidence examples shown here are minimised and/or paraphrased.

6.5.1 Audit of Scope and sequence chart for Year 1, students aged 5
Audit Table 6.5.1 (see Appendix E Geography) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 1 children aged about 5. This curriculum guides student learning through ten Content descriptions, with nine instances found to include noun/verb vocabulary appropriate or useful to puberty education. Five of the identified presence instances are located in the highest south-east quadrant of Audit Table 6.5.1, where Analyse-Evaluate-Create Cognitive Processes intersect with Procedural-Metacognitive Knowledge. Two instances are found in the intermediate south-west quadrant, denoting higher knowledge/lower cognition, and the remaining two are in the lowest north-west, with none in the intermediate north-east quadrant.

The corresponding Box 6.5.1 affirms that there is little evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “how places change, can be cared for; [by] different cultural groups including Aboriginal and Torres Strait Islander Peoples; pose questions, reflect”.

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However, very little is directly applicable to human body or relationship vocabulary, e.g. penis, conception, sun safety, and none has a directly pubertal context.

This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the Geography LA for Year 1. Accordingly, examples for all Content descriptions (N=10) are aligned in this Box 6.5.1.

6.5.2 Audit of Scope and sequence chart for Year 5, students aged 10
Audit Table 6.5.2 (see Appendix E Geography) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 5 students aged 10. This curriculum guides student learning through 12 Content descriptions, with all instances found to include noun/verb vocabulary appropriate or useful to puberty education. Of these, five are located in the highest south-east quadrant of Audit Table 6.5.2, with another five instances located in the diagonally opposed, lowest north-west quadrant. One instance is found in each of the intermediate south-west and north-east quadrants.

The corresponding Box 6.5.2 affirms that there is some evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “people, including Aboriginal and Torres Strait Islander Peoples, influence environmental characteristics of places; responses to impacts [e.g. bushfire, flood] on environments, communities; use ethical protocols”. However, little is directly applicable to human body or relationship vocabulary, e.g. urethra, circumcision, genital warts (human papilloma virus), and none relates to a pubertal context.

This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the Geography LA for Year 5. Accordingly, examples for all Content descriptions (N=10) are aligned in this Box 6.5.2.

6.5.3 Audit of Scope and sequence chart for Year 10, students aged 15
Audit Table 6.5.3 (see Appendix E Geography) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 10 students aged 15. This curriculum guides student learning through 22 Content descriptions, with all instances found to include noun/verb vocabulary appropriate or useful to puberty education. The great majority of instances (n=17) are located in the highest south-east quadrant of Audit Table 6.5.3. Four instances are found in the intermediate south-west quadrant, none in the lowest north-west, and the one remaining instance is in the intermediate north-east.
The corresponding Box 6.5.3 affirms that there is some evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “consequences of spatial variations in human wellbeing, different ways of measuring, mapping wellbeing and development; evaluate sources for bias; environmental, economic, social criteria evaluating responses to change”. Some is directly applicable to human body or relationship vocabulary, e.g. vaccination, in vitro fertilisation (IVF), miscarriage/termination, but none is proffered in a directly pubertal context.

This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the Geography LA for Year 10. Accordingly, examples for all Content descriptions (N=22) are aligned in this Box 6.5.3.

6.5.4 Scan of other Scope and sequence year levels.
Content descriptions in other compulsory year levels, namely Years 2, 3, 4, 6, 7, 8, and 9, and the optional Foundation Year (ACARA, 2015), contain some evidence of the presence of cognitive process verbs and knowledge dimension nouns (Anderson & Krathwohl, 2001) appropriate or useful to puberty education content.

6.5.4.1 Foundation, aged 4-5.
~ Geographical Knowledge and Understanding: “places people live, belong, Countries/Places of Aboriginal and Torres Strait Islander Peoples”.
~ Geographical Inquiry and Skills: “pose questions, suggest ways to look after places”.

6.5.4.2 Year 2, aged 7.
~ Geographical Knowledge and Understanding: “places... given meaning, connections by people; Aboriginal and Torres Strait Islander Peoples’ special connections to Country/Place”.
~ Geographical Inquiry and Skills: Content descriptions are the same as Year 1.

6.5.4.3 Year 3, aged 8.
~ Geographical Knowledge and Understanding: “[places’] diverse characteristics; similarities/differences in individual/group feelings, perceptions about places, protection”.
~ Geographical Inquiry and Skills: “develop questions; collect, record, represent, interpret data; infer relationships to draw conclusions; individual/collective action in response to contemporary challenge, describe expected effects on different people”.

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6.5.4.4 Year 4, aged 9.

~ Geographical Knowledge and Understanding: “significance of vegetation; importance of environments to animals, people, different views on protection, sustainability; custodial responsibility; management of production, consumption, waste”.

~ Geographical Inquiry and Skills: Content descriptions are the same as Year 3.

6.5.4.5 Year 6, aged 11.

~ Geographical Knowledge and Understanding: “world’s cultural diversity; differences in economic, demographic, social characteristics; significant events connecting, changing people/places”.

~ Geographical Inquiry and Skills: Content descriptions are the same as Year 5.

6.5.4.6 Year 7, aged 12.

~ Geographical Knowledge and Understanding: Unit One, Water in the world, “water’s economic, cultural, spiritual, aesthetic value for people; overcoming scarcity; causes, impact, responses to [atmospheric/hydrological] hazard”. Unit Two, Place and Liveability, “decisions people make about where to live, perceptions of liveability, environmental quality; social connectedness, community identity, perceptions of crime, safety, strategies enhancing liveability, especially for young people”.

~ Geographical Inquiry and Skills: “develop geographically significant questions, inquiry; ethical protocols; account for environmental, economic, social considerations”.

6.5.4.7 Year 8, aged 13.

~ Geographical Knowledge and Understanding: Unit One, Landforms and landscapes, “aesthetic, cultural, spiritual value of landforms; human causes, effects of landscape degradation; protecting significant landscapes; causes, impact, responses to [geomorphological] hazard”. Unit Two, Changing nations, “differences, causes, consequences of urban concentrations, settlement patterns; reasons, effects of internal/international migration; managing, planning urban future”.

~ Geographical Inquiry and Skills: Content descriptions are the same as Year 7.

6.5.4.8 Year 9, aged 14.

~ Geographical Knowledge and Understanding: Unit One, Biomes and food security, “human alterations of biomes, environmental effects; challenges of degradation, water shortages, competing land use, climate change; environments’ capacity to sustainable feed projected future population, achieve food security”. Unit Two, Geographies of interconnections, “peoples’ perceptions of, connections to, different places; effects of people’s travel, consumption, recreational/cultural/leisure choices on places, future”.

~ Geographical Inquiry and Skills: Content descriptions are the same as Year 10.
In summary, the Geography LA Scope and sequence charts (ACARA, 2015) contain some relevant words/phrases, although none of the identified presence vocabulary is used in a pubertal context. However, almost every Content description shows very high potential for puberty education integration, in both incidence and quality.

6.5.5 Overall summary of audit findings in Geography LA
In these audited curriculum documents, including the detailed audit of the Geography LA Years 1, 5 and 10, and scan of other year levels up to Year 10 (ACARA, 2015), the seven curricula-wide General capabilities and three Cross-curriculum priorities (ACARA, 2013b), and the conceptualisation Shape document (ACARA, 2011a), some words are highly appropriate or useful to puberty education content. However, vocabulary that can be directly applied to puberty education, namely “belonging, protection, social connectedness, crime and safety; human wellbeing and development, human-induced biome and environmental changes; projected future population”, is presented only in a broad sociological context. This vocabulary lacuna in students’ pubertal needs and rights (see Haberland & Rogow, 2011) appears to contravene the need, and the public/curriculum expectation, of enhancing students’ agency through an appreciation of humanity’s interrelationships with natural and built environments, and meeting the challenges of a sustainable future.

In Geography, the concept of society as people-place interconnections, so “that no object [or phenomena] of geographical study can be viewed in isolation” (ACARA, 2015, p. 7), provides wide-ranging and diverse opportunities for integrating puberty education. The fulsome evidence of investigation and evaluation of human interactions with natural and built environments, and the concepts of resource protection, viability, and social advancement embedded here, indicate the excellent suitability and potential of the Geography LA as a site for puberty education for all Australian students.

6.6 Audits of Civics and Citizenship for Presence and Potential, Years 3-10
The specific research question here is, What evidence is found, in the new Australian Curriculum LA of Civics and Citizenship, for the presence of puberty education, and its potential for integration, for girls and boys aged 8-16 years? This LA begins at Year 3, for students aged 8, so there are only two audit sets, although the numbering system by year level, e.g. 6.6.2 for Year 5, and 6.6.3 for Year 10, will be retained for purposes of consistent comparison with the other LAs. Quantitative and qualitative audits of the
Civics and Citizenship curriculum Years 5 and 10 (ACARA, 2015, v7.3, January), for students aged 10 and 15 respectively (see Chapter 3.4.6; Table 3), reveal the data of presence and potential shown in two Audit Table-and-Box pairs of Appendix F Civics and Citizenship. A brief summary of evidence gathered from the curriculum including Scope and sequence charts (ACARA, 2015), the General Capabilities document (ACARA, 2013b), and the Shape of the Australian Curriculum: Civics and Citizenship conceptualisation document (ACARA, 2012d), is now presented. Evidence examples shown here are minimised and/or paraphrased.

### 6.6.1 This LA begins in Year 3.

### 6.6.2 Audit of Scope and sequence chart for Year 5, students aged 10

Audit Table 6.6.2 (see Appendix F Civics and Citizenship) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 5 students aged 10. This curriculum guides student learning through 13 Content descriptions, with all instances found to include noun/verb vocabulary appropriate or useful to puberty education. Six presence instances are located in the highest south-east quadrant of Audit Table 6.5.2. Five are located in the diagonally opposed, lowest north-west quadrant, and again, one instance is found in each of the intermediate quadrants.

The corresponding Box 6.6.2 affirms that there is some evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “democratic system; how laws affect citizens’ lives; legal system/enforcement; roles, responsibilities [of electors], representatives, how/why people work in groups to achieve aims, express shared beliefs and values, exercise influence”. However, while some is directly applicable to human body and relationship vocabulary, e.g. eyes, dating, blood transfusion, this vocabulary is wholly subject-oriented, and none relates to a pubertal context.

This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the Civics and Citizenship LA for Year 5. Accordingly, examples for all Content descriptions (N=13) are aligned in this Box 6.6.2.
6.6.3 Audit of Scope and sequence chart for Year 10, students aged 15
Audit Table 6.6.3 (see Appendix F Civics and Citizenship) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 10 students aged 15. This curriculum guides student learning through 13 Content descriptions, with all instances found to include noun/verb vocabulary appropriate or useful to puberty education. The great majority of identified presence \((n=11)\) instances are located in the highest south-east quadrant of Audit Table 6.6.3. The remaining two instances are found in the diagonally opposing, lowest north-west quadrant, with none in the intermediate quadrants.

The corresponding Box 6.6.3 affirms that there is fulsome evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “features and values of Australia’s government, legal, and political systems; foreign aid, peacekeeping, international organisations; how legal obligations shape law and policies; challenges to, ways of sustaining resilient democracy, cohesive society; evidence-based arguments to negotiate, resolve contentious issues”. However, although much is directly applicable to human body or relationship vocabulary, e.g. prostate gland, smoking, individualism, this vocabulary is wholly subject-oriented, and none is proffered in a pubertal context.

This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the Civics and Citizenship LA for Year 10. Accordingly, examples for all Content descriptions \((N=13)\) are aligned in this Box 6.6.3.

6.6.4 Scan of other Scope and sequence year levels
Content descriptions in the other compulsory year levels, namely Years 3, 4, 6, 7, 8, and 9 (ACARA, 2015), contain some evidence of the presence of cognitive process verbs and knowledge dimension nouns (Anderson & Krathwohl, 2001) that are appropriate or useful to puberty education content.

6.6.4.1 Year 3, aged 8.
~ Civics and Citizenship Knowledge and Understanding: “people make rules; decisions are made democratically; why people participate within communities”.
~ Civics and Citizenship Skills: “pose questions about [their] society; distinguish facts from opinions; interact with respect, recognise others’ viewpoints; work in groups; reflect on cultural identity, similarities/differences to others”.

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6.6.4.2 Year 4, aged 9.
~ Civics and Citizenship Knowledge and Understanding: “difference between rules, laws; why laws are important; how a person’s identity... shaped by different cultural, religious, social groups they belong to”.
~ Civics and Citizenship Skills: Content descriptions are the same as Year 3.

6.6.4.3 Year 6, aged 11.
~ Civics and Citizenship Knowledge and Understanding: “roles, responsibilities of three government levels; formal rights, shared values, obligations of citizenship”.
~ Civics and Citizenship Skills: Content descriptions are the same as Year 5.

6.6.4.4 Year 7, aged 12.
~ Civics and Citizenship Knowledge and Understanding: “Constitution’s purpose, value; roles, division and separation of powers; right to justice, fair trial, legal representation; rule of law, presumption of innocence, burden of proof; secular nation, multi-faith society; values including freedom, inclusion, respect, civility, responsibility, compassion, equality, ‘fair go’; cohesion”.
~ Civics and Citizenship Skills: “develop questions to investigate political, legal systems; critically analyse information, sources, ideas, topics/issues; appreciate multiple perspectives, use strategies to mediate differences; reach consensus; present evidence-based arguments; reflect on role as citizen”.

6.6.4.5 Year 8, aged 13.
~ Civics and Citizenship Knowledge and Understanding: “freedom of speech, association, assembly, religion, movement; elected representatives, lobby groups, direct action; place of customary law; Judeo-Christian traditions of Australian society, religions practised [here]; how national identity can shape sense of belonging”.
~ Civics and Citizenship Skills: Content descriptions are the same as Year 7.

6.6.4.6 Year 9, aged 14.
~ Civics and Citizenship Knowledge and Understanding: “independent representatives; equality before law, right of appeal; influence of media/social media in shaping identities, attitudes to diversity; [and] citizens’ electoral choices; how ideas, experiences of Australian identity are influenced by global connectedness, mobility”.
~ Civics and Citizenship Skills: Content descriptions are the same as Year 10.

In summary, the Civics and Citizenship LA Scope and sequence charts (ACARA, 2015) contain some relevant words/phrases, although none of the identified presence vocabulary is delivered in a directly pubertal context. However, every Content
description shows a very high level of potential for puberty education integration, in both incidence and quality.

6.6.5 Overall summary of audit findings in Civics and Citizenship LA

In these audited curriculum documents, including the detailed audit of the Civics and Citizenship LA Years 5 and 10, and scan of other year levels up to Year 10 (ACARA, 2015), the seven curricula-wide General capabilities and three Cross-curriculum priorities (ACARA, 2013b), and the conceptualisation Shape document (ACARA, 2012d), many words are highly appropriate or useful to puberty education content. However, vocabulary that can be directly applied to puberty education, namely “rights, freedoms, obligations; secular nation, multi-faith multicultural society; identity, diversity; respect, inclusion, civility, responsibility, ‘fair go’, compassion, equality, social cohesion”, is, again, presented in a broad sociological context. These concepts and content are necessary and virtuous in the Civics and Citizenship LA, but none is presented in the context of earlier puberty and students’ special rights of protection, safety, health, and education (Goldman, 2013; Haberland & Rogow, 2011; Munoz, 2010; Nussbaum, 2012).

In Civics and Citizenship, the exploration of concepts of equality, respect, responsibility, and equity or fairness that underpin democratic values, policies, and processes provide a plethora of opportunities for integrating and normalising puberty education. This evidence indicates the eminent suitability and potential of the Civics and Citizenship LA as a site for puberty education for all Australian students.

6.7 Audits of Economics and Business for Presence and Potential, Years 5-10

The specific research question here is, What evidence is found, in the new Australian Curriculum LA of Economics and Business, for the presence of puberty education, and its potential for integration, for girls and boys aged 10-16 years? This LA begins at Year 5, for students aged 10, so again there are only two audit sets, with the numbering system by year level also retained. Quantitative and qualitative audits of the Economics and Business curriculum Years 5 and 10 (ACARA, 2015, v7.3, January), for students aged 10, and 15 respectively (see Chapter 3.4.7; Table 3), reveal the data of presence and potential shown in two Audit Table-and-Box pairs of Appendix G Economics and Business. A brief summary of evidence gathered from the curriculum including Scope and sequence charts (ACARA, 2015) the General capabilities document (ACARA, 2013b), and the Shape of the Australian Curriculum: Economics and Business
conceptualisation document (ACARA, 2012e), is now presented. Evidence examples shown here are minimised and/or paraphrased.

6.7.1 This LA begins in Year 5.

6.7.2 Audit of Scope and sequence chart for Year 5, students aged 10
Audit Table 6.7.2 (see Appendix G Economics and Business) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 5 students aged 10. This curriculum guides student learning through eight Content descriptions, with seven instances found to include noun/verb vocabulary appropriate or useful to puberty education. The great majority of these (n=6) are located in the highest south-east quadrant of Audit Table 6.7.2, where Analyse-Evaluate-Create Cognitive Processes intersect with Procedural-Metacognitive Knowledge. The one remaining instance is found in the diagonally opposing, lowest north-west quadrant, with none in the intermediate south-west and north-east.

The corresponding Box 6.7.2 affirms that there is some evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “satisfy needs and wants; human society, present and future generations; informed personal [consumer, financial] choices; consider advantages/disadvantages of [business] preferences; reflect on possible effects of decisions”. Some is directly applicable to human body or relationship vocabulary, e.g. blood, binge drinking, prostitution, but none is addressed in a pubertal context.

This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the Economics and Business LA for Year 5. Accordingly, examples for all Content descriptions (N=8) are aligned in this Box 6.7.2.

6.7.3 Audit of Scope and sequence chart for Year 10, students aged 15
Audit Table 6.7.3 (see Appendix G Economics and Business) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 10 students aged about 15. This curriculum guides student learning through 12 Content descriptions, with all instances found to include noun/verb vocabulary appropriate or useful to puberty education. The majority of presence instances (n=8) are located in the highest, south-east quadrant of Audit Table 6.7.3. Three instances are found in the intermediate south-west quadrant, denoting
higher knowledge/lower cognition, and the remaining one is in the lowest north-west, with none in the intermediate north-east quadrant.

The corresponding Box 6.7.3 affirms that there is some evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “living standards; cause-and-effect relationships; short- and long-term consequences of decisions; cost-benefit analysis”. Some is directly applicable to human body or relationship vocabulary, e.g. skin colour, erection, female genital cutting/infibulation, although none is proffered in a pubertal context.

This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the Economics and Business LA for Year 10. Accordingly, examples for all Content descriptions (N=12) are aligned in this Box 6.7.3.

6.7.4 Scan of other Scope and sequence year levels

Content descriptions in other compulsory year levels, namely Years 2, 3, 4, 6, 7, 8, and 9, and the optional Foundation Year (ACARA, 2015), contain some evidence of the presence of cognitive process verbs and knowledge dimension nouns (Anderson & Krathwohl, 2001) appropriate or useful to puberty education content.

6.7.4.1 Year 6, aged 11.

~ Economics and Business Knowledge and Understanding: “decisions; opportunity cost involves choices about alternative[s]... consider trade-offs”.
~ Economics and Business Skills: Content descriptions are the same as Year 5.

6.7.4.2 Year 7, aged 12.

~ Economics and Business Knowledge and Understanding: “plan short-term, long-term personal... objectives; ways consumers/producers respond to, influence each other; why individuals work”.
~ Economics and Business Skills: “identify relationships, trends; evaluate potential costs/benefits of each alternative; reflect on consequences of alternative actions”.

6.7.4.3 Year 8, aged 13.

~ Economics and Business Knowledge and Understanding: “rights, responsibilities of consumers, businesses; opportunities; traditional, contemporary markets of [first peoples’] communities; ways people work, [and] in the future”.
~ Economics and Business Skills: Content descriptions are the same as Year 7.
6.7.4.4 Year 9, aged 14.

~ Economics and Business Knowledge and Understanding: “global economy participants... dependent on each other; how people manage financial risks, rewards; competitive advantage; roles, responsibilities of participants”.

~ Economics and Business Skills: Content descriptions are the same as Year 10.

In summary, the Economics and Business LA Scope and sequence charts (ACARA, 2015) contain some relevant words/phrases, although none of the identified presence vocabulary is delivered in a pubertal context. However, almost every Content description shows a very high level of potential for puberty education integration, in both incidence and quality.

6.7.5 Overall summary of audit findings in Economics and Business

In these audited curriculum documents, including the detailed audit of the Economics and Business LA Years 5 and 10, and scan of other year levels up to Year 10 (ACARA, 2015), the seven curricula-wide General capabilities and three Cross-curriculum priorities (ACARA, 2013b), and the conceptualisation Shape document (ACARA, 2012e), some words are highly appropriate or useful to puberty education content. While directly applicable presence vocabulary such as “rights [as consumers, businesses]; choices, trade-offs, short-term and long-term personal... objectives, and consequences of decisions, living standards” is identified, none is presented in the context of students’ pubertal needs or rights (see UNESCO, 2009). Such a vocabulary lacunae is particularly noticeable in this LA, with micro- and macro-concepts and human practices such as the nature of competition/cooperation, sustainability, work-life balance, and quality of life into old age, that infuse and permeate all societies and timelines. As such, this lacuna contravenes the need, and the public/curriculum expectation, of enhancing students’ agency, responsibility, and satisfying futures.

In Economics and Business, the interdependence of socio-environmental and economic decisions, including distinguishing between needs and wants, and apportioning costs and benefits, provides innumerable, effective and sustainable opportunities for integrating puberty education. The unambiguous evidence, and guarantee of multiplying returns on investment, indicates the eminent suitability and potential of the Economics and Business LA as a site for puberty education for all Australian students.

6.8 Audits of The Arts for Presence and Potential, Years Foundation-10

The specific research question here is, What evidence is found, in the new Australian
Curriculum LA of The Arts (comprising Dance, Drama, Media Arts, Music, and Visual Arts), for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years? The Australian Curriculum for The Arts LA comprises five distinct subjects, namely Dance, Drama, Media Arts, Music, and Visual Arts. These subject LAs provide learning opportunities for students to make and respond to, in dynamic relationships and through a range of viewpoints, their imagined and conceptual ideas, emotions, observations and experiences. Design thinking is seen as a fundamental strategy for the creative expression and practical realisation of ideas, across all Arts LAs.

In primary school, from Foundation to Year 6, students aged 5-12 will learn all five Arts subjects. In secondary school, for Years 7 and 8, students aged 12-14 will continue to learn in one or more Arts subjects, with the opportunity to specialise in one or more of these subjects in Years 9 and 10 when they are aged 14-16 (ACARA, 2015, p. 5). Although all Arts subjects, then, are not strictly compulsory for Years 7-10, each subject year will be audited or scanned for puberty education content and cognition presence and potential. These results will be identified and recorded in the same way as in other LAs.

6.8.1 Dance audits for presence and potential
Quantitative and qualitative audits of the Dance curriculum Years 1, 5, and 10 (ACARA, 2015, v7.3, January), for students aged 5, 10, and 15 respectively (see Chapter 3.4.8.1; Table 3), reveal the data of presence and potential shown in three Audit Table-and-Box pairs of Appendix H Dance. A brief summary of evidence gathered from the curriculum including Scope and sequence charts (ACARA 2015), the General Capabilities document (ACARA, 2013b), and the Shape of the Australian Curriculum: The Arts conceptualisation document (ACARA, 2011b), is now presented. Evidence examples shown here are minimised and/or paraphrased.

6.8.1.1 Audit of Scope and sequence chart for Year 1, students aged 5.
Audit Table 6.8.1.1 (see Appendix H Dance) shows the quantitative incidence and the qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 1 students aged 5. This curriculum guides student learning through four Content descriptions, with all instances found to include noun/verb vocabulary appropriate or useful to puberty education. Half of the identified presence instances (n=2) are located in the highest south-east quadrant of Audit Table 6.8.1.1, where Analyse-Evaluate-Create Cognitive Processes intersect with Procedural-
Metacognitive Knowledge. One instance is found in each intermediate south-west/north-east quadrant, with none in the lowest north-west.

The corresponding Box 6.8.1.1 affirms that there is very little evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “cultural groups, community; respond... consider where, why, people [dance] including Aboriginal and Torres Strait Islander Peoples”. Almost none is directly applicable to human body or relationship vocabulary, e.g. embryo/foetus, love, disability, and none is proffered in a pubertal context.

This quantitative and qualitative evidence indicates that high potential exists for puberty education content to be integrated with the Dance LA for Year 1. Accordingly, examples for all Content descriptions (N=4) are aligned in this Box 6.8.1.1.

6.8.1.2 Audit of Scope and sequence chart for Year 5, students aged 10.
Audit Table 6.8.1.2 (see Appendix H Dance) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 5 students aged 10. This curriculum guides student learning through four Content descriptions, with all instances found to include noun/verb vocabulary appropriate or useful to puberty education. Again, half of the identified presence instances (n=2) are located in the highest south-east quadrant of Audit Table 6.8.1.2. One instance is found in the intermediate south-west quadrant, the remaining one in the lowest north-west, and none in the intermediate north-east quadrant.

The corresponding Box 6.8.1.2 affirms that there is little evidence of the presence of vocabulary that could be relevant to puberty education. Content description vocabulary includes “develop expressive skills, including body control, accuracy, alignment, strength, balance, coordination; communicate meaning, ideas of dances from different social, cultural, historical contexts”. However, little is directly applicable to human body or relationship vocabulary, e.g. teeth, Caesarean birth, condoms, and none relates to a directly pubertal context.

This quantitative and qualitative evidence indicates that high potential exists for puberty education content to be integrated with the Dance LA for Year 5. Accordingly, examples for all Content descriptions (N=4) are aligned in this Box 6.8.1.2.

6.8.1.3 Audit of Scope and sequence chart for Year 10, students aged 15.
Audit Table 6.8.1.3 (see Appendix H Dance) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty
education content for Year 10 students aged 15. This curriculum guides student learning through seven Content descriptions, with five instances found to include noun/verb vocabulary appropriate or useful to puberty education. The majority of the identified presence instances (n=4) are located in the highest, south-east, quadrant of Audit Table 6.8.1.3. There are no instances in the two lower-cognition western quadrants, and the one remaining instance is found in the intermediate north-east.

The corresponding Box 6.8.1.3 affirms that there is little evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes, “explore personal style; use expressive skills to communicate [choreographic] intent; evaluate own, others’ performances, future work; analyse contemporary, past times, differing viewpoints, Aboriginal and Torres Strait Islander Peoples’ dance, international contexts”. However, very little is directly applicable to human body or relationship vocabulary, e.g. umbilical cord, masturbation, contagious and infectious diseases, and none is proffered in a pubertal context.

This quantitative and qualitative evidence indicates that high potential exists for puberty education content to be integrated with the Dance LA for Year 10. Accordingly, examples for most Content descriptions (n=5/N=7) are aligned in this Box 6.8.1.3.

**6.8.1.4 Scan of other Scope and sequence year levels.**

Content descriptions in other compulsory year levels, namely Years 2, 3, 4, and 6, and the optional years of Foundation, 7, 8, and 9 (ACARA, 2015), contain very little evidence of the presence of cognitive process verbs and knowledge dimension nouns (Anderson & Krathwohl, 2001) appropriate or useful to puberty education content.

6.8.1.4.1 Foundation, aged 4-5.

~ Making and Responding: Content descriptions are the same as Year 1.

6.8.1.4.2 Year 2, aged 7.

~ Making and Responding: Content descriptions are the same as Year 1.

6.8.1.4.3 Year 3, aged 8.

~ Making: “using expressive skills to communicate ideas, cultural/community stories”.

6.8.1.4.4 Year 4, aged 9.

~ Making and Responding: Content descriptions are the same as Year 3.

6.8.1.4.5 Year 6, aged 11.

~ Making and Responding: Content descriptions are the same as Year 5.
6.8.1.4.6 Year 7, aged 12.
~ Making and Responding: “expressive skills appropriate to style; communicate intent; connect contemporary, past times to explore viewpoints”.

6.8.1.4.7 Year 8, aged 13.
~ Making and Responding: Content descriptions are the same as Year 7.

6.8.1.4.8 Year 9, aged 14.
~ Making and Responding: Content descriptions are the same as Year 10.

In summary, the Dance LA Scope and sequence charts (ACARA, 2015) contain some relevant words/phrases, although none of the identified presence vocabulary is delivered in a pubertal context. However, almost every Content description shows a high level of potential for puberty education integration, in both incidence and quality.

6.8.1.5 Overall summary of audit findings in Dance LA.
In these audited curriculum documents, including the detailed audit of the Dance LA Years 1, 5 and 10, and scan of other year levels up to Year 10 (ACARA, 2015), the seven curricula-wide General capabilities and three Cross-curriculum priorities (ACARA, 2013b), and the conceptualisation Shape document (ACARA, 2011b), very few words are appropriate or useful to puberty education content. However, the negligible vocabulary that can be directly applied to puberty education, namely “body control, strength, balance, coordination; different social, cultural, historical contexts; personal style” is delivered in a subject-competency context, rather than in the context of students’ pubertal needs or rights (see WHO & BZgA, 2010). This vocabulary lacuna appears to contravene the need, and the public/curriculum expectation of enhancing students’ self-esteem and agency through appreciation and engagement in Dance as human movement, considering its physical health and cultural traditions, and its immense potential for self-expression and relationship-building.

In Dance, students’ development of “a strong sense of identity and wellbeing...consider[ing] the intellectual, moral and property rights of others” (ACARA, 2015) provides diverse opportunities for integrating and normalising puberty education. The evidence of depth and variety of creative, spatial, and cultural expression through dance/movement indicates the eminent suitability and potential of the Dance LA as a site of puberty education for all Australian students.
6.8.2 Audits of Drama for presence and potential
Quantitative and qualitative audits of the Drama curriculum Years 1, 5, and 10 (ACARA, 2015, v7.3, January), for students aged 5, 10, and 15 respectively (see Chapter 3.4.8.2; Table 3), reveal the data of presence and potential shown in three Audit Table-and-Box pairs of Appendix H Drama. A brief summary of evidence gathered from the curriculum including Scope and sequence charts (ACARA, 2015), the General Capabilities document (ACARA, 2013b), and the Shape of the Australian Curriculum: The Arts conceptualisation document (ACARA, 2011b), is now presented. Evidence examples shown here are minimised and/or paraphrased.

6.8.2.1 Audit of Scope and sequence chart for Year 1, students aged 5.
Audit Table 6.8.2.1 (see Appendix H Drama) shows the quantitative incidence and the qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 1 students aged 5. This curriculum guides student learning through four Content descriptions, with all instances found to include noun/verb vocabulary appropriate or useful to puberty education. The majority of identified presence instances (n=3) are located in the highest south-east quadrant of Audit Table 6.8.2.1, where Analyse-Evaluate-Create Cognitive Processes intersect with Procedural-Metacognitive Knowledge. The one remaining instance is found in the intermediate south-west quadrant, with none in the two lower-knowledge northern quadrants.

The corresponding Box 6.8.2.1 affirms that there is some evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “use voice, facial expression, imagine role, situation; communicate ideas, stories, from community; why people, Aboriginal and Torres Strait Islander Peoples [make drama]”. Little is directly applicable to human body or relationship vocabulary, e.g. nose, divorce, nudity, and none relates to a directly pubertal context.

This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the Drama LA for Year 1. Accordingly, examples for all Content descriptions (N=4) are aligned in this Box 6.8.2.1.

6.8.2.2 Audit of Scope and sequence chart for Year 5, students aged 10.
Audit Table 6.8.2.2 (see Appendix H Drama) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 5 students aged 10. This curriculum guides student learning through four Content descriptions, with all instances found to include noun/verb
vocabulary appropriate or useful to puberty education. A majority of identified presence instances (n=3) are located in the highest south-east quadrant of Audit Table 6.8.2.2. Again, the one remaining instance is found in the intermediate south-west quadrant, with none in the two northern quadrants.

The corresponding Box 6.8.2.2 affirms that there is some evidence of the presence of vocabulary that could be relevant to puberty education. Content description vocabulary includes, “develop characters, situations, empathy, skills, techniques of voice, improvisation, movement; create character, mood, atmosphere; perform narrative, drive dramatic tension, share community, cultural stories; communicate meaning from different social, cultural, historical drama contexts”. While some is directly applicable to human body or relationship vocabulary, e.g. periods, sexual intercourse, sadness, this vocabulary is subject-competency oriented, and none occurs in a pubertal context.

This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the Drama LA for Year 5. Accordingly, examples for all Content descriptions (N=4) are aligned in this Box 6.8.2.2.

6.8.2.3 Audit of Scope and sequence chart for Year 10, students aged 15.

Audit Table 6.8.2.3 (see Appendix H Drama) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 10 students aged 15. This curriculum guides student learning through seven Content descriptions, with all instances found to include noun/verb vocabulary appropriate or useful to puberty education. The majority of identified presence instances (n=5) are located in the highest south-east quadrant of Audit Table 6.8.2.3. One instance is located in each intermediate south-west/north-east quadrant, with none in the lowest north-west.

The corresponding Box 6.8.2.3 affirms that there is some evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “convey physical, psychological aspects of roles/characters consist with intentions; meaning, aesthetic effect; analyse contemporary, past times, differing viewpoints, international contexts, Aboriginal and Torres Strait Islander Peoples’ drama”. Although some is directly applicable to human body or relationship vocabulary, e.g. saliva, pet care, legal substances/drugs, this vocabulary is subject-competency oriented, and none is proffered in a pubertal context.
This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the Drama LA for Year 10. Accordingly, examples for all Content descriptions (N=7) are aligned in this Box 6.8.2.3.

6.8.2.4 Scan of other Scope and sequence year levels.
Content descriptions in other compulsory year levels, namely Years 2, 3, 4, and 6, and the optional years of Foundation, 7, 8, and 9 (ACARA, 2015), contain little evidence of the presence of cognitive process verbs and knowledge dimension nouns (Anderson & Krathwohl, 2001) appropriate or useful to puberty education content.

6.8.2.4.1 Foundation, aged 4-5.
~ Making and Responding: Content descriptions are the same as Year 1.

6.8.2.4.2 Year 2, aged 7.
~ Making and Responding: Content descriptions are the same as Year 1.

6.8.2.4.3 Year 3, aged 8.
~ Making and Responding: “explore ideas, narrative structures through roles/situations, use empathy; voice, body, movement, language to sustain role/relationships; meaning”.

6.8.2.4.4 Year 4, aged 9.
~ Making and Responding: Content descriptions are the same as Year 3.

6.8.2.4.5 Year 6, aged 11.
~ Making and Responding: Content descriptions are the same as Year 5.

6.8.2.4.6 Year 7, aged 12.
~ Making and Responding: “develop... roles and characters consistent with situation, convey status, relationships, intentions, dramatic meaning; refine expressive skills in voice, movement; maintain commitment to role”.

6.8.2.4.7 Year 8, aged 13.
~ Making and Responding: Content descriptions are the same as Year 7.

6.8.2.4.8 Year 9, aged 14.
~ Making and Responding: Content descriptions are the same as Year 10.

In summary, the Drama LA Scope and sequence charts (ACARA, 2015) contain some relevant words/phrases, although none of the identified presence vocabulary is delivered in a pubertal context. However, every Content description shows a very high level of potential for puberty education integration, in both incidence and quality.
6.8.2.5 Overall summary of audit findings in Drama LA.

In these audited curriculum documents, including the detailed audit of the Drama LA Years 1, 5 and 10, and scan of other year levels up to Year 10 (ACARA, 2015), the seven curricula-wide General capabilities and three Cross-curriculum priorities (ACARA, 2013b), and the conceptualisation Shape document (ACARA, 2011b), some words are appropriate or useful to puberty education content. However, the few identified words and concepts that can be directly applied to puberty education, namely “develop characters, situations, empathy (Year 5); convey status, relationships, intentions, commitment (Year 7); physical and psychological aspects of roles/characters (Year 10)” are delivered in a competency context, rather than in the context of students’ pubertal needs or rights (see Haberland & Rogow, 2011). This vocabulary lacuna appears to contravene the need, and curriculum expectation, of enhancing students’ imaginative and expressive agency through participation in Drama as human narrative.

In Drama, the exploration of personal, historical, socio-cultural and future worlds through character, role, and situation, and its mission to inform and challenge perceptions and factors of the human condition, provide a plenitude of opportunities for integrated puberty education content. The evidence indicates the eminent suitability and potential of the Drama LA as a site for puberty education for all Australian students.

6.8.3 Audits of Media Arts for presence and potential

Quantitative and qualitative audits of the Media Arts curriculum Years 1, 5, and 10 (ACARA, 2015, v7.3, January), for students aged 5, 10, and 15 respectively (see Chapter 3.4.8.3; Table 3) reveal the data of presence and potential shown in three Audit Table-and-Box pairs of Appendix H Media Arts. A brief summary of evidence gathered from the curriculum including Scope and sequence charts (ACARA 2015), the General Capabilities document (ACARA, 2013b), and the Shape of the Australian Curriculum: The Arts conceptualisation document (ACARA, 2011b), is now presented. Evidence examples shown here are minimised and/or paraphrased.

6.8.3.1 Audit of Scope and sequence chart for Year 1, students aged 5.

Audit Table 6.8.3.1 (see Appendix H Media Arts) shows the quantitative incidence and the qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 1 students aged 5. This curriculum guides student learning through four Content descriptions, with all instances found to include noun/verb vocabulary appropriate or useful to puberty education. The majority of the identified
presence instances (n=3) are located in the highest south-east quadrant of Audit Table 6.8.3.1, where Analyse-Evaluate-Create Cognitive Processes intersect with Procedural-Metacognitive Knowledge. The one remaining instance is found in the diagonally opposed, lowest north-west quadrant, with none in the two intermediate quadrants.

The corresponding Box 6.8.3.1 affirms that there is little evidence of the presence of vocabulary that could be relevant to puberty education. Content description vocabulary includes “create, communicate, respond; ideas, characters, settings, stories, in community; where, why people, Aboriginal and Torres Strait Islander Peoples, make [media artworks]”. Very little is directly applicable to human body or relationship vocabulary, e.g. lips, farting, stereotypes, and none is proffered in a pubertal context.

This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the Media Arts LA for Year 1. Accordingly, examples for all Content descriptions (N=4) are aligned in this Box 6.8.3.1.

6.8.3.2 Audit of Scope and sequence chart for Year 5, students aged 10.
Audit Table 6.8.3.2 (see Appendix H Media Arts) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 5 students aged 10. This curriculum guides student learning through four Content descriptions, with all instances found to include noun/verb vocabulary appropriate or useful to puberty education. Half of the identified presence instances (n=2) are located in the highest south-east, quadrant of Audit Table 6.8.3.2. One instance is found in the intermediate south-west quadrant, the remaining one in the lowest north-west, and none in the intermediate north-east quadrant.

The corresponding Box 6.8.3.2 affirms that there is some evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “explore representations, characterisations, points of view of themselves, people in their community; responsible media practice; communicate meaning, different social, cultural, historical contexts”. However, little is directly applicable to human body or relationship vocabulary, e.g. braces, sexual identity, eating disorders, and none relates to a directly pubertal context.

This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the Media Arts LA for Year 5. Accordingly, examples for all Content descriptions (N=4) are aligned in this Box 6.8.3.2.
6.8.3.3 Audit of Scope and sequence chart for Year 10, students aged 15.

Audit Table 6.8.3.3 (see Appendix H Media Arts) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 10 students aged 15. This curriculum guides student learning through seven Content descriptions, with all instances found to include noun/verb vocabulary appropriate or useful to puberty education. A majority of identified presence instances (n=5) are located in the highest south-east quadrant of Audit Table 6.8.3.3. One instance is found in each intermediate south-west/north-east quadrant, with none in the lowest north-west.

The corresponding Box 6.8.3.3 affirms that there is some evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “construct new, alternative points of view; examine social, cultural values/beliefs; consider social, ethical, regulatory issues; challenge representations framed by media conventions, social beliefs and values”. However, while some is directly applicable to human body or relationship vocabulary, e.g. chromosomes, marriage, erotica or pornography, none is proffered in a pubertal context.

This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the Media Arts LA for Year 10. Accordingly, examples for all Content descriptions (N=7) are aligned in this Box 6.8.3.3.

6.8.3.4 Scan of other Scope and sequence year levels.

Content descriptions in other compulsory year levels, namely Years 2, 3, 4, and 6, and the optional years of Foundation, 7, 8, and 9 (ACARA, 2015), contain little evidence of the presence of cognitive process verbs and knowledge dimension nouns (Anderson & Krathwohl, 2001) appropriate or useful to puberty education content.

6.8.3.4.1 Foundation, aged 4-5.

~ Making and Responding: Content descriptions are the same as Year 1.

6.8.3.4.2 Year 2, aged 7.

~ Making and Responding: Content descriptions are the same as Year 1.

6.8.3.4.3 Year 3, aged 8.

~ Making and Responding: “devise representations of [themselves], people in community; create... awareness of responsible media practice; meanings”.

6.8.3.4.4 Year 4, aged 9.

~ Making and Responding: Content descriptions are the same as Year 3.
6.8.3.4.5 Year 6, aged 11.
~ Making and Responding: Content descriptions are the same as Year 5.

6.8.3.4.6 Year 7, aged 12.
~ Making and Responding: “create points of view; show familiar/shared social, cultural values/beliefs, and Aboriginal and Torres Strait Islander Peoples; consideration of ethical, regulatory issues; identify purposes, contemporary, past times, viewpoints”.

6.8.3.4.7 Year 8, aged 13.
~ Making and Responding: Content descriptions are the same as Year 7.

6.8.3.4.8 Year 9, aged 14.
~ Making and Responding: Content descriptions are the same as Year 10.

In summary, the Media Arts LA Scope and sequence charts (ACARA, 2015) contain some relevant words/phrases, although none of the identified presence vocabulary is delivered in a pubertal context. However, every Content description shows a very high level of potential for puberty education integration, in both incidence and quality.

6.8.3.5 Overall summary of audit findings in Media Arts LA.
In these audited curriculum documents, including the detailed audit of The Arts: Media Arts LA Years 1, 5 and 10, and scan of other year levels up to Year 10 (ACARA, 2015), the seven curricula-wide General capabilities and three Cross-curriculum priorities (ACARA, 2013b), and the conceptualisation Shape document (ACARA, 2011b), some words are highly appropriate or useful to puberty education content. Although some phrases and concepts can be directly applied to puberty education, namely “consider social, ethical, regulatory issues; responsible media practice; challenge representations framed by media conventions, social beliefs, values”, they are presented in a subject-specific technical context, rather than in the context of students’ pubertal needs or rights (see UNESCO, 2009). This vocabulary lacuna appears to circumvent the need, and the public/curriculum expectation, of enhancing students’ emergent capacities for meaning-making through participation in Media Arts as technological communications, exploring personal, socio-cultural and past/future worlds.

In Media Arts, ubiquitous, saturating, and influential platforms provide innumerable, and worldwide, integrative opportunities for puberty education content. The evidence is that the intensity of creative, spatial, and cultural expression, and its growing socio-politico-economic impact, indicates the eminent suitability and potential of the Media Arts LA as a site for puberty education for all Australian students.
6.8.4 Audits of Music for presence and potential

Quantitative and qualitative audits of the Music curriculum Years 1, 5, and 10 (ACARA, 2015, v7.3, January), for students aged 5, 10, and 15 respectively (see Chapter 3.4.8.4; Table 3), reveal the data of presence and potential shown in three Audit Table-and-Box pairs of Appendix H Music. A brief summary of evidence gathered from the curriculum including Scope and sequence charts (ACARA 2015), the General Capabilities document (ACARA, 2013b), and the Shape of the Australian Curriculum: The Arts conceptualisation document (ACARA, 2011b), is now presented. Evidence examples shown here are minimised and/or paraphrased.

6.8.4.1 Audit of Scope and sequence chart for Year 1, students aged 5.

Audit Table 6.8.4.1 (see Appendix H Music) shows the quantitative incidence and the qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 1 students aged 5. This curriculum guides student learning through four Content descriptions, with all instances found to include noun/verb vocabulary appropriate or useful to puberty education. Half of the identified presence instances (n=2) are located in the highest south-east quadrant of Audit Table 6.8.4.1, where Analyse-Evaluate-Create Cognitive Processes intersect with Procedural-Metacognitive Knowledge. No instances are located in the intermediate south-west quadrant, but one is found in the lowest north-west, and the one remaining instance is in the intermediate north-east quadrant.

The corresponding Box 6.8.4.1 affirms that there is very little evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “use voice, rhythm patterns; cultural groups, community; consider where, why people, and Aboriginal and Torres Strait Islander Peoples make music”. Very little is directly applicable to human body or relationship vocabulary, e.g. bottoms, water safety, privacy, and none appears in a pubertal context.

This quantitative and qualitative evidence indicates that high potential exists for puberty education content to be integrated with the Music LA for Year 1. Accordingly, examples for all Content descriptions (N=4) are aligned in this Box 6.8.4.1.

6.8.4.2 Audit of Scope and sequence chart for Year 5, students aged 10.

Audit Table 6.8.4.2 (see Appendix H Music) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty
education content for Year 5 students aged 10. This curriculum guides student learning through four Content descriptions, with all instances found to include noun/verb vocabulary appropriate or useful to puberty education. Half (n=2) of the identified instances are located in each of the highest-knowledge southern quadrants of Audit Table 6.8.4.2, with none in the northern quadrants.

The corresponding Box 6.8.4.2 affirms that there is very little evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes, “explore dynamics, expression; decisions to engage an audience; meaning... from different social, cultural, historical contexts”. However, very little is directly applicable to human body or relationship vocabulary, e.g. Fallopian tubes, menstrual pads/tampons, pleasure, and none relates to a directly pubertal context.

This quantitative and qualitative evidence indicates that high potential exists for puberty education content to be integrated with the Music LA for Year 5. Accordingly, examples for all Content descriptions (N=4) are aligned in this Box 6.8.4.2.

6.8.4.3 Audit of Scope and sequence chart for Year 10, students aged 15.
Audit Table 6.8.4.3 (see Appendix H Music) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 10 students aged 15. This curriculum guides student learning through seven Content descriptions, with five instances found to include noun/verb vocabulary appropriate or useful to puberty education. The majority (n=3) of the identified instances are located in the highest south-east quadrant of Audit Table 6.8.4.3. The remaining two instances are found in the intermediate south-west quadrant, with none in the northern quadrants.

The corresponding Box 6.8.4.3 affirms that there is very little evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes, “explore personal style; contemporary, past times, differing viewpoints, Aboriginal and Torres Strait Islander music, international contexts”. Very little is directly applicable to human body or relationship vocabulary, e.g. anxiety, parenting, culturalism, and none appears to have a pubertal context.

This quantitative and qualitative evidence indicates that high potential exists for puberty education content to be integrated with the Music LA for Year 10. Accordingly, examples for most Content descriptions (n=5/N=7) are aligned in this Box 6.8.4.3.
6.8.4.4 Scan of other Scope and sequence year levels.

Content descriptions in other compulsory year levels, namely Years 2, 3, 4, and 6, and the optional years of Foundation, 7, 8, and 9 (ACARA, 2015), contain very little evidence of the presence of cognitive process verbs and knowledge dimension nouns (Anderson & Krathwohl, 2001) appropriate or useful to puberty education content.

6.8.4.4.1 Foundation, aged 4-5.

~ Making and Responding: Content descriptions are the same as Year 1.

6.8.4.4.2 Year 2, aged 7.

~ Making and Responding: Content descriptions are the same as Year 1.

6.8.4.4.3 Year 3, aged 8.

~ Making and Responding: “develop aural skills; music from local community; identify intended purposes, meanings as they listen”.

6.8.4.4.4 Year 4, aged 9.

~ Making and Responding: Content descriptions are the same as Year 3.

6.8.4.4.5 Year 6, aged 11.

~ Making and Responding: Content descriptions are the same as Year 5.

6.8.4.4.6 Year 7, aged 12.

~ Making and Responding: “develop musical ideas, e.g. mood; expressive skills”.

6.8.4.4.7 Year 8, aged 13.

~ Making and Responding: Content descriptions are the same as Year 7.

6.8.4.4.8 Year 9, aged 14.

~ Making and Responding: Content descriptions are the same as Year 10.

In summary, the Music LA Scope and sequence charts (ACARA, 2015) contain some relevant words/phrases, although none of the identified presence vocabulary is delivered in a pubertal context. However, many Content descriptions show a very high level of potential for puberty education integration, in both incidence and quality.

6.8.4.5 Overall summary of audit findings in Music LA.

In these audited curriculum documents, including the detailed audit of The Arts: Music LA Years 1, 5 and 10, and scan of other year levels up to Year 10 (ACARA, 2015), the seven curricula-wide General capabilities and three Cross-curriculum priorities (ACARA, 2013b), and the conceptualisation Shape document (ACARA, 2011b), very few words are appropriate or useful to puberty education content. Identified vocabulary including “identify intended purposes, meanings; develop personal style, mood, expressive skills”, are presented in a subject-specific technical context, rather than in the
context of students’ pubertal needs or rights (see WHO & BZgA, 2010). This vocabulary lacuna appears to contravene the need, and the curriculum expectation, of fostering students’ capacity to engage in learning with discipline and commitment, experience adventurous understanding of other contexts and cultures, and develop life-long enjoyment and wellbeing through Music.

In Music, the intense and deep immersion of adolescents in rhythm and sound, and its vast potential for self-expression, communication and entertainment, provide innumerable opportunities for integrated puberty education (see also Agbo-Quaye & Robinson, 2010). Evidence of imaginative, focused, resourceful, and integrated curriculum expression, and the significance and importance of ‘listening with intent’ throughout the lifetime, indicates the excellent suitability and potential of the Music LA as a site for puberty education for all Australian students.

6.8.5 Audits of Visual Arts for presence and potential
Quantitative and qualitative audits of the Visual Arts curriculum Years 1, 5, and 10 (ACARA, 2015, v7.3, January), for students aged 5, 10, and 15 respectively (see Chapter 3.4.8.5; Table 3), reveal the data of presence and potential shown in three Audit Table-and-Box pairs of Appendix H Visual Arts. A brief summary of evidence gathered from the curriculum including Scope and sequence charts (ACARA 2015), the General Capabilities document (ACARA, 2013b), and the Shape of the Australian Curriculum: The Arts conceptualisation document (ACARA, 2011b), is now presented. Evidence examples shown here are minimised and/or paraphrased.

6.8.5.1 Audit of Scope and sequence chart for Year 1, students aged 5.
Audit Table 6.8.5.1 (see Appendix H Visual Arts) shows the quantitative incidence and the qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 1 students aged 5. This curriculum guides student learning through four Content descriptions, with three instances found to include noun/verb vocabulary appropriate or useful to puberty education. All identified presence instances (n=3) are located in the highest south-east quadrant of Audit Table 6.8.5.1, where Analyse-Evaluate-Create Cognitive Processes intersect with Procedural-Metacognitive Knowledge. No instances are found in the other three quadrants.

The corresponding Box 6.8.5.1 affirms that there is very little evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “consider, communicate, respond; [through] ideas,
experiences, observations, imagination; where and why people, Aboriginal and Torres Strait Islander Peoples, make visual artworks”. Almost none is directly applicable to human body or relationship vocabulary, e.g. vulva, urination, verbal/emotional child abuse, and none is proffered in a pubertal context.

This quantitative and qualitative evidence indicates that high potential exists for puberty education content to be integrated with the Visual Arts LA for Year 1. Accordingly, examples for all Content descriptions (N=4) are aligned in this Box 6.8.5.1.

6.8.5.2 Audit of Scope and sequence chart for Year 5, students aged 10.
Audit Table 6.8.5.2 (see Appendix H Visual Arts) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 5 students aged 10. This curriculum guides student learning through four Content descriptions, with three instances found to include noun/verb vocabulary appropriate or useful to puberty education. Again, all identified presence instances (n=3) are located in the highest south-east quadrant of Audit Table 6.8.5.2, with none in the other quadrants.

The corresponding Box 6.8.5.2 affirms that there is very little evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “explore ideas, use as inspiration for own representations; identify purposes, meanings”. Again, almost none is directly applicable to human body or relationship vocabulary, e.g. scrotum, kissing, racial-ethnic/sex/age discrimination, and none relates to a directly pubertal context.

This quantitative and qualitative evidence indicates that high potential exists for puberty education content to be integrated with the Visual Arts LA for Year 5. Accordingly, examples for all Content descriptions (N=4) are aligned in this Box 6.8.5.2.

6.8.5.3 Audit of Scope and sequence chart for Year 10, students aged 15.
Audit Table 6.8.5.3 (see Appendix H Visual Arts) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 10 students aged 15. This curriculum guides student learning through seven Content descriptions, with six instances found to include noun/verb vocabulary appropriate or useful to puberty education. The great majority of identified instances (n=5) are located in the highest south-east quadrant of Audit Table 6.8.5.3.
The one remaining instance is found in the intermediate south-west quadrant, denoting higher knowledge/lower cognition, with none in the two northern quadrants.

The corresponding Box 6.8.5.3 affirms that there is very little evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes, “communicate meaning by comparing artworks from different social, cultural, historical contexts, Aboriginal and Torres Strait Islanders”. However, almost none is directly applicable to human body or relationship vocabulary, e.g. clitoris, anger, illegal substances/drugs, and none is proffered in a pubertal context.

This quantitative and qualitative evidence indicates that high potential exists for puberty education content to be integrated with the Visual Arts LA for Year 10. Accordingly, examples for most Content descriptions (n=6/N=7) are aligned in this Box 6.8.5.3.

6.8.5.4 *Scan of other Scope and sequence year levels.*

Content descriptions in other compulsory year levels, namely Years 2, 3, 4, and 6, and the optional years of Foundation, 7, 8, and 9 (ACARA, 2015), contain very little evidence of the presence of cognitive process verbs and knowledge dimension nouns (Anderson & Krathwohl, 2001) appropriate or useful to puberty education content.

6.8.5.4.1 *Foundation, aged 4-5.*
~ Making and Responding: Content descriptions are the same as Year 1.

6.8.5.4.2 *Year 2, aged 7.*
~ Making and Responding: Content descriptions are the same as Year 1.

6.8.5.4.3 *Year 3, aged 8.*
~ Making and Responding: “artworks... different cultures, times; use as inspiration”.

6.8.5.4.4 *Year 4, aged 9.*
~ Making and Responding: Content descriptions are the same as Year 3.

6.8.5.4.5 *Year 6, aged 11.*
~ Making and Responding: Content descriptions are the same as Year 5.

6.8.5.4.6 *Year 7, aged 12.*
~ Making and Responding: “enhance intentions, representation of ideas; connect... purposes of visual artworks from contemporary, past times to explore viewpoints”.

6.8.5.4.7 *Year 8, aged 13.*
~ Making and Responding: Content descriptions are the same as Year 7.

6.8.5.4.8 *Year 9, aged 14.*
~ Making and Responding: Content descriptions are the same as Year 10.
In summary, the Visual Arts LA Scope and sequence charts (ACARA, 2015) contain some relevant words/phrases, although none of the identified presence vocabulary is delivered in a pubertal context. However, many Content descriptions show a high level of potential for puberty education integration, in both incidence and quality.

6.8.5.5 Overall summary of audit findings in Visual Arts LA.
In these audited curriculum documents, including the detailed audit of the Visual Arts LA Years 1, 5 and 10, and scan of other year levels up to Year 10 (ACARA, 2015), the seven curricula-wide General capabilities and three Cross-curriculum priorities (ACARA, 2013b), and the conceptualisation Shape document (ACARA, 2011b), very few words are appropriate or useful to puberty education content. Identified vocabulary includes “inspiration; explore contemporary and past viewpoints; compare different social, cultural, historical contexts”, but none is presented in the context of students’ pubertal needs or rights (see Haberland & Rogow, 2011). This vocabulary lacuna appears to contravene the need, and the public/curriculum expectation, of enhancing students’ agency and expression through appreciation, communication, and participation in Visual Arts as image and form.

In Visual Arts, the potential for self- and social identity creation and representation provides ideal opportunities for the integration of puberty education. Further, the depth and richness of creative, aesthetic, and historio-cultural expression developed through visual arts indicates the eminent suitability and potential of the Visual Arts LA as a site for puberty education for all Australian students.

6.9 Audits of Health and Physical Education (HPE) for Presence and Potential, Years Foundation-10
The specific research question here is, What evidence is found, in the new Australian Curriculum LA of Health and Physical Education (HPE) for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years?
Quantitative and qualitative audits of the HPE curriculum Years 1, 5, and 10 (ACARA, 2015, v7.3, January), for students aged 5, 10, and 15 respectively (see Chapter 3.4.9; Table 3), reveal the data of presence and potential shown in three Audit Table-and-Box pairs of Appendix I Health and Physical Education (HPE). A brief summary of evidence gathered from the curriculum including Scope and sequence charts (ACARA, 2015), the General Capabilities document (ACARA, 2013b), and the Shape of the Australian
Curriculum Health and Physical Education conceptualisation document (ACARA, 2012f), is now presented. Evidence examples shown here are minimised and/or paraphrased.

6.9.1 Audit of Scope and sequence chart for Year 1, students aged 5
Audit Table 6.9.1 (see Appendix I HPE) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 1 students aged 5. This curriculum guides student learning through 18 Content descriptions, with all instances found to include noun/verb vocabulary appropriate or useful to puberty education. The identified presence instances are distributed across all four quadrants of Audit Table 6.9.1, with the largest proportion (n=7) located in the highest south-east quadrant, where Analyse-Evaluate-Create Cognitive Processes intersect with Procedural-Metacognitive Knowledge. Five instances are found in the intermediate south-west quadrant, and three are found in each of the northern quadrants.

The corresponding Box 6.9.1 affirms that there is fulsome evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “identify own, others’ strengths, achievements, contributing to personal identities; describe physical, social changes that occur as children grow older and discuss how family, community acknowledge these; practise strategies that help with tasks, problems, situations; promote health, safety and wellbeing; include others... to feel they belong; practise emotional responses that account for own, others’, feelings; play fairly”. Much of this vocabulary is directly applicable to human body or relationship vocabulary, e.g. skin, pregnancy, multiple birth, but the curriculum contexts are focussed on the traditional HPE orientation toward health through movement, physical activity and sport.

This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the HPE LA for Year 1. Accordingly, examples for all Content descriptions (N=18) are aligned in this Box 6.9.1.

6.9.2 Audit of Scope and sequence chart for Year 5, students aged 10
Audit Table 6.9.2 (see Appendix I HPE) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 5 students aged 10. This curriculum guides student learning through 19 Content descriptions, with all instances found to include noun/verb
vocabulary appropriate or useful to puberty education. The great majority of identified presence instances (n=14) are located in the highest south-east quadrant. One instance is found in the intermediate south-west quadrant, denoting higher knowledge/lower cognition, one is in the lowest north-west, and the remaining three are in the intermediate north-east quadrant.

The corresponding Box 6.9.2 affirms that there is fullsome evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “manage changes and transitions associated with puberty, relationships; seek help about health, safety, wellbeing; examine influence of emotional responses on behaviour, relationships; recognise how media/community figures influence personal attitudes, beliefs, decisions, behaviours; preventive health, community wellbeing; demonstrate ethical behaviour, fair play”. Much is directly applicable to human body or relationship vocabulary. This HPE curriculum does encompass pubertal contexts, and significantly, includes the word puberty, although without any accompanying definition. Vocabulary about sex, gender, or reproductive health, such as ovum/ovaries, same-sex attraction, or wet dreams is completely excluded.

This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the HPE LA for Year 5. Accordingly, examples for all Content descriptions (N=19) are aligned in this Box 6.9.2.

6.9.3 Audit of Scope and sequence chart for Year 10, students aged 15
Audit Table 6.9.3 (see Appendix I HPE) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 10 students aged 15. This curriculum guides student learning through 19 Content descriptions, with all instances found to include noun/verb vocabulary appropriate or useful to puberty education. The great majority of identified presence instances (n=17) are located in the highest south-east quadrant of Audit Table 6.9.3. There are no instances in the two western quadrants, and the remaining two instances are found in the intermediate north-east quadrant, denoting higher cognition but lower knowledge quality.

The corresponding Box 6.9.3 affirms that there is fullsome evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “analyse individuals’ impact on others’ identities; examine impact of changes/ transitions on relationships; practice responses to external influences and impacts on their ability to make healthy and safe choices; investigate
how empathy, ethical decision-making contribute to respectful relationships; propose appropriate emotional responses to situations, reflect on possible outcomes; evaluate and apply health information to decisions/situations; managing potentially risky situations; critique behaviours, contextual factors, that influence health and wellbeing”. Much is directly applicable to human body or relationship vocabulary. However, while this curriculum does proffer some euphemistic content in pubertal contexts, the lack of specific vocabulary, e.g. pleasure, orgasm, sexting, is in stark contrast to the expressed needs of students for relevant knowledge, and values guidance (see Goldman, 2014).

This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the HPE LA for Year 10. Accordingly, examples for all Content descriptions (N=19) are aligned in this Box 6.9.3.

6.9.4 Scan of other Scope and sequence year levels
Content descriptions in other compulsory year levels, namely Years 2, 3, 4, 6, 7, 8, and 9, and the optional Foundation Year (ACARA, 2015), contain much evidence of the presence of cognitive process verbs and knowledge dimension nouns (Anderson & Krathwohl, 2001) appropriate or useful to puberty education content.

6.9.4.1 Foundation, aged 4-5.
~ Personal, social and community health: “name body parts, describe how their body is growing, changing; identify people and demonstrate protective behaviours that help keep themselves safe, healthy; practise personal and social skills to interact with, include others; describe emotional responses people may experience in different situations”.
~ Movement and physical activity: “describe body movements in relation to effort, space, time, objects, people; cooperate with others, follow rules [in physical activities]”.

6.9.4.2 Year 2, aged 7.
~ Personal, social and community health: Content descriptions are the same as Year 1.
~ Movement and physical activity: Content descriptions are the same as Year 1.

6.9.4.3 Year 3, aged 8.
~ Personal, social and community health: “examine how success, challenge, failure, strengthen personal identities; explore strategies to manage physical, social, emotional change; describe, apply strategies for use in situations that make them feel unsafe, uncomfortable; that promote health, safety, wellbeing; describe how respect, empathy, valuing difference can positively influence relationships; how emotional responses vary in depth, strength; discuss health information, messages, in the media, Internet”.

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~ Movement and physical activity: “combine elements of effort, time, people... adopt inclusive practices... demonstrate fair play [when participating in physical activities]”.

6.9.4.4 Year 4, aged 9.
~ Personal, social and community health: Content descriptions are the same as Year 3.
~ Movement and physical activity: Content descriptions are the same as Year 3.

6.9.4.5 Year 6, aged 11.
~ Personal, social and community health: Content descriptions are the same as Year 5.
~ Movement and physical activity: Content descriptions are the same as Year 5.

6.9.4.6 Year 7, aged 12.
~ Personal, social and community health: “evaluate strategies to manage personal, physical, social changes, transitions, as they grow older; select, practise strategies to seek help for themselves, others [and] promote health, safety, wellbeing; investigate benefits of relationships, examine their impact on their own and others’ emotions, health, wellbeing; develop empathy, sensitivity; promoting diversity, inclusivity”.
~ Movement and physical activity, “create, monitor personal fitness plans; fair play, safety, inclusive participation; culturally, historically significant physical activities”.

6.9.4.7 Year 8, aged 13.
~ Personal, social and community health: Content descriptions are the same as Year 7.
~ Movement and physical activity: Content descriptions are the same as Year 7.

6.9.4.8 Year 9, aged 14.
~ Personal, social and community health: Content descriptions are the same as Year 10.
~ Movement and physical activity: Content descriptions are the same as Year 10.

In summary, the HPE LA Scope and sequence charts (ACARA, 2015) for all other year levels from Foundation to Year 10 contain many words/phrases directly applicable to puberty education content. The phrase “health, safety and wellbeing” is used as a euphemism for all aspects of pubertal, sexual, and reproductive health and safety, as well as for all aspects of illness/injury, public health, physical activity and sports safety, mental health, and drug, tobacco and alcohol education (see Chapter 3.4.9). Worse still, “protective behaviours” (Foundation), and strategies for “uncomfortable or unsafe” situations (Years 3-4), are only mentioned once each, here, in the whole Australian Curriculum. However, every Content description shows a very high level of potential for puberty education integration, in both incidence and quality.
6.9.5 Overall summary of audit findings in HPE LA

In these audited curriculum documents, including the detailed audit of the Health and Physical Education (HPE) LA Years 1, 5 and 10, and scan of other year levels up to Year 10 (ACARA, 2015), the seven curricula-wide General capabilities and three Cross-curriculum priorities (ACARA, 2013b), and the conceptualisation Shape document (ACARA, 2012f), many words are appropriate and useful to puberty education content. This vocabulary range purports to acknowledge the need, and positive curriculum expectations, of enhancing students’ agency through healthy, safe and active decision-making, and optimising their ability to meet the challenges of the future. The Health and Physical Education (HPE) LA takes a strengths-based approach to educational outcomes, and assumes that all young Australians are able to participate and succeed in the improvement of health, safety and wellbeing through movement and purposeful physical activities.

However, as Goldman shows (1990, 2012, 2013), unless accurate and specific vocabulary is included in teaching content requirements, the classroom implementation of puberty education may well be de-prioritised or avoided. For example, teachers of children aged 4-5, in Foundation year, are required to “name parts of the body...” but few students know the difference between the stomach and uterus (Goldman & Goldman, 1982). Apart from the undefined presence word, puberty, as found in one Content description for Years 5-6, accurate or comprehensive vocabulary for pubertal/sexuality development and reproductive health is absent from these teaching descriptions (see UNESCO, 2009), at any year level. Words and contexts are vague and uncontroversial, and they are positively “strengths-based” (ACARA, 2015, p. 4) to the extent that “uncomfortable, unsafe, and failure” are the only negative words in the Scope and sequence document. There are no words or phrases specific to child protection, such as those used in the new, but optional, Daniel Morcombe Child Safety Curriculum (EQ, 2014), for Foundation to Year 9 students aged 5-16 (see Chapter 7.9.1).

Explicit sexuality vocabulary is evidenced in two sites of the HPE LA (ACARA, 2015). One is the HPE LA Glossary (ACARA, 2015, pp. 71-83), where the terms Discrimination, Gender, Gender diverse, Intersex, Reproductive health, Same-sex attracted, Sexual health, and Sexuality are explained for teachers. The other site is in the curriculum’s Overview section on Student Diversity, under the sub-heading heading Same-sex attracted and gender-diverse students. This section, common to all LA curriculum documents and accessible online, acknowledges and affirms,
diversity in relation to sexuality and gender... [to] allow schools flexibility to meet the learning needs of all young people, particularly in the health focus area of relationships and sexuality... to ensure that teaching is inclusive and relevant to the lived experiences of all students (2015, p. 12, emphasis added).

School flexibility in the teaching of reproduction and sexual health, however, can be seen as a euphemism for its deferral and avoidance (Goldman, 2010a). If such teaching is not compulsory, including some form of compulsory assessment, it will likely not happen. Although pubertal contexts are not specified or prioritised in the Scope and sequence documents, principles of personal initiative, integrity, fairness and compassion, combined with curriculum opportunities for students to explore their own identities, fitness, and wellbeing, indicate the eminent suitability and potential of the HPE LA as one, but not the only, site for puberty education for all Australian students.

6.10 Audits of Technologies for Presence and Potential, Years Foundation-10

The specific research question here is, What evidence is found, in the new Australian Curriculum LA of Technologies (comprising Design and Technologies, and Digital Technologies), for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years? The Australian Curriculum for Technologies Learning Area (LA) comprises two distinct subjects, namely Design and Technologies, and Digital Technologies. These subject LAs provide learning opportunities for students in design thinking, computational thinking, and systems thinking to produce and implement designed, and digital, solutions for authentic needs, future opportunities and sustainable patterns of living. Project management is seen as a fundamental strategy for the creative expression and practical realisation of ideas, across both Technologies LAs.

In primary school and lower secondary school, from Foundation to Year 8, students aged 5-14 will learn both subjects. In secondary school, for Years 9 and 10 students aged 14-16, school authorities will decide whether students can access one or both subjects, or other technologies specialisations. Although Years 9 and 10 are not, then, strictly compulsory, each subject year will be audited or scanned for puberty education content and cognition presence and potential. These results will be identified and recorded in the same way as in other LAs.

6.10.1 Audits of Design and Technologies for presence and potential

Quantitative and qualitative audits of the Design and Technologies curriculum Years 1, 5, and 10 (ACARA, 2015, v7.3, January), for students aged 5, 10, and 15 respectively (see Chapter 3.4.10.1; Table 3), reveal the data of presence and potential shown in three
Audit Table-and-Box pairs of Appendix J Design and Technologies. A brief summary of evidence gathered from the curriculum including Scope and sequence charts (ACARA, 2015), the General Capabilities document (ACARA, 2013b), and the Shape of the Australian Curriculum: Technologies conceptualisation document (ACARA, 2012g), is now presented. Evidence examples shown here are minimised and/or paraphrased.

6.10.1.1 Audit of Scope and sequence chart for Year 1, students aged 5.
Audit Table 6.10.1.1 (see Appendix J Design and Technologies) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 1 students aged 5. This curriculum guides student learning through nine Content descriptions, with all instances found to include noun/verb vocabulary appropriate or useful to puberty education. The largest group of identified presence incidences (n=4) is located in the highest south-east quadrant of Audit Table 6.10.1.1, where Analyse-Evaluate>Create Cognitive Processes intersect with Procedural-Metacognitive Knowledge. Three instances are found in the diagonally opposed, lowest north-west quadrant, and the remaining two instances are in the intermediate south-west, with none in the intermediate north-east quadrant.

The corresponding Box 6.10.1.1 affirms that there is some evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “consider sustainability to meet personal, local community needs; how plants, animals, are grown for food, clothing, shelter... healthy eating; explore needs, opportunities, preferences; work collaboratively, make safely”. However, little is directly applicable to human body or relationship vocabulary, e.g. public/private body parts, trust, gender violence, and none appears in a pubertal context.

This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the Design and Technologies LA for Year 1. Accordingly, examples for all Content descriptions (N=9) are aligned in this Box 6.10.1.1.

6.10.1.2 Audit of Scope and sequence chart for Year 5, students aged 10.
Audit Table 6.10.1.2 (see Appendix J Design and Technologies) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 5 students aged 10. This curriculum guides student learning through ten Content descriptions, with nine instances found to include
noun/verb vocabulary appropriate or useful to puberty education. Again, the largest group of identified presence incidences (n=4) is located in the highest south-east quadrant of Audit Table 6.10.1.2. One instance is found in the intermediate south-west quadrant, two are in the lowest north-west, and the one remaining instance is in the intermediate north-east quadrant.

The corresponding Box 6.10.1.2 affirms that there is some evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “role, importance of food preparation, safety, hygiene; critique needs or opportunities... apply safe procedures, negotiate criteria for success, consideration of sustainability and resources to achieve intended designed solutions”. However, little is directly applicable to human body or relationship vocabulary, e.g. pet safety, addiction, cyberbullying, and none relates to a directly pubertal context.

This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the Design and Technologies LA for Year 5. Accordingly, examples for all Content descriptions (N=10) are aligned in this Box 6.10.1.2.

6.10.1.3 Audit of Scope and sequence chart for Year 10, students aged 15.

Audit Table 6.10.1.3 (see Appendix J Design and Technologies) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 10 students aged 15. This curriculum guides student learning through 12 Content descriptions, with all instances found to include noun/verb vocabulary appropriate or useful to puberty education. The great majority of identified presence incidences (n=11) are located in the highest, south-east quadrant of Audit Table 6.10.1.2. No instances are found in the two low-cognition western quadrants, but the one remaining instance is in the intermediate north-east quadrant.

The corresponding Box 6.10.1.3 affirms that there is some evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “critically analyse social, ethical, sustainability considerations for global preferred futures; impact of emerging technologies; make judgements on ethical, sustainable production and marketing of food, fibre; sensory perceptions influence food solutions for healthy eating; critique needs/opportunities, work flexibly, safely, cost, risk”. While some words and phrases could be directly applicable to human body or relationship vocabulary, e.g. virtual sex, STIs, genetic and
developmental anomalies, the vocabulary is wholly subject-oriented, and none is proffered in a pubertal context.

This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the Design and Technologies LA for Year 10. Accordingly, examples for all Content descriptions (N=12) are aligned in this Box 6.10.1.3.

6.10.1.4 Scan of other Scope and sequence year levels.

Content descriptions in other compulsory year levels, namely Years 2, 3, 4, 6, 7, and 8, and the optional years of Foundation and 9 (ACARA, 2015), contain some evidence of the presence of cognitive process verbs and knowledge dimension nouns (Anderson & Krathwohl, 2001) appropriate or useful to puberty education content.

6.10.1.4.1 Foundation, aged 4-5.
~ Knowledge and understanding: Content descriptions are the same as Year 1.
~ Processes and production skills: Content descriptions are the same as Year 1.

6.10.1.4.2 Year 2, aged 7.
~ Knowledge and understanding: Content descriptions are the same as Year 1.
~ Processes and production skills: Content descriptions are the same as Year 1.

6.10.1.4.3 Year 3, aged 8.
~ Knowledge and understanding: “role of people, sustainability... for current, future needs; suitability... behaviour of product/system; modern, traditional societies”.
~ Processes and production skills: “critique needs/opportunities; safe work practices; evaluate design ideas... criteria for success including care for environment”.

6.10.1.4.4 Year 4, aged 9.
~ Knowledge and understanding: Content descriptions are the same as Year 3.
~ Processes and production skills: Content descriptions are the same as Year 3.

6.10.1.4.5 Year 6, aged 11.
~ Knowledge and understanding: Content descriptions are the same as Year 5.
~ Processes and production skills: Content descriptions are the same as Year 5.

6.10.1.4.6 Year 7, aged 12.
~ Knowledge and understanding: “prioritise competing social, ethical, sustainability factors to meet community needs, preferred futures; solutions for healthy eating”.
~ Processes and production skills: “critique needs/opportunities; effectively, safely use... individually, collaboratively... for sustainable designed solutions”.

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6.10.1.4.7 Year 8, aged 13.

~ Knowledge and understanding: Content descriptions are the same as Year 7.
~ Processes and production skills: Content descriptions are the same as Year 7.

6.10.1.4.8 Year 9, aged 14.

~ Knowledge and understanding: Content descriptions are the same as Year 10.
~ Processes and production skills: Content descriptions are the same as Year 10.

In summary, the Design and Technologies LA Scope and sequence charts (ACARA, 2015) contain some relevant words/phrases, although none of the identified presence vocabulary is delivered in a pubertal context. However, almost every Content description shows a very high level of potential for puberty education integration, in both incidence and quality.

6.10.1.5 Overall summary of audit findings in Design and Technologies LA.

In these audited curriculum documents, including the detailed audit of the Design and Technologies LA Years 3, 5 and 10, and scan of other year levels up to Year 10 (ACARA, 2015), the seven curricula-wide General capabilities and three Cross-curriculum priorities (ACARA, 2013b), and the conceptualisation Shape document (ACARA, 2012g), some words are highly appropriate or useful to puberty education content. Only one phrase, “solutions for healthy eating” (Years 7-8), can be understood in the context of students’ pubertal needs or rights, in light of the eating disorder spectrum from anorexia to morbid obesity. The word “hygiene” in Years 5-6 is about food rather than students’ bodies or safe sexuality behaviours. This vocabulary lacuna appears to contravene the need, and the public/curriculum expectation (see UNESCO, 2009), of enhancing students’ agency through the analysis, production and management of quality designed solutions to problems, opportunities and sustainable futures.

In Design and Technologies, students need to develop knowledgeable, confident and creative responses to a range of personal/public challenges, to “play a role in enriching and transforming societies and our natural, managed and constructed environments” (ACARA, 2015, p. 23). Considering students’ aptitude for technological engagement, this subject offers innumerable and diverse opportunities for the creation and expression of self/social identity, and for integrated puberty education. This evidence indicates the eminent suitability and potential of the Design and Technologies LA as a site for puberty education for all Australian students.
6.10.2 Audits of Digital Technologies for presence and potential

Quantitative and qualitative audits of the Digital Technologies curriculum Years 1, 5, and 10 (ACARA, 2015, v7.3, January), for students aged 5, 10, and 15 respectively (see Chapter 3.4.10.1; Table 3), reveal the data of presence and potential shown in three Audit Table-and-Box pairs of Appendix J Digital Technologies. A brief summary of evidence gathered from the curriculum including Scope and sequence charts (ACARA, 2015), the General Capabilities document (ACARA, 2013b), and the Shape of the Australian Curriculum: Technologies conceptual document (ACARA, 2012g), is now presented. Evidence examples shown here are minimised and/or paraphrased.

6.10.2.1 Audit of Scope and sequence chart for Year 1, students aged 5.

Audit Table 6.10.2.1 (see Appendix J Digital Technologies) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 1 students aged 5. This curriculum guides student learning through six Content descriptions, with all instances found to include noun/verb vocabulary appropriate or useful to puberty education. Half of the identified presence incidences (n=3) are located in the highest south-east quadrant of Audit Table 6.10.2.1. One instance is found in each of the other three quadrants.

The corresponding Box 6.10.2.1 affirms that there is little evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “people use systems for information, communication, recreation needs; work with others to create, organise ideas/information... share in safe, online environments”. Very little is directly applicable to human body or relationship vocabulary, e.g. belly button, happiness, human rights, and none appears in a pubertal context.

This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the Digital Technologies LA for Year 1. Accordingly, examples for all Content descriptions (N=6) are aligned in this Box 6.10.2.2.

6.10.2.2 Audit of Scope and sequence chart for Year 5, students aged 10.

Audit Table 6.10.2.2 (see Appendix J Digital Technologies) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 5 students aged 10. This curriculum guides student learning through nine Content descriptions, with six instances found to include
noun/verb vocabulary appropriate or useful to puberty education. Two presence instances are located in the highest south-east quadrant of Audit Table 6.10.2.2, two are in the intermediate south-west, and two are in the lowest north-east quadrant, with none in the intermediate north-east.

The corresponding Box 6.10.2.2 affirms that there is little evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “sustainable systems... meet local community needs, considering opportunities, consequences, for future applications; ethical, social, technical protocols”. However, very little is directly applicable to human body or relationship vocabulary, e.g. nipples, surrogacy, epigenetics, and none relates to a directly pubertal context.

This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the Digital Technologies LA for Year 5. Accordingly, examples for all Content descriptions (N=9) are aligned in this Box 6.10.2.2.

6.10.2.3 Audit of Scope and sequence chart for Year 10, students aged 15.
Audit Table 6.10.2.3 (see Appendix J Digital Technologies) shows the quantitative incidence and qualitative strength, however slight, of any evidence of the presence of puberty education content for Year 10 students aged 15. This curriculum guides student learning through 11 Content descriptions, with nine instances found to include noun/verb vocabulary appropriate or useful to puberty education. The great majority of the identified presence incidences (n=8) are located in the highest, south-east quadrant of Audit Table 6.10.2.3. The remaining instance is found in the intermediate north-east quadrant.

The corresponding Box 6.10.2.3 affirms that there is some evidence of the presence of vocabulary that could be relevant to puberty education. Such Content description vocabulary includes “validating quantitative, qualitative data... considering privacy, security requirements; real-world problems, relationships, identify stakeholders’ needs; user experience, functionality, accessibility, usability, aesthetics; risks, safety”. Although some is directly applicable to human body or relationship vocabulary, e.g. erotic fantasy, cognitive behavioural therapy (CBT), tattoos, none is proffered in a pubertal context.

This quantitative and qualitative evidence indicates that very high potential exists for puberty education content to be integrated with the Digital Technologies LA for
Year 10. Accordingly, examples for all Content descriptions (N=11) are aligned in this Box 6.10.2.3.

6.10.2.4 Scan of other Scope and sequence year levels.
Content descriptions in other compulsory year levels, namely Years 2, 3, 4, 6, 7, 8, and 8, and the optional years of Foundation and 9 (ACARA, 2015), contain some evidence of the presence of cognitive process verbs and knowledge dimension nouns (Anderson & Krathwohl, 2001) appropriate or useful to puberty education content.

6.10.2.4.1 Foundation, aged 4-5.
~ Knowledge and understanding: Content is the same as that for Year 1.
~ Processes and production skills: Content is the same as that for Year 1.

6.10.2.4.2 Year 2, aged 7.
~ Knowledge and understanding: Content is the same as that for Year 1.
~ Processes and production skills: Content is the same as that for Year 1.

6.10.2.4.3 Year 3, aged 8.
~ Knowledge and understanding: “use systems, devices, for different purposes”.
~ Processes and production skills: “meet common personal, school, community needs; work with others... safely... ethical, social protocols”.

6.10.2.4.4 Year 4, aged 9.
~ Knowledge and understanding: Content is the same as that for Year 3.
~ Processes and production skills: Content is the same as that for Year 3.

6.10.2.4.5 Year 6, aged 11.
~ Knowledge and understanding: Content is the same as that for Year 5.
~ Processes and production skills: Content is the same as that for Year 5.

6.10.2.4.6 Year 7, aged 12.
~ Knowledge and understanding: “Define, decompose real-world problems... functional requirements, economic, environmental, social, technical, usability constraints”.
~ Processes and production skills: “Evaluate [data] for authenticity, accuracy, timeliness; evaluate how solutions, systems, meet needs”.

6.10.2.4.7 Year 8, aged 13.
~ Knowledge and understanding: Content is the same as that for Year 7.
~ Processes and production skills: Content is the same as that for Year 7.

6.10.2.4.8 Year 9, aged 14.
~ Knowledge and understanding: Content is the same as that for Year 10.
~ Processes and production skills: Content is the same as that for Year 10.
In summary, the Digital Technologies LA Scope and sequence charts (ACARA, 2015) contain some relevant words/phrases, although none of the identified presence vocabulary is delivered in a pubertal context. However, almost every Content description shows a very high level of potential for puberty education integration, in both incidence and quality.

### 6.10.2.5 Overall summary of audit findings in Digital Technologies LA.

In these audited curriculum documents, including the detailed audit of the Digital Technologies LA Years 3, 5 and 10, and scan of other year levels up to Year 10 (ACARA, 2015), the seven curricula-wide General capabilities and three Cross-curriculum priorities (ACARA, 2013b), and the conceptualisation Shape document (ACARA, 2012g), some words are very appropriate or useful to puberty education content. Identified vocabulary includes “take account of future risks and sustainability (Years 7-8); social contexts and legal responsibilities, consider privacy (Years 9-10)”, but this is presented in a broad sociological context rather than the context of students’ pubertal needs or rights (see WHO & BZgA, 2010). Students are already immersed in an increasingly technological and complex world. This vocabulary lacuna appears to contravene the need, and the curriculum expectation, of enhancing students’ agency in existing and emerging technologies that, increasingly, impact peoples’ lives.

In Digital Technologies, as students are enjoined to develop positive behaviours, dispositions, and actions, considering the “rights of others and their responsibilities in using sustainable practices that protect the planet and its life forms” (ACARA, 2015, p. 13), a constant stream of opportunities for integrated puberty education is open to them. This evidence indicates the eminent suitability and potential of the Digital Technologies LA as a site for puberty education for all Australian students.

### 6.11 Chapter Summary

This chapter provided the text-based summary of results of the Content Analyses of each of 15 LAs in the new Australian Curriculum. The analytical audit data sets (N=43) of quantitative and qualitative presence, and potential, of integrated curriculum content for puberty education are contained in the ‘parent’ Appendices A-J. The next chapter, Chapter 7, presents analyses of the results gathered in Audit One (quantitative presence), Audit Two (qualitative presence), and Audit Three (qualitative potential).
Chapter 7: Analysis

This chapter provides the results’ analyses, in Sections 7.1 to 7.10, one for each of the ten specific research questions (see Chapter 1.3.2) and its ‘parent’ LA (see Chapter 5.5 and 5.6). The results, gathered using Anderson and Krathwohl’s (2001) theoretical framework (see Chapter 4.4), were presented in textual form in the previous chapter’s Sections 6.1 to 6.10, and in 43 Audit Table-and-Box pairs in ten Appendices, A to J.

In Section 7.1: English LA, the first sub-section, 7.1.1, presents an analysis of the data evidenced in three analytical audits of the new Australian Curriculum Content descriptions for English Year 1 students aged 5. Sub-section 7.1.2 presents an analysis of the evidence from these three analytical audits for English Year 5, students aged 10. Sub-section 7.1.3 presents an analysis of the evidence from the three analytical audits for English Year 10, students aged 15. Sub-section 7.1.4 presents summary of all analyses from the English LA, including other year levels and documents of the English curriculum. This same formula is applied to all selected LAs. In the presentation of these analyses, some of the results’ qualitative vocabulary is slightly paraphrased. The analyses use cut-off percentages for quantitative incidence, with zero to 60% categorised as ‘very little’, 61-75% as ‘little’, and 76-100% as ‘some’. These cut-offs were devised in response to the necessarily generous vocabulary interpretation explained in Chapter 5.7.4 Pre-test Audit, and in light of the international criterion of curricula vocabulary (see Chapter 3.2). Section 7.11 provides a meta-analysis of all audited LAs’ Year 1 Content descriptions, as does Section 7.12 for all Year 5 curricula, and Section 7.13 for all Year 10 curricula. Section 7.14 provides a Concluding Analysis, with Table 4 showing the evidence of presence in the audited LA Content descriptions. Section 7.15 provides a chapter summary, and forecasts Chapter 8 Conclusion.

7.1 English LA

7.1.1 Analysis of presence and potential for Year 1, students aged 5

Of 34 Thread foci Content descriptions in this English curriculum, a majority (n=27, 79.4%) revealed evidence of presence of noun/verb content appropriate or useful to puberty education. The single largest group of identified instances (n=13) was located in the basic knowledge/simplest cognition north-west quadrant of Anderson and Krathwohl’s (2001) theoretical framework, shown in Audit Table 6.1.1. The results indicated some quantitative incidence, wide-ranging but generally lower-quality presence in the qualitative hierarchy of nouns/verbs, e.g. “emotions, body language, personal responses, student’s own experiences” (Box 6.1.1), and no pubertal context. This minimal
evidence represents many missed opportunities to extend children’s social thinking (Goldman, 2013). This deficiency is likely the classroom norm for Year 1 students aged 5, although they face new challenges of earlier puberty, technological immersion, and highly supervised, time-restricted activities, to their intra/interpersonal capability growth.

However, evidence shows that children of school-entry age are very curious about their bodies, and well able to understand relevant information (see Goldman & Goldman, 1982, 1988b). This English curriculum demonstrates very high potential for puberty education integration, with examples identified for all Content descriptions (N=34). An international curricula standard for the age 4-6 cohort (WHO & BZgA, 2010) specifies extended vocabulary/concepts for “emotions” (Box 6.1.1), including differences between friendship and love, positive feelings about one’s own body alongside the need for privacy, managing jealousy, disappointments, anger and aggression, recognising coercion, accepting diversity and respect for gender equality (2010, p. 40). Presence and potential in Year 1 curricula are comparatively analysed in Section 7.11.

**7.1.2 Analysis of presence and potential for Year 5, students aged 10**

Of 31 Thread foci Content descriptions in this English curriculum, a majority (n=24, 77.4%) revealed evidence of presence of noun/verb content appropriate or useful to puberty education. These instances were evenly distributed between the lowest north-west quadrant and both high-knowledge southern quadrants of Audit Table 6.1.2. The results indicated some quantitative incidence, generally lower-cognitive presence in the qualitative hierarchy of nouns/verbs, e.g. “words can have different meanings in different... social contexts and... help to signal social roles and relationships” (Box 6.1.2), but no pubertal context. This curriculum was very constrained in its capacity to develop pubertal thinking during students’ transition from childhood to adolescence (see Goldman, 2014; Goldman & Goldman, 1982). Significantly, most students in Year 5, aged 10, already experience pubertal processes including adrenarche (see Chapter 1.1.4), and are ideally placed to benefit from integrated, normalised puberty education.

However, this English curriculum has very high potential for knowledge enhancement, with integrative examples identified for all Content descriptions (N=31). An international curricula standard for the age 9-12 cohort (WHO & BZgA, 2010) specifies extended vocabulary/concepts for “social roles and relationships” (Box 6.1.2), including differences between friendship, companionship and relationships; different ways of dating; the influence of gender inequality, peer pressure, media, pornography, culture and religion, laws, and socioeconomic status on behaviour, sexual decisions and
partnerships; and awareness of sexual rights (2010, p. 45). Presence and potential in Year 5 curricula are comparatively analysed in Section 7.12.

### 7.1.3 Analysis of presence and potential for Year 10, students aged 15

Of 31 Thread foci Content descriptions in this English curriculum, a great majority (n=29, 95.5%) revealed evidence of presence of noun/verb content appropriate or useful to puberty education. The largest proportion of instances was located in the deeper knowledge/complex cognition south-east quadrant of Audit Table 6.1.3. The results indicated some quantitative incidence, higher-level presence in the qualitative hierarchy of nouns/verbs, e.g. “[language’s] inclusive, exclusive social effects... empower, disempower people; evaluate [texts’] social, moral, ethical positions” (Box 6.1.3), but disappointingly, no pubertal context. This curriculum demonstrated a very delimited capacity to expand adolescents’ socio-sexual thinking (see Goldman & Collier-Harris, 2012; Goldman & Goldman, 1982). This is particularly unhelpful for Year 10 students aged 15, who have mostly completed gonadal puberty and are likely considering, at least, relationships and/or sexual activity (see Chapter 1.1.1; Currie et al., 2012).

However, this English curriculum shows very high potential for such edification, with integrative examples identified for all Content descriptions (N=31). An international curricula standard for the age 12-15 cohort (WHO & BZgA, 2010) specifies extended teaching vocabulary/concepts for “implicit or explicit values, beliefs, assumptions, embedded perspectives” (Box 6.1.3). These include discussing conflicting (inter)personal norms and values in the family and society; addressing unfairness, discrimination, sexual abuse, reproduction and contraception; taking a critical view of cultural norms relating to the human body; aspiring to create equal and fulfilling relationships (2010, pp. 47-48). Presence and potential in Year 10 curricula are comparatively analysed in Section 7.13.

### 7.1.4 Summary of presence and potential analyses in English LA

In the English LA, there is generally little evidence of the presence of puberty education vocabulary, as found in 72.9% of all Content descriptions within the three audited year levels, and shown in the relevant Audit Tables and Boxes of Appendix A. There is also evidence of presence in the other scanned years from Foundation to Year 10. There are no explicit or contextual instances of puberty education vocabulary, but there are many entry points for teacher-led pedagogies or spontaneous ‘teaching moments’, around words/phrases such as “expressing emotions, value systems, inclusive/exclusive social effects”. Content descriptions such as “evaluate the social, moral and ethical positions
represented in texts” (Year 10), in the contexts of General capabilities and Cross-
curriculum priorities, provide numerous and worthwhile integrated puberty education
opportunities.

Very high potential for the integration of puberty education words, topics and
issues is exhibited in nearly every Content description of this English curriculum.
However, nowhere in the Australian Curriculum is the dichotomy of ‘is/ought’ addressed,
that is, the ‘social position’ of how and why society operates as it does in relation to
puberty education issues, e.g. discrimination, exploitation, abuse, or censorship,
juxtaposed against the moral/ethical position of why and how it should, or could, operate.

7.2 Mathematics LA

7.2.1 Analysis of presence and potential for Year 1, students aged 5

Of 15 Content descriptions in this Mathematics curriculum, a majority (n=12, 80%)
revealed evidence of presence of noun/verb content appropriate or useful to puberty
education. Nearly all instances were found in the two lower-cognition western quadrants
of Audit Table 6.2.1 (see Anderson & Krathwohl, 2001). The results indicated some
quantitative incidence, lower qualitative presence in the hierarchy of nouns/verbs, e.g.
“develop [number] confidence; identify chances of familiar event outcomes” (Box 6.2.1),
and no pubertal context. This negligible evidence represents many lost opportunities to
extend children’s social thinking (Goldman, 2013), although Year 1 students aged 5 face
new challenges including earlier puberty, and apparently, less physical activity.

However, children of school-entry age are well able to understand facts of
pregnancy/birth, gender, relationship, abilities/capacities, and wider societal differences
(see Goldman & Goldman, 1982). This Mathematics curriculum demonstrates high
potential for knowledge enhancement, with integrative examples identified for all
Content descriptions (N=15). An international curriculum (Haberland & Rogow, 2011)
specifies extended vocabulary/concepts for “confidence, [place] value, chances of
outcomes” (Box 6.2.1), including recognition of strengths, respect for personal qualities
and actions rather than looks, body size, or background, and understanding human rights.
In the classroom, mathematical concepts of equality, equity, and value-based outcomes
could be illustrated with a simple-language version of the universal declaration of human
rights, e.g. Article 1, “When children are born, they are free [and equal in dignity and
rights], and each should be treated in the same way...” and, Article 7, the law “should be
applied in the same way to all” (2011, Vol. 2, p. 23). Presence and potential in Year 1
curricula are comparatively analysed in Section 7.11.
7.2.2 Analysis of presence and potential for Year 5, students aged 10

Of 25 Content descriptions in this Mathematics curriculum, a majority (n=18, 72%) revealed evidence of presence of noun/verb content appropriate or useful to puberty education. Most instances were located in the highest south-east quadrant of Audit Table 6.2.2, and in directly-adjoining cell categories. The results indicated little quantitative incidence, generally higher-level presence in the qualitative hierarchy of nouns/verbs, e.g. “represent probabilities of outcomes; check reasonableness of answers” (Box 6.2.2), and no pubertal context. This curriculum was very constrained in its capacity to enrich pubertal thinking during students’ transition from childhood to adolescence (see Goldman, 2014; Goldman & Goldman, 1982). Significantly, most students in Year 5, aged 10, already experience pubertal processes including adrenarche (see Chapter 1.1.4), and are ideally placed to benefit from normalised, integrated puberty education.

However, this Mathematics curriculum has high potential for knowledge expansion, with integrative examples identified for most Content descriptions (n=19/N=25). An international curriculum (Haberland & Rogow, 2011) specifies extended vocabulary/concepts for “probabilities... outcomes” (see Box 6.2.2), such as a simple task calculating the probability of STIs or pregnancy as outcomes of unsafe sex. Alternatively, students asked to represent appearance and/or ability discrimination may include flow charts of differences between motivation, challenges, and artificial standards of perfection, or plans outlining the impacts of/counteractions to bullying, or equations of power, privilege and equality (2011, Vol. 2, p. 26). Presence and potential in Year 5 curricula are comparatively analysed in Section 7.12.

7.2.3 Analysis of presence and potential for Year 10, students aged 15

Of 25 Content descriptions in this Mathematics curriculum, a majority (n=15, 60%) revealed evidence of presence of noun/verb content appropriate or useful to puberty education. Again, most instances were located in the highest south-east quadrant of Audit Table 6.2.3. The results indicated very little quantitative incidence, high-level qualitative presence in the hierarchy of nouns/verbs, e.g. “substitute values [to] determine an unknown; solve linear inequalities” (Box 6.2.3), and no pubertal context. This curriculum demonstrated a severely delimited capacity to extend adolescents’ socio-sexual thinking (see Goldman & Collier-Harris, 2012; Goldman & Goldman, 1982). It is particularly unhelpful for Year 10 students aged 15, who have mostly completed gonadal puberty and are likely considering, at least, relationships and/or sexual activity (see Chapter 1.1.1).
However, this Mathematics curriculum shows high potential for such knowledge augmentation, with integrative examples identified for many Content descriptions (n=3/N=25). An international curriculum (Haberland & Rogow, 2011) specifies extended vocabulary/concepts and hypothetical questions for societal measurement and evaluation. For example, students learning mathematical constructs such as average, mean, median, bell- and J-curves could consider the question, “What must happen for everyone to enjoy equality and the right to dignity?” (2011, p. 27), by evaluating comparisons of national and international measures, and proportional results. Presence and potential in Year 10 curricula are comparatively analysed in Section 7.13.

7.2.4 Summary of presence and potential analyses in Mathematics LA
In the Mathematics LA, there is generally little evidence of the presence of puberty education vocabulary, as found in 69.2% of all Content descriptions within the three audited year levels, and shown in the relevant Audit Tables and Boxes of Appendix B. There is evidence of presence in other scanned years from Foundation to Year 10A. While there are no explicit or contextual instances of puberty education vocabulary, there are, somewhat surprisingly for this discipline, some entry points for teacher-led pedagogies or spontaneous ‘teaching moments’, around words such as “[number] independence, language of exclusivity, inclusivity, [data] values”. Contexts of General capabilities and Cross-curriculum priorities, and Content descriptions such as “… using everyday language such as ‘will happen’, ‘won’t happen’ or ‘might happen’” (Year 1), offer a multitude of teaching opportunities for integrated puberty education, e.g. about the birth of students’ siblings.

Overall, high potential for integrated puberty education content is evidenced in many Content descriptions in this Mathematics curriculum. However, nowhere in the Australian Curriculum are the elements, diverse patterns, and ranges of outcomes of human development addressed, nor yet the power of clear and logical reasoning in “determining unknown factors” or facing students’ lifechance “inequalities”.

7.3 Science LA

7.3.1 Analysis of presence and potential for Year 1, students aged 5
Of 14 Content descriptions in this Science curriculum, a great majority (n=13, 92.9%) revealed evidence of presence of noun/verb content appropriate or useful to puberty education. The largest proportion of instances was located in the lowest north-east quadrant of Audit Table 6.3.1 (see Anderson & Krathwohl, 2001). The results indicated
some quantitative incidence, lower-level presence in the qualitative hierarchy of nouns/verbs, e.g. “using science while caring for their environment and living things” (Box 6.3.1), and no pubertal context. This dearth of evidence represents many wasted opportunities to extend children’s social thinking (Goldman, 2013). This situation is likely the classroom norm for Year 1 students aged 5, even though they face new challenges of earlier puberty, and the need for clear thinking and evaluation skills in an information-saturated environment.

However, children of school-entry age are eager and able to understand knowledge about reproduction and growth, particularly about their own families (see Goldman, 2013; Goldman & Goldman, 1982). This Science curriculum demonstrates very high potential for puberty education integration, with examples identified for all Content descriptions (N=14). An international curriculum (UNESCO, 2009) specifies extended vocabulary/concepts for the age 5-8 cohort. For example, Australian students “recording observations with the assistance of digital technologies as appropriate” (Box 6.3.1), about pregnancy, would also learn that “Babies are formed when a human egg [properly, ovum] and a sperm cell combine”, and “Reproduction includes a number of steps, including ovulation, fertilisation, conception, pregnancy and the delivery of the baby” (2009, Vol. 2, p. 22). Presence and potential in Year 1 curricula are comparatively analysed in Section 7.11.

7.3.2 Analysis of presence and potential for Year 5, students aged 10
Of 16 Content descriptions in this Science curriculum, a great majority (n=15, 93.7%) revealed evidence of presence of noun/verb content appropriate or useful to puberty education. The largest proportion of instances was located in the highest south-east quadrant of Audit Table 6.3.2. The results indicated some quantitative incidence, generally high-level qualitative presence in the hierarchy of nouns/verbs, e.g. “fair tests; explanations of events and phenomena; inform personal and community decisions” (Box 6.3.2), but no pubertal context. Another phrase, “identify potential risks” related only to the safe use of equipment and materials. This curriculum showed severe constraint, surprisingly for evidence-based Science, in the capacity to develop pubertal thinking as students transition from childhood to adolescence (see Goldman, 2014; Goldman & Goldman, 1982). Most adolescents in Year 5, aged 10, already experience pubertal processes including adrenarche (see Chapter 1.1.4), and are ideally placed to benefit from integrated, normalised puberty education.
However, this Science curriculum has very high potential for knowledge enhancement, with integrative examples identified for all Content descriptions (N=16). While Australian students in the age 9-12 cohort learn about health science “discoveries, inventions” (Box 6.3.2), an international curriculum (UNESCO, 2009) recommends extended vocabulary/concepts, including “Unprotected vaginal intercourse can lead to pregnancy and STIs, including HIV”, “Abstaining from sex… [and] correct and consistent use of condoms and contraception can prevent pregnancy, HIV and other STIs”, and “There are health risks associated with early marriage (voluntary and forced), and early pregnancy and birth” (Vol. 2, p. 22). Presence and potential in Year 5 curricula are comparatively analysed in Section 7.12.

7.3.3 Analysis of presence and potential for Year 10, students aged 15

Of 21 Content descriptions in this Science curriculum, a majority (n=17, 80.9%) revealed evidence of presence of noun/verb content appropriate or useful to puberty education. Most instances were located in the highest south-east quadrant of Audit Table 6.3.3. The results indicated some quantitative incidence, generally high-level presence in the qualitative hierarchy of nouns/verbs, e.g. “reproduce, have offspring; evolution by natural selection explains diversity; people… assess risk, address ethical issues, values and needs of contemporary society” (Box 6.3.3), but again, no pubertal context. This lacuna demonstrated a very delimited capacity to expand adolescents’ socio-sexual thinking (see Goldman & Collier-Harris, 2012; Goldman & Goldman, 1982). Although Year 10 students aged 15 are likely to think long and often about relationships and/or sexual activity (see Chapter 1.1.1), they report education about the “scientific side of things” as unrelated to their own lives, irrelevant, or even boring (McKee, Watson, & Dore, 2014, p. 656). Students want and need to hear about relationships, intimacy, agency, values, their informed choices, and support networks (Goldman & McCutchen, 2012; Halstead & Reiss, 2003; Formby & Wolstenholme, 2012).

However, this Science curriculum has very high potential for knowledge development, with integrative examples identified for all Content descriptions (N=21). Australian students may learn about “hereditable characteristics” (Box 6.3.3), but an international curriculum (UNESCO, 2009) recommends extended vocabulary/concepts for genetics, epigenetics, and reproduction, including “Foetuses undergo many developmental stages; There are health risks to foetal development associated with poor nutrition, smoking and using alcohol and drugs during pregnancy” (2009, Vol. 2, p. 22). Presence and potential in Year 10 curricula are comparatively analysed in Section 7.13.
7.3.4 Summary of presence and potential analyses in Science LA

In the Science LA, there is some evidence of the presence of puberty education vocabulary, as found in 88.2% of all Content descriptions within the three audited year levels, and shown in the relevant Audit Tables and Boxes of Appendix C. There is evidence of presence in other scanned years from Foundation to Year 10. There are no intentional contextual instances of puberty education presence, but there are many entry points for teacher-led pedagogies or spontaneous ‘teaching moments’, around words such as “living things grow, change, have offspring; DNA and genes”. Content descriptions such as “People can use scientific knowledge to evaluate whether they should accept claims, explanations or predictions” (Year 10), give teachers innumerable opportunities for integrated puberty education, particularly when contextualised through the General capabilities and relevant Cross-curriculum priorities.

Very high potential for the integration of puberty education words, topics and issues is exhibited in nearly every Content description of this Science curriculum. However, reproduction is only mentioned once in the Australian Curriculum, as “Multicellular organisms contain systems of organs... to survive and reproduce”. The mostly reproductively fertile students in Year 8, aged 13, should have had this knowledge explained in explicit and personal terms, and reiterated every year in age-appropriate material and methods, until normalised.

7.4 History LA

7.4.1 Analysis of presence and potential for Year 1, students aged 5

Of 11 Content descriptions in this History curriculum, all revealed evidence of presence of noun/verb content appropriate or useful to puberty education. Nearly all instances were disbursed around the two simplest-cognition western quadrants of Audit Table 6.4.1 (see Anderson & Krathwohl, 2001). The results indicated some quantitative incidence, and low-level presence in the qualitative hierarchy of nouns/verbs, e.g. inquiry into differences through time in family structures, roles, traditions, daily lives, and changes of intensely personal significance (Box 6.4.1), but no pubertal context. Such minimal evidence represents many missed opportunities to extend children’s social thinking (Goldman, 2013). This situation is likely the classroom norm for Year 1 students aged 5, although they face challenges of earlier puberty, and often, family events or trauma beyond their control.
Evidence shows that school-entry age children are eager to understand historical narratives about relationships and life events, particularly about their own families (see Goldman, 2013; Goldman & Goldman, 1982). This History curriculum demonstrates very high potential for knowledge elaboration, with integrative examples identified for all Content descriptions (N=11). However, while Australian students observe family, ethnic, religious and sexual diversity by learning about “birthdays, celebrations, and seasons” (Box 6.4.1), an international curricula standard for this age 4-6 cohort (WHO & BZgA, 2010) specifies extended vocabulary/concepts including “values and norms differ by country and culture” and, “relate to each other and to family members… based on mutual respect” (p. 41). Further, about “abuse; there are some people who are not good; they pretend to be kind, but might be violent”, and children’s rights to safety and protection, “if the experience/feeling is not good, you do not always have to comply” (p. 41). Some family practices, particularly harmful or destructive ones such as female genital mutilation, child marriage and gender violence, should not be continued just because they are traditional or customary. Presence and potential in Year 1 curricula are comparatively analysed in Section 7.11.

7.4.2 Analysis of presence and potential for Year 5, students aged 10
Of 14 Content descriptions in this History curriculum, a great majority (n=13, 92.9%) revealed evidence of presence of noun/verb content appropriate or useful to puberty education. Most instances were located in the two deeper-knowledge southern quadrants of Audit Table 6.4.2. The results indicated some quantitative incidence, and generally higher presence in the qualitative hierarchy of nouns/verbs, e.g. inquiry into the nature, roles, reasons, and impact of the indigenous, convict, colonial, migratory, and significant individual/group actions (Box 6.4.2), but without pubertal context. This curriculum was unnecessarily constrained in its capacity to enrich pubertal thinking during students’ transition from childhood to adolescence (see Goldman, 2014; Goldman & Goldman, 1982). Significantly, most adolescents in Year 5, aged 10, already experience pubertal processes including adrenarche (see Chapter 1.1.4), and would benefit greatly from integrated, normalised puberty education.

This History curriculum has very high potential for knowledge expansion, with integrative examples identified for all Content descriptions (N=14). For example, Australian students in the age 9-12 cohort study “the role played by a significant individual/group, e.g. explorers, farmers, religious and political leaders” (Box 6.4.2). However, an international curricula standard (WHO & BZgA, 2010) specifies extended
vocabulary/concepts evaluating the “influence of peer pressure, media, pornography, culture, religion, gender, laws and socioeconomic status on sexual decisions, partnerships and behaviour... to make a personal assessment” (p. 46). Presence and potential in Year 5 curricula are comparatively analysed in Section 7.12.

**7.4.3 Analysis of presence and potential for Year 10, students aged 15**

Of 20 Content descriptions in this History curriculum, a majority (n=16, 80%) revealed evidence of presence of noun/verb content appropriate or useful to puberty education. Most of these were located in the highest south-east quadrant of Audit Table 6.4.3. The results indicated some quantitative incidence, high-level but undirected presence in the qualitative hierarchy of nouns/verbs, e.g. inquiry into independence, conflict, rights and freedom; public health, longevity, and standards of living; and either popular culture, environmental movement, or migration experiences (Box 6.4.3), but no pubertal context. This curriculum demonstrated a very delimited capacity to extend adolescents’ socio-sexual thinking (see Goldman & Collier-Harris, 2012; Goldman & Goldman, 1982). This lacuna is particularly unhelpful for Year 10 students aged 15, as nearly all have completed gonadal puberty and are likely considering, at least, relationships and/or sexual activity (see Chapter 1.1.1; Mitchell et al., 2014).

This History curriculum shows very high potential for knowledge enhancement, with integrative examples identified for all Content descriptions (N=20). However, while Australian students in the age 12-15 cohort are learning about “the achievement of independence by former colonies” (Box 6.4.3), an international curricula standard (WHO & BZgA, 2010) specifies extended vocabulary/concepts. These include “think independently, acknowledge sexual rights for oneself, others… deal with conflicting (inter)personal norms and values in the family and society”, and take “a personal view of sexuality (being flexible) in a changing society or group” (2010, p. 47). Presence and potential in Year 10 curricula are comparatively analysed in Section 7.13.

**7.4.4 Summary of presence and potential analyses in History LA**

In the History LA, there is some evidence of the presence of vocabulary applicable to puberty education, as found in 88% of all Content descriptions within the three audited year levels, and shown in the relevant Audit Tables and Boxes of Appendix D. There is also evidence of presence in other scanned years from Foundation to Year 10. There are no intentional contextual instances of puberty education presence, but many entry points for teacher-led pedagogies or spontaneous ‘teaching moments’, around words such as
“emergence of key beliefs, values; Roman transformation, Christianity, Islam; security”.
Content descriptions such as “...the major movements for rights and freedom in the world” (Year 10), give teachers innumerable opportunities for integrated puberty education, even if the vocabulary is only contextualised through General capabilities and Cross-curriculum priorities.

Very high potential for the integration of puberty education words, topics and issues is exhibited in nearly every Content description in this History curriculum. However, this very limited mention of ‘rights’ constitutes one of only three instances in the Australian Curriculum, the others being ‘rights to justice” in Civics and Citizenship, and ‘consumer rights’ in Economics and Business. These students’ human rights to comprehensive, continuous puberty education knowledge (Miedema et al., 2015; Munoz, 2010; UNCRC, 1990) should be implemented in every school year, for optimised health, safety, and lifechances.

7.5 Geography LA

7.5.1 Analysis of presence and potential for Year 1, students aged 5

Of ten Content descriptions in this Geography curriculum, nine (90%) revealed evidence of presence of noun/verb content appropriate or useful to puberty education. The largest proportion of instances (n=5) was located in the highest south-east quadrant of Audit Table 6.5.1. The results indicated some quantitative incidence and mixed presence in the qualitative hierarchy of nouns/verbs, e.g. understand places’ “natural, managed, and constructed features... how they change... are cared for” (Box 6.5.1), without pubertal context. This curriculum lacuna, likely the classroom norm for Year 1 students aged 5, represents many wasted opportunities to extend children’s social thinking (Goldman, 2013). They already face new challenges of earlier puberty in this increasingly diverse era, as well as intensifying extremities in global geophysical phenomena.

Evidence shows that children of school-entry age are well able to understand knowledge about place, identity, and social relationships (see Goldman & Goldman, 1982). This Geography curriculum demonstrates very high potential for integrated puberty education, with examples identified for all Content descriptions (N=10). While Australian students learn about their own/family locality connections and “care for place” (Box 6.5.1), an international curriculum (Haberland & Rogow, 2011) specifies extended vocabulary/concepts including heritage, cultural sensitivities, contestation, and the extension of “gendered space” beyond public toilets (Vol. 2, pp. 41-42). Presence and potential in Year 1 curricula are comparatively analysed in Section 7.11.
7.5.2 Analysis of presence and potential for Year 5, students aged 10

Of 12 Content descriptions in this Geography curriculum, all revealed evidence of presence of noun/verb content appropriate or useful to puberty education. Most instances were evenly divided between the lowest and highest quadrants of Audit Table 6.5.2, with the remainder in the intermediate north-east quadrant. The results indicated some quantitative incidence, a broad qualitative presence in the hierarchy of nouns/verbs, e.g. “influence of people on environments; impact of bushfires or floods on... communities, how people can respond; geographical relationships” (Box 6.5.2), but no pubertal context. This curriculum was very constrained in its capacity to expand pubertal thinking during students’ transition from childhood to adolescence (see Goldman, 2014; Goldman & Goldman, 1982). Significantly, most adolescents in Year 5, aged 10, already experience pubertal processes including adrenarche (see Chapter 1.1.4), and would benefit enormously from integrated puberty education.

However, this Geography curriculum has very high potential for knowledge extension, with integrative examples identified for all Content descriptions (N=12). An international curriculum (Haberland & Rogow, 2011) specifies extended vocabulary/concepts. For example, students learning about displacement through fire and flood in Australia, or, permanent displacement through geopolitical events (the Middle East) or geophysical events (Japan’s Fukushima Province), would also learn about the relationships between identity, land ownership, and “social power… and the experience of privilege or discrimination” (Vol. 2, p. 26). Presence and potential in Year 5 curricula are comparatively analysed in Section 7.12.

7.5.3 Analysis of presence and potential for Year 10, students aged 15

Of 22 Content descriptions in this Geography curriculum, all revealed evidence of presence of noun/verb content appropriate or useful to puberty education. Most were located in the highest south-east quadrant of Audit Table 6.5.3. The results indicated some quantitative incidence, high-level qualitative evidence of presence in the hierarchy of nouns/verbs, e.g. “measuring human wellbeing and development, environmental changes; responsibility, role of... government/NGO initiatives for improvement” (Box 6.5.3), but still no pubertal context. Such severely delimited capacity for expanding adolescents’ socio-sexual thinking (see Goldman & Collier-Harris, 2012; Goldman & Goldman, 1982) is particularly unhelpful for Year 10 students aged 15, who have mostly
completed gonadal puberty and are likely considering, at least, relationships and/or sexual activity (see Chapter 1.1.1; Vella et al., 2014).

However, this Geography curriculum has very high potential for vocabulary enrichment, with integrative examples identified for all Content descriptions (N=22). An international curriculum (Haberland & Rogow, 2011) specifies extended pubertal teaching. For example, students studying geophysical change, the role of corporate, governmental or organisational development/management, and social environment initiatives (Box 6.5.3), would also learn about “power, privilege and equality” (2011, p. 26) between men and women, rich and poor people, heterosexual and same-sex attracted people, employer and worker, citizen and refugee, owner and tenant, able-bodied and disabled people, and territorial co-occupants from different ethnic, religious and cultural heritages. *Presence* and *potential* in Year 10 curricula are comparatively analysed in Section 7.13.

### 7.5.4 Summary of presence and potential analyses in Geography LA

In the Geography LA, there is some evidence of the *presence* of vocabulary applicable to puberty education, as found in 97.7% of all Content descriptions within the three audited year levels, and shown in the relevant Audit Tables and Boxes of Appendix E. There is also evidence of *presence* in other scanned years from Foundation to Year 10. There are no explicit instances of puberty education vocabulary, but there are many entry points for teacher-led pedagogies or spontaneous ‘teaching moments’, including for “perceptions of liveability, social connectedness, overcoming scarcity, environments’ capacity, human wellbeing”. There is no intentional contextual *presence*, although the curriculum is oriented towards social geography. As in all LAs, Content description vocabulary is provided in the contexts of the relevant seven General capabilities and three Cross-curriculum priorities.

Very high *potential* for the integration of puberty education words, topics and issues is exhibited in nearly every Content description of this Geography curriculum. Again, nowhere in the Australian Curriculum is the ‘is/ought’ dichotomy addressed; that is, the ‘social position’ of how and why society operates as it does in relation to puberty education issues, e.g. identity, possession/occupation, privilege of place, personal safety and communal/national security, juxtaposed against the moral/ethical position of why and how it should, or could, operate.
7.6 Civics and Citizenship LA

7.6.1 This LA begins in Year 3

7.6.2 Analysis of presence and potential for Year 5, students aged 10

Of 13 Content descriptions in this Civics and Citizenship curriculum, all revealed evidence of presence of noun/verb content appropriate or useful to puberty education. The largest proportion of instances (n=6) was located in the highest south-east quadrant of Audit Table 6.6.1. The results indicated some quantitative incidence and generally high-level presence in the qualitative hierarchy of nouns/verbs, e.g. “shared beliefs and values... that underpin Australia’s democratic system; how people... exercise influence, plan for action; personal roles and actions as a citizen” (Box 6.6.2), but without overtly pubertal contexts. This curriculum was less constrained than others, but frustratingly, still lacked capacity to enhance pubertal thinking during students’ transition from childhood to adolescence (see Goldman, 2014; Goldman & Goldman, 1982). This is particularly detrimental to adolescents in Year 5, aged 10, who already experience pubertal processes including adrenarche (see Chapter 1.1.4; Mendle & Ferrero, 2012).

Further, this Civics and Citizenship curriculum has very high potential for such knowledge enrichment, with integrative examples identified for all Content descriptions (N=15). An international curriculum (Haberland & Rogow, 2011) specifies enhanced vocabulary/concepts about shared values and actions. For example, students analysing Australian philosophies and processes of government, e.g. “... affecting the lives of citizens, including experiences of Aboriginal Peoples and Torres Strait Islander Peoples” (Box 6.6.2), would also learn about the motivations, decisions and practices of positive change within their peer groups, societies and their world (2011, Vol. 2, pp. 170-177). As the 14th Dalai Lama said in 1989, “Responsibility does not only lie with the leaders of our countries or with those who have been appointed or elected to do a particular job. It lies with each of us individually” (cited in Haberland & Rogow, 2011, p. 171). Presence and potential in Year 5 curricula are comparatively analysed in Section 7.12.

7.6.3 Analysis of presence and potential for Year 10, students aged 15

Of 13 Content descriptions in this Civics and Citizenship curriculum, all revealed evidence of presence of noun/verb content appropriate or useful to puberty education. The great majority were located in the highest south-east quadrant of Audit Table 6.6.3. The results indicated some quantitative incidence and fulsome qualitative evidence of presence in the hierarchy of nouns/verbs, e.g. “challenges, ways of sustaining a resilient...
democracy, cohesive society; strategies used to negotiate and resolve contentious issues; considering multiple perspectives and ambiguities” (Box 6.6.3), again, without pubertal relevance. This wastefully delimited curriculum capacity to develop adolescents’ socio-sexual thinking (see Goldman & Collier-Harris, 2012; Goldman & Goldman, 1982) is particularly unhelpful for Year 10 students aged 15, as most are considering, at least, relationships and/or sexual activity (see Allen, 2008; Chapter 1.1.1).

This Civics and Citizenship curriculum has very high potential for knowledge extension, with integrative examples identified for all Content descriptions (N=13). Australian students reflect on personal identity, national and international legal obligations, and processes of reaching consensus “considering multiple perspectives and ambiguities” (Box 6.6.3). However, an international curriculum (Haberland & Rogow, 2011) specifies enhanced learning, including the personal, public and even global construction and consequences of reproductive/sexual health policies (pp. 138-155). Presence and potential in Year 10 curricula are comparatively analysed in Section 7.13.

7.6.4 Summary of presence and potential analyses in Civics and Citizenship

In the Civics and Citizenship LA, there is some evidence of vocabulary applicable to puberty education, as found in 100% of all Content descriptions within the two audited year levels, and shown in the relevant Audit Tables and Boxes of Appendix F. Similarly, there is evidence of presence in all other scanned years from Foundation to Year 10. There are no overt instances of puberty education vocabulary, but the contexts of relevant General capabilities and Cross-curriculum priorities are clearly evident. There are innumerable entry points for teacher-led pedagogies or spontaneous ‘teaching moments’, around words such as “freedom, respect, equality, ‘fair go’ [or fairness, equity], inclusion, civility, compassion”. Further, Content descriptions such as “how a person’s identity is shaped by different cultural, religious, social groups they belong to (Year 2); rule of law, secular nation, multi-faith society (Year 7); Judeo-Christian traditions of Australian society (Year 8)”, provide valuable learning opportunities for integrated puberty education.

Very high potential for the integration of puberty education words, topics and issues is exhibited in nearly every Content description of this Civics and Citizenship curriculum. However, nowhere in the Australian Curriculum is the dichotomy of ‘is/ought’ addressed, that is, the ‘social position’ of how and why society operates as it does in relation to puberty education issues e.g. access to contraceptive/conceptive
technologies, or embryonic ‘personhood’, juxtaposed against the moral/ethical position of why and how society should, or could, operate. In stark contrast, a Civics and Citizenship LA Year 10 Content description that was discarded from its Draft version (May, 2013) read, “[inquire into] the concepts of the ‘common good’ and a ‘civil society’ and the challenges to sustaining a civil society such as the influence of vested interests, organised crime and corruption, incapacity to resolve disputes, and lawlessness”. Perhaps this was considered too advanced for students. Timely and comprehensive puberty education would provide a more sufficient, efficient, and satisfactory enhancement of students’ wellbeing, positive disposition, and agency (Haberland & Rogow, 2011).

7.7 Economics and Business LA

7.7.1 This LA begins in Year 5

7.7.2 Analysis of presence and potential for Year 5, students aged 10
Of eight Content descriptions in this Economics and Business curriculum, seven (87.5%) revealed evidence of presence of noun/verb content appropriate or useful to puberty education. Nearly all instances were located in the highest south-east quadrant of Audit Table 6.7.2. The results indicated some quantitative incidence, and high-level presence in the qualitative hierarchy of nouns/verbs, e.g. “using natural, human, capital resources to satisfy needs, wants of present, future generations; informed personal, consumer, financial choices” (Box 6.7.2), but no pubertal context whatsoever. This curriculum lacuna showed unnecessary constraint in its capacity to extend students’ pubertal thinking (see Goldman, 2014; Goldman & Goldman, 1982). This is surprising for an evidence-based LA addressing the measurement and management of socioeconomic factors, and conceptual considerations of value, worth, and equity, and is particularly unhelpful for students in Year 5, aged 10, who already experience pubertal processes including adrenarche (see Section 1.1.4).

This Economics and Business curriculum has very high potential for knowledge development, with integrative examples identified for all Content descriptions (N=8). An international curriculum (UNESCO, 2009) specifies comprehensive vocabulary/concepts for this age 9-12 cohort. For example, students learning about “choices... decisions made to satisfy needs, wants” (Box 6.7.2), also need to know that “Unwanted sexual attention, harassment or abuse needs to be reported to a trusted source of help” and “There are different sources of help and support in your school and wider community… everyone
has the right to affordable, factual and respectful assistance that maintains confidentiality and privacy” (2009, Vol. 2, p. 16). Presence and potential in Year 5 curricula are comparatively analysed in Section 7.12.

7.7.3 Analysis of presence and potential for Year 10, students aged 15
Of 12 Content descriptions in this Economics and Business curriculum, all revealed evidence of presence of noun/verb content appropriate or useful to puberty education. Most of these instances were located in the highest south-east quadrant of Audit Table 6.7.3. The results indicated some quantitative incidence, high-level but abstracted presence in the qualitative hierarchy of nouns/verbs, e.g. “living standards, improve productivity, evaluate reliability of data, provide authentic alternatives, viable options, meet desired outcomes” (Box 6.7.3), and no pubertal context. This severely delimited capacity to extend adolescents’ socio-sexual thinking (see Goldman & Collier-Harris, 2012; Goldman & Goldman, 1982) is unfortunate in an evidence-based curriculum, where cost-benefit analyses of condoms versus implants, or the personal/social impacts of violence and drink-driving, should be addressed. Most Year 10 students aged 15 have completed gonadal puberty and are likely to be considering, at least, relationships and/or sexual activity (see Chapter 1.1.1; Waylen et al., 2010).

The Economics and Business curriculum has very high potential for content enrichment, with integrative examples identified for all Content descriptions (N=12). While students in this age 12-15 cohort may learn about “short- and long-term [and intended, unintended] consequences of decisions” (Box 6.7.3), an international curriculum (UNESCO, 2009) specifies comprehensive vocabulary/concepts including “gender inequality influences sexual behaviour and may increase the risk of sexual coercion, abuse and violence”, and “pornographic media… rely on gender stereotyping” (2009, Vol. 2, pp. 18-19). Presence and potential in Year 10 curricula are comparatively analysed in Section 7.13.

7.7.4 Summary of presence and potential analyses in Economics and Business LA
In the Economics and Business LA, there is some evidence of vocabulary applicable to puberty education, as found in 95% of all Content descriptions within the three audited year levels, and shown in the relevant Audit Tables and Boxes of Appendix G. There is evidence of presence in all scanned years from Year 5 to Year 10. Although explicit or contextualised puberty education vocabulary is not evident, there are many entry points
for teacher-led pedagogies or spontaneous ‘teaching moments’ around words such as “choices, trade-offs, viable options, opportunity costs, consequences”. Content descriptions such as “[inquire into] the ways societies use resources to satisfy needs and wants of present and future generations” (Year 5), already provide contexts based on the seven General capabilities and three Cross-curriculum priorities.

Very high potential for the integration of puberty education words, topics and issues is exhibited in nearly every Content description throughout this Economics and Business curriculum. However, nowhere in the Australian Curriculum is the question ‘who benefits?’ asked, as it should be asked about all business, organisational, and government actions that impact on people, in this case adolescents, e.g. cutting Medicare rebates to end bulk-billing, or deregulating university fees to promote education privatisation.

7.8 The Arts LA

7.8.1 Dance LA

7.8.1.1 Analysis of presence and potential for Year 1, students aged 5.

Of four Content descriptions in this Dance curriculum, all revealed evidence of presence of noun/verb content appropriate or useful to puberty education. These instances were found in, or directly adjoining, the highest south-east quadrant of Audit Table 6.8.1.1. The results indicated some quantitative incidence, with high-level yet hollow pubertal presence in the qualitative hierarchy of nouns/verbs, e.g. “communicate ideas [of/through] dance, including from Australian community and cultural groups” (Box 6.8.1.1). The lack of relevant vocabulary or contextual evidence in such a physically-oriented LA represents a failure to enhance children’s social thinking (Goldman, 2013), particularly for students facing challenges including earlier puberty and reduced physical activity levels.

Further, evidence shows that children of school-entry age are very curious about their bodies, and do understand relevant information (see Goldman & Goldman, 1982). This Dance curriculum has high potential for knowledge extension, with integrative examples identified for all Content descriptions (N=4). While Australian students in the age 4-6 cohort “consider... communicate ideas... where and why people dance [in their own and] other cultures” (Box 6.8.1.1), an international curricula standard (WHO & BZgA, 2010) specifies enhanced vocabulary/concepts for ‘communicate’. These include “talk about differences; build up and maintain relationships; express and communicate own emotions, wishes and needs; all feelings are ok, but not all actions taken as a result
of these feelings; should not include coercion or harm” (2010, pp. 40-41). Presence and potential in Year 1 curricula are comparatively analysed in Section 7.11.

7.8.1.2 Analysis of presence and potential for Year 5, students aged 10.
Of four Content descriptions in this Dance curriculum, all revealed evidence of presence of noun/verb content appropriate or useful to puberty education. Half (n=2) of these instances were found in the highest south-east quadrant of Audit Table 6.8.1.2, with another in each of the low cognition western quadrants. The results indicated some quantitative incidence, a mixed presence in the qualitative hierarchy of nouns/verbs, e.g. “body control, balance, coordination; communicate meaning; different social, cultural, historical contexts” (Box 6.8.1.2), but no pubertal context at all. This curriculum demonstrated a very constrained capacity to extend pubertal thinking (see Goldman, 2014; Goldman & Goldman, 1982) as students transition from childhood to adolescence. Significantly, most adolescents in Year 5, aged 10, already experience pubertal processes including adrenarche (see Chapter 1.1.4).

However, this Dance curriculum has high potential for knowledge enrichment, with integrative examples identified for all Content descriptions (N=4). An international curricula standard for the age 9-12 cohort (WHO & BZgA, 2010) specifies enhanced vocabulary/concepts. For example, Australian dance students “use expressive skills, body control, [to] communicate ideas, meaning” (Box 6.8.1.2), but they should also learn about “acceptance, respect of diversity in sexuality and sexual orientation… differences and changes in bodies… standards of beauty over time and between cultures” (2010, p. 44). Presence and potential in Year 5 curricula are comparatively analysed in Section 7.12.

7.8.1.3 Analysis of presence and potential for Year 10, students aged 15.
Of seven Content descriptions in this Dance curriculum, a majority (n=5, 71%) revealed evidence of presence of noun/verb content appropriate or useful to puberty education. Most were located in the highest south-east quadrant of Audit Table 6.8.1.3. The results indicated little incidence, high-level presence in the qualitative hierarchy of nouns/verbs, e.g. “evaluate personal style... own and others’ intent, skills, performance... to inform, refine future work” (Box 6.8.1.3), but no pubertal context. They showed a severely delimited capacity to enhance adolescents’ socio-sexual thinking (see Goldman & Collier-Harris, 2012; Goldman & Goldman, 1982), which is particularly detrimental for Year 10 students aged 15, as most have completed gonadal puberty and are likely considering, at least, relationships or sexual activity (see Chapter 1.1.1; Schalet, 2011).
Further, this curriculum has high potential for such development, with integrative examples identified for most Content descriptions (n=5/N=7). Australian students may evaluate their personal style and skills (Box 6.8.1.3), but an international curriculum standard for the age 12-15 cohort (WHO & BZgA, 2010) specifies enhanced vocabulary/concepts including “identify differences between images in the media and real life… [take] a critical view of cultural norms related to the human body… [develop] skills in intimate communication and negotiation” (pp. 46-48). Presence and potential in Year 10 curricula are comparatively analysed in Section 7.13.

7.8.1.4 Summary of presence and potential analyses in Dance LA.
In the Dance LA, there is some evidence of vocabulary applicable to puberty education, as found in 86.6% of all Content descriptions within the three audited year levels, and shown in the relevant Audit Tables and Boxes of Appendix H. There is evidence of presence in other scanned years from Foundation to Year 10. There are no explicit or contextual instances of puberty education vocabulary, but there are many entry points for teacher-led pedagogies or spontaneous ‘teaching moments’, around words such as “communicate intent, telling cultural or community stories, find new movement possibilities, body control”. Study of the common Arts subjects’ Content description, “Explain how the elements of [each Arts LA] communicate meaning by comparing [each] from different social, cultural and historical contexts, including Aboriginal and Torres Strait Islander [Arts]” (Year 5), includes vocabulary for integrated puberty education already provided in the contexts of General capabilities and Cross-curriculum priorities.

High potential for the integration of puberty education words, topics and issues is exhibited in nearly every Content description in this Dance LA curriculum. However, nowhere in the Australian Curriculum is the dichotomy of ‘is/ought’ addressed, that is, the cultural stories of how and why different societies operate in relation to puberty education issues, e.g. myths related to conception and reproduction such as babies “brought by the stork” (WHO & BZgA, 2010, p. 40), or the timing and intimate expression of respectful and sexually responsible behaviour, juxtaposed against the moral/ethical position of why and how Australian society should, or could, operate.
7.8.2 Drama LA

7.8.2.1 Analysis of presence and potential for Year 1, students aged 5.

Of four Content descriptions in this Drama curriculum, all revealed evidence of presence of noun/verb content appropriate or useful to puberty education. All instances were found in, or directly adjoining, the highest south-east quadrant of Audit Table 6.8.2.1. The results indicated some quantitative incidence, high-level presence in the qualitative hierarchy of nouns/verbs, e.g. “use voice, facial expression; imagine and establish role, situation” (Box 6.8.2.1), but no directly pubertal context. This minimal evidence represents many wasted opportunities to develop children’s social thinking (Goldman, 2013), even though they face new challenges of earlier puberty.

However, evidence shows that children of school-entry age are very curious about their bodies, and well able to understand relevant information (see Goldman & Goldman, 1982). This Drama curriculum has very high potential for such extension, with integrative examples identified for all Content descriptions (N=4). While Australian students consider performance rationale and character visualisation, an international curriculum (Haberland & Rogow, 2011) specifies enhanced vocabulary/concepts, including gender stereotypes in narrative and media representation, in theatrical/cultural practice, and the social shifts in attitude and treatment that are likely to happen to those students at puberty (Vol. 2, pp. 41, 130-1). Presence and potential in Year 1 curricula are comparatively analysed in Section 7.11.

7.8.2.2 Analysis of presence and potential for Year 5, students aged 10.

Of four Content descriptions in this Drama curriculum, all revealed evidence of presence of noun/verb content appropriate or useful to puberty education. These were found in the two high knowledge quadrants of Audit Table 6.8.2.2. The results indicated some quantitative incidence, high-level presence in the qualitative hierarchy of nouns/verbs, e.g. “develop characters and situations; explore mood, atmosphere, empathy, tension; share community/cultural stories” (Box 6.8.2.2), and no pubertal context. The curriculum demonstrated unnecessary constraint in its capacity to enrich pubertal thinking (see Goldman, 2014; Goldman & Goldman, 1982) as students transition from childhood to adolescence. Significantly, the majority of adolescents in Year 5, aged 10, already experience pubertal processes including adrenarche (see Chapter 1.1.4).

However, this Drama curriculum has very high potential for such development, with integrative examples identified for all Content descriptions (N=4). An international curriculum (Haberland & Rogow, 2011) specifies comprehensive vocabulary/concepts,
so that Australian students’ exploration of atmosphere, empathy, and improvisation (Box 6.8.2.2) would also include different characterisations and stereotypes of gender, career, power and equality (2011, Vol. 2, p. 26). Presence and potential in Year 5 curricula are comparatively analysed in Section 7.12.

7.8.2.3 Analysis of presence and potential for Year 10, students aged 15.

Of seven Content descriptions in this Drama curriculum, all revealed evidence of presence of noun/verb content appropriate or useful to puberty education. Most instances were located in the highest south-east quadrant of Audit Table 6.8.2.3. The results indicated some quantitative incidence, high-level presence in the qualitative hierarchy of nouns/verbs, e.g. “manipulate... convey physical and psychological aspects of roles and characters; evaluate how [dramatic] elements, forms, styles convey meaning and aesthetic effect” (Box 6.8.2.3). The lack of pubertal context has, disappointingly, delimited the capacity to develop adolescents’ socio-sexual thinking (see Goldman & Collier-Harris, 2012; Goldman & Goldman, 1982). This is particularly detrimental for Year 10 students aged 15, as most have completed gonadal puberty and are likely considering, at least, relationships and/or sexual activity (see Chapter 1.1.1; Richters et al., 2014).

This Drama curriculum has very high potential for such knowledge development, with integrative examples identified for all Content descriptions (N=7). For example, Australian students study the physical and psychological aspects of roles and characters (Box 6.8.1.3). However, an international curriculum (Haberland & Rogow, 2011) specifies extended vocabulary/concepts and hypothetical questions such as, “What must happen for everyone to enjoy equality and the right to dignity?” (2011, p. 27) through case studies involving violations of sexual and reproductive rights (pp. 28-31). Presence and potential in Year 10 curricula are comparatively analysed in Section 7.13.

7.8.2.4 Summary of presence and potential analyses in Drama LA.

In the Drama LA, there is some evidence of the presence of vocabulary applicable to puberty education, as found in 100% of all Content descriptions within the three audited year levels, and shown in the relevant Audit Tables and Boxes of Appendix H. There is evidence of presence in all scanned years from Foundation to Year 10. There are no explicit or contextual instances of puberty education vocabulary, however, there are many entry points for teacher-led pedagogies or spontaneous ‘teaching moments’, around words including “roles, characters, meaning; convey status, relationships, intentions; maintain commitment to role” in life, as in Drama. Study of the common Content
description “Explain how the elements of [each Arts LA] communicate meaning by comparing [each] from different social, cultural and historical contexts, including Aboriginal and Torres Strait Islander [Arts]” (Year 5), includes vocabulary for integrated puberty education that is already provided in the contexts of General capabilities and Cross-curriculum priorities.

Very high potential for the integration of puberty education words, topics and issues is exhibited in nearly every Content description in this Drama curriculum. However, nowhere in the Australian Curriculum is the dichotomy of ‘is/ought’ addressed, that is, the ‘social position’ of how and why society operates as it does in relation to puberty education issues, e.g. the difficulties of maintaining relationships of friendship, trust and commitment over time, in roles/situations including birth family, sexual attraction and/or marriage, juxtaposed against the moral/ethical position of why and how society should, or could, operate.

7.8.3 Media Arts LA

7.8.3.1 Analysis of presence and potential for Year 1, students aged 5.

Of four Content descriptions in this Media Arts curriculum, all revealed evidence of presence of noun/verb content appropriate or useful to puberty education. All instances were found in, or directly adjoining, the highest south-east quadrant of Audit Table 6.8.3.1. The results indicated some quantitative incidence, high-level presence in the qualitative hierarchy of nouns/verbs, e.g. “explore ideas, characters, settings in the community through stories... communicate to an audience” (Box 6.8.3.1), but no pubertal context. The curriculum thus missed many opportunities to extend children’s social thinking (Goldman, 2013), a situation that is likely the classroom norm, although students face new challenges of earlier puberty and saturating audio-visual stimulation.

Evidence shows that children of school-entry age are well able to evaluate the differences between reality and fantasy (see Goldman & Goldman, 1982). This Media Arts curriculum has very high potential for such knowledge enrichment, with integrative examples identified for all Content descriptions (N=4). For example, Australian students may explore communication platforms (Box 6.8.3.1), but an international curriculum for the age 5-8 cohort (UNESCO, 2009) specifies extended vocabulary/concepts that would contrast commercial media saturation of sexualised body images with their own circumstances of changing, and naturally ‘imperfect’, bodies. Students should, then, also learn that “Everyone can be proud of their body; It is natural to explore parts of one’s own body, including the private parts”, and particularly importantly, “Children are not
ready for sexual contact with other people” (2009, Vol. 2, pp. 24-27). Presence and potential in Year 1 curricula are comparatively analysed in Section 7.11.

7.8.3.2 Analysis of presence and potential for Year 5, students aged 10.

Of four Content descriptions in this Media Arts curriculum, all revealed evidence of presence of noun/verb content appropriate or useful to puberty education. Half (n=2) of the instances were found in the highest south-east quadrant of Audit Table 6.8.3.2, with another in each of the low cognition western quadrants. The results indicated some quantitative incidence, mixed presence in the qualitative hierarchy of nouns/verbs, e.g. communicate meaning, points of view, and characterisations/representations using responsible media practice, and in different social, cultural, historical contexts (see Box 6.8.3.2), but without pubertal context. This curriculum is very constrained in its capacity to enhance students’ pubertal thinking (see Goldman, 2014; Goldman & Goldman, 1982), even though most adolescents in Year 5 aged 10, already experience pubertal processes including adrenarche (see Chapter 1.1.4). This Media Arts curriculum has very high potential for knowledge extension, with integrative examples identified for all Content descriptions (N=4). An international curriculum for the 9-12 cohort (UNESCO, 2009) specifies comprehensive vocabulary/concepts. For example, students “explore and communicate meaning, peoples’ points of view, representations, and characterisations [through media]” (Box 6.8.3.2). However, by learning about the false stereotypes and ultimately destructive imaginings of sexuality that underlie pornographic representations, students would also learn that “People can have sexual thoughts and feelings without acting on them; There is a range of ways in which couples can demonstrate love, care and feelings of sexual attraction; Building children’s and young peoples’ assertiveness and refusal skills can help to resist sexual abuse and gender-based violence” (2009, Vol. 2, pp. 20-28). Presence and potential in Year 5 curricula are comparatively analysed in Section 7.12.

7.8.3.3 Analysis of presence and potential for Year 10, students aged 15.

Of seven Content descriptions in this Media Arts curriculum, all revealed evidence of presence of noun/verb content appropriate or useful to puberty education. These instances were found in, or directly adjoining, the highest south-east quadrant of Audit Table 6.8.3.3. The results indicated some quantitative incidence, high-level presence in the qualitative hierarchy of nouns/verbs, e.g. “manipulate media representations to examine social and cultural beliefs, values... media conventions and genres; challenge the
expectations of specific audiences; consider social, ethical, regulatory issues” (Box 6.8.3.3), but no pubertal context. This curriculum was very delimited in its capacity to develop adolescents’ socio-sexual thinking (see Goldman & Collier-Harris, 2012; Goldman & Goldman, 1982), which is surprisingly wasteful for such a media-saturated cohort. Most Year 10 students aged 15 have completed gonadal puberty, and are likely involved in relationships and/or sexual activity (see Chapter 1.1.1; Yeung et al., 2014).

However, this Media Arts curriculum has very high potential for knowledge enrichment, with integrative examples identified for all Content descriptions (N=7). An international curriculum for the age 12-15 cohort (UNESCO, 2009) specifies comprehensive vocabulary/concepts. For example, Australian students learning about media manipulation and social, ethical and regulatory issues should also learn that “Eating disorders, e.g. anorexia, bulimia... [and] drug use, e.g. steroids... to conform to unrealistic, gendered [and double] standards of beauty is harmful” and can even be fatal: “…love involves more than engaging in sexual behaviour; Few, if any, people have a sexual life that is without problems or disappointments” (2009, Vol. 2, pp. 24-27).

Presence and potential in Year 10 curricula are comparatively analysed in Section 7.13.

7.8.3.4 Summary of presence and potential analyses in Media Arts LA.

In the Media Arts LA, there is some evidence of vocabulary applicable to puberty education, as found in 100% of all Content descriptions within the three audited year levels, and shown in the relevant Audit Tables and Boxes of Appendix H. There is evidence of presence in other scanned years from Foundation to Year 10. There are no explicit or contextual instances of puberty education vocabulary, but many entry points for teacher-led pedagogies or spontaneous ‘teaching moments’, around words such as “conventions, expectations, representations, new and alternative points of view, ethical and regulatory issues”. Study of the common Content description “Explain how the elements of [each Arts LA] communicate meaning by comparing [each] from different social, cultural and historical contexts, including Aboriginal and Torres Strait Islander [Arts]” (Year 5), includes vocabulary for integrated puberty education that is already provided in the contexts of General capabilities and Cross-curriculum priorities.

Very high potential for the integration of puberty education words, topics and issues is exhibited in nearly every Content description in this Media Arts LA curriculum. However, nowhere in the Australian Curriculum is the ‘is/ought’ dichotomy addressed; that is, the ‘social position’ of how and why society operates as it does in relation to puberty education issues, e.g. the unhealthy, sometimes pornographic, and even
destructive portrayal of the body’s size and shape, juxtaposed against the moral/ethical position of why, how and for whom society should, or could, operate.

7.8.4 Music LA

7.8.4.1 Analysis of presence and potential for Year 1, students aged 5.
Of four Content descriptions in this Music curriculum, all revealed evidence of presence of noun/verb content appropriate or useful to puberty education. Most instances were found in, or directly adjoining, the highest south-east quadrant of Audit Table 6.8.4.1. The results indicated some quantitative incidence, mixed-level presence in the qualitative hierarchy of nouns/verbs, e.g. “using voice, body percussion; communicate ideas to an audience; songs of community and cultural groups, including Aboriginal and Torres Strait Islander Peoples” (Box 6.8.4.1), and no pubertal context. This dearth of evidence represents many lost opportunities, likely as the classroom norm, to extend children’s social thinking (Goldman, 2013), even though students face challenges of earlier puberty.

However, evidence shows that children of school-entry age are eager to participate in music-making and the collaborative peer relationships it engenders, and want to integrate rhythm and sound in their own lives. This Music curriculum has very high potential for such enrichment, with integrative examples identified for all Content descriptions (N=4). An international curricula standard for the age 4-6 cohort (WHO & BZgA, 2010) specifies comprehensive vocabulary/concepts, so that, while learning to ‘listen with intent’, and “communicate ideas to an audience” (Box 6.8.4.1), students should also develop confidence, thoughtfulness and friendship skills, aiming to “consolidate their gender identity… with a positive body-image and self-image” (2010, p. 41). Presence and potential in Year 1 curricula are comparatively analysed in Section 7.11.

7.8.4.2 Analysis of presence and potential for Year 5, students aged 10.
Of four Content descriptions in this Music curriculum, all revealed evidence of presence of noun/verb content appropriate or useful to puberty education. They were located in the two higher-knowledge southern quadrants of Audit Table 6.8.4.2. The results indicated some quantitative incidence, generally low-level presence in the qualitative hierarchy of nouns/verbs, e.g. “dynamics, expression; make decisions; perform music… from different social, cultural, historical contexts” (Box 6.8.4.2), and no pubertal context. The curriculum is very constrained in its capacity to extend pubertal thinking (see Goldman, 2014; Goldman & Goldman, 1982) during students’ transition from childhood to
adolescence. Significantly, most Year 5 adolescents, aged 10, already experience pubertal processes including adrenarche (see Chapter 1.1.4).

However, this Music curriculum has very high potential for knowledge enhancement, with integrative examples identified for all Content descriptions (N=4). An international curricula standard for the age 9-12 cohort (WHO & BZgA, 2010) specifies extended vocabulary/concepts, such that while Australian students learn to perform collaboratively, they should also learn to “recognise various emotions in themselves and others; express needs, wishes, boundaries and respect those of others; understand the differences between friendship, companionship and relationships and different ways of dating” (2010, pp. 44-45). Presence and potential in Year 5 curricula are comparatively analysed in Section 7.12.

**7.8.4.3 Analysis of presence and potential for Year 10, students aged 15.**

Of seven Content descriptions in this Music curriculum, most (n=5, 71%) revealed evidence of presence of noun/verb content appropriate or useful to puberty education. These instances were located in the two high knowledge southern quadrants of Audit Table 6.8.4.3. The results indicated little quantitative incidence, generally high-level presence in the qualitative hierarchy of nouns/verbs, e.g. “use aural recognition... expression, to manipulate elements of music to explore personal style; interpretative skill; convention, differing viewpoints” (Box 6.8.4.3), but, again, no pubertal context. This curriculum lacuna demonstrated a severely delimited capacity to develop adolescents’ socio-sexual thinking (see Goldman & Collier-Harris, 2012; Goldman & Goldman, 1982). This is particularly detrimental for Year 10 students, aged 15, who have mostly completed gonadal puberty and are likely avid participants of popular music and its social culture (see Chapter 1.1.1: Currie et al., 2012; Rissel et al., 2014).

Moreover, this Music Year 10 curriculum has very high potential for knowledge extension, with integrative examples identified for most Content descriptions (n=5/N=7). An international curricula standard for the age 12-15 cohort (WHO & BZgA, 2010) specifies comprehensive vocabulary/concepts. For example, students considering aural recognition, expression, personal style, and differing viewpoints (Box 6.8.4.3), particularly as applied to music lyrics, should also reflect on “the influence of urban culture, peer pressure, gender, age, etc. on relationships; [take] a personal view of sexuality (being flexible) in a changing society or group” (2010, p. 47). Presence and potential in Year 10 curricula are comparatively analysed in Section 7.13.
7.8.4.4 Summary of presence and potential analyses in Music LA.

In the Music LA, there is some evidence of vocabulary applicable to puberty education, as found in 86.6% of all Content descriptions within the three audited year levels, and shown in the relevant Audit Tables and Boxes of Appendix H. There is also evidence of presence in other scanned years from Foundation to Year 10. There are no explicit or contextual instances of puberty education vocabulary, but there are many entry points for teacher-led pedagogies or spontaneous ‘teaching moments’, around words such as “identify meaning as they listen to music... make decisions to engage... communicate ideas to an audience; using expressive skills, personal style”. Study of the common Content description “Explain how the elements of [each Arts LA] communicate meaning by comparing [each] from different social, cultural and historical contexts, including Aboriginal and Torres Strait Islander [Arts]” (Year 5), includes vocabulary for integrated puberty education already provided in the contexts of seven General capabilities and three Cross-curriculum priorities.

Very high potential for the integration of puberty education words, topics and issues is exhibited in nearly every Content description in this Music LA curriculum. However, nowhere in the Australian Curriculum is the dichotomy of ‘is/ought’ addressed, that is, the ‘social position’ of how and why society operates as it does in relation to puberty education issues, e.g. “socially responsible behaviour... an awareness of risks” (WHO & BZgA, 2010, p. 41) and the emphasis on alcohol/drug consumption as a prerequisite to personal enjoyment at a music party or dance, juxtaposed against the moral/ethical position of why and how society should, or could, operate.

7.8.5 Visual Arts LA

7.8.5.1 Analysis of presence and potential for Year 1, students aged 5.

Of four Content descriptions in this Visual Arts curriculum, three (75%) revealed evidence of presence of noun/verb content appropriate or useful to puberty education. These instances were found in the highest south-east quadrant of Audit Table 6.8.5.1. The results indicated little quantitative incidence, generally high-level presence in the qualitative hierarchy of nouns/verbs, e.g. “explore ideas, experiences, observations, imagination; consider where and why people make visual artworks” (Box 6.8.5.1), and no pubertal context. This minimal evidence represents many wasted opportunities to enhance children’s social thinking (Goldman, 2013), even as they face new challenges of earlier puberty.
However, evidence shows that children of school-entry age are very curious about their bodies, and well able to understand relevant information (see Goldman & Goldman, 1982). This Visual Arts curriculum has very high potential for knowledge extension, with integrative examples identified for all Content descriptions (N=4). An international curriculum (Haberland & Rogow, 2011) specifies comprehensive vocabulary/concepts. For example, while students “explore ideas, experiences, observations, imagination” (Box 6.8.5.1), they should also learn clear and accurate vocabulary to best describe their observations, thoughts, feelings, their gender and bodies, relationships with others, and their world, perhaps in a word-web (see 2011, Vol. 2, pp. 32-33). Presence and potential in Year 1 curricula are comparatively analysed in Section 7.11.

### 7.8.5.2 Analysis of presence and potential for Year 5, students aged 10.

Of four Content descriptions in this Visual Arts curriculum, again only three (75%) revealed evidence of presence of noun/verb content appropriate or useful to puberty education. These instances were found in the highest south-east quadrant of Audit Table 6.8.5.2. The results indicated little quantitative incidence, mixed presence in the qualitative hierarchy of nouns/verbs, e.g. “represent different views, beliefs, opinions; display to enhance meaning; conventions of different social, cultural, historical contexts” (Box 6.8.5.2), and no pubertal context. The curriculum is very constrained in its capacity to enhance pubertal thinking (see Goldman, 2014; Goldman & Goldman, 1982) as students transition from childhood to adolescence, particularly considering that most Year 5 adolescents aged 10 already experience pubertal processes including adrenarche (see Chapter 1.1.4).

However, this Visual Arts curriculum has high potential for knowledge expansion, with integrative examples identified for all Content descriptions (N=4). An international curriculum (Haberland & Rogow, 2011) specifies extended vocabulary/concepts. For example, students analysing visual representations of children in different societies, cultures, and time periods within Australia, the Asia region, and the world (see Box 6.8.5.2) could also evaluate traditional patriarchal views of children and family against contemporary parental expectations and extended childhood (see 2011, Vol. 2, p. 35). Presence and potential in Year 5 curricula are comparatively analysed in Section 7.12.

### 7.8.5.3 Analysis of presence and potential for Year 10, students aged 15.

Of seven Content descriptions in this Visual Arts curriculum, six (85.7%) revealed evidence of presence of noun/verb content appropriate or useful to puberty education.
These instances were found in, or directly adjoining, the highest south-east quadrant of Audit Table 6.8.5.3. The results indicated some quantitative incidence, high-level presence in the qualitative hierarchy of nouns/verbs, e.g. “develop representations of themes, concepts, or subject matter... personal style; represent artistic intention, ideas, subject matter” (Box 6.8.5.3), but no pubertal context. There was, however, a severely delimited capacity to extend adolescents’ socio-sexual thinking (see Goldman & Collier-Harris, 2012; Goldman & Goldman, 1982). This is particularly detrimental for Year 10 students aged 15, who have mostly completed gonadal puberty and are likely considering, at least, relationships and/or sexual activity (see Chapter 1.1.1; Rice et al., 2014).

This Visual Arts curriculum has high potential for such development, with integrative examples identified for most Content descriptions (n=6/N=7). An international curriculum (Haberland & Rogow, 2011) specifies enhanced vocabulary/concepts. For example, to “evaluate how representations communicate artistic intentions” (Box 6.8.5.3) students would evaluate the discrimination, censorship and sometimes violence perpetrated on visual artists (see 2011, pp. 26-27), e.g. Australian photographer Bill Henson’s teenage nudes; parents banned from publically photographing their children in a ‘paedophile panic’. Presence and potential in Year 10 curricula are comparatively analysed in Section 7.13.

7.8.5.4 Summary of presence and potential analyses in Visual Arts LA.

In the Visual Arts LA, there is some evidence of vocabulary applicable to puberty education, as found in 80% of all Content descriptions within the three audited year levels, and shown in the relevant Audit Tables and Boxes of Appendix H. There is evidence of presence in other scanned years from Foundation to Year 10. There are no explicit or contextual instances of puberty education vocabulary, but there are many entry points for teacher-led pedagogies or spontaneous ‘teaching moments’, around words including “represent different views, beliefs, opinions, conventions; explore ideas, inspiring artworks from different cultures and times”. Study of the common Content description “Explain how the elements of [each Arts LA] communicate meaning by comparing [each] from different social, cultural and historic al contexts, including Aboriginal and Torres Strait Islander [Arts]” (Year 5), includes vocabulary for integrated puberty education already provided in the contexts of General capabilities and Cross-curriculum priorities.

Very high potential for the integration of puberty education words, topics and issues is exhibited in nearly every Content description in this Visual Art LA curriculum.
However, nowhere in the Australian Curriculum is the dichotomy of ‘is/ought’ addressed, that is, the ‘social position’ of how and why society operates as it does in relation to puberty education issues, e.g. permanent body art, or, erotica versus pornography, and whether these change perceptions of body image and worth, juxtaposed against the moral/ethical position of why and how society should, or could, operate.

7.9 Health and Physical Education (HPE) LA

7.9.1 Analysis of presence and potential for Year 1, students aged 5

Of 18 Content descriptions in this HPE curriculum, all revealed evidence of presence of noun/verb content appropriate or useful to puberty education. The largest proportion of instances (n=7) was found in the highest south-east quadrant of Audit Table 6.9.1, with another five in the higher-knowledge south-west quadrant. The results indicated some quantitative incidence, and fulsome presence in the qualitative hierarchy of nouns/verbs, e.g. “identify their own, others’ strengths, achievements; emotional responses that account for own, others’ feelings; how health messages relate to health decisions and behaviours; include others... to feel they belong; how similarities, differences are celebrated, respected” (Box 6.9.1). Only one instance included a directly pubertal context, e.g. “Describe physical, social changes that occur as children grow older, discuss how family and community acknowledge these changes” (Box 6.9.1). However, by not including more explicit vocabulary Contexts, the curriculum identified an acutely unfulfilled capacity to enhance children’s socio-sexual thinking (Goldman, 2013). For example, although this curriculum uses the phrase ‘health, safety and wellbeing’ to avoid specific puberty vocabulary and issues, children aged 3-11 consistently gauge ‘health’ by body shape/weight stereotypes, actively and negatively stigmatising overweight people (Rees et al., 2011; Worobey & Worobey, 2014).

Further, evidence shows that children of school-entry age actively seek knowledge about social mores, values and relationships, particularly about their own bodies and families (see Formby, 2011; Goldman & Goldman, 1982; Halstead & Reiss, 2003). This HPE curriculum has very high potential for such development, with integrative examples identified for all Content descriptions (N=18). An international curriculum (UNESCO, 2009) specifies extended vocabulary/concepts for the age 5-8 cohort. While Australian students encounter self-protection as “practise strategies they can use when they need help with a task, problem or situation” (Box 6.9.1), UNESCO’s curriculum teaches that “all people have the right to express themselves; clearly communicating ‘yes’ and ‘no’ protects one’s privacy and bodily integrity; inappropriate touching,
unwanted, and forced sex (rape) are forms of sexual abuse” (2009, Vol. 2, pp. 11-20), and further, that this is **never** the child’s fault. Unfortunately, even child protection words and strategies used in Queensland’s new Daniel Morcombe Child Safety Curriculum (EQ, 2014), established after his bus-stop abduction and murder at age 14, are not compulsory teaching requirements (Mullins, cited in Chilcott, 2012). *Presence* and *potential* in Year 1 curricula are comparatively analysed in Section 7.11.

### 7.9.2 Analysis of presence and potential for Year 5, students aged 10

Of 19 Content descriptions in this HPE curriculum, all revealed evidence of *presence* of noun/verb content appropriate or useful to puberty education. Most instances (n=14) were located in the highest south-east quadrant of Audit Table 6.9.2. The results indicated some quantitative incidence, high-level and fulsome *presence* in the qualitative hierarchy of nouns/verbs, e.g. “influence of emotional responses on behaviour, relationships; influence of media and important people on personal attitudes, beliefs, decisions” (Box 6.9.2), and some tentatively pubertal contexts. The single use of the word puberty, in all the Australian Curriculum’s Content descriptions, was found here, as “investigate resources, strategies to manage changes and transitions associated with puberty” (Box 6.9.2), although this word is nowhere defined or explained. However, the curriculum also demonstrated a crucially unfulfilled capacity, even a form of self-censorship, in the development of pubertal thinking (see Goldman, 2014; Goldman & Goldman, 1982) as students transition from childhood to adolescence. For example, a previous version (v5, in 2013) of this curriculum included the paraphrased Content descriptions ‘identify discrimination, harassment and bullying based on a person’s physical or intellectual abilities, gender, sex, race or religion and propose counteractive behaviours’, and, ‘*positively* manage the changes and transitions experienced in puberty’.

Still, this HPE curriculum has very high *potential* for knowledge extension, with integrative examples identified for all Content descriptions (N=19). An international curriculum (UNESCO, 2009) specifies comprehensive vocabulary/concepts for the age 9-12 cohort. While Australian students encounter the role of preventative health as “…promoting and maintaining health, safety, wellbeing for individuals and their communities” (Box 6.9.2), UNESCO’s curriculum uses phrases such as “negative social norms and peer pressure can be challenged through assertive behaviour and other means; critical thinking needs to be applied to making friends and forming sexual relationships…[that also] require emotional and physical maturity; correct and consistent use of condoms and contraception can prevent pregnancy and STIs including HIV” (2009, Vol.
2, pp. 13-27). *Presence* and *potential* in Year 5 curricula are comparatively analysed in Section 7.12.

### 7.9.3 Analysis of presence and potential for Year 10, students aged 15

Of 19 Content descriptions in this HPE curriculum, all revealed evidence of *presence* of noun/verb content appropriate or useful to puberty education. Nearly all these instances (n=17) were found in the highest south-east quadrant of Audit Table 6.9.3, indicating deeper knowledge and more complex thinking (see Anderson & Krathwohl, 2001). The results indicated some quantitative incidence and fulsome *presence* in the qualitative hierarchy of nouns/verbs, e.g. “evaluate factors that shape identities; that impact ability to make healthy, safe choices; how empathy and ethical decisions contribute to respectful relationships” (Box 6.9.3), some with a vaguely pubertal context, e.g. “evaluate situations, propose appropriate emotional responses... reflect on possible outcomes of different responses” (Box 6.9.3). Again, this is necessary and helpful vocabulary, but incomplete and insufficient to the purpose of extending adolescents’ socio-sexual thinking (see Goldman & Collier-Harris, 2012; Goldman & Goldman, 1982), particularly at this crucial age. For example, a previous version (v5, in 2013) of this curriculum included the paraphrased Content descriptions ‘analyse their sense of self and wellbeing, personal attitudes and beliefs, family, peers, societal norms and expectations, media and stereotypes’, and, ‘analyse the implications of behaviours such as prejudice, marginalisation, homophobia, discrimination, harassment and exclusion on the health and wellbeing of entire community, propose counter-measures to alleviate these’.

However, this HPE curriculum has very high *potential* for such development, with integrative examples identified for all Content descriptions (N=19). An international curriculum (UNESCO, 2009) specifies comprehensive teaching vocabulary/concepts for the age 12-15 cohort. While Australian students “evaluate the impact of changes and transitions on relationships” (Box 6.9.3), UNESCO’s curriculum uses phrases such as “pornographic media... rely on gender stereotypes; double standards of sexual behaviour may impact upon social and sexual interactions; no sexually active... person should be refused access to contraceptives or condoms on the basis of their marital status, their sex or gender” (2009, Vol. 2, pp. 18-30), or importantly, their age. *Presence* and *potential* in Year 10 curricula are comparatively analysed in Section 7.13.
7.9.4 Summary of presence and potential analyses in HPE LA
In the HPE LA, there is much evidence of vocabulary applicable to puberty education, as found in 100% of all Content descriptions within the three audited year levels, and shown in the relevant Audit Tables and Boxes of Appendix I. There is also evidence of presence, and some of context, in the other scanned years from Foundation to Year 10. Of all these other Content descriptions, two address child protection, albeit obliquely, e.g. “identify people and demonstrate protective behaviours that help keep themselves safe and healthy” (Foundation), and, “apply strategies for use in situations that make them feel unsafe, uncomfortable” (Years 3-4). Some other Content descriptions provide worthwhile opportunities for integrated puberty education, such as “name body parts, describe body growth, change; describe emotional responses people may experience in situations” (Foundation) and, “develop strategies to demonstrate empathy, sensitivity; and skills to evaluate health information” (Years 7-8).

As with all the other LAs, much of this vocabulary is provided in the contexts of the seven General capabilities and the three Cross-curriculum priorities. Although this LA is the usual, if default, home of puberty education, too much is left unsaid. This situation of absence is in stark contrast to all of the inter- and transnational curricula and standards, and implemented practice, addressed in this research. There is, therefore, very high potential for the integration of puberty education words, topics and issues throughout this Health and Physical Education (HPE) LA curriculum.

7.10 Technologies LA

7.10.1 Design and Technologies LA

7.10.1.1 Analysis of presence and potential for Year 1, students aged 5.
Of nine Content descriptions in this Design and Technologies curriculum, all revealed evidence of presence of noun/verb content appropriate or useful to puberty education. The largest single proportion of instances (n=4) was found in the highest south-east quadrant of Audit Table 6.10.1.1, with the remaining instances dispersed through the lower-cognition western quadrants. The results indicated some quantitative incidence, a mixed qualitative hierarchy of nouns/verbs, e.g. “consider sustainability to meet personal, local community needs; how plants and animals are grown for food... healthy eating; evaluate... their care for environment” (Box 6.10.1.1), but no pubertal context. The curriculum missed many opportunities to enhance children’s social thinking (Goldman, 2013), a lacuna that is likely normal for children of school-entry age, although they face new challenges of earlier puberty and technological immersion.
Evidence shows that children of school-entry age are eager and able to engage with both traditional (e.g. animal care, school gardens) and new (e.g. computing, virtual) technologies, particularly when applied to their own lives (see Goldman & Goldman, 1982). This Design and Technologies curriculum has very high potential for knowledge development, with integrative examples identified for all Content descriptions (N=9). An international curriculum for the age 5-8 cohort (UNESCO, 2009) specifies extended vocabulary/concepts. While Australian students “explore how plants and animals are grown for food, clothing, shelter, how food is prepared” (Box 6.10.1.1) they could also learn about human (re)production and its management. For example, “Babies are formed when a human egg [properly, ovum] and a sperm cell combine”, sometimes using designed solutions including conception aids, e.g. in vitro fertilisation (IVF), or contraceptive methods, e.g. “Different forms of contraception have different effectiveness rates, efficacy, benefits and side effects” (2009, Vol. 2, pp. 22, 30). Presence and potential in Year 1 curricula are comparatively analysed in Section 7.11.

7.10.1.2 Analysis of presence and potential for Year 5, students aged 10.

Of ten Content descriptions in this Design and Technologies curriculum, nine (90%) revealed evidence of presence of noun/verb content appropriate or useful to puberty education. The largest single proportion of instances (n=4) was found in the highest south-east quadrant of Audit Table 6.10.1.2, with those remaining disbursed across the other three quadrants. The results indicated some quantitative incidence, generally high knowledge presence in the qualitative hierarchy of nouns/verbs, e.g. “role of food preparation in good health, food safety and hygiene; negotiate criteria for success; competing [design] considerations... for current, future use” (Box 6.10.1.2), but no pubertal context. The curriculum shows wasteful constraint in its capacity to expand pubertal thinking (see Goldman, 2014; Goldman & Goldman, 1982) for students transitioning from childhood to adolescence, who benefit greatly from integrated and normalised puberty education.

However, this Design and Technologies curriculum has very high potential for knowledge extension, with integrative examples identified for all Content descriptions (N=10). An international curriculum for the age 9-12 cohort (UNESCO, 2009) specifies comprehensive vocabulary/concepts. While students identify ”how people in design/technologies occupations address competing considerations including sustainability” (Box 6.10.1.2), they could also examine historical contraceptive design, e.g. animal membrane or silk fabric condoms, the combined oral contraceptive Pill, and
IVF. Students would also learn about the spread, documented since 1494, of sexually transmitted infections (STIs) and designed solutions, e.g. retractable and disposable syringes, Gardasil anti-cervical cancer vaccine, and, “HIV cannot be transmitted through casual contact, e.g. shaking hands, drinking from the same glass; The vast majority of [STIs including] HIV infections are transmitted through unprotected penetrative sexual intercourse with an infected partner” (UNESCO, 2009, Vol. 2, p. 31). *Presence* and *potential* in Year 5 curricula are comparatively analysed in Section 7.12.

**7.10.1.3 Analysis of presence and potential for Year 10, students aged 15.**

Of 12 Content descriptions in this Design and Technologies curriculum, all revealed evidence of *presence* of noun/verb content appropriate or useful to puberty education. Nearly all instances were found in the highest south-east quadrant of Audit Table 6.10.1.3. The results indicated some quantitative incidence, high-level qualitative evidence of *presence* in the hierarchy of nouns/verbs, e.g. “global preferred futures; make judgments on the ethical, sustainable production and marketing; food safety... sensory perceptions” (Box 6.10.1.3), but without pubertal context. This curriculum demonstrated a frustratingly delimited capacity to develop socio-sexual thinking (see Goldman & Collier-Harris, 2012; Goldman & Goldman, 1982) for Year 10 students aged 15, who have mostly completed gonadal puberty and are likely considering, at least, relationships and/or sexual activity (see Bay-Cheng, 2013; Chapter 1.1.1).

This Design and Technologies curriculum has very high *potential* for such development, with integrative examples identified for all Content descriptions (N=12). An international curriculum for the age 12-15 cohort (UNESCO, 2009) specifies extended vocabulary/concepts. While Australian students learn to “critique needs or opportunities to develop design briefs, ideas; [and] work flexibly to safely... make designed solutions” (Box 6.10.1.3), they could also learn that “Alcohol and drug use can impair rational decision-making and contribute to high-risk behaviours; [and] decisions about the most appropriate risk-reduction strategies to adopt are often influenced by one’s self-efficacy, perceived vulnerability, gender roles, culture and peer norms” (UNESCO, 2009, Vol. 2, p. 32) rather than by available technologies. *Presence* and *potential* in Year 10 curricula are comparatively analysed in Section 7.13.
7.10.1.4 Summary of presence and potential analyses in Design and Technologies LA.

In the Design and Technologies LA, there is some evidence of vocabulary applicable to puberty education, as found in 96.7% of all Content descriptions within the three audited year levels, and shown in the relevant Audit Tables and Boxes of Appendix J. There is evidence of presence in the other scanned years from Foundation to Year 10. There are no explicit or contextual instances of puberty education vocabulary, but there are many entry points for teacher-led pedagogies or spontaneous ‘teaching moments’, around words including “creativity, innovation, enterprise of individuals and groups, safe procedures; production processes, time, cost, risk”. Vocabulary already mandated in the contexts of General capabilities and Cross-curriculum priorities provides many worthwhile integrated puberty education opportunities.

Very high potential for the integration of puberty education words, topics and issues is exhibited in nearly every Content description in this Design and Technologies LA curriculum. However, nowhere in the Australian Curriculum is the dichotomy of ‘is/ought’ addressed, that is, the ‘social position’ of how and why society operates as it does in relation to puberty education issues, e.g. the nutrition, health, socio-environmental outcomes, or otherwise, and profitability, of processed food, juxtaposed against the moral/ethical position of why and how society should, or could, operate.

7.10.2 Digital Technologies LA

7.10.2.1 Analysis of presence and potential for Year 1, students aged 5.

Of six Content descriptions in this Digital Technologies curriculum, all revealed evidence of presence of noun/verb content appropriate or useful to puberty education. Half (n=3) of the instances were found in the highest south-east quadrant of Audit Table 6.10.2.1, while each of three remaining instances was located in a different quadrant. The results indicated some quantitative incidence, middle-level presence in the qualitative hierarchy of nouns/verbs, e.g. “explore patterns in data; how people safely... meet [their ICT] needs; share in safe online environments” (Box 6.10.2.1), and no pubertal context. This curriculum lacuna, which is likely the classroom norm, represents many wasted opportunities to enhance the social thinking of Year 1 children aged 5 (Goldman, 2013), even though they face new challenges of earlier puberty and the need for clear and critical thinking in their information-saturated environment.

Evidence shows that children of school-entry age are eager to participate in digital technologies, both individually and in peer relationships (see Goldman & Goldman,
This Digital Technologies curriculum has very high potential for knowledge development, with integrative examples identified for all Content descriptions (N=6). An international curricula standard for the age 4-6 cohort (WHO & BZgA, 2010) specifies comprehensive vocabulary/concepts. For example, Australian students learning “how people safely use common information systems to meet... needs” (Box 6.10.2.1), and applying this knowledge to sexual predator ‘grooming’, would also learn how to develop internet protocols treating all interactions as public and accountable, with “an awareness of their rights which leads to self-confidence, [and] acceptance of social rules about privacy and intimacy” (WHO & BZgA, 2010, p. 39). Presence and potential in Year 1 curricula are comparatively analysed in Section 7.11.

7.10.2.2 Analysis of presence and potential for Year 5, students aged 10.
Of nine Content descriptions in this Digital Technologies curriculum, six (66.6%) revealed evidence of presence of noun/verb content appropriate or useful to puberty education. Two instances were located in each of three quadrants of Audit Table 6.10.2.2, namely, the lowest north-west, the intermediate north-east, and the highest south-east quadrants. The results indicated little quantitative incidence, generally higher-knowledge presence in the qualitative hierarchy of nouns/verbs, e.g. “sustainable [solutions that]... meet local community needs, considering opportunities and consequences for future applications; agreed ethical, social, technical protocols” (Box 6.10.2.2), but no pubertal context. This curriculum is very constrained in its capacity to extend pubertal thinking (see Goldman, 2014; Goldman & Goldman, 1982) as students transition from childhood to adolescence. This is surely a very curious situation in a learning area where forward thinking and innovation are crucial for future success and satisfaction. Most Year 5 adolescents aged 10, already experience pubertal processes including adrenarche (see Chapter 1.1.4), and are ideally placed to benefit from integrated and normalised puberty education.

However, this Digital Technologies curriculum has very high potential for knowledge enhancement, with integrative examples identified for all Content descriptions (N=9). An international curricula standard for the age 9-12 cohort (WHO & BZgA, 2010) specifies enriched vocabulary/concepts. For example, students may “create and communicate ideas and information including online collaborative projects applying agreed ethical, social, technical protocols” (Box 6.10.2.2), but they should also “understand different sexual feelings and talk about sexuality in an appropriate way; differentiate between sexuality in ‘real life’ and sexuality in the media; acquire modern
media competence (smart phone, internet, dealing with pornography)” (WHO & BZgA, 2010, pp. 44-45). Presence and potential in Year 5 curricula are comparatively analysed in Section 7.12.

7.10.2.3 Analysis of presence and potential for Year 10, students aged 15.

Of 11 Content descriptions in this Digital Technologies curriculum, most (n=9, 81.8%) revealed evidence of presence of noun/verb content appropriate or useful to puberty education. The great majority of instances were located in the highest south-east quadrant of Audit Table 6.10.2.3. The results indicated some quantitative incidence, high presence in the qualitative hierarchy of nouns/verbs, e.g. “controlling and securing data; privacy and security requirements; real-world problems, stakeholders’ needs; criteria including accessibility, usability, aesthetics; future risks and sustainability; social contexts, legal responsibilities” (Box 6.10.2.3), but again, without directly pubertal context. The curriculum demonstrated a crucially delimited capacity to develop adolescents’ socio-sexual thinking (see Goldman & Collier-Harris, 2012; Goldman & Goldman, 1982), at a time when most Year 10 students aged 15 have completed gonadal puberty. These students are very likely to be considering relationships and/or sexual activity (see Chapter 1.1.1; Reid, 2014), and are in critical need of higher knowledge and cognitive skills to safely, and satisfyingly, navigate our digital future.

This Digital Technologies curriculum has very high potential for such knowledge extension, with integrative examples identified for all Content descriptions (N=11). An international curricula standard for the age 12-15 cohort (WHO & BZgA, 2010) specifies enhanced vocabulary/concepts. For example, students may “create interactive solutions for sharing... online, taking into account social contexts, legal responsibilities” (Box 6.10.2.3) on the generation of platforms after Facebook and Twitter, but should also learn to “Address unfairness, discrimination, inequality; Challenge injustice and stop (themselves and others) using degrading language or telling demeaning jokes” (WHO & BZgA, 2010, p. 49). Presence and potential in Year 10 curricula are comparatively analysed in Section 7.13.

7.10.2.4 Summary of presence and potential analyses in Digital Technologies LA.

In the Digital Technologies LA, there is some little evidence of vocabulary applicable to puberty education, as found in 80% of all Content descriptions within the three audited year levels, and shown in the relevant Audit Tables and Boxes of Appendix J. There is
evidence of presence in other scanned years from Foundation to Year 10. There are no explicit or contextual instances of puberty education vocabulary, but there are many entry points for teacher-led pedagogies or spontaneous ‘teaching moments’, around words including “identifying risks; considering safety; legal responsibilities”. Of all ACARA Content descriptions, the word privacy is used once, here, but in an instrumental, rather than pubertal, context. Content descriptions such as “decompose real-world problems accounting for economic, environmental, social, technical, usability constraints... and social contexts” (Year 7), use vocabulary already provided in the contexts of General capabilities and Cross-curriculum priorities.

Very high potential for the integration of puberty education words, topics and issues is exhibited in nearly every Content description in this Digital Technologies LA curriculum. However, nowhere in the Australian Curriculum is the dichotomy of ‘is/ought’ addressed, that is, the ‘social position’ of how and why society operates as it does in relation to puberty education issues, e.g. sexting, or indeed, the commercial or national security need for information retention and metadata mining versus personal privacy needs, and freedom of association or activism. These classroom discussions should be juxtaposed against the moral/ethical position of why and how society should, or could, operate.

7.11 Meta-analysis of All Year 1 Curricula
This section provides a meta-analysis of all Year 1 curricula across 13 audited LAs (see Table 4), remembering that the LAs of Civics and Citizenship, and Economics and Business, do not include Year 1. This section provides evidence of any patterns that were found, across all Year 1s in all LAs, in the audit analyses of quantitative incidence and qualitative strength of puberty education presence, above. It also provides a meta-analysis of the qualitative potential within all Year 1 curricula across the audited LAs.

7.11.1 Presence in all Year 1 curricula
There does not appear to be a pattern of puberty education presence in Year 1 curricula of the 13 audited LAs. Very high proportions of presence incidence, between 75% (in Visual Arts) and 100%, were exhibited in Year 1 Content descriptions across all LAs. However, the predominant locational strength of such identified presence was found in the two low-cognition western quadrants in five LAs, namely English, Mathematics, Science, History, and Design and Technologies. Contrarily, in the remaining nine LAs of Geography, Health and Physical Education, Digital Technologies, and the Arts subjects
of Dance, Drama, Media Arts, Music, and Visual Arts, the predominant locational strength of identified presence was found in the two high-cognition eastern quadrants.

This evidence does not appear to constitute a pattern, except that English, Mathematics, Science, and History were the first, and earlier versions, of the Australian Curriculum LAs to be endorsed and implemented by some states and territories, from 2012 onwards. The remaining LAs were developed relatively recently, with the full set (except Languages) released online to the public in October 2014. As noted previously, the states and territories make decisions about the timing of implementation, but all the LAs audited in this research are “available for state and territory use” (ACARA, 2014).

It must be reiterated that identified puberty education presence in Year 1 curricula, and indeed all year levels, was very broadly interpreted, for example, “ask questions, role and situation, change, personal/community needs, values, behaviours, individuals and groups, different viewpoints, perspectives, meaning, communicate, explore ideas, contexts, cultures, environment” (Boxes 6.1.1 – 6.10.2.1). Much of this Content description vocabulary is sourced from the already-integrated seven General capabilities and three Cross-curriculum priorities. In Year 1 content there was no identified presence of human rights, or of children’s special rights to protection, education, and health (Nussbaum, 2012; UNCRC, 1990).

### 7.11.2 Potential in all Year 1 curricula

The potential for integrated puberty education identified in the great majority of Content descriptions for Year 1 of each LA is immense, limited only by the teachers’ time and motivation. Integrating knowledge between and within disciplines, or transdisciplinarity (Graham & Smith, 2007), has benefits for all learners in applicability to any/all problems, and promotes a participatory, transformative openness and enhancement of personal growth and knowledge production. These features may be extremely helpful in giving children aged 5 the optimum start in both socialisation and learning processes at school entry level in Year 1.

### 7.12 Meta-analysis of All Year 5 Curricula

This section provides a meta-analysis of all Year 5 curricula across the 15 audited LAs (see Table 4). It provides evidence of any patterns that were found, across all Year 5s in all LAs, in the audit analyses of quantitative incidence and qualitative strength of puberty education presence, above. It also provides a meta-analysis of the qualitative potential within all Year 5 curricula across the 15 audited LAs.
7.12.1 Presence in all Year 5 curricula
An overview of Year 5 curricula between the audited LAs does not appear to show a discernable pattern of puberty education presence. Very high proportions of presence, again between 66% (in Digital Technologies) and 100%, were evidenced in Year 5 Content descriptions across all LAs. In some contrast to Year 1 curricula, however, the predominant locational strength of identified presence in Year 5 instances was concentrated in the two higher-cognition eastern quadrants of Audit Tables (see Anderson & Krathwohl, 2001), with the exception of English.

It must, again, be noted that the puberty education presence evidenced in Year 5 curricula in the 15 audited LAs was identified through a very broad, and generously imaginative interpretive lens, for example, “meanings, social roles and relationships, responsibilities, differing perspectives, beliefs, opinions, interpretations, interactions, representations, adaptations, communities, environment, ethical protocols, decision-making processes” (Boxes 6.1.2 – 6.10.2.2). Much of this Content description vocabulary is sourced from the integrated seven General capabilities and three Cross-curriculum priorities. Again, there was no identified presence of rights, such as human rights and adolescents’ rights to protection, education, health and reproductive safety (Lottes, 2013; Munoz, 2010; Nussbaum, 2012; UNCRC, 1990).

7.12.2 Potential in all Year 5 curricula
The potential for integrated puberty education in each Content description of each Year 1 LA is immense, with multiple beneficial applications directed to the “special vulnerability of children, and the special cost-effectiveness of protecting children’s rights” (Dixon & Nussbaum, 2012, p. 549). Nussbaum’s philosophical justifications of the ‘capabilities approach’ (2012), the biological insights of the evolutionary-developmental life history approach (Giedd, 2012; Hawley, 2011), and continuous innovations in digital technologies may be very helpful in preparing students, aged 10 in Year 5, for the profound and lifelong changes that are happening, or will shortly happen, to them.

7.13 Meta-analysis of All Year 10 Curricula
This section provides a meta-analysis of all Year 10 curricula across the 15 audited LAs (see Table 4). It provides evidence of any patterns that were found, across all Year 10s in all LAs, in the audit analyses of quantitative incidence and qualitative strength of
puberty education presence, above. It also provides a meta-analysis of the qualitative potential within all Year 10 curricula across the 15 audited LAs.

7.13.1 Presence in all Year 10 curricula
There is an easily discernable pattern of presence in an overview of Year 5 curricula between the audited LAs. High proportions of presence, between 60% (in Mathematics) and 100%, were evidenced in Year 10 Content descriptions across all 15 audited LAs. However, in contrast to Year 1 and Year 5 curricula, Year 10 instances of puberty education presence were predominantly concentrated in the highest, south-east quadrant, in all LAs.

The relatively higher verb-noun quality (see Anderson & Krathwohl, 2001) of puberty education presence evidenced in Year 10 curricula of the 15 audited LAs was, again, identified through a very broad interpretive lens. Most words and phrases designated as providing opportunities for puberty education were actually contained in subject-specific Content descriptions. For example, “embedded perspectives, choices, discrimination between shades of meaning, emerging sense of personal style”, were about language and texts, while “inequalities, probabilities, interactions, uncertainty” came from mathematical and scientific teaching descriptions. Much of the vocabulary identified as appropriate and useful in Content descriptions, e.g. “environmental, economic and social criteria, environment, sustainability, ethical protocols, conventions, considerations, different historical, social, cultural contexts, collaborative approach” (Boxes 6.1.3 – 6.10.2.3), was attributable to the already-integrated seven General capabilities and three Cross-curriculum priorities.

There was only one Year 10 Content description mention of rights, and it was found in the History LA. Although this puberty education presence instance had no personal context, it necessarily includes human rights and adolescents’ special rights to protection, education, health and reproductive safety (Lamb, 2010a; Lottes, 2013; Munoz, 2010; Nussbaum, 2012; UNCRC, 1990).

7.13.2 Potential in all Year 10 curricula
The potential for integrated puberty education in each Content description of each Year 10 LA is immense, with multiple, significant and lifelong applications flowing from the “interdependence of sexuality, health and education… from a gender and diversity perspective” (Munoz, 2010, p. 2). Not the least of these are the arguments and practices refuting the control of sexuality inherent in “patriarchalism… a system which causes and
perpetuates serious and systematic [injustices, inequalities and] human rights violations, such as violence and discrimination against women” (2010, p. 5). Further, the altered “arena” of adolescent development, and the enormous “potential upsides” (Giedd, 2012, p. 104) of digital technologies for education and interaction are yet to be fully realised. Timely and comprehensive puberty education is crucial in preparing Year 10 students, aged 15, for their future health and wellbeing and their productive pursuit of lifechances.

7.14 Overall Analysis, including Table 4
There is almost no mention, in the Australian Curriculum for Years Foundation to 10, of explicit, explanatory, or directly contextual presence vocabulary concerning child and adolescent experiences of puberty, gender, sexuality development and orientation, reproductive health and safety, intimacy and desire, protection from abuse, or their rights to such education. There is, however, an almost unbounded potential for such puberty education, as defined in Chapters 1.1.6, and 2.1.5, to be integrated and normalised in the great majority of Content descriptions of every audited Learning Area (LA) for these compulsory school years.

The overwhelming pattern in these three-step audits (N=43), and in related scans, is evidence of very little to some incidence of puberty education presence vocabulary, and that of variable strength, but this pattern emerges only when such evidence is qualified by the extremely broad and generously interpretative knowledge and cognition vocabulary parameters (see Chapter 5 Method). The seven General capabilities, and three Cross-curriculum priorities, are the sources of much of the Curriculum vocabulary that is also relevant and available to the presence of puberty education content. Yet the necessarily concise structure of Content descriptions in the Australian Curriculum precludes any more than a minimal presence vocabulary drawn from the General capabilities and Cross-curriculum priorities. These ten factors are integrated into each LA and year level as appropriate to the teaching/learning task, and they are designated as such by icons attached to each online Content description. However, numerous examples of explicit age-appropriate vocabulary for integrated puberty education presence are provided in well-founded, high quality, international frameworks and standards (see Chapter 3 Literature Review).

Of the ten ‘parent’ LAs with specific research questions, producing a total of 15 subject LAs for analysis of both quantitative and qualitative presence and potential of puberty education in Years 1, 5 and 10, Mathematics has the lowest number of Content descriptions with presence, as a proportion of all its audited Content descriptions, at
69.2% (see Table 4). English has the next-to-lowest proportion of presence incidence, at 72.9%. Visual Arts and Digital Technologies share the third-lowest ratio of Content descriptions with puberty education presence to total Content descriptions, at 80%. Similarly, Dance and Music share a ratio of 86.6%, and History and Science stand at 88%. Further, Economics and Business has a ratio of 95%, while for Design Technologies it is 96.7%, and for Geography, 97.7%. As would be expected, Health and Physical Education (HPE) has the highest possible ratio of presence Content descriptions proportional to the total number of audited LA Content descriptions, at 100%. Perhaps somewhat surprisingly, Civics and Citizenship, Drama, and Media Arts also share this 100% ratio. Thus, four of the 15 LAs, or over one-quarter, show evidence of presence in all their audited Content descriptions (see Table 4, below).
<table>
<thead>
<tr>
<th>Learning Area</th>
<th>Year 1 No. of Content descriptions</th>
<th>Year 5 No. of Content descriptions</th>
<th>Year 10 No. of Content descriptions</th>
<th>Average in three audited years</th>
<th>Foundation to Year 10</th>
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<td>Total no.</td>
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<td>137</td>
<td>121</td>
<td>177</td>
<td>155</td>
<td>221</td>
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<tr>
<td>% containing presence, in a range of LAs</td>
<td>Year 1 range 75% - 100%</td>
<td>Year 5 range 66% - 100%</td>
<td>Year 10 range 60% - 100%</td>
<td>3-Year average 84.4%</td>
<td>----</td>
</tr>
</tbody>
</table>

Table 4: Evidence of presence in the audited LA Content descriptions.  
Source: ACARA (2015), at www.australiancurriculum.edu.au

Health and Physical Education (HPE) evidences the only puberty-specific word in the entire Australian Curriculum, ‘puberty’, in Year 5 for students aged about 10, and also mentions protective behaviours, once, in Year 2. Reproduction is mentioned only once, in Science. Gender, sex and sexuality are not evidenced at all. Rights and freedoms are fleetingly mentioned, once each in History, in Civics and Citizenship (about the justice system), and in Economics and Business (about consumers and businesses). The HPE LA also exhibits a discernable level of puberty education presence context, even when taking into account its principle orientation of physical activity. The Civics and
Citizenship LA has a relatively high level of value-based concepts, but fails to translate those into pubertal context presence.

All LAs hold huge potential for specific and integrated puberty education content, including the more technical-instrumental LA of Mathematics. Health and Physical Education (HPE) is the default puberty education LA, historically, and as such, should already be saturated with content. English, Science, History, Geography, Civics and Citizenship, Economics and Business, Dance, Drama, Media Arts, Music, Visual Arts, Design and Technologies, and Digital Technologies, demonstrate immense potential for relatively easy and quick integration of particular puberty education knowledge and cognition. Puberty may be characterised as multi-phase and overlapping “switch points” as the environment reprograms the body for reproductive fitness (Hochberg & Belsky, 2013, p. 3). To continue to ignore, avoid, restrict or deny the school-based pubertal information and guidance that students receive, or can access, about their own bodies, relationships, wellbeing and protection is, at least, counter-productive in all aspects, and at worst, damaging to their future life chances, even potentially deadly.

7.15 Chapter Summary
This chapter provided analyses of the results gathered from Content descriptions in audited LAs of the new Australian Curriculum. Such analyses, of qualitative and quantitative puberty education presence and integrative potential, used evidence of results from three-step audit sets (N=43), scans, and curriculum documents. Meta-analyses of each audited year level, Years 1, 5, and 10, across all LAs, were also presented, as was an overall analysis with Table 4. Next, Chapter 8 Conclusion provides some answers to the one broad and ten specific research questions, in alignment with the aim and hypotheses of the research project.
Chapter 8: Conclusion

This chapter provides the conclusion based on the research evidence for the broad research question, and the ten specific research questions, as generated by quantitative and qualitative three-step analytical audits of puberty education presence, and potential for integration, in ten Australian Curriculum LAs. Section 8.1 presents a brief recapitulation of the operationalisation of the theory. Section 8.2 presents the ten specific questions, with summaries of their data and analyses, and addresses the ten specific research hypotheses. Section 8.3 presents the one broad research question and responds to it, addressing the one broad research hypothesis, and some implications of the evidence found. Section 8.4 presents some limitations of this study, particularly in presence and in potential. Section 8.5 provides some educational recommendations, and Section 8.6 provides the conclusion. Finally, Section 8.7 identifies future research.

8.1 The Operationalisation of the Theory

In pursuit of evidence regarding the one broad and ten specific research questions identified in this thesis, and in light of the extant literature and international curricula and standards (see Chapter 3 Literature Review), Anderson and Krathwohl’s (2001) theoretical framework for teaching, learning and assessing (see Chapter 4 Theory) was used to develop a diagnostic and evaluative mixed method of inquiry (see Chapter 5 Method). This three-step analytical audit and Content Analysis of mandated teaching Content descriptions, at selected year levels (usually Years 1, 5, and 10) of compulsory schooling from Year 1 for students aged 5, to Year 10 for students aged 16, was applied to ten compulsory parent LAs (with a total of 15 subject LAs) in the new, nation-wide Australian Curriculum (ACARA, 2015, v7.3, January).

In this Mixed Method, Audit One was a quantitative incidence and qualitative positional Content Analysis of puberty education presence using a hierarchical, tabular form of 209 cells that intersect and cross-reference the theoretical framework’s cognitive processes and knowledge dimensions. Audit Two was a qualitative strength Content Analysis of puberty education presence, using both tabular and curriculum text-box forms of the theoretical framework’s vocabulary hierarchies. Audit Three was a quantitative and qualitative Content Analysis of potential for integrated puberty education, extending the same curriculum text-box form. The results of these analytic audits, shown in a total of 43 Audit Table-and-Box sets, were presented in textual overview in Chapter 6 Results, and in ten correlating Appendices. The summative analyses of the results were presented in Chapter 7 Analysis.
8.2 Ten Specific Research Questions

This thesis examined the following ten specific research questions. Each question, numbered for one of ten ‘parent’ LAs, namely English, Mathematics, Science, the Humanities and Social Science LAs of History, Geography, Civics and Citizenship, and Economics and Business, The Arts (comprising the subject LAs Dance, Drama, Media Arts, Music, and Visual Arts), Health and Physical Education (HPE), and Technologies (comprising the subject LAs Design and Technologies, and Digital Technologies), was accompanied by a specific research hypothesis (see Chapter 1.4). In total, there were 15 audited LAs. The research evidence from Chapter 6 Results, and the analyses from Chapter 7 Analysis, for each question, are now summarised in conclusion, and the relevant hypotheses validated and upheld, or invalidated and refuted. Some Content description vocabulary is slightly paraphrased.

8.2.1 English LA

The specific research question is, What evidence is found, in the new Australian Curriculum LA of English, for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years? The vocabulary used in Content descriptions is particularly focussed on the teaching of language, literature, and literacy. There is some presence of vocabulary appropriate or useful to puberty education knowledge or cognition in the English LA, but it is mostly evidenced in fragmented implications and subject-descriptive phrases, e.g. “explore different ways of expressing emotions (Year 1); understand the inclusive and exclusive social effects of language use (Year 10)”. Most of this vocabulary is provided in the integrated contexts of seven General capabilities and three Cross-curriculum priorities (see Chapter 5.5). There is very little specific vocabulary consistent with international curricula and standards (see Chapter 3.2), and no intentional contextual presence of puberty education vocabulary.

English is the study of universal human interactions through listening, speaking, reading, viewing and writing, and so the potential for integrating puberty education into this LA at all school Year levels is immense. All the audited Content descriptions exhibit very high potential. The specific research hypothesis (see Chapter 1.4.2) is that in the new Australian Curriculum LA of English, very little evidence, as qualitative incidence and in qualitative strength/integrity, will be found for the presence of puberty education, but many potential sites for integrated puberty education will be found. This hypothesis,
for girls and boys aged 5-16 years, is upheld for both presence and potential, by this evidence.

8.2.2 Mathematics LA

The specific research question is, What evidence is found, in the new Australian Curriculum LA of Mathematics, for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years? The vocabulary used in Content descriptions is particularly focussed on the teaching of numeracy proficiencies, namely understanding, fluency, problem solving, and reasoning. There is little presence of vocabulary appropriate or useful to puberty education knowledge or cognition in the Mathematics LA, and it is only evidenced in fragmented implications and subject-specific terminology, e.g. “develop [number] confidence (Year 1); represent probabilities of outcomes (Year 5)”. Some of the vocabulary is provided in the integrated contexts of the seven General capabilities and three Cross-curriculum priorities. There is very little specific vocabulary consistent with international curricula and standards (see Chapter 3.2), and there is no intentional contextual presence of puberty education vocabulary.

Mathematics is the study of universal human interactions through number, measurement, pattern, and logical reasoning, so the potential for integrating puberty education into this LA at all school Year levels is immense. The majority of the audited Content descriptions exhibit high potential. The specific research hypothesis (see Chapter 1.4.2) is that in the new Australian Curriculum LA of Mathematics, very little evidence, as qualitative incidence and in qualitative strength/integrity, will be found for the presence of puberty education, but many potential sites for integrated puberty education will be found. This hypothesis, for girls and boys aged 5-16 years, is upheld for both presence and potential, by this evidence.

8.2.3 Science LA

The specific research question is, What evidence is found, in the new Australian Curriculum LA of Science, for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years? The vocabulary used in Content descriptions is focussed on the teaching of scientific frameworks of patterns, order and organisation, form and function, stability and change, scale and measurement, matter and energy, and systems. There is some presence of vocabulary appropriate or useful to puberty education knowledge or cognition in the Science LA, but it is only evidenced in
fragmented implications and subject-specific terminology, e.g. “living things... have offspring (Year 2); multi-cellular organisms... reproduce (Year 8); heritable characteristics, DNA and genes; evolution by natural selection (Year 10)”

Some of the vocabulary is provided in the integrated contexts of seven General capabilities and three Cross-curriculum priorities. However, there is very little specific vocabulary consistent with international curricula and standards (see Chapter 3.2), and there is no intentional contextual presence of puberty education vocabulary.

Science is the study of universal interactions through origins, form and function, energy cycles, and change, all of which apply to schoolchildren, so the potential for integrating puberty education into this LA at all school Year levels is immense. All the audited Content descriptions exhibit very high potential. The specific research hypothesis (see Chapter 1.4.2) is that in the new Australian Curriculum LA of Science, very little evidence, as qualitative incidence and in qualitative strength/integrity, will be found for the presence of puberty education, but many potential sites for integrated puberty education will be found. This hypothesis, for girls and boys aged 5-16 years, is upheld for both presence and potential, by this evidence.

8.2.4 History LA
The specific research question is, What evidence is found, in the new Australian Curriculum LA of History, for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years? The vocabulary used in Content descriptions is focussed on the teaching of history as evidence, continuity and change, cause and effect, perspectives, empathy, significance, and contestability. There is some presence of vocabulary appropriate or useful to puberty education knowledge or cognition in the History LA, but it is mostly evidenced in fragmented implications and subject-descriptive phrases, e.g. “[overview content for...] emergence of ideas about the world, place of people in it, e.g. Renaissance, Scientific Revolution, Enlightenment (Year 8); developments in public health, rights and freedoms, globalising world (Year 10)”. Much of this vocabulary is provided in the integrated contexts of the seven General capabilities and three Cross-curriculum priorities. However, there is very little specific vocabulary consistent with international curricula and standards (see Chapter 3.2), and there is no intentional contextual presence of puberty education vocabulary.

History is the study of human interactions, and patterns, through students’ changing perspectives, transitioning from the personal and present to contested, but properly evidential, referenced, and relatively objective overviews, so the potential for
integrating puberty education into this LA at all school Year levels is immense. All the audited Content descriptions exhibit very high potential. The specific research hypothesis (see Chapter 1.4.2) is that in the new Australian Curriculum LA of History, very little evidence, as qualitative incidence and in qualitative strength/integrity, will be found for the presence of puberty education, but many potential sites for integrated puberty education will be found. This hypothesis, for girls and boys aged 5-16 years, is upheld for both presence and potential, by this evidence.

8.2.5 Geography LA
The specific research question is, What evidence is found, in the new Australian Curriculum LA of Geography, for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years? The vocabulary used in Content descriptions is focussed on teaching about place, space, environment, interconnection, sustainability, scale, and change. There is some presence of vocabulary appropriate or useful to puberty education knowledge or cognition in the Geography LA, but, again, it is mostly evidenced in fragmented implications and subject-descriptive phrases. This curriculum appears to be oriented towards social geography, e.g. “influence of social connectedness, community identity, perceptions of crime and safety on places’ liveability (Year 7); selected indicators of... human wellbeing and development, spatial variations, initiatives to improve human wellbeing (Year 10)”. Some of this vocabulary is provided in the integrated contexts of seven General capabilities and three Cross-curriculum priorities, e.g. “custodial responsibility of Aboriginal and Torres Strait Islander Peoples” (Year 4). Frustratingly, there is very little specific vocabulary consistent with international curricula and standards (see Chapter 3.2), and there is no intentional contextual presence of puberty education vocabulary.

Geography is the study of human interactions through place, space, and change, so the potential for integrating puberty education into this LA at all school Year levels is immense. All the audited Content descriptions exhibit very high potential. The specific research hypothesis (see Chapter 1.4.2) is that in the new Australian Curriculum LA of Geography, very little evidence, as qualitative incidence and in qualitative strength/integrity, will be found for the presence of puberty education, but many potential sites for integrated puberty education will be found. This hypothesis, for girls and boys aged 5-16 years, is upheld for both presence and potential, by this evidence.
8.2.6 Civics and Citizenship LA
The specific research question is, What evidence is found, in the new Australian Curriculum LA of Civics and Citizenship, for the presence of puberty education, and its potential for integration, for girls and boys aged 8-16 years? The vocabulary used in Content descriptions is focussed on the teaching of civil, political and social components. There is relatively more presence of vocabulary appropriate or useful to puberty education knowledge or cognition in the Civics and Citizenship LA, evidenced in both value-laden and subject-descriptive phrases, e.g. “formal citizenship rights (Year 6); multi-faith nation; rights to justice, fair trial, legal representation; values including freedom, respect, equality, civility, and a ‘fair go’ (or equity of opportunity) can promote cohesion (Year 7); freedoms and responsibilities, Judeo-Christian traditions (Year 8); contentious issues (Year 10)”. Some of this vocabulary is provided in the contexts of the seven General capabilities and three Cross-curriculum priorities. However, while there is some vocabulary specific to students’ transition from child to adolescent, and consistent with international curricula and standards (see Chapter 3.2), there is no intentional contextual presence of puberty education vocabulary.

Civics and Citizenship is the study of human interactions through freedom and diversity, equity and equality, rights and responsibilities, participation and rule of law, so the potential for integrating puberty education into this LA at all school Year levels is immense. All the audited Content descriptions exhibit very high potential. The specific research hypothesis (see Chapter 1.4.2) is that in the new Australian Curriculum LA of Civics and Citizenship, very little evidence, as qualitative incidence and in qualitative strength/integrity, will be found for the presence of puberty education, but many potential sites for integrated puberty education will be found. This hypothesis, for girls and boys aged 8-16 years, is refuted on presence, but is upheld on potential, by this evidence.

8.2.7 Economics and Business LA
The specific research question is, What evidence is found, in the new Australian Curriculum LA of Economics and Business, for the presence of puberty education, and its potential for integration, for girls and boys aged 10-16 years? The vocabulary used in Content descriptions is focussed on teaching about resources, businesses, consumers, and work. There is some presence of vocabulary appropriate or useful to puberty education knowledge or cognition in the Economics and Business LA, but it is mostly evidenced in fragmented implications and subject-specific terminology, e.g. “use
resources to satisfy needs, wants of present and future generations (Year 5); rights and responsibilities of consumers, businesses (Year 7); choices, trade-offs, opportunity costs”. Some of this vocabulary is provided in the contexts of the seven General capabilities and three Cross-curriculum priorities. However, there is very little specific vocabulary consistent with international curricula and standards (see Chapter 3.2), and further, there is no intentional contextual presence of puberty education vocabulary.

Economics and Business is the study of human interactions through resources, choices, decisions, consequences, work, initiative, and sustainability, so the potential for integrating puberty education into this LA at all school Year levels is immense. All the audited Content descriptions exhibit very high potential. The specific research hypothesis (see Chapter 1.4.2) is that in the new Australian Curriculum LA of Economics and Business, very little evidence, as qualitative incidence and in qualitative strength/integrity, will be found for the presence of puberty education, but many potential sites for integrated puberty education will be found. This hypothesis, for girls and boys aged 10-16 years, is upheld for both presence and potential, by this evidence.

8.2.8 The Arts LA
The specific research question is, What evidence is found, in the new Australian Curriculum LA of The Arts (comprising Dance, Drama, Media Arts, Music, and Visual Arts), for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years? The vocabulary used in Content descriptions is particularly focussed on the teaching of making and responding in each of the five Arts subject LAs. There is some presence of vocabulary appropriate or useful to puberty education knowledge or cognition in all the Arts subject LAs, although two LAs of Drama and Media Arts have higher incidence rates than the remaining three LAs, Dance, Music and Visual Arts. However, it is mostly evidenced in fragmented implications and subject-specific terminology, e.g. “devise representations of people, community... create time and space through manipulation of media technologies (Year 3, Media Arts); include body control... (Year 5, Dance); convey physical and psychological aspects of roles and characters” (Year 10, Drama). Some of this vocabulary is provided in the contexts of the seven General capabilities and three Cross-curriculum priorities. However, there is very little specific vocabulary consistent with international curricula and standards (see Chapter 3.2), and further, there is no intentional contextual presence of puberty education vocabulary.
Each Arts subject LA is a study of human interactions through identity construction, communication development, individual expression, and cultural history, so the potential for integrating puberty education into these LAs at all school Year levels is immense. Most of the Content descriptions in Dance, Music and Visual Arts exhibit a high level of potential, but all the audited Content descriptions in Drama and Media Arts exhibit very high potential (see Agbo-Quaye & Robertson, 2010). The specific research hypothesis (see Chapter 1.4.2) is that in the new Australian Curriculum LA of The Arts (comprising Dance, Drama, Media Arts, Music, and Visual Arts), very little evidence, as qualitative incidence and in qualitative strength/integrity, will be found for the presence of puberty education, but many potential sites for integrated puberty education will be found. This hypothesis, for girls and boys aged 5-16 years, is upheld for both presence and potential, by this evidence.

8.2.9 Health and Physical Education (HPE) LA

The specific research question is, What evidence is found, in the new Australian Curriculum LA of Health and Physical Education (HPE), for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years? The vocabulary used in Content descriptions is particularly focussed on the teaching and valuing of movement and physical activity, and the health, safety and wellbeing of students and their communities, in terms of an inquiry- and strengths-based approach for educative purposes and health literacy. There is much presence of vocabulary that is appropriate or useful, but essentially tangential, to puberty education knowledge or cognition in the HPE LA. Such vocabulary is almost entirely evidenced in positive but non-controversial phrases and concepts, e.g. “identify people and demonstrate protective behaviours to keep safe, healthy (Foundation); strategies for situations where they feel uncomfortable or unsafe (Year 3); practise responses in situations where external influences may impact on their ability to make healthy and safe choices (Year 9)”. Some of this vocabulary is provided in the integrated contexts of the seven General capabilities and three Cross-curriculum priorities. In each biennial curriculum band, one Content description contextualises students’ growth, physical-emotional-social changes and transitions, although specific vocabulary such as the word puberty is used only once, in Year 5, for students aged 10.

The evidence shows that specific or explicit vocabulary and teaching foci on puberty, gender, sexuality development and orientation, reproductive health, intimacy and desire, child protection and safety from abuse, and the special rights of children to
health and education (Carmody & Ovenden, 2013; Nussbaum, 2012; Munoz, 2010; Ollis et al., 2012), are almost entirely ignored in HPE. This lacuna, in this LA, is particularly disappointing, considering the number, quality, and easy availability of international curricula and standards (see Chapter 3.2). For example, in Foundation Year, Australian students are required to name parts of the body in the context of growth and change, but in the absence of explicit pubertal vocabulary, they (and teachers) may just as well nominate their teeth, or feet. Indeed, in the *Shape of the Australian Curriculum: Health and Physical Education* conceptualisation document, puberty education appears to be regarded as an impost on the curriculum, as

For some years, there has been pressure for the Health and Physical Education curriculum to take undue responsibility for a range of public health concerns about children and young people... [but while supporting students in making] healthier and safer choices, it is beyond the scope of the curriculum to solve [these] problems (ACARA, 2012f, p. 4).

By that definition and logic, there is no need or evidence whatsoever for puberty education *presence*.

Health and Physical Education (HPE) is the study of human interactions through movement and physical activity, which is specifically lauded as a human right (ACARA, 2012f, p. 4). The Melbourne Declaration of 2008, on which the Australian Curriculum is founded, designates its strong curriculum foci as literacy and numeracy skills, building social and emotional intelligence, and nurturing student wellbeing through health and physical education *in particular* (ACARA, 2012c, p. 14, emphasis added). Thus, the *potential* for integrating puberty education into this LA at all school Year levels is immense. All the audited Content descriptions exhibit very high *potential*. The specific research hypothesis (see Chapter 1.4.2) is that in the new Australian Curriculum LA of Health and Physical Education (HPE), some evidence, as qualitative incidence and in qualitative strength/integrity, will be found for the *presence* of puberty education, but many *potential* sites for integrated puberty education will be found. This hypothesis, for girls and boys aged 5-16 years, is upheld for both *presence* and *potential*, by this evidence.

### 8.2.10 Technologies LA

The specific research question is, What evidence is found, in the new Australian Curriculum LA of Technologies (comprising Design and Technologies, and Digital Technologies), for the *presence* of puberty education, and its *potential* for integration, for girls and boys aged 5-16 years? The vocabulary used in Content descriptions is
particularly focussed on the teaching of systems thinking, design thinking, and computational thinking, in both of the Technologies subject LAs. There is some presence of vocabulary appropriate or useful to puberty education knowledge or cognition in either LA, but what is found is evidenced in fragmented implications and subject-descriptive phrases, e.g. “healthy eating (Year 1), [food] hygiene (Year 5, Design and Technologies); and “[data] privacy; anticipate future risks and opportunities for transforming lives and societies (Year 10, Digital Technologies)”. Some of this vocabulary is provided in the contexts of the seven General capabilities and three Cross-curriculum priorities. However, there is very little specific vocabulary consistent with international curricula and standards (see Chapter 3.2), and further, there is no intentional contextual presence of puberty education vocabulary.

Each Technologies subject LA is a study of human interactions through unprecedented and transformative personal connectivity, leading to designed solutions and the creation of preferred futures, so the potential for integrating puberty education into these LAs at all school Year levels is immense. All the audited Content descriptions exhibit very high potential. The specific research hypothesis (see Chapter 1.4.2) is that in the new Australian Curriculum LA of Technologies (comprising Design and Technologies, and Digital Technologies), very little evidence, as qualitative incidence and in qualitative strength/integrity, will be found for the presence of puberty education, but that many potential sites for integrated puberty education will be found. This hypothesis, for girls and boys aged 5-16 years, is upheld for both presence and potential, by this evidence.

8.3 Broad Research Question, Addressed

In the contemporary context of physiological, educational and sociological changes previously outlined (see Chapter 1.1.5), the broad research question posed in this thesis is, “What evidence is found, in ten of the Australian Curriculum Learning Areas (LAs) from Foundation to Year 10, for the presence of puberty education, and its potential for integration, for girls and boys aged 5-16 years?”

The Broad Research Question can now be answered, with qualifications: There is almost no evidence of qualitatively specific presence of puberty education, as vocabulary consistent with international curricula and standards, in the ten LAs of the Australian Curriculum, although there is some evidence of quantitative incidence and qualitatively generic presence in vocabulary and in concepts. Further, there is almost no evidence of pubertal context or intentional focus on students’ sexuality development or wellbeing, as
there should be at this time of universal, but not unitary, sets of processes and individual challenges (Mundy et al., 2013). However, in all ten audited LAs there is almost limitless potential for integrated puberty education (see Haberland & Rogow, 2011; UNESCO, 2009; SIECUS, 2004; WHO & BZgA, 2010).

The one broad hypothesis of this research (see Chapter 1.4.1) is that in ten new Australian Curriculum LAs from Foundation to Year 10, little quantitative and qualitative evidence of the presence of puberty education will be found, with none at all in some LAs, but many potential sites for integrated puberty education will be found for girls and boys aged 5-16 years, even in some LAs not usually considered for it. This hypothesis is upheld for both presence and potential, by this evidence.

8.3.1 Implications of the evidence found, for presence
For presence, expressed as a combination of both specific and generic, quantitative and qualitative evidence as shown above, these findings are disappointing, even more so than were anticipated in the research hypotheses (see Chapter 1.5). This conspicuous, and ubiquitous, lacunae of puberty education is particularly significant and worrisome considering the earlier maturing of girls and boys, the quality, diversity, and number of global professional curriculum frameworks/standards available to ACARA, and the mounting weight of international evidence detailing their beneficial and cost-effective learning outcomes (Haberland & Rogow 2011; UNESCO, 2009; WHO & BZgA, 2010).

The curriculum Content description pre-test audit was expected to locate some presence words or concepts relevant to each LA, perhaps even body part names, e.g. penis, vagina, or childbirth process words, e.g. uterus, breastmilk, in HPE Year 1, cyberbullying in Digital Technologies Year 5, child marriage in History Year 6, population controls in Geography Year 10, eating disorders in Media Arts Year 5, drug impacts on human growth and brain development in Science Year 8, relationship role play in Drama Year 9, or patriarchy in Civics and Citizenship Year 7. Because so few direct or obvious presence vocabulary/concepts used in international curriculum documents were located, except for some weakly-worded and inferred-context phrases in HPE, the scope and scale of the audit search had to be enlarged to find any evidence of knowledge and cognitive content (see Chapter 5.7.4). In this way, vocabulary such as ‘present a point of view’, ‘use interaction skills’, ‘people care for places’, and ‘safe and sustainable practices for designed solutions’ was mapped into Audit Tables and Boxes using Anderson and Krathwohl’s (2001) theoretical framework.
Much of the evidence of presence, documented in Appendices A-J, is found in vocabulary that relates directly to the seven curriculum-integrated General capabilities, namely Literacy, Numeracy, Information and Communication Technology (ICT) capability, Critical and creative thinking, Personal and social capability, Ethical understanding, and Intercultural understanding (see Chapter 5.5). Some of the remaining evidence of presence is found in vocabulary that relates directly to the three Cross-curriculum priorities, namely, Aboriginal and Torres Strait Islander histories and cultures, Asia and Australia’s engagement with Asia, and Sustainability. However, some part of the Australian Curriculum content, and the integrative extent, or even the existence, of these General capabilities and Cross-curriculum priorities is now in doubt.

In January 2014, the newly elected conservative Prime Minister Tony Abbott, and Minister for Education and Training Christopher Pyne, instituted a review of the Australian Curriculum, to evaluate the robustness, independence, and balance of its development process, scope and structure, and its content and implementation for Years Foundation-12 in all LAs except Languages (see Chapter 2.2.8). That Review examined version 6.0, November 2013, of the Australian Curriculum (Donnelly & Wiltshire, 2014, p. 50), although the condensed v7.0, released in July 2014, subsequently updated to v7.3 in January 2015, provides the basis and data for this thesis’ research.

In October 2014, the 294-page Review of the Australian Curriculum: Final Report was given to the Education Council for consideration. One major recommendation was a significant reduction in content across all LAs, to the extent that one reviewer, Dr Kevin Donnelly, argued that only English, Mathematics, Science and History should be taught in the early school Years Foundation-2, and they should be the only core subjects through to Year 10. The other reviewer, Professor Kenneth Wiltshire, argued further, that until Year 3, only literacy and numeracy should be addressed. Both reviewers argued for the dilution and/or removal of the General capabilities and Cross-curriculum priorities, while simultaneously increasing the emphasis on “morals, values and spirituality... Western civilisation, Judeo-Christian heritage” (2014, p. 246), capitalist economy, and British democracy and governance. As well, they recommended a rebalancing of pedagogical approaches away from inquiry and constructivist approaches back to explicit and direct instruction wherever possible (see Chapter 4.5.1). Decisions on these recommendations about the Australian Curriculum were deferred by Minister Pyne and the state/territory Education Ministers, to a future date.
8.3.2 Implications of the evidence found, for potential

For potential, the findings in this study are highly encouraging because they show that puberty education knowledge and cognition content, for girls and boys aged 5-16 years, could be relatively easily integrated into the architecture of the Australian Curriculum Learning Areas (LAs) from Foundation to Year 10. Further, there is a wealth of international puberty education programs, rich in knowledge content and deep cognitive processes, to use and develop. In this research, content from three high-quality and well-founded international sexuality curricula and/or standards was used to demonstrate the potential for inclusive, normalised and integrated puberty education. These documents, and two more curricula/standards, were examined in Chapter 3 Literature Review.

However, the conservative federal government elected in late 2013 has already repudiated the Gonski equitable school funding and distribution model, in favour of the previous socio-economic status (SES) or ‘postcode’ funding model coupled to consumer price index cost increases. It commissioned the Review into the Australian Curriculum from a Western-Christian traditionalist and canonical perspective of knowledge, an instrumentalist and conservative view of education, a market-driven orientation to its funding, and a states’ rights approach to its provision. In addition, the federal government’s first Budget, in May 2014, announced massively reduced funding for education, to all states and territories, over a ten-year period. In this socio-political and economically conservative climate, the prospects for introducing any puberty education, no matter how important for earlier puberty and girls’ and boys’ health, safety and wellbeing, into curricula for students aged 5-16, seem highly unlikely.

8.3.3 Implications of the evidence found, for puberty education

In spite of these disappointing presence data and immediate potential circumstances, there remains the opportunity, and hope, that at some time in the future, high-level knowledge and cognitive content in comprehensive puberty education will be integrated from school-entry level, in iterations of all ACARA LA curricula. The need for it is certainly increasing. In Australia, about 16% of girls and 6% of boys reach menarche/sperarche and thus reproductive fertility aged 8-9 respectively, rather than the average ages of 12-13, and these children have greater psychosocial difficulties, behavioural problems, and risk factors than their peers (Boynton-Jarrett et al., 2013; DeRose et al., 2011; Mendle & Ferrero, 2012; Mensah et al., 2013; Morris et al., 2011). The financial cost, alone, of unresolved child abuse and trauma on Australian
governments’ budgets is estimated at between $9-24 billion (Kezelman, Hossack, Stavropoulos, & Burley, 2015, p. 10).

The evolutionary-developmentalist approach, discussed in Chapter 2.1.4, explains how differences in pubertal timing and personal wellbeing result from environmental factors impacting genetic expression in early life, that is, epigenetics (Reddy, 2013). Students’ ignorance and anxiety about their bodies, their ‘hot’ interactions with others (Dodge & Albert, 2012; Simmons et al., 2014; Steinberg, 2005), and their pubertal transitions (Tolman & McClelland, 2011) leave them more vulnerable to risk, abuse and trauma, but this ignorance can be overcome with comprehensive puberty education. Prevention is better than attempted repair, although too often an educational ‘cure’ for ignorance is negligible, ignored, delayed, or impracticable. For example, eating disorders have a rough ‘cure’ rate of 20%, a tragically early death rate of 20%, and some level of lifelong consequences for 60% of sufferers. Female genital mutilation has devastating, chronic, and generational impacts on 140 million females, worldwide (UNICEF, 2013, p. 36). Obstetric and maternity complications, and suicide, are the leading causes of death for adolescent girls (UNFPA, p. 8). Teenage mothers in more developed countries face multiple difficulties and negative pressures in continuing or finishing their education. Rape, an STI, or addiction can ruin a life, or end it.

The timely integration and normalisation of puberty education would, instead, work to enhance children’s and adolescents’ relationship skills and wellbeing, develop their sense of self-esteem and self-respect, engender an ethic of otherness and pro-social behaviours, and elevate their quality of lifechances. This would be consistent with the new research, strategic priorities, and global development policies evident in the “life-course framework” (Lancet, 2012, p. 1561; Sawyer et al., 2012; UNFPA, 2014). The technological revolution is changing “hyperconnected” adolescents’ psychosocial circumstances in ways, and an accelerating pace, that is difficult for older generations to comprehend (Giedd, 2012, p. 104; see de Visser et al., 2014). In the USA, a meta-analysis of 213 social and emotional learning (SEL) programs for more than 270,000 students aged 5-18, mostly delivered by classroom teachers, showed an 11% gain in academic achievement, with significant improvements in pro-social attitudes and positive behaviours (Durlak et al., 2011). The role of the primary school and secondary school thus becomes paramount in educating children to cognitively integrate (noesis) a curriculum of knowledge (episteme), and to participate in learning pedagogies (techne), that are relevant, appropriate and timely for enhanced pubertal adolescent ethico-sexual rationality (phronesis) (Goldman & Goldman, 1982; Halstead & Reiss, 2003; Ivinson,
2010; Lamb, 2010a; Robinson, 2012). Ideally, then, curriculum planners, education departments, and teachers would be trained (Barr et al., 2014), and ready, to integrate puberty education into Australian Curriculum LAs in a holistic manner, with the goal of enhancing lifelong abilities, capacities, and opportunities (WHO & BZgA, 2010).

8.3.4 Socio-educational research method characteristics
The method of Content Analysis that was used here, whereby this researcher quantitatively and qualitatively identified, itemised, recorded, and evaluated each incidence of presence in each LA, proved to be very intensive and time-costly. Key characteristics of disciplined (systematic and accurate) research method, as identified by Guthrie (2010), are now defined.

~ Relevance is defined as the usefulness of research to consumers of the results (2010, p. 10). In this study, teachers, curriculum planners, and teacher educators would find such research useful because this new, first-ever national Australian Curriculum provides the required content benchmark and teaching standards for the educational professionals in all primary and secondary schools at all compulsory education levels. All the stakeholders in education, including students, need certainty of content and direction to be evidenced in the Australian Curriculum, and this thesis argues for puberty education to be part of that content.

~ Validity is defined as the correctness of the data collected, that is, is it really measuring what we think it is measuring? (Guthrie, 2010, pp. 10-11). As Lord Kelvin’s 1883 quantitative maxim goes, ‘to measure is to know something’, which leads, perhaps, to doing something about it. In this instance, because it is an analytical audit of text, with a broad base, the chances of variability in categorisation and researcher interpretation are minimised, compared to the uncertain variability of data and narrow vision that might be garnered through personal interviews and narrative interpretation (see also Preston, 2013).

~ Reliability is defined as the ability to replicate the same results, using the same techniques (Guthrie, 2010, p. 11). The implementation of the pre-test audit as a trial run, and subsequent refining of vocabulary/concept contexts in alignment with the existing international curricula and standards prior to the implemented audit, has helped to increase the reliability of the data.

~ Generalisability is defined as the ability to predict accurately from a sample to the whole population from which it is drawn (Guthrie, 2010, pp. 11-12). In this research, there were 1,424 Content descriptions in the sampling frame, drawn from 11 school
year levels from Foundation to Year 10, across ten ‘parent’ LAs comprising 15 subject LAs. The sample number, that is, the analytically audited Content descriptions in Years 1, 5, and 10, was 535, or 37.57% of the total number of Content descriptions in all relevant years and LAs. The number of audited Content descriptions that showed evidence of any presence in puberty education vocabulary was 473, or 88.4% of the sample. Therefore, the generalisability of the results appears to be reasonably accurate.

It may be that a digital program for text recognition and Content Analysis, incorporating researcher-specific socio-educational criteria, is available for future analyses in this field. However, it seems unlikely that it would satisfactorily interpret the varied nuance, intent and opacity of phrases such as “health, safety, and wellbeing”, or the scope and scale of phrases such as “societal norms and expectations”.

8.4 Limitations of this study

8.4.1 Limitations of these audits of presence
This research covers ten LAs for their content, not factors of classroom implementation such as teacher training for puberty education, pedagogies, timetabling, professional support, nor parental/public opinion. However, it was not possible to implement the full three-step analytical audits of the content of every year level in every parent/subject LA, due to limitations of time, application and word restriction.

8.4.1.1 Limitations about pedagogies.
Teaching strategies, an important part of guidance for teachers in every curriculum, are not included in any Australian Curriculum LAs. ACARA’s Content descriptions outline what students are to be taught, and the achievement standards they are expected to reach. Teachers and schools have the freedom to make decisions about how to teach this content, according to the particular needs, conditions, opportunities, and resources that arise over time. ACARA provides optional online Content elaborations, but they are too numerous to be included in this study. The international document used here that does include pedagogies for puberty education is Haberland and Rogow’s (2011) It’s All One Curriculum, for the Population Council. Other reputable organisations, such as some state/territory Family Planning organisations or education authorities (Victoria’s Department of Education and Early Childhood Development [DEECD], 2011) produce or collate pedagogical documents for teachers and schools to use (see also Goldman, 1995, 2010b, 2011b; Martinez, Cooper, & Lees, 2013). These important teaching techniques are unable to be further addressed here, because of word limitations.
**8.4.1.2 Limitations about teacher education.**

Teacher preparation is “the key to effective [puberty-] sexuality instruction” (Barr et al., 2014, p. 397; see also Parker et al., 2012). The quality of student learning in puberty education is directly dependent on teachers’ identification of student needs, on teacher competence, and on teacher support by the school community (Goldman, 2010a; Goldman & Coleman, 2013; HPECT, 2007; see also Formby, 2011; Formby & Wolstenholme, 2012). However, many teachers report inhibitions or barriers that prevent its delivery (see Eisenberg, Madsen, Oliphant, & Sieving, 2013; Goldman, 2011a; Smith et al. 2011; Walsh et al., 2011). Teachers’ classroom decisions on what and how to teach often occur at “the political front line” (Thomson, 1994, cited in Carrion & Jensen, 2014, p. 624), where scientific evidence and the public good become entangled with individual and community considerations, motivations and expression.

In Australia, a review of puberty/sexuality education curriculum and policy content in teacher education University courses found that only 9% had substantial inclusion of sexuality education training, 29% had some basic inclusion, and 11% had some general inclusion (Carman et al., 2011). Further, these courses devoted only a few hours to the topic, and were offered sporadically according to the interest and expertise of educators at each institution. Although the necessity and importance of pre-service training for sexuality education was generally acknowledged, the remaining 51% of University courses had no inclusion of training, on the twin grounds of many competing demands on limited teaching time, and no mandated state/national curriculum or assessment in the topic (2011; see also Goldman & Grimbeek, 2014, 2015; Goldman & Torrisi-Steele, 2005). Indeed, even student-teacher skills for ICTs, supposedly integral to the Australian Curriculum in every LA, are not mandated (Smith & Lynch, 2010).

In Europe, the competence of sexuality teachers and educators is “at the very heart of sexuality education” (WHO & BZgA, 2010, p. 31). Teachers/educators need training in knowledge content, but just as importantly, they need to self-reflect on their own attitudes towards sexuality, human rights, diversity, and society’s values and norms, have a high motivation for teaching it, and have access to support structures/supervision (2010, p. 31). In stark contrast, in the USA, sexuality education teachers are enmeshed in a complex web of discourses, policies and political interests... [where] adolescent sexuality stands in for issues related to national identity, the purity of racial and ethnic groups, the gender roles of men and women, and the heteronormative functioning of American families (Preston, 2013, pp. 19-20).
Recently, in the US, an expert panel convened by the Future of Sex Education Initiative (FoSEI) developed the *National Teacher-Preparation Standards for Sexuality Education* (Barr et al., 2014), in alignment with the *National Sexuality Education Standards: Core content and skills, K-12* (FoSEI, 2012), as addressed in Chapter 3.2.6. These teacher-preparation professional standards, based on building professional disposition, diversity and equity, content knowledge, legal and professional ethics, and planning, implementation, and assessment skills for prospective health education teachers, are identified in Appendix K, below.

In a study of 125 ‘Life Orientation’ program teachers in South Africa, and university students on Facebook, Beyers (2013, p. 558) asks, somewhat curiously, “...is there still a gap between what teachers teach and what youth need from sexuality education”? However, the evidence presented in this thesis indicates that, rather than a gap, there is a yawning chasm between puberty education presence in the new Australian Curriculum and what students need. This important issue of teacher preparation is also unable to be addressed further here, because of word limitations.

### 8.4.2 Limitations of this audit of potential

The enormity of the potential for puberty education that was identified in Audit Three indicates that such a focus is revelatory and substantial. However, the size and the capacity of such potential preclude it from detailed discussion in this study. The learning and outcomes potential of any educational curriculum is a dynamically contested area in the educational literature. For this researcher, with a background in sociology, philosophy, sociology of education, and research into girls’ and boys’ earlier maturation, the importance of education for and before puberty, rather than a pittance after puberty or not at all, is vital to enhance the life skills and positive lifechances of girls and boys. Thus, the potential identified here is based on human rights, virtue ethics, a logical-rational, equitist, and consequentialist view of public benefit and individual fulfilment, professional international education and health documents, and evidentiary recommendations for puberty education that will support students throughout their school years, and for their lives. Worldwide, the limitations of such puberty education potential are found in Aristotle’s “vice of deficiency” (1976, p. 104) of knowledge, reason, and choice (see IPPF, 2014). In Australia, the limitations of potential are conservative positions of privatisation and user-pays ideology, where public education is being marketised in order to produce profit ahead of society-wide achievement and wellbeing (see Zyngier, 2015). This limitation of will, and thus of learning and
outcomes potential generally, is highlighted by the scrapped equitable funding scheme and the imminent devolution of education responsibility to the Australian states and territories, but without the comparable and promised federal funding.

8.5 **Overall Recommendations**

It is recommended that in future iterations of the Australian Curriculum, ACARA integrates puberty education, as defined in Chapters 1.1.6 and 2.1.5, into each school year from Foundation to Year 10, in all the audited LAs in this study. All teachers can be trained (see Barr et al., 2014) and most should be able to integrate age-appropriate puberty education in primary school classrooms, or secondary school teaching subjects, in the same way that they are mandated to integrate literacy, numeracy, and ICTs into every LA. Perhaps the new pre-employment literacy and numeracy test for graduating teachers would include technology and puberty education engagement.

Alternatively, ACARA would mandate that a specific proportion of each school year level’s Science, Civics and Citizenship, and Health and Physical Education (HPE) LA timetable be allocated to puberty education. Such education needs to be carried out by an effectively-proportional number of willing, trained, and permanently-employed teachers or health specialists, in their own schools. In the case of very small schools without the capacity or funding, a specifically-trained puberty education teacher (see Barr et al., 2014) would visit on a rotating and regular basis. Recruiting in-service teachers to take on this role without timetabling relief, extra classroom support, or sufficient training, and then calling it capacity-building, is unlikely to ever be a viable education option. Similarly, the “vaccination model” (Goldman, 2011a, p. 156) of contracting specialist health educators to deliver a short presentation, perhaps once a year in a narrow band of years, while the cost and an easy withdrawal option is passed on to parents, is neither a student-satisfactory nor cost-effective educational option.

It is also recommended that ACARA, and state/territory education authorities, devise a formal student assessment for puberty education before the end of Year 10, which may be incorporated into the Science, Civics and Citizenship, HPE, and/or English assessment rubric, and others, if possible. This would stimulate preservice teacher-preparation and legitimate puberty education teaching and learning (Goldman & Grimbeek, 2014). Teachers and schools are reluctant to spend time and effort teaching content that they know is not assessed (Formby & Wolstenholme, 2012; Goldman & Collier-Harris, 2012).
8.5.1 Recommendations for cognitive processes
Anderson and Krathwohl’s (2001) theoretical, hierarchical, and two-dimensional framework of cognitive processes, as verbs, and knowledge levels as nouns, is very useful in the classroom. The clarity, purpose, and direction of teaching, and learning, may be greatly enhanced when higher-thinking goals, expectations, motivations, key understandings, learning experiences and assessments, and performance measures, can be planned and recorded to show need, progress, and greatest benefit (see Goldman, 2006a; Goldman & Collier-Harris, 2009; Goldman & Coleman, 2013; Goldman & Torrisi-Steele, 2005). It is recommended that teachers engage students’ use of simple and versatile Anderson & Krathwohl frameworks in relation to recreational or personal interest topics, and then continue to apply them to academic and other school-related areas, including, of course, puberty education (see Goldman, 1995, 2010b, 2011b).

8.5.2 Recommendations for knowledge dimensions
Similarly, Anderson and Krathwohl’s (2001) theoretical framework provides a clear, logical and productive hierarchy of knowledge dimensions or levels, shown as nouns, with enormous value for vocabulary development and concept construction. It is thus recommended that teachers and students use this framework to explore and generate more, and higher quality, content knowledge about puberty. This usage, as explicated above for cognitive processes, should begin at school-entry level and continue, ideally as deep knowledge and higher cognition integrated into each LA, for each compulsory school year level, and also through the Senior Years 11-12 for students aged 16-18.

8.5.3 Recommendations for potential
Evidence shows (Centrewall, 2000; Kay et al., 2010; Martinez et al., 2012; DeJong, 2012; Population Council, 2012) that teachers can and do teach puberty education when it is formally required of them. Quality classroom teaching is based on knowledge of content, plus higher thinking skills in learning, teaching, and assessing, plus relevant and targeted pedagogies. It is recommended that all teacher education courses, including those at the Australian Catholic Universities, prepare all preservice teachers for puberty education, to normalise and legitimate its knowledge and skill base, and teacher confidence, using quality learning and professional standards for teachers (AITSL, 2012, 2014) and for specialist puberty/sexuality teachers (see Barr et al, 2014), including quality assurance procedures. However, in recognition of the socio-scientific controversies that would occur if all teachers were not legally mandated to teach.
puberty education, either integrated into the whole curriculum or as a separate subject, it is recommended that primary and secondary schools should have a significant and proportional representation of trained teachers, or health specialists, to teach on a regular, continuing, and age-appropriate basis. These teaching teams should comprise female and male (wherever possible) staff members, who may be teachers, nurses, or specifically qualified counsellors, but must be familiar, trusted, and permanently employed, so that students can be confident and open with their questions or problems.

8.6 Future Research
Based on this thesis, where should future research in this area be undertaken?
~ The identified presence of puberty education content in ACARA’s Australian Curriculum can be monitored for its implementation, in all school years.
~ The evidence and arguments for quantitative increases of qualitatively stronger, and integrated, puberty education in line with the international curricula, can continue to be explored, with representations to ACARA and state/territory educational authorities.
~ Evidentiary research in primary and lower secondary school years, on girls’ and boys’ responses to learning about puberty, can be developed and documented. Australian senior secondary school students in Years 10-12, aged 15-18, are currently surveyed every five years, and can offer commentary on the value and relevance of their puberty education, and what they think is missing from it (see Mitchell et al., 2014; see also Giordano & Ross, 2012; McGaurr, 2014). However, children and adolescents in Years 1-9 have had no such opportunity. In England, Formby (2011) surveyed primary school students aged 8-11, and Formby and Wolstenholme (2012) surveyed secondary school students aged 11-15, as well as teachers at both levels. These studies found that students valued all elements of such education, e.g. “It’s the best part, it’s like real life, you get taught about relationships and it really helps”, and, “You realise you’re not the only one who feels that way ... it opens your eyes a bit more” (2012, p. 12). Students’ recognition of the importance of such education included some elements of what is defined, here, as puberty education, delivered daily by classroom teachers as part of the UK’s Social and Emotional Aspects of Learning (SEAL) that explicitly links wellbeing with learning (see Currie et al., 2012; Formby & Wolstenholme, 2012). The multiple benefits of that approach, then, are analogous to those gained from the USA’s Social and Emotional Learning (SEL) programs (Durlak et al., 2011). The closest analogue in the Australian Curriculum may be the (endangered) integrated General capabilities of Personal and social capability, and Ethical understanding.
~ Further evidentiary research, in pre-service teacher education, and in primary and secondary schools, on teachers’ responses to learning about and teaching puberty education, can be developed and documented (see Barr et al., 2014; Carrion & Jensen, 2014; Goldman, 2011a; Goldman & Coleman, 2013; Sinkinson, 2009).

8.7 Conclusion

Puberty, the 20-year transition from childhood to adulthood, is “a metamorphosis of body, brain, and behaviour” (Sisk & Berenbaum, 2014, p. 173). Comprehensive puberty education needs to be delivered to students at every school year level, and ideally, integrated into most compulsory curriculum LAs. This is necessary because all students experience puberty, in different stages and speeds, for almost all their school lives. The phenomenon of earlier puberty and its socio-sexual consequences, the growing evidence and impacts of epigenetic changes to children’s and adolescents’ bio-physiology and life chances, the known and unknown impacts of the technological revolution on all aspects of life and learning, and the human rights and global life-course frameworks for child/adolescent futures, call for far greater levels of such knowledge and cognitive depth in school curricula than are currently present in the new Australian Curriculum. The potential for curriculum integration, and its value to students through enhanced ethico-sexual practical wisdom or phronesis, is evidenced by the literature, authoritative trans-national organisations, and beneficial educational/health outcomes in other nations. For Aristotle, the highest human good, and the goal of all activity, was eudaimonia, or happiness (1976), but a more dynamic translation of this word is flourishing (Dupre, 2007, p. 98). “The curriculum of schools is essentially about the future... to help students construct a future that is both personally and socially rewarding” (Brady & Kennedy, 2003, p. 7; see also UNFPA, 2014). Based on the evidence in this thesis, more, and higher quality, puberty education content should be integrated in Australian Curriculum LAs, and delivered to Australian students. Hopefully, then, all girls and boys will enjoy the benefits of a world-class puberty education, more equal and equitable opportunities, and safer, better, flourishing, lives.
References


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the Breakthrough Generations Study. *Paediatric and Perinatal Epidemiology*, 25, 394-400.


Appendix A English LA, Year 1: Audit Table 6.1.1

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.1 Recog</td>
</tr>
<tr>
<td>A. Factual Knowledge</td>
<td></td>
</tr>
<tr>
<td>A.a Terminology</td>
<td></td>
</tr>
<tr>
<td>A.b Specific</td>
<td>1, 1</td>
</tr>
<tr>
<td>B. Conceptual Knowledge</td>
<td></td>
</tr>
<tr>
<td>B.a Classes</td>
<td>1</td>
</tr>
<tr>
<td>B.b Principles</td>
<td></td>
</tr>
<tr>
<td>B.c Models</td>
<td></td>
</tr>
<tr>
<td>C. Procedural Knowledge</td>
<td></td>
</tr>
<tr>
<td>C.a Skills</td>
<td></td>
</tr>
<tr>
<td>C.b Techniques</td>
<td></td>
</tr>
<tr>
<td>C.c Criteria</td>
<td></td>
</tr>
<tr>
<td>D. Meta-Cognitive Knowledge</td>
<td></td>
</tr>
<tr>
<td>D.a Strategic</td>
<td></td>
</tr>
<tr>
<td>D.b Conditional</td>
<td></td>
</tr>
<tr>
<td>D.c Self-knowledge</td>
<td></td>
</tr>
</tbody>
</table>

Of 34 Content descriptions in the English Year 1 curriculum for students aged 5 (ACARA, 2014a, v7.2 October), 27 Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

### Appendix A English LA, Year 1: Three-audit Box 6.1.1

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Focus of Thread within the Sub-strand</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
<th>Audit One: Evidence of presence in Grid cells, of quantitative incidence and qualitative strength</th>
<th>Audit Three: Evidence of qualitative potential for integrated puberty education in Content descriptions, shown in green for cognitive processes and knowledge content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language variation and change</td>
<td>Language variation and change</td>
<td>Understand that people use different systems of communication to cater to different needs and purposes, and that many people may use sign systems to communicate with others.</td>
<td>2.1 Aa</td>
<td>Compare examples of sign systems used in child protection, e.g. Walk road signs, Safe Zone symbols. Auslan sign for help.</td>
</tr>
<tr>
<td>Language for interaction</td>
<td>Language for social interactions</td>
<td>Understand that language is used in combination with other means of communication, e.g. facial expressions and gestures to interact with others. Understand that there are different ways of asking for information, making offers and giving commands.</td>
<td>2.1 Ab</td>
<td>Infer mental states and communication intentions, e.g. bewilderment, friendship, disappointment, from pictures of people in various demeanours and interactions. Apply various inflections to a common family phrase, recording different results.</td>
</tr>
<tr>
<td></td>
<td>Evaluative language</td>
<td>Explore different ways of expressing emotions, including verbal, visual, body language and facial expressions.</td>
<td>2.2 Ba</td>
<td>Evaluate the success rate of the class in recording accurate interpretations of various emotional expressions.</td>
</tr>
<tr>
<td>Text structure and organisation</td>
<td>Purpose audience and structures of different types of texts</td>
<td>Understand that the purposes texts serve shape their structure in predictable ways.</td>
<td>4.3 Bb</td>
<td>From a selection of texts choose those that fit into the genre of cautionary, self-help or ethical/moral instruction stories.</td>
</tr>
<tr>
<td>Text cohesion</td>
<td></td>
<td>Understand patterns of repetition and contrast in simple texts.</td>
<td>----</td>
<td>Compare and explain repetition of positive relationship patterns.</td>
</tr>
<tr>
<td>Punctuation</td>
<td></td>
<td>Recognise that different types of punctuation, including full stops, question marks and exclamation marks, signal sentences that make statements, ask questions, express emotion or give commands.</td>
<td>1.1 Ab</td>
<td>Implement punctuation rules to a series of sentences about child safety and appropriate secret keeping.</td>
</tr>
<tr>
<td>Concepts of print and screen</td>
<td></td>
<td>Understand concepts about print and screen, including how different types of texts are organised using page numbering, tables of content, headings and titles, navigation buttons, bars and links.</td>
<td>----</td>
<td>Organise information about a body system, e.g. digestion, into coherent order using separate, sequential text pages, and then using screen navigation aids and links.</td>
</tr>
<tr>
<td>Expressing and developing ideas</td>
<td>Sentences and clause level grammar</td>
<td>Identify the parts of a simple sentence that represent ‘What’s happening?, Who or what is involved?’ and the surrounding circumstances.</td>
<td>1.2 Ab</td>
<td>Classify some parts of simple sentences about child safety and self-protection as verbs (actions), pronouns (people) and adjectives (feelings and physical circumstances).</td>
</tr>
<tr>
<td></td>
<td>Word level grammar</td>
<td>Explore differences in words that represent people, places and things (nouns including pronouns), happenings and</td>
<td>2.2 Ab</td>
<td>Categorise a list of safety words into nouns including pronouns, e.g. beach, lifeguard, adjectives, e.g. brave, alert,</td>
</tr>
</tbody>
</table>
### Visual language

**Compare different kinds of images in narrative and informative texts and discuss how they contribute to meaning.**

#### 2.6 Ba

Analyse different kinds of images in texts about road safety and evaluate how they contribute to meaning.

### Vocabulary

**Understand the use of vocabulary in everyday contexts as well as a growing number of school contexts, including appropriate use of formal and informal terms of address in different contexts.**

#### 2.5 Ba

Differentiate between formal and informal vocabulary for body parts, and derogatory slang vocabulary.

### Spelling

**Know that regular one-syllable words are made up of letters and common letter clusters that correspond to the sounds heard, and how to use visual memory to write high-frequency words.**

**Recognise and know how to use morphemes in word families, e.g. ‘play’ in ‘played’ and ‘playing’.**

#### 1.2 Ab

Apply sound recognition and visual memory to write high-frequency words relating to the body.

### Sound and letter knowledge

**Manipulate sounds in spoken words including phoneme deletion and substitution.**

**Recognise and know how to use morphemes in words about families, e.g. ‘love’ in ‘loved’ and ‘loving’.**

#### 1.2 Ab

Manipulate sounds in spoken words relating to the body, including phoneme deletion and substitution.

### Literature Strand

#### Literature and context

**How texts reflect the context of culture and situation in which they are created.**

Discuss how authors create characters using language and images.

#### 6.1 Aa

Generate a character from one of your body parts, and give it a name and image.

#### Responding to literature

**Personal responses to the ideas, characters and view-points in texts.**

Discuss characters and events in a range of literary texts and share personal responses to these texts, making connections with students’ own experiences.

#### 2.3 Dc

Summarise the characters’ sibling relationships in some class-shared literary texts and compare your personal responses to them.

## Expressing preferences and evaluating texts

**Express preferences for specific texts and authors and listen to the opinions of others.**

#### 5.2 Ca

Analyse the sibling relationships of class members and discuss in relation to preferred literary texts, and evaluate in terms of generational preferences for family size.
<table>
<thead>
<tr>
<th>Examining literature</th>
<th>Features of literary texts</th>
<th>Discuss features of plot, character and setting in different types of literature and explore some features of characters in different texts.</th>
<th>2.3 Aa</th>
<th>Classify some features of characters in different texts for protective qualities.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language devices</td>
<td>Language devices in literary texts including figurative language</td>
<td>Listen to, recite and perform poems, chants, rhymes and songs, imitating and inventing sound patterns including alliteration and rhyme.</td>
<td>6.1 Ca</td>
<td>Listen to, recite, invent and perform sound patterns related to the body, e.g. heartbeat or breathing patterns.</td>
</tr>
<tr>
<td>Creating literature</td>
<td>Creating literary texts</td>
<td>Recreate texts imaginatively using drawing, writing, performance and digital forms of communications.</td>
<td>4.1 Cc</td>
<td>Imaginatively recreate a text about a family using any form of communications</td>
</tr>
<tr>
<td>Experimentation and adaptation</td>
<td>This sequence starts at Year 3 level.</td>
<td>This sequence starts at Year 3 level.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<p>| Literacy Strand |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------|--------|----------------------------------------------------------------------------------|
| Interpreting, analysing, evaluating | Purpose and audience | Describe some differences between imaginative, informative and persuasive texts. | 2.6 Ba | Differentiate selected supportive texts according to simple genre, e.g. family story, biography, adventure, fantasy, ethical advice or cautionary story. |
| Reading processes | Read supportive texts using developing phrasing, fluency, contextual, semantic, grammatical and phonics and emerging text processing strategies, e.g. prediction, monitoring meaning and rereading. | 3.2 Cc | Evaluate comprehension strategies used to build literal and inferred meaning about key events, ideas and information in selected texts about friendships. |
| Comprehension strategies | Use comprehension strategies to build literal and inferred meaning about key events, ideas and information in texts that they listen to, view and read by drawing on growing knowledge of context, text structures and language features. | 6.3 Da | |
| Analysing and evaluating texts | This sequence starts in Year 6. | This sequence starts in Year 6. | |
| Creating texts | Creating texts | Create short imaginative and information texts that show emerging use of appropriate text structure, sentence-level grammar, word choice, spelling, punctuation and appropriate multimodal elements, e.g. illustrations and diagrams. | 6.3 Cc | Create a short imaginative and information text about families that shows emerging use of appropriate text structure, vocabulary, grammar and multimodal elements. |
| Editing | Reread student’s own texts and discuss possible changes to improve meaning, spelling and punctuation. | 5.2 Ch | Critique an exemplar text about a human body to improve meaning, spelling and punctuation. |
| Hand-writing | Write using unjoined lower case and upper case letters. | ---- | Write a short sentence about a sibling or peer relationship using unjoined lower case and upper case letters. |
| Use of software | Construct texts that incorporate supporting images using software including word processing programs. | 6.3 Ca | Construct a short biographical text with supporting images using word processing programs. |</p>
<table>
<thead>
<tr>
<th>Texts in context</th>
<th>Texts and the contexts in which they are used</th>
<th>1.1 Ba</th>
<th>Compare texts about children that are drawn from a range of cultures and experiences.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interacting with others</td>
<td>Listening and speaking interactions: purposes and contexts</td>
<td>3.2 Cb</td>
<td>After a professional presentation, create a short picture-and-story board about various adults and their child-protective behaviours.</td>
</tr>
<tr>
<td></td>
<td>Listening and speaking interactions: skills</td>
<td>3.2 Cb</td>
<td>Analyse and evaluate the interaction skills of two storybook readers, one live and one on screen.</td>
</tr>
<tr>
<td>Oral presentations</td>
<td>Make short presentations using some introduced text structures and language, e.g. opening statements.</td>
<td>6.3 Cb</td>
<td>Present a short explanation of a body part using some introduced text structures and language.</td>
</tr>
</tbody>
</table>

**Summary of Audit Table and Three-audit Box 6.1.1**

There are 34 Content descriptions in this English curriculum for Year 1 students aged 5 (ACARA, v7.2, October 2014), as shown here in Box 6.1.1. Audit One results show evidence of puberty education presence in quantitative incidence (n=27), and qualitative locational strength in the cells of Audit Table 6.1.1 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=27), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=34) for integrated puberty education, colour-coded in green for verbs and nouns.
Appendix A English LA, Year 5: Audit Table 6.1.2

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.1 Recog</td>
</tr>
<tr>
<td>A. Factual Knowledge</td>
<td></td>
</tr>
<tr>
<td>A.a Terminology</td>
<td>1</td>
</tr>
<tr>
<td>A.b Specific</td>
<td>1</td>
</tr>
<tr>
<td>B. Conceptual Knowledge</td>
<td></td>
</tr>
<tr>
<td>B.a Classes</td>
<td>1</td>
</tr>
<tr>
<td>B.b Principles</td>
<td>1</td>
</tr>
<tr>
<td>B.c Models</td>
<td></td>
</tr>
<tr>
<td>C. Procedural Knowledge</td>
<td></td>
</tr>
<tr>
<td>C.a Skills</td>
<td></td>
</tr>
<tr>
<td>C.b Techniques</td>
<td></td>
</tr>
<tr>
<td>C.c Criteria</td>
<td>1</td>
</tr>
<tr>
<td>D. Meta-Cognitive Knowledge</td>
<td></td>
</tr>
<tr>
<td>D.a Strategic</td>
<td></td>
</tr>
<tr>
<td>D.b Conditional</td>
<td></td>
</tr>
<tr>
<td>D.c Self-knowledge</td>
<td></td>
</tr>
</tbody>
</table>

Of 31 Content descriptions in the English Year 5 curriculum for students aged 10 (ACARA, 2014a, v7.2 October), 24 Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.  
**Appendix A English LA, Year 5: Three-audit Box 6.1.2**

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Focus of Thread within the Sub-strand</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
<th>Audit One: Evidence of presence in Grid cells, of qualitative incidence and qualitative strength</th>
<th>Audit Three: Evidence of qualitative potential for integrated puberty education in Content descriptions, shown in green for cognitive processes and knowledge content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language variation and change</td>
<td>Language variation and change</td>
<td>Understand that the pronunciation, spelling and meanings of words have histories and change over time.</td>
<td>2.6 Ba</td>
<td>Compile and compare examples of identity and relationship words whose meanings and histories have changed over time.</td>
</tr>
<tr>
<td>Language for social interactions</td>
<td>Language for social interactions</td>
<td>Understand that patterns of language interaction vary across social contexts and types of texts and that they help to signal social roles and relationships.</td>
<td>2.1 Ba</td>
<td>Map variable family social context interactions and role/relationship cues that signal contextual differences.</td>
</tr>
<tr>
<td>Evaluative language</td>
<td>Evaluative language</td>
<td>Understand how to move beyond making bare assertions and take account of differing perspectives and points of view.</td>
<td>2.7 Bb</td>
<td>Differentiate between own- and other-sex peer individuals’ perspectives and points of view including status-seeking strategies.</td>
</tr>
<tr>
<td>Text structure and organisation</td>
<td>Purpose audience and structures of different types of texts</td>
<td>Understand how texts vary in purpose, structure and topic as well as the degree of formality.</td>
<td>2.1 Ab</td>
<td>Analyse hand-written and digital relationship etiquette for purpose, structure and topic as well as degree of formality.</td>
</tr>
<tr>
<td></td>
<td>Text cohesion</td>
<td>Understand that the starting point of a sentence gives prominence to the message in the text and allows for prediction of how the text will unfold.</td>
<td>2.1 Ca</td>
<td>Find coherence in a puberty text’s starting point, message, evidential points of prominence and unfolding prediction.</td>
</tr>
<tr>
<td></td>
<td>Punctuation</td>
<td>Understand how the grammatical category of possessives is signalled through apostrophes and how to use [them] with common and proper nouns.</td>
<td>2.3 Bb</td>
<td>Attribute possession through apostrophes and use [them] for accurate meaning of common and proper nouns concerning relationships.</td>
</tr>
<tr>
<td></td>
<td>Concepts of print and screen</td>
<td>Investigate how the organisation of texts into chapters, headings, sub-headings, home-pages and sub-pages for online texts and according to chronology or topic can be used to predict content and assist navigation.</td>
<td>****</td>
<td>Evaluate the predictive and navigational merits of linear, chronological, topical and hyper-linked organisation of print and digital/online text structures with reproductive content.</td>
</tr>
<tr>
<td>Expressing and developing ideas</td>
<td>Sentences and clause level grammar</td>
<td>Understand the difference between main and subordinate clauses and that a complex sentence involves at least one subordinate clause.</td>
<td>1.2 Aa</td>
<td>Differentiate between main and subordinate clauses and devise a complex sentence about parenting, involving at a subordinate clause, or exemplify such a relationship.</td>
</tr>
<tr>
<td></td>
<td>Word level grammar</td>
<td>Understand how noun groups/phrases and adjective groups/phrases can be expanded in a variety of ways to provide a fuller description of the person, place, thing or idea.</td>
<td>2.5 Ba</td>
<td>Substitute an alternative affectionate, non-discriminatory, or antagonistic relationship for a pre-existing one between a text’s characters, to expand the text’s noun and adjective group/phrase criteria.</td>
</tr>
</tbody>
</table>
Visual language

Explain sequences of images in print texts and compare these to the ways hyperlinked digital texts are organised, explaining their effect on viewer’s interpretations.

2.7 Cb

Analyse the effect of visual interpretation on the brain, differentiating between sequential print images and hyperlinked digital images using children in advertising.

Vocabulary

Understand the use of vocabulary to express greater precision of meaning and know that words can have different meanings in different contexts.

2.3 Ba

Determine the precise meanings of vocabulary by examining different contexts of identity and relationships.

Spelling

“Understand how to use banks of known words as well as word origins, prefixes and suffixes to learn and spell new words. Recognise uncommon plurals, e.g. ‘foci’

...

...

Explain how names of body parts and functions are often made up of two or more root words, prefixes, suffixes and morphemes. Classify uncommon biological plurals, e.g. ova, sperm, as male or female.

Sound and letter knowledge

Phonetic awareness

This sequence ends at Year 2 level.

This sequence ends at Year 2 level.

Alphabet knowledge

This sequence ends at Year 1 level.

This sequence ends at Year 1 level.

Literature Strand

Literature and context

How texts reflect the context and situation in which they are created

Identify aspects of literary texts that convey details or information about particular social, cultural and historical contexts.

1.1 Db

Critique a literary text that conveys details about the social, cultural and historical contexts of childhood in Australia.

Responding to literature

Personal responses to the ideas, characters and view-points in texts

Present a point of view about particular literary texts using appropriate metalanguage, and reflecting on the viewpoints of others.

6.3 Da

Evaluate the criteria for appropriate metalanguage in particular literary texts about human-pet interactions.

Expressing preferences and evaluating texts

Use metalanguage to describe the effects of ideas, text structures and language features on particular audiences.

...

Differentiate between metalanguage used in ideas, text structures and language features of the romance genre.

Examining literature

Features of literary texts

Recognise that ideas in literary texts can be conveyed from different viewpoints, which can lead to different kinds of interpretations and responses.

4.3 Db

Summarise the different viewpoints, interpretations and responses of children as workers in historical and contemporary times.

Language devices in literary texts including figurative language

Understand, interpret and experiment with sound devices and imagery, including simile, metaphor and personification, in narratives, shape poetry, songs, anthems and odes.

2.5 Cc

Organise the sound devices and imagery including simile, metaphor and personification, identified in narratives, shape poetry, songs, anthems and odes about teenage romance.
<table>
<thead>
<tr>
<th>Creating literature</th>
<th>Creating literary texts using realistic and fantasy settings and characters that draw on the worlds represented in texts students have experienced.</th>
<th>6.3 Bc</th>
<th>Create literary texts using realistic and fantasy settings and characters that draw on the worlds represented in texts students have experienced during childhood.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimentation and adaptation</td>
<td>Create literary texts that experiment with structures, ideas and stylistic features of selected authors.</td>
<td>----</td>
<td>Generate alternative structures, ideas and stylistic features for a selected literary text, either contemporary or historical, on teen body image.</td>
</tr>
</tbody>
</table>

### Literacy Strand

<table>
<thead>
<tr>
<th>Interpreting, analysing, evaluating</th>
<th>Purpose and audience</th>
<th>Identify and explain characteristic text structures and language features used in imaginative, informative and persuasive texts to meet the purpose of the text.</th>
<th>2.7 Ca</th>
<th>Analyse the characteristics, including structure and language features, of an imaginative, informative and persuasive ‘bff’ (best friends forever) or best mate’s text.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading processes</td>
<td>Navigate and read texts for specific purposes, applying appropriate text processing strategies, e.g. predicting and confirming, monitoring meaning, skimming and scanning.</td>
<td>3.2 Cc</td>
<td>Evaluate appropriate text processing strategies, e.g. predicting and confirming, monitoring meaning, skimming and scanning, for a puberty fiction text.</td>
<td></td>
</tr>
<tr>
<td>Comprehension strategies</td>
<td>Use comprehension strategies to analyse information, integrating and linking ideas from a variety of print and digital sources.</td>
<td>4.1 Cc</td>
<td>Use comprehension strategies to analyse, link and prepare a report on ideas from a variety of print and digital sources about bullying.</td>
<td></td>
</tr>
<tr>
<td>Analysing and evaluating texts</td>
<td>This sequence starts in Year 6.</td>
<td>This sequence starts in Year 6.</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Creating texts</td>
<td>Creating texts</td>
<td>Plan, draft and publish imaginative, informative and persuasive print and multimodal texts, choosing text structures, language features, images, and sound appropriate to purpose and audience.</td>
<td>6.3 Cc</td>
<td>Generate a hypothesis explaining why particular imaginative, informative and persuasive print and multimodal texts appeal to particular age/sex demographic audiences.</td>
</tr>
<tr>
<td>Editing</td>
<td>Reread and edit student’s own and others’ work using agreed criteria for text structures and language features.</td>
<td>5.1 Cc</td>
<td>Critique a selected picture book on sibling rivalry using agreed criteria for text structures and language features.</td>
<td></td>
</tr>
<tr>
<td>Hand-writing</td>
<td>Develop a handwriting style that is becoming legible, fluent and automatic.</td>
<td>----</td>
<td>Differentiate between writing styles and personal identity and/or discrimination as social history, e.g. forced right-handedness.</td>
<td></td>
</tr>
<tr>
<td>Use of software</td>
<td>Use a range of software including word processing programs with fluency to construct, edit and publish written text, and select, edit and place visual, print and audio elements.</td>
<td>----</td>
<td>Analyse a range of word processing software programs for children’s ease of use and fluency in publishing written text, and to place visual, print and audio elements.</td>
<td></td>
</tr>
<tr>
<td>Texts in context</td>
<td>Show how ideas and points of view in texts are conveyed through the use of vocabulary, including idiomatic expressions, objective and subjective language, and that these can change according to context.</td>
<td>2.2 Cb</td>
<td>Organise lists of vocabulary, including idiomatic expressions, objective and subjective language, appropriate to a historical formal social context, e.g. a debutante ball, and a contemporary casual social context, e.g. a party.</td>
<td></td>
</tr>
<tr>
<td>Interacting with others</td>
<td>Listening and speaking interactions: purposes and contexts</td>
<td>Oral presentations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------</td>
<td>------------------------------------------------------------</td>
<td>--------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Clarify understanding of content as it unfolds in formal and informal situations, connecting ideas to students’ own experiences and present and justify a point of view.</td>
<td>Plan, rehearse and deliver presentations for defined audiences and purposes incorporating accurate and sequenced content and multimodal elements.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Use interaction skills, e.g. paraphrasing, questioning and interpreting non-verbal cues and choose vocabulary and vocal effects appropriate for different audiences and purposes.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.2 De</td>
<td>Generate content for a contract of household rules from the points of view of parents, and from children.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.2 Cc</td>
<td>Analyse interaction skills, e.g. paraphrasing, questioning, interpreting non-verbal cues, and choose vocabulary/vocal effects for a girl and a boy who each ask someone for a date.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6.2 Cc</td>
<td>Attribute the possible audience responses to puberty presentations incorporating accurate and sequenced content and multimodal elements.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Summary of Audit Table and Three-audit Box 6.1.2**

There are 31 Content descriptions in this English curriculum for Year 5 students aged 10 (ACARA, v7.2, October 2014), as shown here in Box 6.1.2. Audit One results show evidence of puberty education presence in quantitative incidence (n=24), and qualitative locational strength in the cells of Audit Table 6.1.2 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=24), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=31) for integrated puberty education, colour-coded in green for verbs and nouns.
### Appendix A English LA, Year 10: Audit Table 6.1.3

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.1 Recog</td>
</tr>
<tr>
<td>A. Factual Knowledge</td>
<td>A.a Terminology</td>
</tr>
<tr>
<td>B. Conceptual Knowledge</td>
<td>B.a Classes</td>
</tr>
<tr>
<td>C. Procedural Knowledge</td>
<td>C.a Skills</td>
</tr>
<tr>
<td>D. Meta-Cognitive Knowledge</td>
<td>D.a Strategic</td>
</tr>
<tr>
<td></td>
<td>D.b Conditional</td>
</tr>
<tr>
<td></td>
<td>D.c Self-knowledge</td>
</tr>
</tbody>
</table>

### Appendix A English LA, Year 10: Three-audit Box 6.1.3

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Focus of Thread within the Sub-strand</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
<th>Audit One: Evidence of presence in Grid cells, of quantitative incidence and qualitative strength</th>
<th>Audit Three: Evidence of qualitative potential for integrated puberty education in Content descriptions, shown in green for cognitive processes and knowledge content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language variation and change</td>
<td>Language variation and change</td>
<td>Understand that Standard Australian English in its spoken and written forms has a history of evolution and change and continues to evolve.</td>
<td>2.1 Bc</td>
<td>Compile and compare examples of identity, relationship and sexuality words whose meanings and histories have changed over time, e.g. gay.</td>
</tr>
<tr>
<td>Language for interaction</td>
<td>Language for social interactions</td>
<td>Understand how language use can have inclusive and exclusive social effects, and can empower or disempower people.</td>
<td>4.1 Bb</td>
<td>Make a mind-map of inclusive or empowering and exclusive or disempowering language.</td>
</tr>
<tr>
<td></td>
<td>Evaluative language</td>
<td>Understand that people’s evaluations of texts are influenced by their value systems, the context and the purpose and mode of communication.</td>
<td>5.2 Db</td>
<td>Differentiate between own- and other-sex peer individuals’ value systems and the purpose and mode of communication, including status-seeking strategies.</td>
</tr>
<tr>
<td>Text structure and organisation</td>
<td>Purpose audience and structures of different types of texts</td>
<td>Compare the purposes, text structures and language features of traditional and contemporary texts in different media.</td>
<td>2.6 Bb</td>
<td>Evaluate the purposes, text structures and language features of advertising using sexuality in contemporary media texts.</td>
</tr>
<tr>
<td></td>
<td>Text cohesion</td>
<td>Understand how paragraphs and images can be arranged for different purposes, audiences, perspectives and stylistic effects.</td>
<td>2.3 Ba</td>
<td>Summarise how images can be interpreted differently through changing technologies, and ideological/political agendas, e.g. child photography versus child pornography.</td>
</tr>
<tr>
<td></td>
<td>Punctuation</td>
<td>Understand conventions for citing others, and how to reference these in different ways.</td>
<td>3.1 Ca</td>
<td>Apply one style of referencing conventions to a teacher’s selection of academic journal articles on oral sex.</td>
</tr>
<tr>
<td></td>
<td>Concepts of print and screen</td>
<td>This sequence ends at Year 5 level.</td>
<td></td>
<td>This sequence ends at Year 5 level.</td>
</tr>
<tr>
<td>Expressing and developing ideas</td>
<td>Sentences and clause level grammar</td>
<td>Analyse and evaluate the effectiveness of a wide range of sentence and clause structures as authors design and craft texts.</td>
<td>----</td>
<td>Generate sentences on teenage parenting using effective sentence and clause structures.</td>
</tr>
<tr>
<td></td>
<td>Word level grammar</td>
<td>Analyse how higher order concepts are developed in complex texts through language features including nominalisation, clause combination, technicality and abstraction.</td>
<td>4.1 Ca</td>
<td>Evaluate how nominalisation and labelling theory in complex texts influences higher order concepts of identity, relationships and sexuality.</td>
</tr>
<tr>
<td></td>
<td>Visual language</td>
<td>Evaluate the impact on audiences of different choices in</td>
<td>5.1 Cc</td>
<td>Create a storyboard of historical and contemporary</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>Spelling</td>
<td>Sound and letter knowledge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refine vocabulary choices to discriminate between shades of meaning, with deliberate attention to the effect on audiences.</td>
<td>Understand how to use knowledge of the spelling system to spell unusual and technical words accurately, e.g. those based on uncommon Greek and Latin roots.</td>
<td>This sequence ends at Year 2 level.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.3 Ce</td>
<td>---</td>
<td>This sequence ends at Year 1 level.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Literature Strand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Literature and context</td>
</tr>
<tr>
<td>Responding to literature</td>
</tr>
<tr>
<td>Expressing preferences and evaluating texts</td>
</tr>
<tr>
<td>Examine the social, moral and ethical positions represented in texts.</td>
</tr>
<tr>
<td>Examining literature</td>
</tr>
<tr>
<td>Language devices in literary texts including</td>
</tr>
<tr>
<td>Creating literature</td>
</tr>
<tr>
<td>---------------------</td>
</tr>
<tr>
<td>Experimentation and adaptation</td>
</tr>
<tr>
<td>Interpreting, analysing, evaluating</td>
</tr>
<tr>
<td>Creating texts</td>
</tr>
<tr>
<td>Editing</td>
</tr>
<tr>
<td>Hand-writing</td>
</tr>
<tr>
<td>Use of software</td>
</tr>
<tr>
<td>Texts in context</td>
</tr>
<tr>
<td>Interacting with others</td>
</tr>
<tr>
<td>Listening and speaking interactions: skills</td>
</tr>
<tr>
<td>Oral presentations</td>
</tr>
</tbody>
</table>

**Summary of Audit Table and Three-audit Box 6.1.3**

There are 31 Content descriptions in this English curriculum for Year 5 students aged 10 (ACARA, v7.2, October 2014), as shown here in Box 6.1.3. Audit One results show evidence of puberty education presence in quantitative incidence (n=29), and qualitative locational strength in the cells of Audit Table 6.1.3 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=29), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=31) for integrated puberty education, colour-coded in green for verbs and nouns.
### Appendix B Mathematics LA, Year 1: Audit Table 6.2.1

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.1 Recog</td>
</tr>
<tr>
<td>A. Factual Knowledge</td>
<td>A.a Terminology</td>
</tr>
<tr>
<td></td>
<td>A.b Specific</td>
</tr>
<tr>
<td>B. Conceptual Knowledge</td>
<td>B.a Classes</td>
</tr>
<tr>
<td></td>
<td>B.b Principles</td>
</tr>
<tr>
<td></td>
<td>B.c Models</td>
</tr>
<tr>
<td>C. Procedural Knowledge</td>
<td>C.a Skills</td>
</tr>
<tr>
<td></td>
<td>C.b Techniques</td>
</tr>
<tr>
<td></td>
<td>C.c Criteria</td>
</tr>
<tr>
<td>D. Meta-Cognitive Knowledge</td>
<td>D.a Strategic</td>
</tr>
<tr>
<td></td>
<td>D.b Conditional</td>
</tr>
<tr>
<td></td>
<td>D.c Self-knowledge</td>
</tr>
</tbody>
</table>

Of 15 Content descriptions in the Mathematics Year 1 curriculum for students aged 5 (ACARA, 2014a, v7.2 October), 12 Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

### Appendix B Mathematics LA, Year 1: Three-audit Box 6.2.1

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
<th>Audit One: Evidence of presence in Grid cells, of quantitative incidence and qualitative strength</th>
<th>Audit Three: Evidence of qualitative potential for integrated puberty education in Content descriptions, shown in green for cognitive processes and knowledge content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number and Algebra</td>
<td>Develop confidence with number sequences to and from 100 by ones from any starting point. Skip count by twos, five and tens starting from zero. Recognise, model, read, write and order numbers to at least 100. Locate these numbers on a number line. Count collections to 100 by partitioning numbers using place value. Represent and solve simple addition and subtraction problems using a range of strategies including counting on, partitioning, and rearranging parts.</td>
<td>3.1 Db</td>
<td>Develop confidence in attributing accurate body part names to girls and boys, including accurate numbers of senses, orifices, estimated lifespan, years, age at key events, e.g. gonadal puberty, driving licence. Allocate reproductive year-intervals on a 100-year timeline.</td>
</tr>
<tr>
<td>Number and place value</td>
<td></td>
<td>1.2 Ch</td>
<td>Use place value to decide which body system is most important.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.2 Cc</td>
<td>Use the school’s body part torso or model skeleton, count bones, separate into systems, and rearrange the body parts.</td>
</tr>
<tr>
<td>Fractions and decimals</td>
<td>Recognise and describe one-half as one of two equal parts of a whole.</td>
<td>1.1 Ab</td>
<td>Compare Aristophanes’ story of sexuality (a circle split into female and male halves, searching for the right match to make a whole in marriage), creation stories from other cultures, and scientific evidence of sexual reproduction. Discuss asexual reproduction, alternative marriages (arranged, same-sex).</td>
</tr>
<tr>
<td>Real numbers</td>
<td>This sequence starts at Year 7.</td>
<td></td>
<td>This sequence starts at Year 7.</td>
</tr>
<tr>
<td>Money and financial mathematics</td>
<td>Recognise, describe and order Australian coins according to their value.</td>
<td>4.2 Da</td>
<td>Differentiate between the nominal value or purchase power of coins and notes, and the value to each student of their own/family pet.</td>
</tr>
<tr>
<td>Patterns and algebra</td>
<td>Investigate and describe number patterns formed by skip counting and patterns with objects.</td>
<td>****</td>
<td>Make a multi-coloured spiral of average lifetime physiological sequences for girls and boys, e.g. infancy, toddlerhood, school years, adrenal-gonadal puberty to brain maturation, menopause/andropause.</td>
</tr>
<tr>
<td>Linear and non-linear relationships</td>
<td>This sequence starts at Year 7.</td>
<td></td>
<td>This sequence starts at Year 7.</td>
</tr>
</tbody>
</table>

**Measurement and Geometry**
Using units of measurement

Measure and compare the lengths and capacities of pairs of objects using uniform informal units.

Tell time to the half-hour.

Describe duration using months, weeks, days and hours.

Organise a list of body part pairs, e.g. arms, lungs, ovaries, testicles, and record measurements of visible parts using uniform informal units, e.g. hand-widths.

For a school week, estimate time to the half-hour by hunger during the day and night.

Estimate the time taken for events, e.g. a shower/bath, getting to school, menstrual bleeding (period), gestation/birth of a baby.

Shape

Recognise and classify familiar two-dimensional shapes and three-dimensional objects using obvious features.

Classify and compare various transport vehicles by numbers of wheels, and explain which one is the most useful for your family.

Location and transformation

Give and follow directions to familiar locations.

Make a simple map with compass points and either travel-time or distance intervals between students’ houses and school.

Geometric reasoning

This sequence starts at Year 3.

This sequence starts at Year 3.

Pythagoras and trigonometry

This sequence starts at Year 9.

This sequence starts at Year 9.

Statistics and Probability

Identify outcomes of familiar events involving chance and describe them using everyday language such as ‘will happen’, ‘won’t happen’ or ‘might happen’.

Infer and explain the chances of making two new friends from class members in each new school year.

Choose simple questions and gather responses.

Represent data with objects and drawings where one object or drawing represents one data value. Describe the displays.

Execute a simple survey with a personal question, e.g. your birthdate.

Represent age data of gonadal puberty for students’ extended family members, by histogram, showing contemporary generations’ earlier puberty.

Summary of Audit Table and Three-audit Box 6.2.1

There are 15 Content descriptions in this Mathematics curriculum for Year 1 students aged 5 (ACARA, v7.2, October 2014), as shown here in Box 6.2.1. Audit One results show evidence of puberty education presence in quantitative incidence (n=12), and qualitative locational strength in the cells of Audit Table 6.2.1 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=12), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=15) for integrated puberty education, colour-coded in green for verbs and nouns.
### Appendix B Mathematics LA, Year 5: Audit Table 6.2.2

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Factual Knowledge</td>
<td></td>
</tr>
<tr>
<td>A.a Terminology</td>
<td>1.1 Recog</td>
</tr>
<tr>
<td>A.b Specific</td>
<td></td>
</tr>
<tr>
<td>B. Conceptual Knowledge</td>
<td></td>
</tr>
<tr>
<td>B.a Classes</td>
<td></td>
</tr>
<tr>
<td>B.b Principles</td>
<td></td>
</tr>
<tr>
<td>B.c Models</td>
<td></td>
</tr>
<tr>
<td>C. Procedural Knowledge</td>
<td></td>
</tr>
<tr>
<td>C.a Skills</td>
<td></td>
</tr>
<tr>
<td>C.b Techniques</td>
<td></td>
</tr>
<tr>
<td>C.c Criteria</td>
<td></td>
</tr>
<tr>
<td>D. Meta-Cognitive Knowledge</td>
<td></td>
</tr>
<tr>
<td>D.a Strategic</td>
<td></td>
</tr>
<tr>
<td>D.b Conditional</td>
<td></td>
</tr>
<tr>
<td>D.c Self-knowledge</td>
<td></td>
</tr>
</tbody>
</table>

Of 25 Content descriptions in the Mathematics Year 5 curriculum for students aged 10 (ACARA, 2014a, v7.2 October), 18 Content descriptions indicate evidence of puberty education *presence*, as measured by quantitative incidence and qualitative location/strength in this Audit One.

### Appendix B Mathematics LA, Year 5: Three-audit Box 6.2.2

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
<th>Audit One: Evidence of presence in Grid cells, of quantitative incidence and qualitative strength</th>
<th>Audit Three: Evidence of qualitative potential for integrated puberty education in Content descriptions, shown in green for cognitive processes and knowledge content</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number and Algebra</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number and place value</td>
<td>Identify and describe factors and multiples of whole numbers and use them to solve problems.</td>
<td>3.2 Cb</td>
<td>Explain how two peoples’ chromosomes combine to determine factors and multiples, e.g. sex and hereditable characteristics of a whole, a new person (and also of identical twins or clones).</td>
</tr>
<tr>
<td></td>
<td>Use estimation and rounding to check the reasonableness of answers to calculations.</td>
<td>5.1 Db</td>
<td>Estimate the time interval of menstruation in a 28-day cycle.</td>
</tr>
<tr>
<td></td>
<td>Solve problems involving multiplication of large numbers by one- or two-digit numbers using efficient mental, written strategies and appropriate digital technologies.</td>
<td>6.1 Cc</td>
<td>Make a list of stages from conception, with one cell from each parent combining into multiple-numbers, e.g. zygote, blastocyte, embryo, foetus.</td>
</tr>
<tr>
<td></td>
<td>Solve problems involving division by a one-digit number, including those that result in a remainder.</td>
<td>6.1 Ca</td>
<td>Illustrate the dividing of the double-helix into a DNA chromosome string ready for recombination with that of another parent’s DNA.</td>
</tr>
<tr>
<td></td>
<td>Use efficient mental and written strategies and apply appropriate digital technologies to solve problems.</td>
<td>6.1 Cc</td>
<td>What mental, written and/or digital strategies do people use to address problems or issues of puberty?</td>
</tr>
<tr>
<td>Fractions and decimals</td>
<td>Compare and order common unit fractions and locate and represent them on a number line.</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td></td>
<td>Investigate strategies to solve problems involving addition and subtraction of fractions with the same denominator.</td>
<td>4.1 Cb</td>
<td>Investigate strategies to solve problems involving large population numbers, such as war, famine, sudden and mass migrations.</td>
</tr>
<tr>
<td></td>
<td>Recognise that the place value system can be extended beyond hundredths.</td>
<td>2.5 Cb</td>
<td>Research and list the population characteristics of student’s location, nation, and the world showing place values from thousands to billions.</td>
</tr>
<tr>
<td></td>
<td>Compare, order and represent decimals..</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>Real numbers</td>
<td>This sequence starts at Year 7.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Money and financial mathematics</td>
<td>Create simple financial plans.</td>
<td>6.3 Db</td>
<td>Create simple financial plans for a pregnant Year 11 student and a pregnant employed university graduate</td>
</tr>
<tr>
<td>Patterns and algebra</td>
<td>Describe, continue and create patterns with fractions, decimals and whole numbers resulting from addition and subtraction.</td>
<td>6.1 Bc</td>
<td>Research the process and estimate the incidence of fraternal and identical twins, and the differences in hereditable characteristics.</td>
</tr>
<tr>
<td></td>
<td>Use equivalent number sentences involving multiplication and division to find unknown quantities.</td>
<td>3.2 Db</td>
<td>Make a list of the known and imagined quantities of money that students will need to get a driving licence and a car, when they are older.</td>
</tr>
<tr>
<td>Linear and non-linear relationships</td>
<td>This sequence starts at Year 7.</td>
<td>This sequence starts at Year 7.</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>--------------------------------</td>
<td>--------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Measurement and Geometry</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Using units of measurement</strong></td>
<td>Choose appropriate units of measurement for length, area, volume, capacity and mass. Calculate the perimeter and area of rectangles using familiar metric units. Compare 12- and 24-hour time systems and convert between them.</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td><strong>Shape</strong></td>
<td>Connect three-dimensional objects with their nets and other two-dimensional representations.</td>
<td>4.3 Bc</td>
<td>Research and compile a list of recent digital technologies used for imaging the body, e.g. PET, fMRI, X-ray, Ultrasound, etc.</td>
</tr>
<tr>
<td><strong>Location and transformation</strong></td>
<td>Use a grid reference system to describe locations. Describe routes using landmarks and directional language. Describe translations, reflections and rotations of two-dimensional shapes. Identify line and rotational symmetries. Apply the enlargement transformation to familiar two-dimensional shapes and explore the properties of the resulting image compared with the original.</td>
<td>3.2 Cc</td>
<td>Map and estimate times from home to important locations, e.g. school, relatives, hospital, police, sport venue. Analyse the ultrasound image of a fetus-in-utero, and other representations of three-dimensional body images, e.g. brain scan.</td>
</tr>
<tr>
<td><strong>Geometric reasoning</strong></td>
<td>Estimate, measure and compare angles using degrees. Construct angles using a protractor.</td>
<td>4.1 Ba</td>
<td>Explore the properties of three-dimensional body images, e.g. fetal ultrasound, brain scan.</td>
</tr>
<tr>
<td><strong>Pythagoras and trigonometry</strong></td>
<td>This sequence starts at Year 9.</td>
<td>4.3 Cb</td>
<td>This sequence starts at Year 9.</td>
</tr>
<tr>
<td><strong>Statistics and Probability</strong></td>
<td>List outcomes of chance experiments involving equally likely outcomes and represent probabilities of those outcomes using fractions. Recognise that probabilities range from 0 to 1.</td>
<td>4.3 Cb</td>
<td>Research and evaluate, or bust the myth/proposition that unprotected first-time penile-vaginal intercourse does not bring about conception/pregnancy or sexually transmitted infection (STI). List pregnancy and STI probabilities according to different forms of contraception.</td>
</tr>
</tbody>
</table>
Data representation and interpretation

**Pose questions and collect categorical or numerical data by observation or survey.**
- Construct displays, including column graphs, dot plots and tables, appropriate for data type, with and without the use of digital technologies.
- Describe and interpret different data sets in context.

**6.2 Da**

**2.1 Db**

Survey and organise data on classmates’ concerns and questions on puberty, and if their concerns are being adequately addressed in school.

Evaluate the contexts and aims of a given survey on sexuality, e.g.
- erectile dysfunction. Do pharmaceutical corporations benefit more than patients?

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**Summary of Audit Table and Three-audit Box 6.2.2**

There are 25 Content descriptions in this Mathematics curriculum for Year 5 students aged 10 (ACARA, v7.2, October 2014), as shown here in Box 6.2.2. Audit One results show evidence of puberty education presence in quantitative incidence (n=18), and qualitative locational strength in the cells of Audit Table 6.2.2 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=18), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=19) for integrated puberty education, colour-coded in green for verbs and nouns.
Appendix B Mathematics LA, Year 10: Audit Table 6.2.3

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.1 Recog</td>
</tr>
<tr>
<td>A. Factual Knowledge</td>
<td>A.a Terminology</td>
</tr>
<tr>
<td>B. Conceptual Knowledge</td>
<td>B.a Classes</td>
</tr>
<tr>
<td></td>
<td>B.b Principles</td>
</tr>
<tr>
<td></td>
<td>B.c Models</td>
</tr>
<tr>
<td>C. Procedural Knowledge</td>
<td>C.a Skills</td>
</tr>
<tr>
<td></td>
<td>C.b Techniques</td>
</tr>
<tr>
<td></td>
<td>C.c Criteria</td>
</tr>
<tr>
<td>D. Meta-Cognitive Knowledge</td>
<td>D.a Strategic</td>
</tr>
<tr>
<td></td>
<td>D.b Conditional</td>
</tr>
<tr>
<td></td>
<td>D.c Self-knowledge</td>
</tr>
</tbody>
</table>

Of 25 Content descriptions in the Mathematics Year 10 curriculum for students aged 15 (ACARA, 2014a, v7.2 October), 15 Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

### Appendix B Mathematics LA, Year 10: Three-audit Box 6.2.3

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
<th>Audit One: Evidence of presence in Grid cells, of quantitative incidence and qualitative strength</th>
<th>Audit Three: Evidence of qualitative potential for integrated puberty education in Content descriptions, shown in green for cognitive processes and knowledge content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number and place value</td>
<td>This sequence ends at Year 9.</td>
<td>This sequence ends at Year 9.</td>
<td>This sequence ends at Year 9.</td>
</tr>
<tr>
<td>Fractions and decimals</td>
<td>This sequence ends at Year 6.</td>
<td></td>
<td>This sequence applies to Years 7, 8, 9 and 10A only.</td>
</tr>
<tr>
<td>Real numbers</td>
<td>This sequence applies to Years 7, 8, 9 and 10A only.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Money and financial mathematics</td>
<td>Connect the compound interest formula to repeated applications of simple interest using appropriate digital technologies.</td>
<td>----</td>
<td>Evaluate the income on retirement with and without ordinary bank savings and compound interest of superannuation, estimate the cost of raising one child, with and without private school fees.</td>
</tr>
</tbody>
</table>
| Patterns and algebra           | Factorise algebraic expressions by taking out a common algebraic factor.  
  Simplify algebraic products and quotients using index laws.  
  Apply the four operations to simple algebraic fractions with numerical denominators.  
  Expand binomial products and factorise monic quadratic expressions using a variety of strategies.  
  Substitute values into formulas to determine an unknown. | ----                                                                                                                                         | ----                                                                                                                                             |
|                                |                                                                                                                                             | ----                                                                                                                                         | ----                                                                                                                                             |
|                                |                                                                                                                                             | 3.2 Cc                                                                                                                                       | ----                                                                                                                                             |
|                                |                                                                                                                                             | 4.3 Db                                                                                                                                       | ----                                                                                                                                             |
### Linear and non-linear relationships

- Solve **problems involving linear equations**, including those derived from **formulas**.
- Solve linear inequalities and **graph their solutions** on a number line.
- Solve linear simultaneous equations, using algebraic and graphical techniques including using digital technology.
- Solve problems involving parallel and perpendicular lines.
- **Explore the connection** between algebraic and graphical representations of relations such as simple quadratics, circles and exponentials using digital technology as appropriate.
- Solve linear equations involving simple algebraic factors.
- Solve simple quadratic equations using a range of strategies.

### Measurement and Geometry

<table>
<thead>
<tr>
<th>Activity</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using units of measurement</td>
<td>6.1 Ab</td>
</tr>
<tr>
<td>Shape</td>
<td>THIS SEQUENCE ENDS AT YEAR 7.</td>
</tr>
<tr>
<td>Location and transformation</td>
<td>THIS SEQUENCE ENDS AT YEAR 7.</td>
</tr>
<tr>
<td>Geometric reasoning</td>
<td>5.2 Da</td>
</tr>
<tr>
<td>Pythagoras and trigonometry</td>
<td>6.1 Cc</td>
</tr>
</tbody>
</table>

### Statistics and Probability

<table>
<thead>
<tr>
<th>Activity</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chance</td>
<td>4.3 Db</td>
</tr>
<tr>
<td>Chance</td>
<td>4.3 Db</td>
</tr>
<tr>
<td>Chance</td>
<td>4.3 Db</td>
</tr>
</tbody>
</table>
### Data representation and interpretation

| Determine quartiles and interquartile range. | **** | **** |
| - Construct and interpret box plots and use them to compare data sets. | **** | **** |
| - Compare shapes of box plots to corresponding histograms and dot plots. | **** | **** |
| - Use scatter plots to **investigate and comment on relationships** between two numerical **variables.** | 5.1 Cb | **** |
| - **Investigate and describe** bivariate numerical data where the independent variable is time. | 2.7 Cb | **** |
| - Evaluate statistical reports in the **media** and other places by linking claims to displays, statistics and representative data. | 5.2 Db | **** |

---

**Summary of Audit Table and Three-audit Box 6.2.3**

There are 25 Content descriptions in this Mathematics curriculum for Year 10 students aged 15 (ACARA, v7.2, October 2014), as shown here in Box 6.2.3. Audit One results show evidence of puberty education *presence* in quantitative incidence (n=15), and qualitative locational strength in the cells of Audit Table 6.2.3 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of *presence* of puberty education vocabulary, however slight, in Content descriptions (n=15), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative *potential* (n=3) for integrated puberty education, colour-coded in green for verbs and nouns.
### Appendix C Science LA, Year 1: Audit Table 6.3.1

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.1 Recog</td>
</tr>
<tr>
<td>A. Factual Knowledge</td>
<td>A.a Terminology</td>
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<tr>
<td></td>
<td>A.b Specific</td>
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<tr>
<td>B. Conceptual Knowledge</td>
<td>B.a Classes</td>
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<tr>
<td></td>
<td>B.b Principles</td>
</tr>
<tr>
<td></td>
<td>B.c Models</td>
</tr>
<tr>
<td>C. Procedural Knowledge</td>
<td>C.a Skills</td>
</tr>
<tr>
<td></td>
<td>C.b Techniques</td>
</tr>
<tr>
<td></td>
<td>C.c Criteria</td>
</tr>
<tr>
<td>D. Meta-Cognitive Knowledge</td>
<td>D.a Strategic</td>
</tr>
<tr>
<td></td>
<td>D.b Conditional</td>
</tr>
<tr>
<td></td>
<td>D.c Self-knowledge</td>
</tr>
</tbody>
</table>

Of 14 Content descriptions in the Science Year 1 curriculum for students aged 5 (ACARA, 2014a, v7.2 October), 13 Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.  

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### Appendix C Science LA, Year 1: Three-audit Box 6.3.1

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
<th>Audit One: Evidence of presence in Grid cells, of quantitative incidence and qualitative strength</th>
<th>Audit Three: Evidence of qualitative potential for integrated puberty education in Content descriptions, shown in green for cognitive processes and knowledge content</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Biological sciences</strong></td>
<td><strong>Science Understanding</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Living things have a variety of external features. Living things live in different places where their needs are met.</td>
<td>1.1 Aa 1.1 Ab</td>
<td>All birds and animals feel pain. All living things that people use or take out of their rightful environment must be cared for appropriately.</td>
<td></td>
</tr>
<tr>
<td>Chemical sciences</td>
<td>Everyday materials can be physically changed in a variety of ways.</td>
<td>1.2 Bc</td>
<td>Everyone’s body physically changes, in a variety of ways, every day.</td>
</tr>
<tr>
<td>Earth and space sciences</td>
<td>Observable changes occur in the sky and landscape.</td>
<td>1.2 Ab</td>
<td>Observable changes occur in the body, and in the family.</td>
</tr>
<tr>
<td>Physical sciences</td>
<td>Light and sound are produced by a range of sources and can be sensed.</td>
<td>1.2 Ba</td>
<td>There are five senses, touch (the most important), sight, hearing, smell, and taste. Differentiate these for you and your pet.</td>
</tr>
<tr>
<td><strong>Science as a Human Endeavour</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nature and development of science</td>
<td>Science involves asking questions about, and describing changes in, objects and events.</td>
<td>2.1 Ab</td>
<td>People should always ask questions, and they always deserve adequate answers.</td>
</tr>
<tr>
<td>Use and influence of science</td>
<td>People use science in their daily lives, including when caring for their environment and living things.</td>
<td>4.3 Cc</td>
<td>Science, or evidence showing people the way things work, helps us to grow, choose and eat good food, to grow up well and stay healthy.</td>
</tr>
<tr>
<td><strong>Statistics and Probability</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Questioning and predicting</td>
<td>Respond to and pose questions, and make predictions about familiar objects and events.</td>
<td>3.2 Da</td>
<td>Organise a list of questions that differentiates between objects and events we can make predictions about, e.g., signs of puberty, and those that we can’t predict, e.g., sports injury.</td>
</tr>
</tbody>
</table>
Planning and conducting

Participate in different types of guided investigations to explore and answer questions, such as manipulating materials, testing ideas, and accessing information sources.

Use informal measurements in the collection and recording of observations, with the assistance of digital technologies as appropriate.

Processing and analysing data and information

Use a range of methods to sort information, including drawings and provided tables.”

Through discussion, compare observations with predictions.

Evaluating

Compare observations with those of others.

Communicating

Represent and communicate observations and ideas in a variety of ways such as oral and written language, drawing and role play.

Summary of Audit Table and Three-audit Box 6.3.1

There are 14 Content descriptions in this Science curriculum for Year 1 students aged 5 (ACARA, v7.2, October 2014), as shown here in Box 6.3.1. Audit One results show evidence of puberty education presence in quantitative incidence (n=13), and qualitative locational strength in the cells of Audit Table 6.3.1 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=13), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=14) for integrated puberty education, colour-coded in green for verbs and nouns.
## Appendix C Science LA, Year 5: Audit Table 6.3.2

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td></td>
<td>1.1 Recog</td>
<td>1.2 Recall</td>
<td>2.1 Interp</td>
<td>2.2 Exemp</td>
<td>2.3 Classif</td>
<td>2.4 Summ</td>
<td>2.5 Infer</td>
</tr>
<tr>
<td>A. Factual Knowledge</td>
<td>A.a Terminology</td>
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<td></td>
<td>A.b Specific</td>
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<tr>
<td>B. Conceptual Knowledge</td>
<td>B.a Classes</td>
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<td></td>
<td>B.b Principles</td>
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<td></td>
<td>B.c Models</td>
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<tr>
<td>C. Procedural Knowledge</td>
<td>C.a Skills</td>
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<td></td>
<td>C.b Techniques</td>
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<td></td>
<td>C.c Criteria</td>
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<tr>
<td>D. Meta-Cognitive Knowledge</td>
<td>D.a Strategic</td>
<td></td>
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<td></td>
<td>D.b Conditional</td>
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<td>D.c Self-knowledge</td>
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</tr>
</tbody>
</table>

Of 16 Content descriptions in the Science Year 5 curriculum for students aged 10 (ACARA, 2014a, v7.2 October), 15 Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

Appendix C Science LA, Year 5: Three-audit Box 6.3.2

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Science Understanding</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biological sciences</td>
<td>Living things have structural features and adaptations that help them to survive in their environment.</td>
<td>1.1 Ab</td>
<td>Human beings have changed the environments of many living things, and so must take responsibility for their care.</td>
</tr>
<tr>
<td>Chemical sciences</td>
<td>Solids, liquids and gases have different observable properties and behave in different ways.</td>
<td>1.2 Ba</td>
<td>People’s behaviour can influence their growth rates, physical features, and their future lifechances.</td>
</tr>
<tr>
<td>Earth and space sciences</td>
<td>The Earth is part of a system of planets orbiting around a star (the Sun).</td>
<td>----</td>
<td>The Earth has many systems, e.g. water, carbon, oxygen; people have one external system (skin) and nine internal systems.</td>
</tr>
<tr>
<td>Physical sciences</td>
<td>Light from a source forms shadows and can be absorbed, reflected and refracted.</td>
<td>2.1 Ba</td>
<td>People receive, ignore or reject, and interpret information from different sources in different ways.</td>
</tr>
<tr>
<td><strong>Science as a Human Endeavour</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nature and development of science</td>
<td>Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena. Important contributions to the advancement of science have been made by people from a range of cultures.</td>
<td>5.2 Da</td>
<td>Students make a prediction, gather evidence and develop explanations about pubertal development, e.g. girls’ ovulation and menstruation in a 28 day cycle; boys’ facial hair may need shaving in a daily cycle. Some cultural systems (beliefs and values that direct behaviour) embrace science and depend on it; some reject science outright.</td>
</tr>
<tr>
<td>Use and influence of science</td>
<td>Scientific understanding, discoveries and inventions are used to solve problems that directly affect peoples’ lives. Scientific knowledge is used to inform personal and community decisions.</td>
<td>1.2 Ba</td>
<td>Scientific knowledge helps students understand pubertal changes, and how to deal with problems they might experience during these years. Scientific knowledge can help students choose future directions and make decisions.</td>
</tr>
<tr>
<td><strong>Statistics and Probability</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Questioning and predicting</td>
<td>With guidance, pose questions to clarify practical problems or inform a scientific investigation, and predict what the findings of an investigation might be.</td>
<td>6.1 Cc</td>
<td>Research and predict the answer to a common student question, solution to a problem, or findings of an investigation, about puberty.</td>
</tr>
</tbody>
</table>
### Planning and Conducting

With guidance, plan appropriate investigation methods to answer questions or solve problems.
- Decide which variable should be changed and measured in fair tests and accurately observe, measure and record data, using digital technologies as appropriate.
- Use equipment and materials safely, identifying potential risks.

| 6.2 Cb | Create a class mind-map of pubertal signs and issues, each with its appropriate and optimal research method for students to use. Discuss and decide what constitutes a fair test for puberty entry age, including all variables, e.g. growth spurt, new feelings, and how to collect/record accurate data. Plan a risk/benefit analysis of a substance used during young puberty, e.g. acne cream, hair gel, waxing strips.
| 5.2 Cc | Using equipment and materials safely, identifying potential risks.
| 3.2 Da | Create a class mind-map of pubertal signs and issues, each with its appropriate and optimal research method for students to use.

### Processing and Analysing Data and Information

Construct and use a range of representations, including tables and graphs, to represent and describe observations, patterns or relationships in data using digital technologies as appropriate.
- Compare data with predictions and use as evidence in developing explanations.

| 6.3 Ce | Using a range of means, represent and describe observations, patterns or relationships of pet care by people you know, e.g. extended family, sports team members.
| 6.1 Cb | Critique the biased evidence/explanations used by vested interests in a social issue, e.g. tobacco companies denying addiction, digital games/console makers marketing violence.

### Evaluating

Suggest improvements to the methods used to investigate a question or solve a problem.

| 6.1 Cc | Generate a hypothesis and a suitable investigation method to research a common puberty problem, e.g. girls’ concern/dissatisfaction with breast size; boys’ concern/dissatisfaction with penis size.

### Communicating

Communicate ideas, explanations and processes in a variety of ways, including multi-modal texts.

| 3.2 Db | Through a chosen medium, communicate ideas, explanations and processes on students’ ideal life course, e.g. playing sport, studying favourite subjects, choosing a career, family size, place of residence, and discuss old age and death.

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**Summary of Audit Table and Three-audit Box 6.3.2**

There are 16 Content descriptions in this Science curriculum for Year 5 students aged 10 (ACARA, v7.2, October 2014), as shown here in Box 6.3.2. Audit One results show evidence of puberty education presence in quantitative incidence (n=15), and qualitative locational strength in the cells of Audit Table 6.3.2 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=15), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=16) for integrated puberty education, colour-coded in green for verbs and nouns.
### Appendix C Science LA, Year 10: Audit Table 6.3.3

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.1 Recog</td>
</tr>
<tr>
<td>A. Factual Knowledge</td>
<td>A.a Terminology</td>
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<td>B. Conceptual Knowledge</td>
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</tr>
<tr>
<td>D. Meta-Cognitive Knowledge</td>
<td>D.a Strategic</td>
</tr>
<tr>
<td></td>
<td>D.b Conditional</td>
</tr>
<tr>
<td></td>
<td>D.c Self-knowledge</td>
</tr>
</tbody>
</table>

Of 21 Content descriptions in the Science Year 10 curriculum for students aged 15 (ACARA, 2014a, v7.2 October), 17 Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

### Appendix C Science LA, Year 10: Three-audit Box 6.3.3

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
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<th>Audit Three: Evidence of qualitative potential for integrated puberty education in Content descriptions, shown in green for cognitive processes and knowledge content</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Science Understanding</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biological sciences</td>
<td>The transmission of heritable characteristics from one generation to the next involves DNA and genes. The theory of evolution by natural selection explains the diversity of living things and is supported by a range of scientific evidence.</td>
<td>2.5 Bc</td>
<td>Predict which heritable characteristics you will get from your mother’s, and from your father’s, families. Differentiate between a social hypothesis, e.g. phrenology, or ideology, e.g. vaccines as poison, and a scientific theory, e.g. epigenetics, or law, e.g. evolution, gravity.</td>
</tr>
<tr>
<td>Chemical sciences</td>
<td>The atomic structure and properties of elements are used to organise them in the Periodic Table. Different types of chemical reactions are used to produce a range of products and can occur at different rates.</td>
<td>----</td>
<td>The structure and properties of living things are used to organise them in the Linnean system of seven levels and two Latin names. Many substances, e.g. alcohol, produce different chemical reactions, and impact at different rates, in a pubertal person than in an adult.</td>
</tr>
<tr>
<td>Earth and space sciences</td>
<td>The universe contains features including galaxies, stars and solar systems and the Big Bang theory can be used to explain the origin of the universe. Global systems, including the carbon cycle, rely on interactions involving the biosphere, lithosphere, hydrosphere and atmosphere.</td>
<td>6.3 Bc</td>
<td>Scientific knowledge explains the origin of a person, through sexual intercourse and the impregnation of the maternal ova (XX) with the paternal sperm (X or Y). Humans survive and thrive through social interactions, including sexual relationships between consenting and responsible lovers.</td>
</tr>
<tr>
<td>Physical sciences</td>
<td>Energy conservation in a system can be explained by describing energy transfers and transformations. The motion of objects can be described and predicted using the laws of physics.</td>
<td>2.7 Bc</td>
<td>Energy transfers and transformations occur between the fetus in utero and the mother, via the placenta. All life on Earth is in dynamic homeostasis with the planet’s structural features.</td>
</tr>
<tr>
<td><strong>Science as a Human Endeavour</strong></td>
<td></td>
<td></td>
<td>Analyse and evaluate the process of review regarding a contested area, e.g. genetically modified food, anthropogenic climate change, vaccination conspiracy theory. Investigate a social issue, e.g. unmarried motherhood and child financial support, that has become controversial in tandem with new technological advances, e.g. paternity testing.</td>
</tr>
</tbody>
</table>

---

Nature and development of science: Scientific understanding, including models and theories, are contestable and are refined over time through a process of review by the scientific community. Advances in scientific understanding often rely on developments in technology and technological advances are often linked to scientific discoveries.

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Use and influence of science

People can use scientific knowledge to evaluate whether they should accept claims, explanations or predictions.

Advances in science and emerging sciences and technologies can significantly affect people’s lives, including generating new career opportunities.

The values and needs of contemporary society can influence the focus of scientific research.

Most people are acculturated to use either scientific knowledge or an alternative belief system well before they evaluate claims, explanations or predictions.

Some people/cultures choose traditional certainty over emergent or changeable life circumstances, missing new opportunities.

Research the competing values and needs of Australian suppliers and international consumers regarding live animal exports.

Statistics and Probability

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
<th>Standard Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Questioning and predicting</td>
<td>Formulate questions or hypotheses that can be investigated scientifically.</td>
<td>6.1 Cc</td>
</tr>
<tr>
<td>Planning and conducting</td>
<td>Plan, select and use appropriate investigation methods, including field work and laboratory experimentation, to collect reliable data, assess risk and address ethical issues associated with these methods. Select and use appropriate equipment, including digital technologies, to systematically and accurately collect and record data.</td>
<td>6.2 Db</td>
</tr>
<tr>
<td>Processing and analysing data and information</td>
<td>Analyse patterns and trends in data, including describing relationships between variables and identifying inconsistencies. Use knowledge of scientific concepts to draw conclusions that are consistent with evidence.</td>
<td>4.2 Cc</td>
</tr>
<tr>
<td>Evaluating</td>
<td>Evaluate conclusions, including identifying sources of uncertainty and possible alternative explanations, and describe specific ways to improve the quality of the data. Critically analyse the validity of information in secondary sources and evaluate the approaches used to solve problems.</td>
<td>5.2 Db</td>
</tr>
<tr>
<td>Communicating</td>
<td>Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language, conventions and representations.</td>
<td>6.3 Db</td>
</tr>
</tbody>
</table>

Create and deliver a presentation about a common pubertal problem or issue using scientific ideas, evidence-based arguments and appropriate representations.
Summary of Audit Table and Three-audit Box 6.3.3

There are 21 Content descriptions in this Science curriculum for Year 10 students aged 15 (ACARA, v7.2, October 2014), as shown here in Box 6.3.3. Audit One results show evidence of puberty education presence in quantitative incidence (n=17), and qualitative locational strength in the cells of Audit Table 6.3.3 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=17), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=21) for integrated puberty education, colour-coded in green for verbs and nouns.
### Appendix D History LA, Year 1: Audit Table 6.4.1

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.1 Recog</td>
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<td>A. Factual Knowledge</td>
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<td></td>
<td>B.c Models</td>
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<tr>
<td>C. Procedural Knowledge</td>
<td>C.a Skills</td>
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<td></td>
<td>C.b Techniques</td>
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<td></td>
<td>C.c Criteria</td>
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<td>D. Meta-Cognitive Knowledge</td>
<td>D.a Strategic</td>
</tr>
<tr>
<td></td>
<td>D.b Conditional</td>
</tr>
<tr>
<td></td>
<td>D.c Self-knowledge</td>
</tr>
</tbody>
</table>

Of 11 Content descriptions in the History Year 1 curriculum for students aged 5 (ACARA, 2014a, v7.2 October), all 11 Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

### Appendix D History LA, Year 1: Three-audit Box 6.4.1

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
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</tr>
</thead>
</table>

#### Historical Knowledge and Understanding

<table>
<thead>
<tr>
<th>Year level focus</th>
<th>Present and past family life</th>
</tr>
</thead>
</table>
| Key questions    | • How has family life changed or remained the same over time?  
 • How can we show that the present is different from or similar to the past?  
 • How do we describe the sequence of time? |
| Key concepts     | The content provides opportunities to develop historical understanding through key concepts including continuity and change, cause and effect, perspectives, empathy and significance. |

#### Knowledge and understanding

| Differences in family structures and roles today, and how these have changed or remained the same over time.  
 How the present, past and future are signified by terms indicating time such as ‘a long time ago’, ‘then and now’, ‘now and then’, ‘old and new’, ‘tomorrow’, as well as by dates and changes that may have personal significance, such as birthdays, celebrations and seasons.  
 Differences and similarities between students’ daily lives and life during their parents’ and grandparents’ childhoods, including family traditions, leisure time and communications | 2.5 Bc  
 2.2 Bc  
 2.1 Dc | Investigate the number of siblings common in families 100 years ago and today.  
 Make a chart of students’ birthdays and special days, showing how they were celebrated last year and projecting forward 5 years, and how they would be celebrated in one other socio-cultural group as chosen by the students.  
 Collect stories of childhood from students’ parents and grandparents, e.g. as children, grandparents took pillows in the car and wore pyjamas to watch movies at the drive-in; parents watched VHS videos through the TV; this generation downloads movies onto personal screens. |

#### Overview

This sub-strand begins in Year 7.

#### Depth studies

This sub-strand begins in Year 7.

#### Historical Skills
| Chronology, terms, and concepts | **Sequence familiar objects and events.**  
Distinguish between the past, present, and future. | **2.2 Ba**  
**4.1 Ab** | Create a timeline for one month of routine events, e.g. sport practice, eating out, visiting grandparent.  
Distinguish between the past, present, and future by organising pictures of modes of transport into centuries. |
<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Historical questions and research</td>
<td><strong>“Pose questions about the past using sources provided.”</strong></td>
<td><strong>3.2 Ca</strong></td>
<td>Create a narrative about a digital-era child’s daily activities, then for a television-era child, and a silent cinema-era child.</td>
</tr>
</tbody>
</table>
| Analysis and use of sources | **Explore a range of sources about the past.**  
Identify and compare features of objects from the past and present. | **2.1 Ab**  
**2.6 Ab** | Explore a range of sources about parent-child discipline in the past.  
Compare the home entertainment features and toys of children from the past and present, e.g. family singing or listening to radio, now many children have their own screen in bedroom. |
| Perspectives and interpretations | **Explore a point of view.** | **2.1 Cb** | Explore a parent’s and a teenager’s points of view about the child becoming independent, e.g. age, study/work status, leisure activities. |
| Explanation and communication | **Develop a narrative about the past.**  
Use a range of communication forms (oral, graphic, written, role play) and digital technologies. | **3.1 Ca**  
**3.2 Db** | Develop a narrative about a child in a time past, of student’s choosing.  
Use a range of communication forms (oral, graphic, written, role play) and digital technologies to show pre-historic child’s lifestyle and lifechances. |

**Summary of Audit Table and Three-audit Box 6.4.1**

There are 11 Content descriptions in this History curriculum for Year 1 students aged 5 (ACARA, v7.2, October 2014), as shown here in Box 6.4.1. Audit One results show evidence of puberty education *presence* in quantitative incidence (n=11), and qualitative locational strength in the cells of Audit Table 6.4.1 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of *presence* of puberty education vocabulary, however slight, in Content descriptions (n=11), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative *potential* (n=11) for integrated puberty education, colour-coded in green for verbs and nouns.
### Appendix D History LA, Year 5: Audit Table 6.4.2

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Factual Knowledge</td>
<td></td>
</tr>
<tr>
<td>A.a Terminology</td>
<td>1.1 Recog</td>
</tr>
<tr>
<td>A.b Specific</td>
<td>1.2 Recall</td>
</tr>
</tbody>
</table>

| B. Conceptual Knowledge |         |         |         |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |
| B.a Classes          |                 | 1       | 1       |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |
| B.b Principles       |                 |         |         |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |
| B.c Models           |                 |         |         |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |

| C. Procedural Knowledge |         |         |         |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |
| C.a Skills           |                 |         |         |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |
| C.b Techniques      |                 |         |         |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |
| C.c Criteria        |                 |         |         |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |

| D. Meta-Cognitive Knowledge |         |         |         |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |
| D.a Strategic       |                 |         |         |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |
| D.b Conditional     |                 |         |         |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |
| D.c Self-knowledge |                 |         |         |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |

Of 14 Content descriptions in the History Year 5 curriculum for students aged 10 (ACARA, 2014a, v7.2 October), 13 Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/width in this Audit One.

Appendix D History LA, Year 5: Three-audit Box 6.4.2

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in <strong>blue</strong> for cognitive processes/verbs, and in <strong>red</strong> for knowledge content/nouns</th>
<th>Audit One: Evidence of presence in Grid cells, of quantitative incidence and qualitative strength</th>
<th>Audit Three: Evidence of qualitative potential for integrated puberty education in Content descriptions, shown in <strong>green</strong> for cognitive processes and knowledge content</th>
</tr>
</thead>
</table>

**Historical Knowledge and Understanding**

**Year level focus**
The Australian colonies

**Key questions**
- What do we know about the lives of people in Australian colonial past and how do we know?
- How did an Australian colony develop over time and why?
- How did colonial settlement change the environment?
- What were the significant events and who were the significant people that shaped Australian colonies?

**Key concepts**
The content provides opportunities to develop historical understanding through key concepts including sources, continuity and change, cause and effect, perspectives, empathy and significance.

<table>
<thead>
<tr>
<th>Knowledge and understanding</th>
<th>4.2 Da</th>
<th>5.2 Da</th>
<th>4.3 Db</th>
<th>5.2 Db</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reasons (economic, political and social) for the establishment of British colonies in Australia after 1800. The nature of a convict or colonial presence, including the factors that influenced patterns of development, aspects of the daily life of the inhabitants (including Aboriginal Peoples and Torres Strait Islander Peoples), and how the environment changed. The impact of a significant development or event on a colony; e.g. frontier conflict, the gold rushes, the Eureka Stockade, internal exploration, the advent of rail, the expansion of farming, drought. The reasons people migrated to Australia from Europe and Asia, and the experiences and contributions of a particular migrant group within a colony. The role that a significant individual or group played in shaping a colony; e.g. explorers, farmers, entrepreneurs, artists, writers, humanitarians, religious and political leaders, and Aboriginal and/or Torres Strait Islander Peoples.</td>
<td>Identify the circumstances of daily life of children in Britain, and in selected colonies, e.g. Australia, Canada, during this period. Explore these features of presence, development, daily life and environment from the perspective of children of convicts, settlers and First Peoples. Investigate the impact of disease epidemics on settlers, migrants and First Peoples, from the perspective of children and resultant orphans. Compare the potential lifechances in Australia for a child migrant or refugee from non-British Europe, and from Asia. Evaluate the role and impact of Child Protectors on Aboriginal and Torres Strait Islander children’s health and lifechances in the various Australian colonies.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Overview
This Sub-strand begins in Year 7.

### Depth studies
This Sub-strand begins in Year 7.

### Historical Skills

<table>
<thead>
<tr>
<th>Historical questions and research</th>
<th>Identify questions to inform an historical inquiry.</th>
<th>3.2 Bc</th>
<th>Plan questions for an interview with a historical person or their child, e.g. Mary Reibey, Sir Donald Bradman, Caroline Chisholm, Banjo Patterson. Make lists of television and films about historical persons/children.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analysis and use of sources</td>
<td>Locate information related to inquiry questions in a range of sources.</td>
<td>3.1 Cc</td>
<td>Organise sources of information and inquiry, including diaries and researched historical fiction, from a child’s perspective. Evaluate other students’ lists of sources about famous children, e.g. Anne Frank.</td>
</tr>
<tr>
<td>Perspectives and interpretations</td>
<td>Identify points of view in the past and present.</td>
<td>4.3 Cc</td>
<td>Critique the occupations, including sex work, available to unpartnered girls and women in 1815, 1915 and 2015.</td>
</tr>
<tr>
<td>Explanation and communication</td>
<td>Develop texts, particularly narratives and descriptions, which incorporate source materials. Use a range of communication forms (oral, graphic, written) and digital technologies.</td>
<td>2.7 Cc</td>
<td>Develop a text, including narratives, descriptions, and source materials, about a child from any part of Australia’s past. Use a range of communication forms (oral, graphic, written) and digital technologies to develop a first-person child’s text from the chosen time/place.</td>
</tr>
</tbody>
</table>

### Summary of Audit Table and Three-audit Box 6.4.2
There are 14 Content descriptions in this History curriculum for Year 5 students aged 10 (ACARA, v7.2, October 2014), as shown here in Box 6.4.2. Audit One results show evidence of puberty education presence in quantitative incidence (n=13), and qualitative locational strength in the cells of Audit Table 6.4.2 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=13), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=14) for integrated puberty education, colour-coded in green for verbs and nouns.
### Appendix D History LA, Year 10: Audit Table 6.4.3

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.1 Recog</td>
</tr>
<tr>
<td>A. Factual Knowledge</td>
<td>A.a Terminology</td>
</tr>
<tr>
<td>B. Conceptual Knowledge</td>
<td>B.a Classes</td>
</tr>
<tr>
<td>C. Procedural Knowledge</td>
<td>C.a Skills</td>
</tr>
<tr>
<td>D. Meta-Cognitive Knowledge</td>
<td>D.a Strategic</td>
</tr>
</tbody>
</table>

Of 20 Content descriptions in the History Year 10 curriculum for students aged 15 (ACARA, 2014a, v7.2 October), 16 Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

## Appendix D History LA, Year 10: Three-audit Box 6.4.3

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative <em>presence</em> of puberty education in Content descriptions, shown in <strong>blue</strong> for cognitive processes/verbs, and in <strong>red</strong> for knowledge content/nouns</th>
<th>Audit One: Evidence of <em>presence</em> in Grid cells, of quantitative incidence and qualitative strength</th>
<th>Audit Three: Evidence of qualitative <em>potential</em> for integrated puberty education in Content descriptions, shown in <strong>green</strong> for cognitive processes and knowledge content</th>
</tr>
</thead>
</table>

### Historical Knowledge and Understanding

**Year level focus**

The modern world and Australia

The Year 10 curriculum provides a study of the history of the modern world and Australia from 1918 to the present, with an emphasis on Australia in its global context.

**Key questions**

- How did the nature of global conflict change during the twentieth century?
- What were the consequences of World War II? How did these consequences shape the modern world?
- How was Australian society affected by other significant global events and changes in this period?

**Key concepts**

The content provides opportunities to develop historical understanding through key concepts including evidence, continuity and change, cause and effect, perspectives, empathy, significance and contestability.

**Knowledge & understanding**

This sub-strand ends in Year 6.

**Overview**

Overview content for the Modern World and Australia includes the following:

- the inter-war years between World War I and World War II, including the Treaty of Versailles, the Roaring Twenties and the Great Depression,
- *continuing efforts* post-World War II to achieve lasting *peace* and *security* in the world, *including* Australia’s involvement in UN peacekeeping,
- *the major movements* for *rights* and *freedom* in the world and the *achievement of independence* by former colonies,
- *the nature of the Cold War* and Australia’s involvement in Cold War and post-Cold War conflicts (Korea, Vietnam, The Gulf Wars, Afghanistan), *including* the rising influence of Asian nations since the end of the Cold War,

3.2 Be

- Map the spread and numbers of lives lost in global wars between c1750 CE to 1901, and between 1902 to 2000.

5.2 Db

- Generate and plan a debate about the legal age of sexual consent, “Is it a right or a freedom?”
- Generate and plan a debate about the role of women, and of youth, in national *activism* since the Cold War and post-Cold War *conflicts*, and in the immigration/boat people *issue*.

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<table>
<thead>
<tr>
<th>Depth studies</th>
<th>5.2 Dc</th>
<th>5.2 Da</th>
<th>5.2 Db</th>
</tr>
</thead>
<tbody>
<tr>
<td>The depth studies for this year level include:</td>
<td>Explore one beneficial consequence of WWII, e.g. medical innovation.</td>
<td>Analyse Australia’s medical care system and compare to the UK’s National Health System, and the US’s user-pays system. Explain the significance of the world’s first anti-cancer (cervical) vaccine, Gardasil, evaluate the claims/conspiracy theories of the anti-vaccine movement.</td>
<td></td>
</tr>
<tr>
<td>2. Rights and freedoms</td>
<td>2. Sexual rights and freedoms, particularly from genital mutilation.</td>
<td>3. The globalising world (ONE of Popular culture, The environment movement, Migration experiences).</td>
<td></td>
</tr>
<tr>
<td>3. The globalising world (ONE of Popular culture, The environment movement, Migration experiences).</td>
<td>3. Sexual cultures, particularly risky/unsafe behaviours, e.g. self-infection with HIV.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Historical Skills**

<table>
<thead>
<tr>
<th>Chronology, terms, and concepts</th>
<th>Historical questions and research</th>
<th>Analysis and use of sources</th>
<th>Perspectives and interpretations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use chronological sequencing to demonstrate the relationship between events and developments in different periods and places. Use historical terms and concepts.</td>
<td>Identify and select different kind of questions about the past to inform historical inquiry. Evaluate and enhance these questions. Identify and locate relevant sources, using ICT and other methods.</td>
<td>Identify the origin, purpose and context of primary and secondary sources. Process and synthesise information from a range of sources for use as evidence in an historical argument. Evaluate the reliability and usefulness of primary and secondary sources.</td>
<td>Identify and analyse the perspectives of people from the past. Identify and analyse different historical interpretations (including their own).</td>
</tr>
<tr>
<td>----</td>
<td>----</td>
<td>5.2 Cb</td>
<td>4.3 Cb</td>
</tr>
<tr>
<td>4.2 Cc</td>
<td>4.1 Cc</td>
<td>5.2 Cc</td>
<td>4.3 Cb</td>
</tr>
<tr>
<td>----</td>
<td>----</td>
<td>1.1 Ca</td>
<td>6.1 Db</td>
</tr>
</tbody>
</table>
**Summary of Audit Table and Three-audit Box 6.4.3**

There are 20 Content descriptions in this History curriculum for Year 10 students aged 15 (ACARA, v7.2, October 2014), as shown here in Box 6.4.3. Audit One results show evidence of puberty education *presence* in quantitative incidence (n=16), and qualitative locational strength in the cells of Audit Table 6.4.3 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of *presence* of puberty education vocabulary, however slight, in Content descriptions (n=16), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative *potential* (n=20) for integrated puberty education, colour-coded in green for verbs and nouns.
### Appendix E Geography, Year 1: Audit Table 6.5.1

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.1 Recog</td>
</tr>
</tbody>
</table>

**A. Factual Knowledge**
- A.a Terminology
- A.b Specific

**B. Conceptual Knowledge**
- B.a Classes
- B.b Principles
- B.c Models

**C. Procedural Knowledge**
- C.a Skills
- C.b Techniques
- C.c Criteria

**D. Meta-Cognitive Knowledge**
- D.a Strategic
- D.b Conditional
- D.c Self-knowledge

| 1 | 1 | 1 | 1 | 1 |

Of ten Content descriptions in the Geography Year 1 curriculum for students aged 5 (ACARA, 2014a, v7.2 October), nine Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.  
Appendix E Geography, Year 1: Three-audit Box 6.5.1

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
<th>Audit One: Evidence of presence in Grid cells, of quantitative incidence and qualitative strength</th>
<th>Audit Three: Evidence of qualitative potential for integrated puberty education in Content descriptions, shown in green for cognitive processes and knowledge content</th>
</tr>
</thead>
</table>

**Geographical Knowledge and Understanding**

**Year level focus**
People live in places

**Key inquiry questions**
- What are the different features of places?
- How can we care for places?
- How can spaces within a place be rearranged to suit different purposes?

**Key concepts**
In Foundation to Year 2 there is a particular emphasis on the use of the concepts of place, space and environment in studies at a personal and local scale.

**Content descriptions**
The natural, managed and constructed features of places, their location, how they change, and how they can be cared for.

The weather and seasons of places and the ways in which different cultural groups, including Aboriginal Peoples and Torres Strait Islander Peoples, describe them.

The ways the activities located in a place create its distinctive features.

The ways that space within places, such as the classroom or backyard, can be rearranged to suit different activities or purposes.

<table>
<thead>
<tr>
<th></th>
<th><strong>2.2 Bb</strong></th>
<th><strong>1.2 Da</strong></th>
<th><strong>2.6 Ca</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>For students’ locality or region, map the origins/purposes and changes of habitation on a timeline, e.g. Gold Coast was below sea level until 3000 years ago, coastline and hinterland were seasonally habited by Kombumerri People (Yugambeh language), first white settlers harvested timber, then summer resort from Brisbane, now international tourist destination. Map students’ local/regional features according to activities, e.g. sub-tropical Gold Coast’s Old Coach Road was the Cobb and Co horse-drawn carriage route from Murwillumbah, NSW, over the Scenic Rim volcanic ridges to Nerang and Brisbane, Qld. During WW2 these ridges were intensively cultivated for banana-growing. Make a floorplan of students’ dwelling, showing their sleeping place, eating place, washing/toileting space, etc. Identify and compare the 4 (3 of area, plus time) dimensions of students’ bedrooms and backyards, or the 4 dimensions of their classroom and school.</td>
<td>Map students’ local/regional features according to activities, e.g. sub-tropical Gold Coast’s Old Coach Road was the Cobb and Co horse-drawn carriage route from Murwillumbah, NSW, over the Scenic Rim volcanic ridges to Nerang and Brisbane, Qld. During WW2 these ridges were intensively cultivated for banana-growing. Make a floorplan of students’ dwelling, showing their sleeping place, eating place, washing/toileting space, etc. Identify and compare the 4 (3 of area, plus time) dimensions of students’ bedrooms and backyards, or the 4 dimensions of their classroom and school.</td>
<td>Map students’ local/regional features according to activities, e.g. sub-tropical Gold Coast’s Old Coach Road was the Cobb and Co horse-drawn carriage route from Murwillumbah, NSW, over the Scenic Rim volcanic ridges to Nerang and Brisbane, Qld. During WW2 these ridges were intensively cultivated for banana-growing. Make a floorplan of students’ dwelling, showing their sleeping place, eating place, washing/toileting space, etc. Identify and compare the 4 (3 of area, plus time) dimensions of students’ bedrooms and backyards, or the 4 dimensions of their classroom and school.</td>
</tr>
<tr>
<td>Geographical Inquiry and Skills</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------------</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Observing, questioning and planning</strong></td>
<td>Pose questions about familiar and unfamiliar places.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1 Ab</td>
<td>Generate a map of local land-use zones e.g. port, agricultural or urban; and local feature e.g. wetlands, inlet or caves; that students conclude is worth preserving or restoring.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Collecting, recording, evaluating and representing</strong></td>
<td>Collect and record geographical data and information, for example, by observing, by interviewing, or from sources such as photographs, plans, satellite images, story books and films. Represent data and the location of places and their features by constructing tables, plans and labelled maps.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.3 Cc</td>
<td>Map the Out of Africa route for human migration around the world, then compare aerial or Google Earth images of students’ locality before and after settlement. Represent data about the local area and features from Council, e.g. dog ownership and number/location of dog-walking areas.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.3 Cc</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Interpreting, analysing and concluding</strong></td>
<td>Draw conclusions based on the interpretation of geographical information sorted into categories.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.2 Cc</td>
<td>Sort local geographical information into categories, e.g. walking trails, swimming sites, twitching (bird-watching) activities.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Communicating</strong></td>
<td>Present findings in a range of communication forms, e.g. written, oral, digital and visual, and describe the direction and location of places, using terms such as north, south, opposite, near, far.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.1 Cc</td>
<td>Use appropriate communication methods, geographical tools, skills and vocabulary to show the class or parents their findings and evaluations of significant locations.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Reflecting and responding</strong></td>
<td>Reflect on their learning and suggest responses to their findings.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.2 Db</td>
<td>Review their inquiry process to identify a geographical feature further away that may be under threat, e.g. Great Barrier Reef, Southern Ocean whale sanctuary, determine how they could best make a case for conservation.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Summary of Audit Table and Three-audit Box 6.5.1**
There are ten Content descriptions in this Geography curriculum for Year 1 students aged 5 (ACARA, v7.2, October 2014), as shown here in Box 6.5.1. Audit One results show evidence of puberty education presence in quantitative incidence (n=9), and qualitative locational strength in the cells of Audit Table 6.5.1 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=9), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=10) for integrated puberty education, colour-coded in green for verbs and nouns.
### Appendix E Geography, Year 5: Audit Table 6.5.2

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.1 Recog</td>
</tr>
<tr>
<td>A. Factual Knowledge A.a Terminology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A.b Specific</td>
</tr>
<tr>
<td>B. Conceptual Knowledge B.a Classes</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>B.b Principles</td>
</tr>
<tr>
<td></td>
<td>B.c Models</td>
</tr>
<tr>
<td>C. Procedural Knowledge C.a Skills</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C.b Techniques</td>
</tr>
<tr>
<td></td>
<td>C.c Criteria</td>
</tr>
<tr>
<td>D. Meta-Cognitive Knowledge D.a Strategic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D.b Conditional</td>
</tr>
<tr>
<td></td>
<td>D.c Self-knowledge</td>
</tr>
</tbody>
</table>

Of 12 Content descriptions in the Geography Year 5 curriculum for students aged 10 (ACARA, 2014a, v7.2 October), all 12 Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

Appendix E Geography, Year 5: Three-audit Box 6.5.2

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
<th>Audit One: Evidence of presence in Grid cells, of quantitative incidence and qualitative strength</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Year level focus</td>
<td>Factors that shape the human and environmental characteristics of places</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Key inquiry questions</td>
<td>• How do people and environments influence one another? • How do people influence the human characteristics of places and the management of spaces within them? • How can the impact of bushfires or floods on people and places be reduced?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Key concepts</td>
<td>In Years 5-6 there is a particular emphasis on the use of the concepts of place, space and environment in studies at national, world regional and global scales. The concepts of sustainability and change are also introduced in these years.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Content descriptions</td>
<td>The location of the major countries of Europe and North America in relation to Australia and the influence of people on the environmental characteristics of places in at least two countries from both continents. The influence of people, including Aboriginal and Torres Strait Islander Peoples, on the environmental characteristics of Australian places. The influence of the environment on the human characteristics of a place. The influence people have on the human characteristics of places and the management of the spaces within them. The impact of bushfires or floods on environments and communities, and how people can respond.</td>
<td>2.6 Ba</td>
<td>Compare two countries’ human influence on environment (weather, water, soil) from traditional agriculture, from contemporary industrialisation, then from future energy-communications services. Map the Out of Africa route for human migration around the world, investigate the role of controlled burns in changing gathering/hunting practices in Australia. Investigate the changes in human skin colour by location, for absorption of sunlight and Vitamin D. Compare each climate/vegetation habitat for prevalent diseases in children, e.g. tropical malaria, sub-arctic rickets, public health measures to address the HIV pandemic. Evaluate the impacts of devastating floods and bushfires on commuter habitats, particularly for students.</td>
</tr>
</tbody>
</table>

Geographical Inquiry and Skills

1.2 Ba

2.1 Bb

2.1 Bc

3.2 Bc

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### Summary of Audit Table and Three-audit Box 6.5.2

There are 12 Content descriptions in this Geography curriculum for Year 5 students aged 10 (ACARA, v7.2, October 2014), as shown here in Box 6.5.2. Audit One results show evidence of puberty education presence in quantitative incidence (n=10), and qualitative locational strength in the cells of Audit Table 6.5.2 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=12), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=12) for integrated puberty education, colour-coded in green for verbs and nouns.

<table>
<thead>
<tr>
<th>Observing, questioning and planning</th>
<th>Develop geographical questions to investigate and plan an inquiry.</th>
<th>6.2 Bb</th>
<th>Investigate the use/scarcity of resources for ICT and electronic devices and batteries used by students, e.g. indium, europium, cerium.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collecting, recording, evaluating and representing</td>
<td>Collect and record relevant geographical data and information, using ethical protocols, from primary and secondary sources, e.g. people, maps, plans, photographs, satellite images, statistical sources and reports. Evaluate sources for their usefulness, and represent data in different forms, e.g. maps, plans, graphs, tables, sketches and diagrams. Represent the location and features of places and different types of geographical information by constructing large-scale and small-scale maps that conform to cartographic conventions including border, source, scale, legend, title and north point, using spatial technologies as appropriate.</td>
<td>4.2 Db</td>
<td>Evaluate the accuracy and validity of sources used for inquiry considering their rationale and funding, e.g. corporate versus environmental group estimates of peak cars, coal, oil.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.2 Cb</td>
<td>Represent data from all appropriate geographical, digital and spatial sources to generate debating points for an issue of place, space and environment causing concern to pubertal students (9-15 years). Investigate the geographically-based transitions of children and young adolescents (7-14 years) to adult responsibilities of work, marriage, childbirth; evaluate own lifechances for these.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6.3 Cc</td>
<td></td>
</tr>
<tr>
<td>Interpreting, analysing and concluding</td>
<td>Interpret geographical data and other information, using digital and spatial technologies as appropriate, and identify spatial distributions, patterns and trends, and infer relationships to draw conclusions.</td>
<td>3.2 Cb</td>
<td>Map a geographical ethnography of each student of lifetime residential locations with memories of significant features, looking for patterns or relationships. Draw conclusions, considering their impacts on sustainability in the local area.</td>
</tr>
<tr>
<td>Communicating</td>
<td>Present findings and ideas in a range of communication forms, e.g. written, oral, digital, graphic, tabular, visual and maps, using geographical terminology and digital technologies as appropriate.</td>
<td>6.1 Cc</td>
<td>Present findings of class evaluations of local sustainability efforts and future directions to more than one audience, using appropriate geographical tools and vocabulary.</td>
</tr>
<tr>
<td>Reflecting and responding</td>
<td>Reflect on their learning to propose individual and collective action in response to a contemporary geographical challenge and describe the expected effects of their proposal on different groups of people.</td>
<td>6.3 Db</td>
<td>Reflect on the accuracy and validity of sources used by media concerning a local sustainability issue, e.g. coal-seam fracking, and evaluate students’ feelings about their own conclusions, and possible future results.</td>
</tr>
</tbody>
</table>
## Appendix E Geography, Year 10: Audit Table 6.5.3

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.1 Recog</td>
</tr>
<tr>
<td>A. Factual Knowledge</td>
<td>A.a Terminology</td>
</tr>
<tr>
<td></td>
<td>A.b Specific</td>
</tr>
<tr>
<td>B. Conceptual Knowledge</td>
<td>B.a Classes</td>
</tr>
<tr>
<td></td>
<td>B.b Principles</td>
</tr>
<tr>
<td></td>
<td>B.c Models</td>
</tr>
<tr>
<td>C. Procedural Knowledge</td>
<td>C.a Skills</td>
</tr>
<tr>
<td></td>
<td>C.b Techniques</td>
</tr>
<tr>
<td></td>
<td>C.c Criteria</td>
</tr>
<tr>
<td>D. Meta-Cognitive Knowledge</td>
<td>D.a Strategic</td>
</tr>
<tr>
<td></td>
<td>D.b Conditional</td>
</tr>
<tr>
<td></td>
<td>D.c Self-knowledge</td>
</tr>
</tbody>
</table>

Of 22 Content descriptions in the Geography Year 10 curriculum for students aged 15 (ACARA, 2014a, v7.2 October), all 22 Content descriptions indicate evidence of puberty education *presence*, as measured by quantitative incidence and qualitative location/strength in this Audit One.

Appendix E Geography, Year 10: Three-audit Box 6.5.3

| Sub-strands | Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns | Audit One: Evidence of presence in Grid cells, of quantitative incidence and qualitative strength | Audit Three: Evidence of qualitative potential for integrated puberty education in Content descriptions, shown in green for cognitive processes and knowledge content |

Geographical Knowledge and Understanding

| Year level focus | Environmental change and management (Unit 1) | Geographies of human wellbeing (Unit 2) |

| Key concepts | In Years 7-10, students further develop their understanding of place, space, environment, interconnection, sustainability and change and apply this understanding to a wide range of places and environments at the full range of scales, from local to global, and in a range of locations. |

| Unit 1 -- Content descriptions | The human-induced environmental changes that challenge sustainability. The environmental worldviews of people and their implications for environmental management. The Aboriginal and Torres Strait Islander Peoples’ approaches to custodial responsibility and environmental management in different regions of Australia. Select ONE of the following types of environment as the context for study: land, inland water, coast, marine or urban. A comparative study of examples selected from Australia and at least one other country should be included. The application of human-environment systems thinking to understanding the causes and likely consequences of the environmental change being investigated. The application of geographical concepts and methods to the management of the environmental change being investigated. The application of environmental, economic and social criteria in evaluating management responses to the change. | 5.2 Cc | 4.3 Da | 4.1 Bb | 3.2 Cb | 6.1 Db | 3.2 Cc | 5.2 Db |

• Investigate the proportions of tree zones, water run-off area, playground structures, and cycle-ways in new housing estates. Make a mind map of peoples’ environmental worldviews and show the connections, if any, between these and green politics. Students use appropriate technologies to evaluate criteria for weed, feral animal, insect pests, and eradication or containment strategies. Students examine some environmental, sustainability and/or public health challenges that will affect their contemporary pubertal circumstances and their future lives, and find out how geography contributes to the understanding and management of these challenges. Select two challenges for detailed study, e.g. Climate change/Coastal erosion, about massive human movements and disease, Marine resources, about pollution impacts and nutrition consequences, Urban biophysical environments, about adolescent activities, risk and lifechances. |
### Unit 2 -- Content descriptions

<table>
<thead>
<tr>
<th>The different ways of measuring and mapping human wellbeing and development, and how these can be applied to measure differences between places.</th>
<th>4.2 Cc</th>
</tr>
</thead>
<tbody>
<tr>
<td>The reasons for spatial variations between countries in selected indicators of human wellbeing.</td>
<td>3.2 Db</td>
</tr>
<tr>
<td>The issues affecting the development of places and their impact on human wellbeing, drawing on a study from a developing country or region in Africa, South America or the Pacific Islands.</td>
<td>3.1 Cc</td>
</tr>
<tr>
<td>The reasons for and consequences of spatial variations in human wellbeing on a regional scale within India or another country of the Asia region.</td>
<td>4.3 Db</td>
</tr>
<tr>
<td>The reasons for and consequences of spatial variations in human wellbeing in Australia at the local scale.</td>
<td>4.3 Db</td>
</tr>
<tr>
<td>The role of international and national government and non-government organisation initiatives in improving human wellbeing in Australia and other countries.</td>
<td>6.1 Db</td>
</tr>
</tbody>
</table>

### Geographical Inquiry and Skills (same for both Units)

<table>
<thead>
<tr>
<th>Observing, questioning and planning</th>
<th>Develop geographically significant questions and plan an inquiry that identifies and applies appropriate geographical methodologies and concepts.</th>
<th>6.2 Cb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collect, select, record and organise relevant geographical data and information, using ethical protocols, from a range of appropriate primary and secondary sources.</td>
<td>Collect, select, record and organise relevant geographical data and information, using ethical protocols, from a range of appropriate primary and secondary sources.</td>
<td>4.2 Db</td>
</tr>
<tr>
<td>Evaluate sources for their reliability, bias and usefulness, and represent multi-variable data in a range of appropriate forms, e.g. scatter plots, tables, field sketches and annotated diagrams, with and without the use of digital and spatial technologies.</td>
<td>Evaluate sources for their reliability, bias and usefulness, and represent multi-variable data in a range of appropriate forms, e.g. scatter plots, tables, field sketches and annotated diagrams, with and without the use of digital and spatial technologies.</td>
<td>6.1 Cc</td>
</tr>
<tr>
<td>Represent the spatial distribution of geographical phenomena by constructing special-purpose maps that conform to cartographic conventions, using spatial technologies as appropriate.</td>
<td>Represent the spatial distribution of geographical phenomena by constructing special-purpose maps that conform to cartographic conventions, using spatial technologies as appropriate.</td>
<td>6.3 Db</td>
</tr>
</tbody>
</table>

**Chart human wellbeing indicators and the reasons for spatial variations between countries in terms of reproductive health education and maternal and child morbidity/mortality rates.**

**Make a map of Africa showing the spread and international connections of the 2014 Ebola virus epidemic from its origins to the use of experimental drugs.**

**Students focus on the nature of well-being around the world, its particular meanings and impacts on adolescents, and how it can be measured, including child abuse and poverty, sexually transmitted infections (STIs), child marriage and infant mortality, and school retention rates.**

**Spatial characteristics of wellbeing, the factors that influence it, and the inequalities that exist at a variety of scales, are used to investigate programs that address issues of current pubertal concern and future lifechances.**
| Reflecting and responding | Reflect on and evaluate the findings of the inquiry to propose individual and collective action in response to a contemporary geographical challenge, taking account of environmental, economic and social considerations; and explain the predicted outcomes and consequences of their proposal. | 6.3 Dc | Reflect and plan how this inquiry could be improved and delivered to another audience, of a different demographic or location. Map the options and decide on the most appropriate plan for action as an individual adolescent or as part of a mixed age group. |
| Communicating | Present findings, arguments and explanations in a range of appropriate communication forms, selected for their effectiveness and to suit audience and purpose, using relevant geographical terminology and digital technologies as appropriate. | 6.1 Cc | Present findings, arguments and explanations in a range of appropriate communication forms, using appropriate geographical vocabulary, concepts and conventions, to communicate effectively to adolescents dealing with the same issue in another locality or country. |
| Interpreting, analysing and concluding | Evaluate multi-variable data and other geographical information using qualitative and quantitative methods, and digital and spatial technologies as appropriate, to make generalisations and inferences, propose explanations for patterns, trends, relationships and anomalies, and predict outcomes. Apply geographical concepts to synthesise information from various sources and based on the analysis of data and information, taking into account alternative points of view. Identify how geographic information system (GIS) might be used to analyse geographical data and make predictions. | 6.1 De | Evaluate multi-variable data and other geographical information using qualitative and quantitative methods, and digital and spatial technologies as appropriate, to propose solutions for a spatial/demographic/environmental problem or issue specific to adolescents. Apply criteria and draw conclusions to make recommendations for adolescent agency, as a mainstream rather than alternate point of view, on issues that vitally concern them. Recommend applications and criteria for GIS to address specifically adolescent trends and issues. |

**Summary of Audit Table and Three-audit Box 6.5.3**

There are 22 Content descriptions in this Geography curriculum for Year 10 students aged 15 (ACARA, v7.2, October 2014), as shown here in Box 6.5.3. Audit One results show evidence of puberty education presence in quantitative incidence (n=22), and qualitative locational strength in the cells of Audit Table 6.5.3 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=22), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=22) for integrated puberty education, colour-coded in green for verbs and nouns.
## Appendix F Civics and Citizenship LA, Year 5: Audit Table 6.6.2

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.1 Recog</td>
</tr>
<tr>
<td>A. Factual Knowledge</td>
<td></td>
</tr>
<tr>
<td>A.a Terminology</td>
<td></td>
</tr>
<tr>
<td>A.b Specific</td>
<td></td>
</tr>
<tr>
<td>B. Conceptual Knowledge</td>
<td></td>
</tr>
<tr>
<td>B.a Classes</td>
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<tr>
<td>B.b Principles</td>
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<tr>
<td>B.b Models</td>
<td></td>
</tr>
<tr>
<td>C. Procedural Knowledge</td>
<td></td>
</tr>
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<td>C.a Skills</td>
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<td>C.c Criteria</td>
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</tr>
<tr>
<td>D. Meta-Cognitive Knowledge</td>
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<tr>
<td>D.a Strategic</td>
<td></td>
</tr>
<tr>
<td>D.b Conditional</td>
<td></td>
</tr>
<tr>
<td>D.c Self-knowledge</td>
<td></td>
</tr>
</tbody>
</table>

Of 13 Content descriptions in the Civics and Citizenship Year 5 curriculum for students aged 10 (ACARA, 2014a, v7.2 October), all 13 Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

Appendix F Civics and Citizenship LA, Year 5: Three-audit Box 6.6.2

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
<th>Audit One: Evidence of presence in Grid cells, of quantitative incidence and qualitative strength</th>
<th>Audit Three: Evidence of qualitative potential for integrated puberty education in Content descriptions, shown in green for cognitive processes and knowledge content</th>
</tr>
</thead>
</table>

**Key inquiry questions:**
- What is democracy in Australia and why is voting in a democracy important?
- How do laws affect the lives of citizens?
- How and why do people participate in groups to achieve shared goals?

### Civics and Citizenship Knowledge and Understanding

| Government and democracy          | The key values that underpin Australia’s democratic system of government.  
|                                  | The roles and responsibilities of electors and representatives in Australia’s democracy.  
|                                  | The key features of the Australian electoral process. | 1.2 Bb | Generate a list of child/adolescent practices and issues that apply values such as equality and equity  
|                                  | 2.2 Ba | Plan questions for a debate on the right to vote and Australia’s compulsory vote, versus autocracy (dictatorship or monarchy). | 2.2 Bb | Critique voting rights/restrictions in countries without citizenship as a birthright, or in those with disproportionate refugee populations. |
| Laws and citizens                | How laws affect the lives of citizens, including experiences of Aboriginal and Torres Strait Islander Peoples.  
|                                  | The roles and responsibilities of key personnel in law enforcement and in the legal system. | 4.3 Bc | Compare the rule of law and its protections for the lives of white children/adolescents, to Aboriginal and Torres Strait Islander Peoples. Include Stolen Generation and Intervention experiences.  
|                                  | 2.2 Ba | Produce a checklist for key policing and courtroom personnel in dealing ethically and in particular, kindly, with children, e.g. about divorce or family violence. |
| Citizenship, diversity and identity | Why people work in groups to achieve their aims, and how they can express their shared beliefs and values and exercise influence. | 4.3 Db | Produce questions on the dichotomy of beliefs/values that elevate or fete children to the extreme, e.g. pageants, the multi-billion dollar toy industry, and beliefs/values resulting in child subjection/subjugation, exploitation and abuse/violence. |

### Civics and Citizenship Skills
| Questioning and research | Develop questions and gather a range of information to investigate the society in which they live. | 3.2 Cb | Generate questions for an inquiry into a socio-legal issue relevant to pubertal adolescents, e.g. age of choice in divorced parent’s residence, or age of sexual consent. |
| Analysis, synthesis and interpretation | Identify over-generalised statements in relation to civics and citizenship topics and issues. Use and evaluate a range of information to develop a point of view. | 2.5 Bb 5.2 Cc | Differentiate common media over-generalisations, stereotypes and misrepresentations about young people. Use self-reflective thinking to determine their own positions on contraception, and on uncontrolled global population expansion. |
| Problem-solving and decision-making | Interact with others with respect, identify different points of view and share personal perspectives and opinions. Work in groups to identify issues and develop possible solutions and plan for action using decision-making processes. | 4.3 Dc 6.2 Db | Make a mind map of requirements, reasons and reciprocities involved in respecting persons, concepts, laws and social institutions. Work in groups to simulate United Nations-style diplomacy on a civil liberties issue between diverse nations and cultures. |
| Communication and reflection | Present civics and citizenship ideas and viewpoints for a particular purpose using civics and citizenship terms and concepts. Reflect on personal roles and actions as a citizen in the school and in the community. | 6.3 Cb 6.2 Dc | Generate a list of civics and citizenship issues, and concepts, of interest to adolescents (10-14 years), e.g. media access, harmful substances (tobacco, alcohol, other drugs), romantic friendships, pubertal changes. Reflect on personal roles and positive citizen actions in the school, e.g. preventing bullying, and in the community, such as promoting inclusivity and welcoming migrants. |

Summary of Audit Table and Three-audit Box 6.6.2
There are 13 Content descriptions in this Civics and Citizenship curriculum for Year 5 students aged 10 (ACARA, v7.2, October 2014), as shown here in Box 6.6.2. Audit One results show evidence of puberty education presence in quantitative incidence (n=13), and qualitative locational strength in the cells of Audit Table 6.6.2 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=13), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=13) for integrated puberty education, colour-coded in green for verbs and nouns.
### Appendix F Civics and Citizenship LA, Year 10: Audit Table 6.6.3

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.1 Recog.</td>
</tr>
<tr>
<td>A. Factual Knowledge</td>
<td>A.a Terminology</td>
</tr>
<tr>
<td>B. Conceptual Knowledge</td>
<td>B.a Classes</td>
</tr>
<tr>
<td></td>
<td>B.c Models</td>
</tr>
<tr>
<td>C. Procedural Knowledge</td>
<td>C.a Skills</td>
</tr>
<tr>
<td></td>
<td>C.c Criteria</td>
</tr>
<tr>
<td>D. Meta-Cognitive Knowledge</td>
<td>D.a Strategic</td>
</tr>
<tr>
<td></td>
<td>D.c Self-knowledge</td>
</tr>
</tbody>
</table>

Of 13 Content descriptions in the Civics and Citizenship Year 10 curriculum for students aged 15 (ACARA, 2014a, v7.2 October), all 13 Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

### Appendix F Civics and Citizenship LA, Year 10: Three-audit Box 6.6.3

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
<th>Audit One: Evidence of presence in Grid cells, of quantitative incidence and qualitative strength</th>
<th>Audit Three: Evidence of qualitative potential for integrated puberty education in Content descriptions, shown in green for cognitive processes and knowledge content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key inquiry questions:</td>
<td>• How is Australia’s democracy defined and shaped by the global context?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• How are government policies shaped by Australia’s international legal obligations?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• What are the features of a resilient democracy?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Civics and Citizenship Knowledge and Understanding

<table>
<thead>
<tr>
<th>Government and democracy</th>
<th>The key features and values of Australia’s system of government compared with ONE other system of government in the Asia region. Australia’s role and responsibilities at a global level, for example provision of foreign aid, peacekeeping, participation in international organisations and the United Nations.</th>
<th>2.6 Bc</th>
<th>Generate a list of Australian values and laws determining middle-adolescent (14-17 years) behaviours/actions to compare with a list from an Asian system. Critique Australia’s role and responsibilities to adolescent asylum-seekers arriving by boat, and the government’s ‘no-advantage’ response.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laws and citizens</td>
<td>The role of the High Court, including its role in interpreting the Constitution.</td>
<td>2.1 Bc</td>
<td>Research the role of the High Court, including a Constitutional interpretation of an issue involving adolescents, e.g. Internet censorship, child protection law. Evaluate Australian law and government policies regarding its international legal obligations to child education and health for asylum-seekers, and Aboriginal and Torres Strait Islander Peoples.</td>
</tr>
<tr>
<td></td>
<td>How Australia’s international legal obligations shape Australian law and government policies, including in relation to Aboriginal and Torres Strait Islander Peoples.</td>
<td>4.3 Cc</td>
<td></td>
</tr>
<tr>
<td>Citizenship, diversity and identity</td>
<td>The challenges to, and ways of sustaining, a resilient democracy and cohesive society.</td>
<td>4.3 Db</td>
<td>Make a mind map of the challenges to, and positive strategies for, adolescent engagement and inclusivity in society.</td>
</tr>
</tbody>
</table>

#### Civics and Citizenship Skills

<table>
<thead>
<tr>
<th>Questioning and research</th>
<th>Develop, select and evaluate a range of questions to investigate Australia’s political and legal systems. Identify, gather and sort information and ideas from a range of sources and reference as appropriate.</th>
<th>5.2 Db</th>
<th>Generate questions for a debate on the socio-political merits and consequences of legalising same-sex marriage. Produce a reference list on a civics/citizenship issue relevant to adolescents aged 14-16, e.g. accurate reproductive health and safety information.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>4.2 Cc</td>
<td></td>
</tr>
</tbody>
</table>
Analysis, synthesis and interpretation

Critically evaluate information and ideas from a range of sources in relation to civics and citizenship topics and issues. Account for different interpretations and points of view.

| 5.2 Db | Use critical thinking to assess the impact of Garrett Hardin’s (1968) *Tragedy of the Commons* as applied to high population density.
| 4.1 Cb | Identify and critique the arguments for and against live animal exports.

Problem-solving and decision-making

Recognise and consider multiple perspectives and ambiguities, and use strategies to negotiate and resolve contentious issues.

| 6.3 Db | Use strategies to negotiate multiple perspectives and ambiguities in the classroom, and resolve a contentious puberty issue such as free contraception, body image dysmorphia or veganism.
| 6.2 Db | Work in groups to reach a democratic consensus on a civics and citizenship issue causing tension between adolescents and adults.

Communication and reflection

Present evidence-based civics and citizenship arguments using subject-specific language.

| 6.3 Cc | Generate a list of civics and citizenship issues and arguments of interest to adolescents (14-17 years), e.g. study pressures, career choices, harmful substances, romantic/sexual relationships.
| 5.2 Dc | Reflect on personal roles and positive citizen actions for self, for interactions with others and for the community.

**Summary of Audit Table and Three-audit Box 6.6.3**

There are 13 Content descriptions in this Civics and Citizenship curriculum for Year 10 students aged 15 (ACARA, v7.2, October 2014), as shown here in Box 6.6.3. Audit One results show evidence of puberty education presence in quantitative incidence (n=13), and qualitative locational strength in the cells of Audit Table 6.6.3 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=13), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=13) for integrated puberty education, colour-coded in green for verbs and nouns.
Of eight Content descriptions in the Economics and Business Year 5 curriculum for students aged 10 (ACARA, 2014a, v7.2 October), seven Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

Appendix G Economics and Business LA, Year 5: Three-audit Box 6.7.2

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
<th>Audit One: Evidence of presence in Grid cells, of quantitative incidence and qualitative strength</th>
<th>Audit Three: Evidence of qualitative potential for integrated puberty education in Content descriptions, shown in green for cognitive processes and knowledge content</th>
</tr>
</thead>
</table>
| Key inquiry questions: | • Why do I have to make choices as a consumer?  
• What influences the decisions I make?  
• What can I do to make informed decisions? | | |

### Economics and Business Knowledge and Understanding

<table>
<thead>
<tr>
<th>Content descriptions</th>
<th>5.2 Da</th>
<th>5.2 Db</th>
<th>6.1 Cc</th>
</tr>
</thead>
<tbody>
<tr>
<td>The difference between needs and wants and why choices need to be made about how limited resources are used.</td>
<td>Make lists of goods and services that a newborn baby needs for healthy development, and of those things that parents may want.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Types of resources (natural, human, capital) and the ways society use them in order to satisfy the needs and wants of present and future generations.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influences on consumer choices and methods that can be used to help make informed personal consumer and financial choices.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Economics and Business Skills

<table>
<thead>
<tr>
<th>Questioning and research</th>
<th>4.2 Cb</th>
<th>4.2 Cb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop questions to guide an investigation of an economic or business issue or event, and gather data and information from observation, print and online sources.</td>
<td>Develop questions, and gather information, to guide an investigation into the costs and benefits of childcare for a young, dual-income family after the birth of the first child.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interpretation and analysis</th>
<th>----</th>
<th>----</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sort data and information into categories.</td>
<td>Sort data and information into categories of childcare, e.g. childminding by family member or friend, long-term day care, live-in foreign au pair, and professional nanny.</td>
<td></td>
</tr>
</tbody>
</table>
**Economic reasoning, decision-making and application**

| Economic reasoning, decision-making and application | Identify alternative responses to an issue or event, and consider the advantages and disadvantages of preferring one to others. Apply economics and business knowledge and skills in familiar situations. | 5.2 Da | Chart alternative responses available to parents now, and in previous generations, to the situations of both childlessness and unplanned pregnancy. Apply economics and business knowledge and skills to the purchasing of Christmas and/or birthday presents in your family. |
| Communication and reflection | Present findings in an appropriate format using economics and business terms, and reflect on the possible effects of decisions. | 3.2 Ab | 5.2 Db |

### Summary of Audit Table and Three-audit Box 6.7.2

There are eight Content descriptions in this Economics and Business curriculum for Year 5 students aged 10 (ACARA, v7.2, October 2014), as shown here in Box 6.7.2. Audit One results show evidence of puberty education presence in quantitative incidence (n=7), and qualitative locational strength in the cells of Audit Table 6.7.2 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=7), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=8) for integrated puberty education, colour-coded in green for verbs and nouns.
### Appendix G Economics and Business LA, Year 10: Audit Table 6.7.3

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.1 Recog</td>
</tr>
<tr>
<td>A. Factual Knowledge</td>
<td>A.a Terminology</td>
</tr>
<tr>
<td>B. Conceptual Knowledge</td>
<td>B.a Classes</td>
</tr>
<tr>
<td>C. Procedural Knowledge</td>
<td>C.a Skills</td>
</tr>
<tr>
<td></td>
<td>C.b Techniques</td>
</tr>
<tr>
<td></td>
<td>C.c Criteria</td>
</tr>
<tr>
<td>D. Meta-Cognitive Knowledge</td>
<td>D.a Strategic</td>
</tr>
<tr>
<td></td>
<td>D.b Conditional</td>
</tr>
<tr>
<td></td>
<td>D.c Self-knowledge</td>
</tr>
</tbody>
</table>

Of 12 Content descriptions in the Economics and Business Year 10 curriculum for students aged 15 (ACARA, 2014a, v7.2 October), all 12 Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

### Appendix G Economics and Business LA, Year 10: Three-audit Box 6.7.3

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
<th>Audit One: Evidence of presence in Grid cells, of quantitative incidence and qualitative strength</th>
<th>Audit Three: Evidence of qualitative potential for integrated puberty education in Content descriptions, shown in green for cognitive processes and knowledge content</th>
</tr>
</thead>
</table>

#### Key inquiry questions:
- How is the performance of an economy measured?
- Why do variations in economic performances in different economies exist?
- What strategies do governments use to manage the economy?
- How do governments, businesses and individuals respond to changing economic conditions?

#### Economics and Business Knowledge and Understanding

<table>
<thead>
<tr>
<th>Content descriptions</th>
<th>Indicators of economic performance and how Australia’s economy is performing.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>◦ The links between economic performance and living standards, the variations that exist within and between economies, and the possible causes.</td>
</tr>
<tr>
<td></td>
<td>◦ The ways that governments manage the economy to improve economic performance and living standards.</td>
</tr>
<tr>
<td></td>
<td>◦ Factors that influence major consumer and financial decisions and the short- and long-term consequences of these decisions.</td>
</tr>
<tr>
<td></td>
<td>The ways businesses organise themselves to improve productivity, including the ways they manage their workforce, and how they respond to changing economic conditions.</td>
</tr>
<tr>
<td></td>
<td>2.2 Be</td>
</tr>
<tr>
<td></td>
<td>4.3 Da</td>
</tr>
<tr>
<td></td>
<td>2.3 Cc</td>
</tr>
<tr>
<td></td>
<td>5.2 Cc</td>
</tr>
<tr>
<td></td>
<td>4.2 Cc</td>
</tr>
<tr>
<td></td>
<td>Compare the children’s food industry of Australia to that of a less-developed country.</td>
</tr>
<tr>
<td></td>
<td>The links between economic performance and living standards, the variations that exist within and between economies, and the possible causes, such as decent wages and social safety net systems.</td>
</tr>
<tr>
<td></td>
<td>◦ The ways that governments manage the economy to improve living standards for children, including child protection laws.</td>
</tr>
<tr>
<td></td>
<td>◦ Factors that influence major consumer and financial decisions on the food parents choose to buy for their children, and the short- and long-term health consequences of these decisions.</td>
</tr>
<tr>
<td></td>
<td>The ways businesses organise themselves to market their food products to children, and how they respond to new health regulations.</td>
</tr>
</tbody>
</table>

#### Economics and Business Skills

<table>
<thead>
<tr>
<th>Questioning and research</th>
<th>Develop questions and hypotheses about an economic or business issue or event, and plan and conduct an investigation.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gather relevant and reliable data and information from a range of digital, online and print sources.</td>
</tr>
<tr>
<td></td>
<td>6.2 Cb</td>
</tr>
<tr>
<td></td>
<td>3.1 Ca</td>
</tr>
<tr>
<td></td>
<td>Develop questions and hypotheses, and plan and conduct an investigation, into the economic and business issues surrounding the opening of a fresh, healthy food shop in a remote mining regional centre, and in a busy coastal tourist centre.</td>
</tr>
<tr>
<td></td>
<td>List relevant and reliable sources on state and federal food laws, as a supplier and as a consumer.</td>
</tr>
<tr>
<td>Interpretation and analysis</td>
<td>Analyse data and information in different formats to explain cause and effect relationships, make predictions and illustrate alternative perspectives.</td>
</tr>
<tr>
<td>Economic reasoning, decision-making and application</td>
<td>Generate a range of viable options to respond to an economic or business issue or event, use cost-benefit analysis and appropriate criteria to commend and justify a course of action and predict the potential consequences of the proposed action. Apply economics and business knowledge, skills and concepts in familiar, new and hypothetical situations.</td>
</tr>
<tr>
<td>Communication and reflection</td>
<td>Present reasoned arguments and evidence-based conclusions in a range of appropriate formats using economics and business conventions, language and concepts. Reflect on the intended and unintended consequences of economic and business decisions.</td>
</tr>
</tbody>
</table>

**Summary of Audit Table and Three-audit Box 6.7.3**

There are 12 Content descriptions in this Economics and Business curriculum for Year 10 students aged 15 (ACARA, v7.2, October 2014), as shown here in Box 6.7.3. Audit One results show evidence of puberty education presence in quantitative incidence (n=12), and qualitative locational strength in the cells of Audit Table 6.7.3 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=12), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=12) for integrated puberty education, colour-coded in green for verbs and nouns.
### Appendix H Dance LA, Year 1: Audit Table 6.8.1.1

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.1 Recog</td>
</tr>
<tr>
<td>A. Factual Knowledge</td>
<td>A.a Terminology</td>
</tr>
<tr>
<td>B. Conceptual Knowledge</td>
<td>B.a Classes</td>
</tr>
<tr>
<td>C. Procedural Knowledge</td>
<td>C.a Skills</td>
</tr>
<tr>
<td>D. Meta-Cognitive Knowledge</td>
<td>D.a Strategic</td>
</tr>
<tr>
<td></td>
<td>D.c Self-knowledge</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

Of four Content descriptions in the Dance Year 1 curriculum for students aged 5 (ACARA, 2014a, v7.2 October), all four Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

Appendix H Dance LA, Year 1: Three-audit Box 6.8.1.1

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
<th>Audit One: Evidence of presence in Grid cells, of quantitative incidence and qualitative strength</th>
<th>Audit Three: Evidence of qualitative potential for integrated puberty education in Content descriptions, shown in green for cognitive processes and knowledge content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Making and Responding</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exploring ideas and improvising with ways to represent ideas</td>
<td>2.1 Explore, improvise and organise ideas to make dance sequences using the elements of dance.</td>
<td>4.2 Bc</td>
<td>Create a relationship narrative in dance, e.g. Mum and Dad come home with a new baby.</td>
</tr>
<tr>
<td>Developing understanding of practices</td>
<td>2.2 Use fundamental movement skills to develop technical skills when practicing dance sequences.</td>
<td>3.2 Ca</td>
<td>Use fundamental relationship skills to model a group solidarity sequence, e.g. wedding or funeral.</td>
</tr>
<tr>
<td>Sharing artworks through performance, presentation or display</td>
<td>2.3 Present dance that communicates ideas to an audience, including dance used by cultural groups in the community.</td>
<td>6.1 Cc</td>
<td>Present a dance that communicates an idea, such as freedom, love or happiness, from the culture of a student, e.g. the lady in the moon, from China.</td>
</tr>
<tr>
<td>Responding to and interpreting artworks</td>
<td>2.4 Respond to dance and consider where and why people dance, starting with dances from Australia including dances from Aboriginal and Torres Strait Islander Peoples.</td>
<td>6.3 Da</td>
<td>Reflect on a human emotion, and consider if, when, where and why it would be appropriate to respond to it in public, e.g. how do Aboriginal and Torres Strait Islander Peoples welcome someone home?</td>
</tr>
</tbody>
</table>

Summary of Audit Table and Three-audit Box 6.8.1.1

There are four Content descriptions in this Dance curriculum for Year 1 students aged 5 (ACARA, v7.2, October 2014), as shown here in Box 6.8.1.1. Audit One results show evidence of puberty education presence in quantitative incidence (n=4), and qualitative locational strength in the cells of Audit Table 6.8.1.1 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=4), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=4) for integrated puberty education, colour-coded in green for verbs and nouns.
### Appendix H Dance LA, Year 5: Audit Table 6.8.1.2

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.1 Recog</td>
</tr>
<tr>
<td>A. Factual Knowledge</td>
<td>A.a Terminology</td>
</tr>
<tr>
<td></td>
<td>A.b Specific</td>
</tr>
<tr>
<td>B. Conceptual Knowledge</td>
<td>B.a Classes</td>
</tr>
<tr>
<td></td>
<td>B.b Principles</td>
</tr>
<tr>
<td></td>
<td>B.c Models</td>
</tr>
<tr>
<td>C. Procedural Knowledge</td>
<td>C.a Skills</td>
</tr>
<tr>
<td></td>
<td>C.b Techniques</td>
</tr>
<tr>
<td></td>
<td>C.c Criteria</td>
</tr>
<tr>
<td>D. Meta-Cognitive Knowledge</td>
<td>D.a Strategic</td>
</tr>
<tr>
<td></td>
<td>D.b Conditional</td>
</tr>
<tr>
<td></td>
<td>D.c Self-knowledge</td>
</tr>
</tbody>
</table>

Of four Content descriptions in the Dance Year 5 curriculum for students aged 10 (ACARA, 2014a, v7.2 October), all four Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

### Appendix H Dance LA, Year 5: Three-audit Box 6.8.1.2

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
<th>Audit One: Evidence of presence in Grid cells, of quantitative incidence and qualitative strength</th>
<th>Audit Three: Evidence of qualitative potential for integrated puberty education in Content descriptions, shown in green for cognitive processes and knowledge content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exploring ideas and improvising with ways to represent ideas</td>
<td>6.1 Explore movement and choreographic devices, using the elements of dance to choreograph dances that communicate meaning.</td>
<td>3.2 Bc Evaluate the communication of meaning through radical/novel movement and choreographic devices, e.g. the waltz, Isadora Duncan.</td>
<td></td>
</tr>
<tr>
<td>Developing understanding of practices</td>
<td>6.2 Develop technical and expressive skills in fundamental movements including body control, accuracy, alignment, strength, balance and coordination.</td>
<td>3.1 Cb Research the evolution of fundamental movements in humans, e.g. as the only animals that throw objects, although many animals dance.</td>
<td></td>
</tr>
<tr>
<td>Sharing artworks through performance, presentation or display</td>
<td>6.3 Perform dance using expressive skills to communicate a choreographer’s ideas, including performing dances of cultural groups in the community.</td>
<td>6.1 Da Use expressive skills to perform and communicate a relationship idea/event from another student’s cultural group, e.g. marriage.</td>
<td></td>
</tr>
<tr>
<td>Responding to and interpreting artworks</td>
<td>6.4 Explain how the elements of dance and production elements communicate meaning by comparing dances from different social, cultural and historical contexts, including Aboriginal and Torres Strait Islander dance.</td>
<td>4.3 Da Compare and evaluate the communication of meaning achieved through dances from different social, cultural and historical contexts, including Aboriginal and Torres Strait Islander dance.</td>
<td></td>
</tr>
</tbody>
</table>

**Summary of Audit Table and Three-audit Box 6.8.1.2**

There are four Content descriptions in this Dance curriculum for Year 5 students aged 10 (ACARA, v7.2, October 2014), as shown here in Box 6.8.1.2. Audit One results show evidence of puberty education presence in quantitative incidence (n=4), and qualitative locational strength in the cells of Audit Table 6.8.1.2 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=4), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=4) for integrated puberty education, colour-coded in green for verbs and nouns.
### Appendix H Dance LA, Year 10: Audit Table 6.8.1.3

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.1 Recog</td>
<td>1.2 Recall</td>
<td>2.1 Interp</td>
<td>2.2 Exemp</td>
<td>2.3 Classif</td>
<td>2.4 Summ</td>
<td>2.5 Inferr</td>
</tr>
<tr>
<td>A. Factual Knowledge</td>
<td>A.a Terminology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A.b Specific</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Conceptual Knowledge</td>
<td>B.a Classes</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>B.b Principles</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>B.c Models</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>C. Procedural Knowledge</td>
<td>C.a Skills</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>C.b Techniques</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>C.c Criteria</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D. Meta-Cognitive Knowledge</td>
<td>D.a Strategic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>D.b Conditional</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>D.c Self-knowledge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Of seven Content descriptions in the Dance Year 10 curriculum for students aged 15 (ACARA, 2014a, v7.2 October), five Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

### Appendix H Dance LA, Year 10: Three-audit Box 6.8.1.3

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
<th>Audit One: Evidence of presence in Grid cells, of quantitative incidence and qualitative strength</th>
<th>Audit Three: Evidence of qualitative potential for integrated puberty education in Content descriptions, shown in green for cognitive processes and knowledge content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exploring ideas and improvising with ways to represent ideas</td>
<td>10.1 Improvise to find new movement possibilities and explore personal style by combining elements of dance.</td>
<td>6.1 Dc Evaluate new movement possibilities and develop personal style by researching gender roles and responsibilities, and projecting into the future.</td>
<td></td>
</tr>
<tr>
<td>Manipulating and applying the elements/concepts with intent</td>
<td>10.2 Manipulate combinations of the elements of dance and choreographic devices to communicate their choreographic intent.</td>
<td>4.3 Bb Communicate gendered intent through dance elements of the past and hypothesise future dance devices.</td>
<td></td>
</tr>
<tr>
<td>Developing and refining understanding of skills and techniques</td>
<td>10.3 Practice and refine technical skills to develop proficiency in genre- and style-specific techniques.</td>
<td>----</td>
<td>Evaluate the technical skills and emotional/sexual responses of an alternative dance form, e.g. Torvill and Dean’s 1984 Olympic perfect-score ice-dance to Ravel’s <em>Bolero</em>.</td>
</tr>
<tr>
<td>Structuring and organising ideas into form</td>
<td>10.4 Structure dances using movement motifs, choreographic devices and form.</td>
<td>----</td>
<td>Plan short sequences of erotic dance, including Latin Apache dance, burlesque, and pole dance.</td>
</tr>
<tr>
<td>Sharing artworks through performance, presentation or display</td>
<td>10.5 Perform dances using genre and style-specific techniques, and expressive skills to communicate a choreographic intent.</td>
<td>6.1 Da Use expressive skills to communicate gender-biased intent.</td>
<td></td>
</tr>
<tr>
<td>Analysing and reflecting upon intentions</td>
<td>10.6 Evaluate their own choreography and performances, and that of others, to inform and refine future work.</td>
<td>5.2 Dc Create their own performances, and reflect on the dance of others, to inform the gendered nature of work in the future economy.</td>
<td></td>
</tr>
<tr>
<td>Responding to and interpreting artworks</td>
<td>10.7 Analyse a range of dance from contemporary and past times to explore differing viewpoints and enrich their dance-making, starting with dance from Australia and including dance of Aboriginal and Torres Strait Islander Peoples, and consider dance in international contexts.</td>
<td>4.3 Db Evaluate gender roles from contemporary and past times to explore differing viewpoints and enrich their dance making, with dance from Australia, Aboriginal and Torres Strait Islander Peoples, and international contexts.</td>
<td></td>
</tr>
</tbody>
</table>
Summary of Audit Table and Three-audit Box 6.8.1.3
There are seven Content descriptions in this Dance curriculum for Year 5 students aged 10 (ACARA, v7.2, October 2014), as shown here in Box 6.8.1.3. Audit One results show evidence of puberty education presence in quantitative incidence (n=5), and qualitative locational strength in the cells of Audit Table 6.8.1.3 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=5), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=7) for integrated puberty education, colour-coded in green for verbs and nouns.
Appendix H Drama LA, Year 1: Audit Table 6.8.2.1

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.1 Recog</td>
</tr>
<tr>
<td>A. Factual Knowledge</td>
<td>A.a Terminology</td>
</tr>
<tr>
<td>B. Conceptual Knowledge</td>
<td>B.a Classes</td>
</tr>
<tr>
<td>C. Procedural Knowledge</td>
<td>C.a Skills</td>
</tr>
<tr>
<td></td>
<td>C.b Techniques</td>
</tr>
<tr>
<td></td>
<td>C.c Criteria</td>
</tr>
<tr>
<td>D. Meta-Cognitive Knowledge</td>
<td>D.a Strategic</td>
</tr>
<tr>
<td></td>
<td>D.b Conditional</td>
</tr>
<tr>
<td></td>
<td>D.c Self-knowledge</td>
</tr>
</tbody>
</table>

Of four Content descriptions in the Drama Year 1 curriculum for students aged 5 (ACARA, 2014a, v7.2 October), all four Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

### Appendix H Drama LA, Year 1: Three-audit Box 6.8.2.1

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
<th>Audit One: Evidence of presence in Grid cells, of quantitative incidence and qualitative strength</th>
<th>Audit Three: Evidence of qualitative potential for integrated puberty education in Content descriptions, shown in green for cognitive processes and knowledge content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exploring ideas and improvising with ways to represent ideas</td>
<td>2.1 Explore role and dramatic action in dramatic play, improvisation and process drama.</td>
<td>3.2 Cb Create a short dramatic play focusing on a change in family dynamics, e.g. a new baby, divorce, grandparent moving in.</td>
<td></td>
</tr>
<tr>
<td>Developing understanding of practices</td>
<td>2.2 Use voice, facial expression, movement and space to imagine and establish role and situation.</td>
<td>6.1 Ca Evaluate the use of voice, facial expression, movement and space while enacting a relationship role/situation, e.g. teen driver dents the family car.</td>
<td></td>
</tr>
<tr>
<td>Sharing artworks through performance, presentation or display</td>
<td>2.3 Present drama that communicates ideas, including stories from their community, to an audience.</td>
<td>6.1 Cc Present a drama that communicates an idea about relationships, such as equality or equity (fairness), from a different community’s viewpoint.</td>
<td></td>
</tr>
<tr>
<td>Responding to and interpreting artworks</td>
<td>2.4 Respond to drama and consider where and why people make drama, starting with Australian drama, including drama from Aboriginal and Torres Strait Islander Peoples.</td>
<td>6.3 Da Reflect on the timeless and global urge to perform dramatic narratives about relationships, e.g. oral history performed by indigenous or First Peoples.</td>
<td></td>
</tr>
</tbody>
</table>

**Summary of Audit Table and Three-audit Box 6.8.2.1**

There are four Content descriptions in this Drama curriculum for Year 1 students aged 5 (ACARA, v7.2, October 2014), as shown here in Box 6.8.2.1. Audit One results show evidence of puberty education presence in quantitative incidence (n=4), and qualitative locational strength in the cells of Audit Table 6.8.2.1 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=4), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=4) for integrated puberty education, colour-coded in green for verbs and nouns.
## Appendix H Drama LA, Year 5: Audit Table 6.8.2.2

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<thead>
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<th>Knowledge Dimension</th>
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<tr>
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</tr>
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<td>D. Meta-Cognitive Knowledge</td>
<td>D.a Strategic</td>
</tr>
</tbody>
</table>

Of four Content descriptions in the Drama Year 5 curriculum for students aged 10 (ACARA, 2014a, v7.2 October), all four Content descriptions indicate evidence of puberty education *presence*, as measured by quantitative incidence and qualitative location/strength in this Audit One.

Appendix H Drama LA, Year 5: Three-audit Box 6.8.2.2

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<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
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</thead>
<tbody>
<tr>
<td>Making and Responding</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exploring ideas and improvising with ways to represent ideas</td>
<td>6.1 Explore dramatic action, empathy and space in improvisations, playbuilding and scripted drama to develop characters and situations.</td>
<td>3.2 Dc</td>
<td>Create characters and situations for scripted drama based on self-reflection of sexuality, empathy and positive pubertal health messages.</td>
</tr>
<tr>
<td>Developing understanding of practices</td>
<td>6.2 Develop skills and techniques of voice and movement to create character, mood and atmosphere, and focus dramatic action.</td>
<td>6.3 Da</td>
<td>Create character, mood and atmosphere, and focus dramatic action</td>
</tr>
<tr>
<td>Sharing artworks through performance, presentation or display</td>
<td>6.3 Rehearse and perform devised and scripted drama that develops narrative, drives dramatic tension, and uses dramatic symbol, performance styles and design element to share community and cultural stories and engage an audience.</td>
<td>6.1 Db</td>
<td>Perform drama that develops narrative, drives dramatic tension, and uses design, symbol and style to share a relationship idea/event from a community/cultural group, e.g. courtship.</td>
</tr>
<tr>
<td>Responding to and interpreting artworks</td>
<td>6.4 Explain how the elements of drama and production elements communicate meaning by comparing drama from different social, cultural and historical contexts, including Aboriginal and Torres Strait Islander drama.</td>
<td>4.3 Da</td>
<td>Compare and evaluate the communication of meaning achieved through drama from different social, cultural and historical contexts, including Aboriginal and Torres Strait Islander drama.</td>
</tr>
</tbody>
</table>

Summary of Audit Table and Three-audit Box 6.8.2.2

There are four Content descriptions in this Drama curriculum for Year 5 students aged 10 (ACARA, v7.2, October 2014), as shown here in Box 6.8.2.2. Audit One results show evidence of puberty education presence in quantitative incidence (n=4), and qualitative locational strength in the cells of Audit Table 6.8.2.2 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=4), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=4) for integrated puberty education, colour-coded in green for verbs and nouns.
## Appendix H Drama LA, Year 10: Audit Table 6.8.2.3

<table>
<thead>
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<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
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</thead>
<tbody>
<tr>
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<td>1.1 Recog</td>
</tr>
<tr>
<td>A. Factual Knowledge</td>
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</tr>
<tr>
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<tr>
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<td>D.a Strategic</td>
</tr>
<tr>
<td></td>
<td>D.b Conditional</td>
</tr>
<tr>
<td></td>
<td>D.c Self-knowledge</td>
</tr>
</tbody>
</table>

Of seven Content descriptions in the Drama Year 10 curriculum for students aged 15 (ACARA, 2014a, v7.2 October), all seven Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualititative location/strength in this Audit One.

### Appendix H Drama LA, Year 10: Three-audit Box 6.8.2.3

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<tr>
<th>Sub-strands</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Exploring ideas and improvising with ways to represent ideas</td>
<td>10.1 Improvise with the elements of drama and narrative structure to develop ideas, and explore subtext to shape devised and scripted drama.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manipulating and applying the elements/concepts with intent</td>
<td>10.2 Manipulate combinations of the elements of drama to develop and convey the physical and psychological aspects of roles and characters consist with intentions in dramatic forms and performance styles.</td>
<td>4.3 Db</td>
<td>Communicate meaning and dramatic intent through the physical and psychological aspects of roles and characters from a historical pubertal romance, e.g. Romeo and Juliette.</td>
</tr>
<tr>
<td>Developing and refining understanding of skills and techniques</td>
<td>10.3 Practice and refine the expressive capacity of voice and movement to communicate ideas and dramatic action in a range of forms, styles and performance spaces, including exploration of those developed by Aboriginal and Torres Strait Islander dramatists.</td>
<td>3.2 Da</td>
<td>Evaluate the expressive capacity of voice and movement to communicate ideas about pubertal romance in European, Asian and Aboriginal and Torres Strait Islander drama.</td>
</tr>
<tr>
<td>Structuring and organising ideas into form</td>
<td>10.4 Structure drama to engage an audience through manipulation of dramatic action, forms and performance styles, and by using design elements.</td>
<td>4.2 Ab</td>
<td>Use personal style and design elements to engage an audience in a drama about pubertal romance.</td>
</tr>
<tr>
<td>Sharing artworks through performance, presentation or display</td>
<td>10.5 Perform devised and scripted drama, making deliberate artistic choices and shaping design elements to unify dramatic meaning for an audience.</td>
<td>6.1 Db</td>
<td>Make deliberate artistic and performance choices to unify dramatic meaning about pubertal romance for an audience.</td>
</tr>
<tr>
<td>Analysing and reflecting upon intentions</td>
<td>10.6 Evaluate how the elements of drama, forms and performance styles in devised and scripted drama convey meaning and aesthetic effect.</td>
<td>5.2 Db</td>
<td>Evaluate communication of meaning and aesthetic effect of personal performance styles in other students’ work about pubertal romance.</td>
</tr>
</tbody>
</table>
### Summary of Audit Table and Three-audit Box 6.8.2.3

There are seven Content descriptions in this Drama curriculum for Year 5 students aged 10 (ACARA, v7.2, October 2014), as shown here in Box 6.8.2.3. Audit One results show evidence of puberty education *presence* in quantitative incidence (n=7), and qualitative locational strength in the cells of Audit Table 6.8.2.3 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of *presence* of puberty education vocabulary, however slight, in Content descriptions (n=7), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative *potential* (n=7) for integrated puberty education, colour-coded in green for verbs and nouns.

| Responding to and interpreting artworks | 10.7 Analyse a range of drama from contemporary and past times to explore differing viewpoints and enrich their drama-making, starting with drama from Australia, and including drama of Aboriginal and Torres Strait Islander Peoples, and consider drama in international contexts. | 4.2 Db | Evaluate drama about pubertal romance from contemporary and past times to explore differing viewpoints, from Australia, including drama of Aboriginal and Torres Strait Islander Peoples, and international contexts. |
### Appendix H Media Arts LA, Year 1: Audit Table 6.8.3.1

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Factual Knowledge</td>
<td><strong>Cognitive Process Dimension</strong></td>
</tr>
<tr>
<td>A.a Terminology</td>
<td>1. Remember: 1.1 Recog 1.2 Recall</td>
</tr>
<tr>
<td>A.b Specific</td>
<td>2. Understand: 2.1 Interp 2.2 Exemp 2.3 Classif 2.4 Summ 2.5 Infer 2.6 Compar 2.7 Explain</td>
</tr>
<tr>
<td>B. Conceptual Knowledge</td>
<td>3. Apply: 3.1 Execute 3.2 Implem</td>
</tr>
<tr>
<td>B.a Classes</td>
<td>4. Analyse: 4.1 Differ 4.2 Organis 4.3 Attrib</td>
</tr>
<tr>
<td>B.b Principles</td>
<td>5. Evaluate: 5.1 Check 5.2 Critique</td>
</tr>
<tr>
<td>C. Procedural Knowledge</td>
<td>1</td>
</tr>
<tr>
<td>C.a Skills</td>
<td>1</td>
</tr>
<tr>
<td>C.b Techniques</td>
<td>1</td>
</tr>
<tr>
<td>C.c Criteria</td>
<td>1</td>
</tr>
<tr>
<td>D. Meta- Cognitive Knowledge</td>
<td>1</td>
</tr>
<tr>
<td>D.a Strategic</td>
<td></td>
</tr>
<tr>
<td>D.b Conditional</td>
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Of four Content descriptions in the Media Arts Year 1 curriculum for students aged 5 (ACARA, 2014a, v7.2 October), all four Content descriptions indicate evidence of puberty education *presence*, as measured by quantitative incidence and qualitative location/strength in this Audit One.

## Appendix H Media Arts LA, Year 1: Three-audit Box 6.8.3.1

<table>
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<tbody>
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<td>Making and Responding</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exploring ideas and improvising with ways to represent ideas</td>
<td>2.1 Explore ideas, characters and settings in the community through stories in images, sounds and texts.</td>
<td>3.2 Bc</td>
<td>Select media artwork that uses images, sounds and texts to explain a relationship situation from another community, e.g. an arranged marriage.</td>
</tr>
<tr>
<td>Developing understanding of practices</td>
<td>2.2 Use media technology to capture and edit images, sounds and texts for a purpose.</td>
<td>5.2 Cb</td>
<td>Evaluate a selection of media images, sounds and texts by their purpose, e.g. safety/warning, selling.</td>
</tr>
<tr>
<td>Sharing artworks through performance, presentation or display</td>
<td>2.3 Create and present media artworks that communicate ideas and stories to an audience.</td>
<td>6.1 Cc</td>
<td>Create and present media artwork that communicates a simple relationship idea/story to an audience, e.g. pet dog tracks and finds child lost in the bush.</td>
</tr>
<tr>
<td>Responding to and interpreting artworks</td>
<td>2.4 Respond to media artworks and consider where and why people make media artworks starting with media from Australia, including media artworks of Aboriginal and Torres Strait Islander Peoples.</td>
<td>6.3 Da</td>
<td>Reflect on the purposes and impacts of media artworks about child safety and child protection, including Aboriginal and Torres Strait Islander Peoples’ Dreamtime stories e.g. the Min-Min.</td>
</tr>
</tbody>
</table>

### Summary of Audit Table and Three-audit Box 6.8.3.1

There are four Content descriptions in this Media Arts curriculum for Year 1 students aged 5 (ACARA, v7.2, October 2014), as shown here in Box 6.8.3.1. Audit One results show evidence of puberty education presence in quantitative incidence (n=4), and qualitative locational strength in the cells of Audit Table 6.8.3.1 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=4), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=4) for integrated puberty education, colour-coded in green for verbs and nouns.
Appendix H Media Arts LA, Year 5: Audit Table 6.8.3.2

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
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<tbody>
<tr>
<td></td>
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Appendix H Media Arts LA, Year 5: Three-audit Box 6.8.3.2

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<td></td>
<td></td>
</tr>
<tr>
<td>Exploring ideas and improvising with ways to represent ideas</td>
<td>6.1 Explore representations, characterisations and points of view of people in their community, including themselves, using settings, ideas, story principles and genre conventions in images, sounds and texts.</td>
<td>3.2 Dc</td>
<td>Evaluate the media representations, characterisations and points of view of people in their community, including themselves, about gender roles, and violence against females.</td>
</tr>
<tr>
<td>Developing understanding of practices</td>
<td>6.2 Develop skills with media technologies to shape space, time, movement and lighting within images, sounds and texts.</td>
<td>3.2 Ab</td>
<td>Organise and evaluate media technologies by their propensity for gender exploitation, in the past, present and in the future.</td>
</tr>
<tr>
<td>Sharing artworks through performance, presentation or display</td>
<td>6.3 Plan, produce and present media artworks for specific audiences and purposes, using responsible media practice.</td>
<td>6.2 Cc</td>
<td>Create and present ethical media artworks about gender discrimination for specific audiences, e.g. teenage boys, seniors, corporate executives.</td>
</tr>
<tr>
<td>Responding to and interpreting artworks</td>
<td>6.4 Explain how the elements of media arts and story principles communicate meaning by comparing media artworks from different social, cultural and historical contexts, including Aboriginal and Torres Strait Islander media artworks.</td>
<td>4.3 Da</td>
<td>Evaluate the story principles and meaning of gender roles communicated through media arts from different social, cultural and historical contexts, including Aboriginal and Torres Strait Islander Peoples</td>
</tr>
</tbody>
</table>

Summary of Audit Table and Three-audit Box 6.8.3.2
There are four Content descriptions in this Media Arts curriculum for Year 5 students aged 10 (ACARA, v7.2, October 2014), as shown here in Box 6.8.3.2. Audit One results show evidence of puberty education presence in quantitative incidence (n=4), and qualitative locational strength in the cells of Audit Table 6.8.3.2 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=4), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=4) for integrated puberty education, colour-coded in green for verbs and nouns.
## Appendix H Media Arts LA, Year 10: Audit Table 6.8.3.3

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</table>

Of seven Content descriptions in the Media Arts Year 10 curriculum for students aged 15 (ACARA, 2014a, v7.2 October), all seven Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

### Appendix H Media Arts LA, Year 10: Three-audit Box 6.8.3.3

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</tr>
</thead>
<tbody>
<tr>
<td>Exploring ideas and improvising with ways to represent ideas</td>
<td>10.1 <strong>Experiment</strong> with ideas and stories that manipulate media conventions and genres to construct new and alternative points of view through images, sounds and text.</td>
<td>6.3 <strong>Db</strong></td>
<td>Experiment with ideas, stories and new and alternative points of view about pubertal body image models and disorders.</td>
</tr>
<tr>
<td>Manipulating and applying the elements/concepts with intent</td>
<td>10.2 <strong>Manipulate</strong> media representations to identify and examine social and cultural values and beliefs, including those of Aboriginal and Torres Strait Islander Peoples.</td>
<td>4.3 <strong>Dc</strong></td>
<td>Attribute media representations of social and cultural values and beliefs about pubertal body image models and disorders, including from Aboriginal and Torres Strait Islander Peoples.</td>
</tr>
<tr>
<td>Developing and refining understanding of skills and techniques</td>
<td>10.3 <strong>Develop and refine</strong> media production skills to integrate and shape the technical and symbolic elements in images, sounds and text for a specific purpose, meaning and style.</td>
<td>3.2 <strong>Cc</strong></td>
<td>List symbolic media elements and production skills that shape purpose, meaning and style, about pubertal body image models and disorders.</td>
</tr>
<tr>
<td>Structuring and organising ideas into form</td>
<td>10.4 <strong>Plan and design</strong> media artworks for a range of purposes that challenge the expectations of specific audiences by particular use of production processes.</td>
<td>6.2 <strong>Bc</strong></td>
<td>Challenge the expectations of specific audiences about pubertal body image models and disorders by particular use of production processes.</td>
</tr>
<tr>
<td>Sharing artworks through performance, presentation or display</td>
<td>10.5 <strong>Produce and distribute</strong> media artworks for a range of community and institutional contexts, and consider social, ethical and regulatory issues.</td>
<td>6.3 <strong>Dc</strong></td>
<td>Consider social, ethical and regulatory issues about pubertal body image models and disorders for a range of community and institutional contexts.</td>
</tr>
<tr>
<td>Analysing and reflecting upon intentions</td>
<td>10.6 <strong>Evaluate how</strong> technical and symbolic elements are manipulated in media artworks to create and challenge representations framed by media conventions, social beliefs and values for a range of audiences.</td>
<td>6.1 <strong>Dc</strong></td>
<td>Create and challenge representations framed by media conventions, social beliefs and values about pubertal body image models and disorders for a range of audiences.</td>
</tr>
</tbody>
</table>
Responding to and interpreting artworks

<table>
<thead>
<tr>
<th>10.7 Analyse a range of media artworks from contemporary and past times to explore differing viewpoints and enrich their media arts making, starting with Australian media artworks, including media artworks of Aboriginal and Torres Strait Islander Peoples, and international media artworks.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.3 Db</td>
</tr>
</tbody>
</table>

**Summary of Audit Table and Three-audit Box 6.8.3.3**

There are seven Content descriptions in this Media Arts curriculum for Year 10 students aged 15 (ACARA, v7.2, October 2014), as shown here in Box 6.8.3.3. Audit One results show evidence of puberty education *presence* in quantitative incidence (n=7), and qualitative locational strength in the cells of Audit Table 6.8.3.3 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of *presence* of puberty education vocabulary, however slight, in Content descriptions (n=7), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative *potential* (n=7) for integrated puberty education, colour-coded in green for verbs and nouns.
### Appendix H Music LA, Year 1: Audit Table 6.8.4.1

<table>
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<tr>
<th>Knowledge Dimension</th>
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<tbody>
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<td>B. Conceptual Knowledge</td>
<td>B.a Classes</td>
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</tbody>
</table>

Of four Content descriptions in the Music Year 1 curriculum for students aged 5 (ACARA, 2014a, v7.2 October), all four Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

Appendix H Music LA, Year 1: Three-audit Box 6.8.4.1

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
<th>Audit One: Evidence of presence in Grid cells, of quantitative incidence and qualitative strength</th>
<th>Audit Three: Evidence of qualitative potential for integrated puberty education in Content descriptions, shown in green for cognitive processes and knowledge content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exploring ideas and improvising with ways to represent ideas</td>
<td>2.1 Develop aural skills by exploring and imitating sounds, pitch and rhythm patterns using voice, movement and body percussion.</td>
<td>3.2 Ca</td>
<td>Develop and organise aural skills by exploring and imitating sounds/songs of characters from popular TV family shows, e.g. The Simpsons.</td>
</tr>
<tr>
<td>Developing understanding of practices</td>
<td>2.2 Sing and play instruments to improvise, practise, a repertoire of chants, songs and rhymes, including songs used by cultural groups in the community.</td>
<td>4.3 Be</td>
<td>Select, sing and play a repertoire of chants, songs and rhymes about child safety, e.g. Ring O’Roses, including some from other cultural groups.</td>
</tr>
<tr>
<td>Sharing artworks through performance, presentation or display</td>
<td>2.3 Create compositions and perform music to communicate ideas to an audience.</td>
<td>6.1 Cc</td>
<td>Create and perform music to an audience that communicates ideas or stories of a family or child safety relationship, e.g. Peter and The Wolf.</td>
</tr>
<tr>
<td>Responding to and interpreting artworks</td>
<td>2.4 Respond to music and consider where and why people make music, starting with Australian music, including music of Aboriginal and Torres Strait Islander Peoples.</td>
<td>6.3 Da</td>
<td>Reflect on the feelings that some songs evoke in people in different cultures and time periods, e.g. marching song for war.</td>
</tr>
</tbody>
</table>

Summary of Audit Table and Three-audit Box 6.8.4.1

There are four Content descriptions in this Music curriculum for Year 1 students aged 5 (ACARA, v7.2, October 2014), as shown here in Box 6.8.4.1. Audit One results show evidence of puberty education presence in quantitative incidence (n=4), and qualitative locational strength in the cells of Audit Table 6.8.4.1 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=4), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=4) for integrated puberty education, colour-coded in green for verbs and nouns.
## Appendix H Music LA, Year 5: Audit Table 6.8.4.2

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Knowledge Dimension</strong></td>
<td><strong>Cognitive Process Dimension</strong></td>
</tr>
<tr>
<td></td>
<td>1.1 Recog</td>
</tr>
<tr>
<td><strong>A. Factual Knowledge</strong></td>
<td>A.a Terminology</td>
</tr>
<tr>
<td></td>
<td>A.b Specific</td>
</tr>
<tr>
<td><strong>B. Conceptual Knowledge</strong></td>
<td>B.a Classes</td>
</tr>
<tr>
<td></td>
<td>B.b Principles</td>
</tr>
<tr>
<td></td>
<td>B.c Models</td>
</tr>
<tr>
<td><strong>C. Procedural Knowledge</strong></td>
<td>C.a Skills</td>
</tr>
<tr>
<td></td>
<td>C.b Techniques</td>
</tr>
<tr>
<td></td>
<td>C.c Criteria</td>
</tr>
<tr>
<td><strong>D. Meta-Cognitive Knowledge</strong></td>
<td>D.a Strategic</td>
</tr>
<tr>
<td></td>
<td>D.b Conditional</td>
</tr>
<tr>
<td></td>
<td>D.c Self-knowledge</td>
</tr>
</tbody>
</table>

Of four Content descriptions in the Music Year 5 curriculum for students aged 10 (ACARA, 2014a, v7.2 October), all four Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

Appendix H Music LA, Year 5: Three-audit Box 6.8.4.2

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
<th>Audit One: Evidence of presence in Grid cells, of quantitative incidence and qualitative strength</th>
<th>Audit Three: Evidence of qualitative potential for integrated puberty education in Content descriptions, shown in green for cognitive processes and knowledge content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exploring ideas and improvising with ways to represent ideas</td>
<td>6.1 Explore dynamics and expression, using aural skills to identify and perform rhythm and pitch patterns.</td>
<td>3.2 Ca</td>
<td>Evaluate the impact of musical dynamics and patterns on human brains at different stages, e.g. low pitch, heartbeat (infants), baroque (dementia).</td>
</tr>
<tr>
<td>Developing understanding of practices</td>
<td>6.2 Develop technical and expressive skills in singing and playing instruments with understanding of rhythm, pitch and form in a range of pieces, including in music from the community.</td>
<td>3.2 Cb</td>
<td>Organise and attribute musical style, form and skills in youth from a wide range of different communities/cultures.</td>
</tr>
<tr>
<td>Sharing artworks through performance, presentation or display</td>
<td>6.3 Rehearse and perform music, including music they have composed, by improvising, sourcing and arranging ideas and making decisions to engage an audience.</td>
<td>6.2 Db</td>
<td>Create and perform a short exhibition of youth music from a selection of different styles, forms and skills.</td>
</tr>
<tr>
<td>Responding to and interpreting artworks</td>
<td>6.4 Explain how the elements of music communicate meaning by comparing music from different social, cultural and historical contexts, including Aboriginal and Torres Strait Islander music.</td>
<td>4.3 Da</td>
<td>Evaluate the communication of meaning of music from different social, cultural and historical contexts, including Aboriginal and Torres Strait Islander Peoples</td>
</tr>
</tbody>
</table>

Summary of Audit Table and Three-audit Box 6.8.4.2
There are four Content descriptions in this Music curriculum for Year 5 students aged 10 (ACARA, v7.2, October 2014), as shown here in Box 6.8.4.2. Audit One results show evidence of puberty education presence in quantitative incidence (n=4), and qualitative locational strength in the cells of Audit Table 6.8.4.2 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=4), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=4) for integrated puberty education, colour-coded in green for verbs and nouns.
### Appendix H Music LA, Year 10: Audit Table 6.8.4.3

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.1 Recog</td>
</tr>
<tr>
<td>A. Factual Knowledge</td>
<td>A.a Terminology</td>
</tr>
<tr>
<td></td>
<td>A.b Specific</td>
</tr>
<tr>
<td>B. Conceptual Knowledge</td>
<td>B.a Classes</td>
</tr>
<tr>
<td></td>
<td>B.b Principles</td>
</tr>
<tr>
<td></td>
<td>B.c Models</td>
</tr>
<tr>
<td>C. Procedural Knowledge</td>
<td>C.a Skills</td>
</tr>
<tr>
<td></td>
<td>C.b Techniques</td>
</tr>
<tr>
<td></td>
<td>C.c Criteria</td>
</tr>
<tr>
<td>D. Meta-Cognitive Knowledge</td>
<td>D.a Strategic</td>
</tr>
<tr>
<td></td>
<td>D.b Conditional</td>
</tr>
<tr>
<td></td>
<td>D.c Self-knowledge</td>
</tr>
</tbody>
</table>

Of seven Content descriptions in the Music Year 10 curriculum for students aged 15 (ACARA, 2014a, v7.2 October), five Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

## Appendix H Music LA, Year 10: Three-audit Box 6.8.4.3

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
<th>Audit One: Evidence of presence in Grid cells, of quantitative incidence and qualitative strength</th>
<th>Audit Three: Evidence of qualitative potential for integrated puberty education in Content descriptions, shown in green for cognitive processes and knowledge content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Making and Responding</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exploring ideas and improvising with ways to represent ideas</td>
<td>10.1 Improvise and arrange music, using aural recognition of texture, dynamics and expression, to manipulate the elements of music to explore personal style in composition and performance.</td>
<td>6.1 Dc Use aural recognition of texture, dynamics and expression, to manipulate the elements of music to explore personal style and performance regarding gender violence.</td>
<td></td>
</tr>
<tr>
<td>Manipulating and applying the elements/concepts with intent</td>
<td>10.2 Manipulate combinations of the elements of music in a range of styles, using technology and notation.</td>
<td>---- ----</td>
<td></td>
</tr>
<tr>
<td>Developing and refining understanding of skills and techniques</td>
<td>10.3 Practise and rehearse to refine a variety of performance repertoire with increasing technical and interpretative skill.</td>
<td>6.2 Cc Evaluate the music styles and conventions in European, Asian and Aboriginal and Torres Strait Islander music about gender violence.</td>
<td></td>
</tr>
<tr>
<td>Structuring and organising ideas into form</td>
<td>10.4 Plan and organise compositions with an understanding of style and convention, including drawing upon Australian music by Aboriginal and Torres Strait Islander artists.</td>
<td>---- ----</td>
<td></td>
</tr>
<tr>
<td>Sharing artworks through performance, presentation or display</td>
<td>10.5 Perform music applying techniques and expression to interpret the composers’ use of elements of music.</td>
<td>6.2 Cc Evaluate the music styles and conventions in European, Asian and Aboriginal and Torres Strait Islander music about gender violence.</td>
<td></td>
</tr>
<tr>
<td>Analysing and reflecting upon intentions</td>
<td>10.6 Evaluate a range of music and compositions to inform and refine their own compositions and performances.</td>
<td>---- ----</td>
<td></td>
</tr>
<tr>
<td>Responding to and interpreting artworks</td>
<td>10.7 Analyse a range of music from contemporary and past times to explore differing viewpoints and enrich their music-making, starting with Australian music.</td>
<td>4.3 Db Evaluate music from contemporary and past times to explore differing viewpoints, from Australia, including music of Aboriginal and Torres Strait Islander.</td>
<td></td>
</tr>
</tbody>
</table>
Summary of Audit Table and Three-audit Box 6.8.4.3
There are seven Content descriptions in this Music curriculum for Year 10 students aged 15 (ACARA, v7.2, October 2014), as shown here in Box 6.8.4.3. Audit One results show evidence of puberty education presence in quantitative incidence (n=5), and qualitative locational strength in the cells of Audit Table 6.8.4.3 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=5), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=5) for integrated puberty education, colour-coded in green for verbs and nouns.
### Appendix H Visual Arts LA, Year 1: Audit Table 6.8.5.1

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.1 Recog</td>
</tr>
<tr>
<td>A. Factual Knowledge</td>
<td></td>
</tr>
<tr>
<td>A.a Terminology</td>
<td></td>
</tr>
<tr>
<td>A.b Specific</td>
<td></td>
</tr>
<tr>
<td>B. Conceptual Knowledge</td>
<td></td>
</tr>
<tr>
<td>B.a Classes</td>
<td></td>
</tr>
<tr>
<td>B.b Principles</td>
<td></td>
</tr>
<tr>
<td>B.c Models</td>
<td></td>
</tr>
<tr>
<td>C. Procedural Knowledge</td>
<td></td>
</tr>
<tr>
<td>C.a Skills</td>
<td></td>
</tr>
<tr>
<td>C.b Techniques</td>
<td></td>
</tr>
<tr>
<td>C.c Criteria</td>
<td></td>
</tr>
<tr>
<td>D. Meta-Cognitive Knowledge</td>
<td></td>
</tr>
<tr>
<td>D.a Strategic</td>
<td></td>
</tr>
<tr>
<td>D.b Conditional</td>
<td></td>
</tr>
<tr>
<td>D.c Self-knowledge</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Of four Content descriptions in the Visual Arts Year 1 curriculum for students aged 5 (ACARA, 2014a, v7.2 October), three Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

Appendix H Visual Arts LA, Year 1: Three-audit Box 6.8.5.1

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
<th>Audit One: Evidence of presence in Grid cells, of quantitative incidence and qualitative strength</th>
<th>Audit Three: Evidence of qualitative potential for integrated puberty education in Content descriptions, shown in green for cognitive processes and knowledge content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exploring ideas and improvising with ways to represent ideas</td>
<td>2.1 Explore ideas, experiences, observations and imagination to create visual artworks and design, including considering ideas in artworks by Aboriginal and Torres Strait Islander artists.</td>
<td>6.1 Cc Design and create visual artworks on a family relationship theme, including ideas and experiences of Aboriginal and Torres Strait Islander artists.</td>
<td>----</td>
</tr>
<tr>
<td>Developing understanding of practices</td>
<td>2.2 Use and experiment with different materials, techniques, technologies and processes to make artworks.</td>
<td>----</td>
<td>Create a visual artwork about the human body by experimenting with unusual materials, techniques, technologies and processes.</td>
</tr>
<tr>
<td>Sharing artworks through performance, presentation or display</td>
<td>2.3 Create and display artworks to communicate ideas to an audience.</td>
<td>6.1 Cc Create and display artworks to communicate ideas about love and loss to an audience.</td>
<td>----</td>
</tr>
<tr>
<td>Responding to and interpreting artworks</td>
<td>2.4 Respond to visual artworks and consider where and why people make visual artworks, starting with visual artworks from Australia, including visual artworks of Aboriginal and Torres Strait Islander Peoples.</td>
<td>6.3 Da Reflect on the feelings that artworks evoke in people in different cultures and time periods, including of Aboriginal and Torres Strait Islander Peoples, e.g. the first European ships, a shipwreck.</td>
<td>----</td>
</tr>
</tbody>
</table>

Summary of Audit Table and Three-audit Box 6.8.5.1

There are four Content descriptions in this Visual Arts curriculum for Year 1 students aged about 5 (ACARA, v7.2, October 2014), as shown here in Box 6.8.5.1. Audit One results show evidence of puberty education presence in quantitative incidence (n=3), and qualitative locational strength in the cells of Audit Table 6.8.5.1 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=3), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=4) for integrated puberty education, colour-coded in green for verbs and nouns.
Appendix H Visual Arts LA, Year 5: Audit Table 6.8.5.2

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.1 Recog</td>
</tr>
<tr>
<td>A. Factual Knowledge</td>
<td>A.a Terminology</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Of four Content descriptions in the Visual Arts Year 5 curriculum for students aged 10 (ACARA, 2014a, v7.2 October), three Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

Appendix H Visual Arts LA, Year 5: Three-audit Box 6.8.5.2

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
<th>Audit One: Evidence of presence in Grid cells, of quantitative incidence and qualitative strength</th>
<th>Audit Three: Evidence of qualitative potential for integrated puberty education in Content descriptions, shown in green for cognitive processes and knowledge content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exploring ideas and improvising with ways to represent ideas</td>
<td>6.1 Explore ideas and practices used by artists, including practices of Aboriginal and Torres Strait Islander artists, to represent different views, beliefs and opinions.</td>
<td>4.3 Dc</td>
<td>Evaluate the visual arts’ ideas and practices that represent obesity and starvation, including artists’ views, beliefs and opinions of different cultures.</td>
</tr>
<tr>
<td>Developing understanding of practices</td>
<td>6.2 Develop and apply techniques and processes when making their artworks.</td>
<td>----</td>
<td>Create visual artworks about body shape, healthy eating, and moderate activity (choose your pet).</td>
</tr>
<tr>
<td>Sharing artworks through performance, presentation or display</td>
<td>6.3 Plan the display of artworks to enhance their meaning for an audience.</td>
<td>6.2 Cc</td>
<td>Create and display their artworks that enhance audience understandings and meanings about eating disorders.</td>
</tr>
<tr>
<td>Responding to and interpreting artworks</td>
<td>6.4 Explain how visual arts conventions communicate meaning by comparing artworks from different social, cultural and historical contexts, including Aboriginal and Torres Strait Islander media artworks.</td>
<td>4.3 Da</td>
<td>Evaluate the artistic conventions’ communication of meaning about the human body from different social, cultural and historical contexts, including Aboriginal and Torres Strait Islander artworks.</td>
</tr>
</tbody>
</table>

Summary of Audit Table and Three-audit Box 6.8.5.2

There are four Content descriptions in this Visual Arts curriculum for Year 5 students aged 10 (ACARA, v7.2, October 2014), as shown here in Box 6.8.5.2. Audit One results show evidence of puberty education presence in quantitative incidence (n=3), and qualitative locational strength in the cells of Audit Table 6.8.5.2 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=3), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=4) for integrated puberty education, colour-coded in green for verbs and nouns.
### Appendix H Visual Arts LA, Year 10: Audit Table 6.8.5.3

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.1 Recog</td>
</tr>
<tr>
<td>A. Factual Knowledge</td>
<td>A.a Terminology</td>
</tr>
<tr>
<td>B. Conceptual Knowledge</td>
<td>B.a Classes</td>
</tr>
<tr>
<td>C. Procedural Knowledge</td>
<td>C.a Skills</td>
</tr>
<tr>
<td>D. Meta-Cognitive Knowledge</td>
<td>D.a Strategic</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

Of seven Content descriptions in the Visual Arts Year 10 curriculum for students aged 15 (ACARA, 2014a, v7.2 October), six Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

### Appendix H Visual Arts LA, Year 10: Three-audit Box 6.8.5.3

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
<th>Audit One: Evidence of presence in Grid cells, of quantitative incidence and qualitative strength</th>
<th>Audit Three: Evidence of qualitative potential for integrated puberty education in Content descriptions, shown in green for cognitive processes and knowledge content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exploring ideas and improvising with ways to represent ideas</td>
<td>10.1 Conceptualise and develop representations of themes, concepts or subject matter to experiment with their developing personal styles of artists, reflecting on the styles of artists, including Aboriginal and Torres Strait Islander artists.</td>
<td></td>
<td>Reflect on artists’ representations of their experiences of childhood, including from Aboriginal and Torres Strait Islander artists.</td>
</tr>
<tr>
<td>Manipulating and applying the elements/concepts with intent</td>
<td>10.2 Manipulate materials, techniques, technologies and processes to develop and represent their own artistic intentions.</td>
<td>4.3 Dc</td>
<td>Research and interpret two well-known artists’ representations of their own childhood experiences.</td>
</tr>
<tr>
<td>Developing and refining understanding of skills and techniques</td>
<td>10.3 Develop and refine techniques and processes to represent ideas and subject matter.</td>
<td>3.2 Cc</td>
<td>Evaluate the efficacy of artistic techniques and processes in representing the ideas and meanings of childhood experiences.</td>
</tr>
<tr>
<td>Structuring and organising ideas into form</td>
<td>10.4 Plan and design artworks that represent artistic intention.</td>
<td>6.2 Da</td>
<td>Create visual artworks that express and represent artistic intention regarding their own childhood experiences.</td>
</tr>
<tr>
<td>Sharing artworks through performance, presentation or display</td>
<td>10.5 Present ideas for displaying artworks and evaluate displays of artworks.</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>Analysing and reflecting upon intentions</td>
<td>0.6 Evaluate how representations communicate artistic intentions in artworks they make and view to inform their future art making.</td>
<td>5.2 Dc</td>
<td>Create their own representations, and reflect on the artworks of other peer artists, about their experiences of childhood and the prevailing attitude of adults to children.</td>
</tr>
<tr>
<td>Responding to and interpreting artworks</td>
<td>10.7 Analyse a range of visual artworks from contemporary and past times to explore differing viewpoints and enrich their visual art-making, starting with Australian artworks, including those of Aboriginal and Torres Strait Islander Peoples, and consider international artworks.</td>
<td>4.3 Db</td>
<td>Evaluate attitudes to/experiences of childhood from contemporary and past times to explore differing viewpoints and enrich their visual art-making, with ideas and narratives from Australia, Aboriginal and Torres Strait Islander Peoples, and international contexts.</td>
</tr>
</tbody>
</table>

**Summary of Audit Table and Three-audit Box 6.8.5.3**
There are seven Content descriptions in this Visual Arts curriculum for Year 5 students aged 10 (ACARA, v7.2, October 2014), as shown here in Box 6.8.5.3. Audit One results show evidence of puberty education presence in quantitative incidence (n=6), and qualitative locational strength in the cells of Audit Table 6.8.5.3 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=6), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=6) for integrated puberty education, colour-coded in green for verbs and nouns.
## Appendix I HPE LA, Year 1: Audit Table 6.9.1

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.1 Recog</td>
</tr>
<tr>
<td>A. Factual Knowledge</td>
<td></td>
</tr>
<tr>
<td>A.a Terminology</td>
<td>A.b Specific</td>
</tr>
<tr>
<td>B. Conceptual Knowledge</td>
<td>B.a Classes</td>
</tr>
<tr>
<td></td>
<td>B.b Principles</td>
</tr>
<tr>
<td></td>
<td>B.c Models</td>
</tr>
<tr>
<td>C. Procedural Knowledge</td>
<td>C.a Skills</td>
</tr>
<tr>
<td></td>
<td>C.b Techniques</td>
</tr>
<tr>
<td></td>
<td>C.c Criteria</td>
</tr>
<tr>
<td>D. Meta-Cognitive Knowledge</td>
<td>D.a Strategic</td>
</tr>
<tr>
<td></td>
<td>D.b Conditional</td>
</tr>
<tr>
<td></td>
<td>D.c Self-knowledge</td>
</tr>
</tbody>
</table>

Of 18 Content descriptions in the HPE Year 1 curriculum for students aged 5 (ACARA, 2014a, v7.2 October), 18 Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

### Appendix I HPE LA, Year 1: Three-audit Box 6.9.1

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
<th>Audit One: Evidence of presence in Grid cells, of quantitative incidence and qualitative strength</th>
<th>Audit Three: Evidence of qualitative potential for integrated puberty education in Content descriptions, shown in green for cognitive processes and knowledge content</th>
</tr>
</thead>
</table>
| **Being healthy, safe and active** | Describe their own strengths and achievements and those of others, and identify how these contribute to personal identities.  
   - Describe physical and social changes that occur as children grow older and discuss how family and community acknowledge these.  
   - Practise strategies they can use when they need help with a task, problem or situation.  
   - Recognise situations and opportunities to promote health, safety and wellbeing.” | 2.3 Dc  
   - 4.3 Bc  
   - 3.2 Cc  
   - 4.2 Da | With help, distinguish and analyse the strengths and achievements of real people they admire, and the manufactured identities of TV characters.  
   - Use specific names for body parts and functions that change during puberty, analyse how different cultures view puberty.  
   - Evaluate helpful strategies and make a plan for puberty, e.g. list trusted adults, know about menstrual pads, how to report problems.  
   - Make simple plans for pet safety, sun safety, car and road safety, and water safety. |
| **Communicating and interacting for health and wellbeing** | Describe ways to include others to make them feel that they belong.  
   - Identify and practise emotional responses that account for own and others’ feelings.  
   - Examine health messages and how they relate to health decisions and behaviours.” | 4.3 Db  
   - 3.2 Dc  
   - 2.6 Cc | Research and articulate welcoming words and inclusive behaviours from other languages/cultures, e.g. walking into a Sushi restaurant.  
   - Implement class rules of courtesy and goodwill, e.g. please, thank you, apologies, friendship, celebration rituals and empathy expressions.  
   - Investigate health facts/myths for busting or confirming, e.g. hand-washing after toileting removes germs, Likely; hat-sharing transfers nits/lice, Highly unlikely; catching HIV from sitting on the same chair. |
| **Contributing to healthy and active communities** | Explore actions that help make the classroom a healthy, safe and active place.  
   - Identify and explore natural and built environments in the local community where physical activity can take place.  
   - Recognise similarities and differences in individuals and groups, and explore how these are celebrated and respected. | 4.1 Cc  
   - 4.1 Ab  
   - 4.3 Cc | Research and illustrate simple germ theory and outcomes, e.g. vaccinations, nose-blowing, cuts and blood, first-aid.  
   - Make a map of local natural and built environments for activities (dog-walking), exercise (pre-natal fitness, baby gym), sports (dance, football).  
   - Explain individual similarities/differences (all children need a spleen, black skin blocks out sunlight for Vitamin E), and in groups (everyone needs clean nutritious food, people may speak different/extra languages). |
## Movement and physical activity

| Moving our body | Perform fundamental movement skills in different movement situations. | 3.1 Ba | Use different body parts to send, carry or receive objects, e.g. carry water container on the head, and to propel the body, e.g. with help, walk on hands, wheelbarrow another. Perform movement sequences in response to experienced and imagined stimuli including imagined pain, fear, sorrow, disability, happiness, pleasure, fun. Watch a live or video sequence of Cheerleading or Aerial Gymnastics and analyse its highly co-operative nature, timing and skills, then compare to other physical activities. |
| Understanding movement | Construct and perform imaginative and original movement sequences in response to stimuli. Create and participate in games. | 6.3 Db | |
| Learning through movement | 6.1 Ab | 6.1 Cc | Analyse different reactions to physical events, e.g. sweating lowers body temperature; low blood sugar causes sudden fatigue, nausea; embarrassment may cause blushing; violence bruises body and mind. Make a simple dance sequence using effort, space, time elements to tell a story of helping other people, an animal or species, the environment, or disability. |
| | Use strategies to work in group situations when participating in physical activities. Propose a range of alternatives and test their effectiveness when solving movement challenges. Identify rules and play fairly when participating in physical activities.” | 3.2 Bc | 3.2 Bb | Evaluate individual and social strengths/benefits of working/participating in physical activity groups. Construct a table of movement challenges, known solutions, and novel alternatives for effectiveness and sustainability e.g. they can make a garden, save an animal or dance, by themselves, partnered or in a group. Discovered deception and lies leads to distrust in children after age about 6. Role play fairness and equality in a relationship between same-sex and mixed-sex groups. |
| | Incorporate elements of effort, space, time, objects and people in performing simple movement sequences. | 5.2 Cc | | |

**Summary of Audit Table and Three-audit Box 6.9.1**

There are 18 Content descriptions in this HPE curriculum for Year 1 students aged 5 (ACARA, v7.2, October 2014), as shown here in Box 6.9.1. Audit One results show evidence of puberty education *presence* in quantitative incidence (n=18), and qualitative locational strength in the cells of Audit Table 6.9.1 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of *presence* of puberty education vocabulary, however slight, in Content descriptions (n=18), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative *potential* (n=18) for integrated puberty education, colour-coded in green for verbs and nouns.
### Appendix I HPE LA, Year 5: Audit Table 6.9.2

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Factual Knowledge</td>
<td>1.1 Recog</td>
</tr>
<tr>
<td>A.a Terminology</td>
<td></td>
</tr>
<tr>
<td>A.b Specific</td>
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<tr>
<td>B. Conceptual Knowledge</td>
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<tr>
<td>B.a Classes</td>
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<tr>
<td>B.b Principles</td>
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<td>B.c Models</td>
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<td>C.a Skills</td>
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<td>C.b Techniques</td>
<td></td>
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<tr>
<td>C.c Criteria</td>
<td></td>
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<tr>
<td>D. Meta-Cognitive Knowledge</td>
<td></td>
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<tr>
<td>D.a Strategic</td>
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<td>D.b Conditional</td>
<td></td>
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<tr>
<td>D.c Self-knowledge</td>
<td></td>
</tr>
</tbody>
</table>

Of 19 Content descriptions in the HPE Year 5 curriculum for students aged 10 (ACARA, 2014a, v7.2 October), 19 Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

### Appendix I HPE LA, Year 5: Three-audit Box 6.9.2

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative <em>presence</em> of puberty education in Content descriptions, shown in <strong>blue</strong> for cognitive processes/verbs, and in <strong>red</strong> for knowledge content/nouns</th>
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<th>Audit Three: Evidence of qualitative <em>potential</em> for integrated puberty education in Content descriptions, shown in <strong>green</strong> for cognitive processes and knowledge content</th>
</tr>
</thead>
</table>
| Being healthy, safe and active | Explore personal and cultural identities and how they change and adapt to different contexts and situations.  
Investigate resources and strategies to manage changes and transitions associated with puberty.  
Investigate community resources and strategies to seek help about health, safety and wellbeing.  
Plan and practise strategies to promote health, safety and wellbeing. | 4.3 Dc  
4.2 Cc  
5.2 Da  
6.2 Da | Examine ways that a range of cultures expects girls, and boys, to behave after reproductive fertility becomes apparent through body changes/growth, and menstruation/ejaculation.  
Propose actions to manage pubertal transitions and counteract instances of discrimination, harassment and bullying based on a person’s physical or intellectual abilities, gender, sex, race or religion.  
Investigate community resources and strategies to seek help and positively manage the changes and transitions experienced during puberty.  
Plan and practise strategies and physical activities promoting personal protection and safety, e.g. a martial art. |
| Communicating and interacting for health and wellbeing | Practise skills to establish and manage relationships.  
Examine the influence of emotional responses on behaviour and relationships.  
Recognise how media and important people in the community influence personal attitudes, beliefs, decisions and behaviours. | 4.2 Db  
2.6 Db  
4.1 Dc | Examine different relationship types, e.g. unequal (parent-child), co-dependent (two children), and reciprocal (best friend, sibling, lover) and develop skills to establish and manage a range of relationships for health and wellbeing.  
Research stable, reliable and trustworthy people/sources and prioritise health information/emotional management strategies they advise.  
Evaluate and reflect on how media and important people in the community influence personal attitudes, beliefs, decisions and behaviours, and take positive action to manage their own and others’ health, safety and wellbeing. |
### Contributing to healthy and active communities

**Investigate the role of preventive health in promoting and maintaining health, safety and wellbeing for individuals and their communities.**

- Explore how participation in outdoor activities supports personal and community health and wellbeing and creates connections to the natural and built environment.
- Investigate and reflect on how valuing diversity positively influences the wellbeing of the community.

**Research specific strategies of preventive and protective health for individuals and communities, e.g. Recognise, Refuse, Report for unwanted/bad touch; experts’ phone numbers for injured wildlife; sewerage systems for public and environmental health.**

**Evaluate how active participation and emotional connections to the natural and built environment can support personal and community health and wellbeing, e.g. dog-walking, bird-watching, frog-listening.**

**Investigate how valuing diversity, disability and purposeful determination positively influence personal wellbeing.**

### Movement and physical activity

#### Moving our body

**Practise specialised movement skills and apply them in different movement situations.**
- Design and perform a variety of movement sequences.
- Propose and apply movement concepts and strategies.

**Role play a variety of disabilities and the specialised movement skills necessary to promote rehabilitation or sustainability.**
- Design and demonstrate empathetic behaviour, fair play and equal opportunity while participating in a variety of movement sequences.
- Evaluate and perform movement concept and strategies that help those not able to perform themselves.

#### Understanding movement

**Participate in physical activities designed to enhance fitness, and discuss the impact regular participation can have on health and wellbeing.**
- Manipulate and modify the elements of effort, space, objects and people to perform movement sequences.
- Participate in physical activities from their own and other cultures and examine how involvement creates community connections and intercultural understanding.

**Compare and evaluate the strengths and benefits to pubertal health and wellbeing from participating in regular physical movements, such as walking to and from school, playing organised sport, and dancing twice a week.**
- Evaluate the satisfaction, effectiveness and sustainability of peoples’ effort and time while engaged in a community project such as organic vegetable growing, or volunteering in a wildlife sanctuary or aged care situation.
- Evaluate how active involvement and emotional connections to their own and other cultural activities creates personal and community health, harmony and wellbeing.
Learning through movement

| Participate positively in groups and teams by encouraging others and negotiating roles and responsibilities. | 6.1 Db | Evaluate the roles, responsibilities and leadership capabilities of health, movement and physical education professionals working with pubertal students. |
| Apply critical and creative thinking processes in order to generate and assess solutions to movement challenges. | 6.1 Db |
| Demonstrate ethical behaviour and fair play that aligns with the rules when participating in a range of physical activities. | 4.3 Dc | Evaluate and demonstrate ethical behaviour, collaborative skills and fair play when participating in a range of physical activities designed for pubertal students. |

**Summary of Audit Table and Three-audit Box 6.9.2**

There are 19 Content descriptions in this HPE curriculum for Year 5 students aged 10 (ACARA, v7.2, October 2014), as shown here in Box 6.9.2. Audit One results show evidence of puberty education *presence* in quantitative incidence (n=19), and qualitative locational strength in the cells of Audit Table 6.9.2 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of *presence* of puberty education vocabulary, however slight, in Content descriptions (n=19), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative *potential* (n=19) for integrated puberty education, colour-coded in green for verbs and nouns.
### Appendix I HPE LA, Year 10: Audit Table 6.9.3

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<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.1 Recog</td>
</tr>
<tr>
<td>A. Factual Knowledge</td>
<td>A.a Terminology</td>
</tr>
<tr>
<td></td>
<td>A.b Specific</td>
</tr>
<tr>
<td>B. Conceptual Knowledge</td>
<td>B.a Classes</td>
</tr>
<tr>
<td></td>
<td>B.b Principles</td>
</tr>
<tr>
<td></td>
<td>B.c Models</td>
</tr>
<tr>
<td>C. Procedural Knowledge</td>
<td>C.a Skills</td>
</tr>
<tr>
<td></td>
<td>C.b Techniques</td>
</tr>
<tr>
<td></td>
<td>C.c Criteria</td>
</tr>
<tr>
<td>D. Meta-Cognitive Knowledge</td>
<td>D.a Strategic</td>
</tr>
<tr>
<td></td>
<td>D.b Conditional</td>
</tr>
<tr>
<td></td>
<td>D.c Self-knowledge</td>
</tr>
</tbody>
</table>

Of 19 Content descriptions in the HPE Year 10 curriculum for students aged 15 (ACARA, 2014a, v7.2 October), 19 Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Personal, social and community health</td>
<td>Evaluate factors that shape identities and analyse how individuals impact the identities of others.</td>
<td>5.2 Db</td>
<td>Evaluate factors that shape their identities and wellbeing, including personal attitudes and beliefs, family, peers, societal norms and expectations, the media and stereotypes. Evaluate the impact of specific pubertal changes and transitions on relationships, such as same-sex attraction and peer pressure to perform sexually or use unhealthy/illegal substances. Evaluate the impact of specific pubertal changes and transitions on relationships, such as same-sex attraction and peer pressure to perform sexually or use unhealthy/illegal substances. Plan, rehearse and evaluate options for negotiating situations where their own or others’ health, safety and wellbeing may be at risk, such as gender violence, substance abuse, discrimination and exclusion. Practise and evaluate responses in situations where external influences, including peer pressure and media stereotypes, may impact on their ability to make healthy, responsible and safe choices.</td>
</tr>
<tr>
<td>Being healthy, safe and active</td>
<td>Evaluate the impact of changes and transitions on relationships.</td>
<td>5.2 Da</td>
<td>Evaluate factors that shape their identities and wellbeing, including personal attitudes and beliefs, family, peers, societal norms and expectations, the media and stereotypes. Evaluate the impact of specific pubertal changes and transitions on relationships, such as same-sex attraction and peer pressure to perform sexually or use unhealthy/illegal substances. Evaluate the impact of specific pubertal changes and transitions on relationships, such as same-sex attraction and peer pressure to perform sexually or use unhealthy/illegal substances. Plan, rehearse and evaluate options for negotiating situations where their own or others’ health, safety and wellbeing may be at risk, such as gender violence, substance abuse, discrimination and exclusion. Practise and evaluate responses in situations where external influences, including peer pressure and media stereotypes, may impact on their ability to make healthy, responsible and safe choices.</td>
</tr>
<tr>
<td>Communicating and interacting for health and wellbeing</td>
<td>Plan, rehearse and evaluate options (including CPR and first aid) for managing situations where their own or others’ health, safety and wellbeing may be at risk.</td>
<td>6.2 Da</td>
<td>Explore the role that empathy, ethical decision making and personal responsibility play in maintaining respectful relationships and enjoying participation in peer pubertal activities. Evaluate likely pubertal relationships, issues and situations, propose appropriate emotional responses, and reflect on the impact of likely outcomes on health and wellbeing. Evaluate and implement health information from a range of sources to health decisions and situations likely to be experienced by pubertal students.</td>
</tr>
</tbody>
</table>
|                                          | Propose, practise and evaluate responses in situations where external influences may impact on their ability to make healthy and safe choices.

Evaluate situations and propose appropriate emotional responses and then reflect on possible outcomes of different responses.

Evaluate and apply health information from a range of sources to health decisions and situations.

Evaluate and apply health information from a range of sources to health decisions and situations.

Evaluate the impact of changes and transitions on relationships.
| Contributing to healthy and active communities | Plan, implement and critique strategies to enhance the health, safety and wellbeing of their communities.  
Plan and evaluate new and creative interventions that promote their own and others’ connection to community and natural and built environments.  
Critique behaviours and contextual factors that influence the health and wellbeing of their communities. | 6.2 Da  
6.2 Db  
5.2 Db | Propose and evaluate strategies to enhance the health, safety, diversity and wellbeing of their communities.  
Critique a range of personal, social, environmental and economic factors and behaviours that positively and negatively influence the health, equity and wellbeing of their communities.  
Plan new practical and creative interventions to redress the unrepresentative, stereotypical body images, e.g. large perky breasts/large sculpted, oiled muscles, perfect teeth caps, and sexualised posturing, that are constantly used in advertising and television. |
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Movement and physical activity</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Moving our body | Perform and refine specialised movement skills in challenging movement situations.  
Evaluate own and others’ movement compositions and provide and apply feedback in order to enhance performance situations.  
Develop, implement and evaluate movement concepts and strategies for successful outcomes.” | 3.2 Bb  
5.2 Db  
6.1 Cc | Role play specialised movement skills for challenging situations, such as animal/human rescue.  
Evaluate own and others’ movement compositions, and provide feedback in order to enhance satisfactory experiences and healthy outcomes for pubertal students  
Evaluate rules and scoring systems of activities pubertal students engage in, and on their own adherence to rules and whether they acted fairly, ethically and with consideration of the rights and feelings of others. |
| Understanding movement | Design, implement and evaluate personalised plans for improving or maintaining their own and others’ physical activity and fitness levels.  
Analyse the impact of effort, space, objects and people when composing and performing movement sequences.  
Examine the role physical activity, outdoor recreation and sport play in the lives of Australians and investigate how this has changed over time. | 6.1 Dc  
6.1 Bc  
5.2 Db | Explore different components of health-related and skill-related fitness, and media body-image stereotypes, to plan a personalised program for improving or maintaining safe and healthy body shapes/weights.  
Evaluate the impact and satisfaction of peoples’ effort and time spent in promoting the health, safety and wellbeing of a disadvantaged group, such as the disabled, aged or asylum-seekers.  
Investigate how social, cultural and economic factors and prior pubertal experiences of activities influence their own and others’ participation in physical activity across the lifespan, and over generations, e.g. anorexia/bulimia. |
### Learning through movement

<table>
<thead>
<tr>
<th>Devise, implement and refine strategies demonstrating leadership and collaboration skills when working in groups or teams. Transfer understanding from previous movement experiences to create solutions to movement challenges. Reflect on how fair play and ethical behaviour can influence the outcomes of movement activities.</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.3 Db</td>
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<tr>
<td>6.3 Db</td>
</tr>
<tr>
<td>6.3 Dc</td>
</tr>
</tbody>
</table>

#### Summary of Audit Table and Three-audit Box 6.9.3

There are 19 Content descriptions in this HPE curriculum for Year 10 students aged 15 (ACARA, v7.2, October 2014), as shown here in Box 6.9.3. Audit One results show evidence of puberty education presence in quantitative incidence (n=19), and qualitative locational strength in the cells of Audit Table 6.9.3 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=19), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=19) for integrated puberty education, colour-coded in green for verbs and nouns.
### Appendix J Design and Technologies LA, Year 1: Audit Table 6.10.1.1

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<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Factual Knowledge</td>
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</tr>
<tr>
<td>A.a Terminology</td>
<td>1.1 Recog</td>
</tr>
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<td></td>
</tr>
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</table>

Of nine Content descriptions in the Design and Technologies Year 1 curriculum for students aged 5 (ACARA, 2014a, v7.2 October), all nine Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

### Appendix J Design and Technologies LA, Year 1: Three-audit Box 6.10.1.1

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</tr>
</thead>
<tbody>
<tr>
<td>Technologies and society</td>
<td>2.1 Identify how people design and produce familiar products, services and environments and consider sustainability to meet personal and local community needs.</td>
<td>4.3 Dc Make a mind-map of design decisions and production steps necessary to meet the health care needs of a baby’s birth, e.g. build hospital/clinic; staff with doctors, pathologists, radiologists; have blood tests, ultrasound scans; midwives deliver babies, give aftercare, encourage breastfeeding.</td>
<td></td>
</tr>
<tr>
<td>Technologies contexts</td>
<td>By the end of Year 2 [the curriculum band for Years Foundation-2] students will have had the opportunity to create designed solutions addressing the three technologies contexts below.</td>
<td>3.1 Bc Implement a variety of technologies for examinations and/or experiments in bodily movement, e.g. showing how knee and shoulder joints work, how blood flows in the body, how hair grows out of a follicle.</td>
<td></td>
</tr>
<tr>
<td>Engineering principles and systems</td>
<td>2.2 Explore how technologies use forces to create movement in products.</td>
<td>2.3 Bc Visit and/or plan a sustainable system of food plant cultivation applicable to a range of different climates, e.g. rainforest, desert, cold climate.</td>
<td></td>
</tr>
<tr>
<td>Food and fibre production</td>
<td>2.3 Explore how plants and animals are grown for food, clothing and shelter and how food is selected and prepared for healthy eating.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food specialisations</td>
<td>3.1 Ba Analyse and plan for technologies that will enable health care and treatments to be dispensed at home, e.g. e-consultation and diagnosis, 3-D printer for splint. Speculate on global futures.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Materials and technologies specialisations</td>
<td>2.4 Explore the characteristics and properties of materials and components that are used to produce designed solutions.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Processes and production skills**

Creating designed solutions by:
| Investigating | 2.5 Explore needs or opportunities for designing and the technologies needed to realise designed solutions. | 2.7 Cc | Outline the shape and resources necessary to build a house for students’ families, and then also for a safe and suitable shelter for food animal families, e.g. sows and hens. |
| Generating | 2.6 Visualise, generate, develop and communicate design ideas through describing, drawing and modelling. | 6.1 Ca | Implement media and communication technologies to outline design ideas addressing a health/social problem that students may face, e.g. obesity or violence. |
| Producing | 2.7 Use material, components, tools, equipment and techniques to safely make designed solutions. | 6.3 Dc | Critique own designed solution for a house plan in light of personal criteria for emergent technologies contexts, e.g. renewable energy sources, energy-efficient construction methods and materiel, smart appliances, voice-operated computers. |
| Evaluating | 2.8 Use personal preferences to evaluate the success of design ideas, processes and solutions including their care for environment. | 5.2 Dc | Choose a life form (animal, bird, marine, insect) that they would prefer to save in case of environmental disaster. Describe how they would care for it, what design ideas, processes and solutions they would use for the purpose. |
| Collaborating and managing | 2.9 Sequence steps for making designed solutions and working collaboratively. | 3.2 Cc | Make a mind-map of steps for working collaboratively with other family members to make their house safe for a toddler. |

**Summary of Audit Table and Three-audit Box 6.10.1.1**

There are nine Content descriptions in this Design and Technologies curriculum for Year 1 students aged 5 (ACARA, v7.2, October 2014), as shown here in Box 6.10.1.1. Audit One results show evidence of puberty education presence in quantitative incidence (n=9), and qualitative locational strength in the cells of Audit Table 6.10.1.1 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=9), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=9) for integrated puberty education, colour-coded in green for verbs and nouns.
### Appendix J Design and Technologies LA, Year 5: Audit Table 6.10.1.2

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<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>A.a Terminology</td>
<td></td>
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<tr>
<td>A.b Specific</td>
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<td>B. Conceptual Knowledge</td>
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<tr>
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<td>D. Meta-Cognitive Knowledge</td>
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<tr>
<td>D.b Conditional</td>
<td></td>
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<tr>
<td>D.c Self-knowledge</td>
<td></td>
</tr>
</tbody>
</table>

Of ten Content descriptions in the Design and Technologies Year 5 curriculum for students aged 10 (ACARA, 2014a, v7.2 October), nine Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

Appendix J Design and Technologies LA, Year 5: Three-audit Box 6.10.1.2

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
<th>Audit One: Evidence of presence in Grid cells, of quantitative incidence and qualitative strength</th>
<th>Audit Three: Evidence of qualitative potential for integrated puberty education in Content descriptions, shown in green for cognitive processes and knowledge content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technologies and society</td>
<td>6.1 Investigate how people in design and technologies occupations address competing considerations including sustainability in the design of products, services and environments and for current and future use.</td>
<td>2.7 Cc</td>
<td>Differentiate the competing design and sustainability considerations in products, services and systems for new babies, e.g. home versus hospital births, breastfeeding versus formula bottle feeding, cloth nappies versus disposables</td>
</tr>
<tr>
<td>Technologies contexts</td>
<td>By the end of Year 6 [the curriculum band for Years 5-6] students will have had the opportunity to create designed solutions addressing the four technologies contexts below.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering principles and systems</td>
<td>6.2 Investigate how forces or electrical energy control movement, sound or light in a designed product or system.</td>
<td>2.1 Ab</td>
<td>Generate a map of forces and electrical energy that may be used to control movement, sound or light in a system, for people or animals, sustaining safe and healthy lives or impacting them harmfully, e.g. underwater sound causing whales to beach themselves.</td>
</tr>
<tr>
<td>Food and fibre production</td>
<td>6.3 Investigate how and why food and fibre are produced in managed environments.</td>
<td>4.1 Bc</td>
<td>Analyse and attribute the competing cost and resource management pressures to feed and clothe 7.4 billion people, e.g. for the live animal export industry.</td>
</tr>
<tr>
<td>Food specialisations</td>
<td>6.4 Investigate the role of food preparation in maintaining good health and the importance of food safety and hygiene.</td>
<td>2.7. Bc</td>
<td>Compare and evaluate health benefits and potential sicknesses from some perishable foods, e.g. strawberries and Vitamin C, possible hives; soft cheese and calcium, possible (deadly) listeria.</td>
</tr>
<tr>
<td>Materials and technologies specialisations</td>
<td>6.5 Investigate characteristics and properties of a range of materials, systems, components, tools and equipment and evaluate the impact of their use.</td>
<td>5.2 Ab</td>
<td>Organise and critique a range of existing, emergent and imagined technologies and systems tools used locally, regionally and globally for the prevention of STIs, from Chlamydia to HIV-related disease and AIDS.</td>
</tr>
</tbody>
</table>

Knowledge and understanding

Processes and production skills

Creating designed solutions by:
Investigating
6.6 Critique needs or opportunities for designing and investigate materials, components, tools, equipment and processes to achieve intended designed solutions.

5.2 Db
Generate a design plan to meet the needs or opportunities of house shape, materials, tools, components, processes and resources, for two very different Australian climate zones.

Generating
6.7 Generate, develop and communicate design ideas and processes for audiences using appropriate technical terms and graphical representation techniques.

Generating
6.7 Generate, develop and communicate design ideas and processes for audiences using appropriate technical terms and graphical representation techniques.

Producing
6.8 Apply safe procedures when using a variety of materials, components, tools, equipment and techniques to make designed solutions.

6.2 Db
Reflect on and critique another student’s building design solution (see 6.6), e.g. analyse project plan and production procedures for safety and efficiency.

Evaluating
6.9 Negotiate criteria for success that include consideration of sustainability to evaluate design ideas, processes and solutions.

5.2 Cc
Generate and compare lists of criteria for success and sustainability to evaluate a particular design problem or solution.

Collaborating and managing
6.10 Develop project plans that include consideration of resources when making designed solutions individually and collaboratively.

6.1 Cc
Reflect on and critique another student’s building design solution (see 6.6) considering availability, sustainability and cost effectiveness of resources.

Summary of Audit Table and Three-audit Box 6.10.1.2

There are ten Content descriptions in this Design and Technologies curriculum for Year 5 students aged 10, as shown here in Box 6.10.1.2. Audit One results show evidence of puberty education presence in quantitative incidence (n=9), and qualitative locational strength in the cells of Audit Table 6.10.1.2 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=9), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=10) for integrated puberty education, colour-coded in green for verbs and nouns.
Appendix J Design and Technologies LA, Year 10: Audit Table 6.10.1.3

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.1 Recog</td>
</tr>
<tr>
<td>A. Factual Knowledge</td>
<td></td>
</tr>
<tr>
<td>A.a Terminology</td>
<td></td>
</tr>
<tr>
<td>A.b Specific</td>
<td></td>
</tr>
<tr>
<td>B. Conceptual</td>
<td></td>
</tr>
<tr>
<td>Knowledge</td>
<td>B.a Classes</td>
</tr>
<tr>
<td>B.b Principles</td>
<td></td>
</tr>
<tr>
<td>B.c Models</td>
<td></td>
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<tr>
<td>C. Procedural</td>
<td></td>
</tr>
<tr>
<td>Knowledge</td>
<td>C.a Skills</td>
</tr>
<tr>
<td>C.b Techniques</td>
<td></td>
</tr>
<tr>
<td>C.c Criteria</td>
<td></td>
</tr>
<tr>
<td>D. Meta-</td>
<td></td>
</tr>
<tr>
<td>Cognitive Knowledge</td>
<td>D.a Strategic</td>
</tr>
<tr>
<td>D.b Conditional</td>
<td></td>
</tr>
<tr>
<td>D.c Self-</td>
<td></td>
</tr>
<tr>
<td>Knowledge</td>
<td></td>
</tr>
</tbody>
</table>

Of 12 Content descriptions in the Design and Technologies Year 10 curriculum for students aged 15 (ACARA, 2014a, v7.2 October), all 12 Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

### Appendix J Design and Technologies LA, Year 10: Three-audit Box 6.10.1.3

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
<th>Audit One: Evidence of presence in Grid cells, of quantitative incidence and qualitative strength</th>
<th>Audit Three: Evidence of qualitative potential for integrated puberty education in Content descriptions, shown in green for cognitive processes and knowledge content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge and understanding</td>
<td>5.2 Db</td>
<td></td>
<td>Generate a flow-chart or mind-map of students’ own designed solutions for global preferred futures involving population and demographic measures, including research on expertise from specialist organisations, e.g. Population Council, WHO and the UN.</td>
</tr>
<tr>
<td>Technologies and society</td>
<td>5.2 Da</td>
<td>Analyse and attribute products, services and intellectual environments conducive to global population sustainability, e.g. girls’ education, contraception, replacing early marriage.</td>
<td></td>
</tr>
<tr>
<td>Technologies contexts</td>
<td>By the end of Year 10 [the curriculum band for Years 9-10] students will have had the opportunity to design and create for one or more of the technologies contexts below.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering principles and systems</td>
<td>5.2 Bb</td>
<td>Evaluate how the characteristics and properties of materials are combined with force, motion and energy to create solutions to an issue or challenge of puberty.</td>
<td></td>
</tr>
<tr>
<td>Food and fibre production</td>
<td>5.2 Db</td>
<td>Make judgments on the ethical and sustainable production and marketing of three controversial food or fibre products, e.g. ‘scientifically’ captured whale meat, genetically-modified mosquito-repellent fabric.</td>
<td></td>
</tr>
<tr>
<td>Food specialisations</td>
<td>5.2 Cc</td>
<td>Compare and evaluate health outcomes and potential consequences of different treatments for an eating/body dysmorphic disorder, e.g. outpatient individual Cognitive Behavioural Therapy or group counseling, inpatient supervision or nasal-gastric forced feeding.</td>
<td></td>
</tr>
<tr>
<td>Materials and technologies specialisations</td>
<td>10.6 Investigate and make judgments on how the characteristics and properties of materials, systems, components, tools and equipment can be combined to create designed solutions.</td>
<td>5.2 Cb</td>
<td>Considering properties and characteristics of resources appropriate for purpose, ethics, social values and sustainability factors, generate and plan designed solutions for affordable yet safe and private community housing.</td>
</tr>
<tr>
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</tr>
<tr>
<td>10.7 Investigate and make judgments, within a range of technologies specifications, on how technologies can be combined to create designed solutions.</td>
<td>5.2 Cb</td>
<td>Make judgments, within a range of technologies specifications, on how technologies can be combined to create a designed solution to a pubertal issue, problem or challenge.</td>
<td></td>
</tr>
</tbody>
</table>

### Processes and production skills

**Creating designed solutions by:**

#### Investigating

| 10.8 Critique needs or opportunities to develop design briefs and investigate and select an increasingly sophisticated range of materials, components, tools and equipment to develop design ideas. | 5.2 Cc | Considering local area needs and opportunities, generate a plan and justify the chosen technologies, materials and systems in a designed solution for a pubertal health issue, e.g. psychological counselling, sexual/reproductive health. |

#### Generating

| 10.9 Apply design thinking, creativity, innovation and enterprise skills to develop, modify and communicate design ideas of increasing sophistication. | 6.1 Dc | Create and successfully communicate an innovative and sustainable design solution, with clear production/management plans sequenced using digital techniques, addressing a chosen pubertal health issue, e.g. alcohol/tobacco, school achievement, peer or parental relationships. |

#### Producing

| 10.10 Work flexibly to safely test, select, justify and use appropriate technologies and processes to make designed solutions. | 6.3 Cb | Work flexibly to safely test, select, justify and use appropriate technologies and processes to make designed solutions involving conception and contraception. |

#### Evaluating

| 10.11 Evaluate design ideas, processes and solutions against comprehensive criteria for success recognising the need for sustainability. | 5.2 Da | In light of criteria for success and appropriate technologies, reflect on and modify another student’s design solution for a pubertal health issue, e.g. analyse project plan and production procedures for safety and efficiency, attribute cost/benefits of technologies contexts. |

#### Collaborating and managing

| 10.12 Develop project plans using digital technologies to plan and manage projects individually and collaboratively, taking into consideration time, cost, risk and production processes. | 6.2 Db | Individually and collaboratively, use digital technologies to plan and manage a project involving a pubertal issue or challenge, while taking time, cost, risk and production processes into consideration. |
Summary of Audit Table and Three-audit Box 6.10.1.3
There are 12 Content descriptions in this Design and Technologies curriculum for Year 10 students aged 15 (ACARA, v7.2, October 2014), as shown here in Box 6.10.1.3. Audit One results show evidence of puberty education presence in quantitative incidence (n=12), and qualitative locational strength in the cells of Audit Table 6.10.1.3 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=12), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=12) for integrated puberty education, colour-coded in green for verbs and nouns.
Appendix J Digital Technologies LA, Year 1: Audit Table 6.10.2.1

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.1 Recog</td>
</tr>
<tr>
<td>A. Factual Knowledge</td>
<td>A.a Terminology</td>
</tr>
<tr>
<td></td>
<td>A.b Specific</td>
</tr>
<tr>
<td>B. Conceptual Knowledge</td>
<td>B.a Classes</td>
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<tr>
<td></td>
<td>B.b Principles</td>
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<tr>
<td></td>
<td>B.c Models</td>
</tr>
<tr>
<td>C. Procedural Knowledge</td>
<td>C.a Skills</td>
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<tr>
<td></td>
<td>C.b Techniques</td>
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<tr>
<td></td>
<td>C.c Criteria</td>
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<tr>
<td>D. Meta- Cognitive Knowledge</td>
<td>D.a Strategic</td>
</tr>
<tr>
<td></td>
<td>D.b Conditional</td>
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<tr>
<td></td>
<td>D.c Self- knowledge</td>
</tr>
</tbody>
</table>

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|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

Of six Content descriptions in the Digital Technologies Year 1 curriculum for students aged 5 (ACARA, 2014a, v7.2 October), all six Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

## Appendix J Digital Technologies LA, Year 1: Three-audit Box 6.10.2.1

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit One: Evidence of presence in Grid cells, of quantitative incidence and qualitative strength</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
<th>Audit Three: Evidence of qualitative potential for integrated puberty education in Content descriptions, shown in green for cognitive processes and knowledge content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital systems</td>
<td>2.1 Identify and use digital systems (hardware and software components) for a purpose.</td>
<td>3.2 Ba</td>
<td>Represent a sample of family members’ usage of different information systems, e.g. grandfather uses wall telephone only, parents use mobile/computers/pads and Ebay, older sibling uses computer/game consoles and Facebook.</td>
</tr>
<tr>
<td>Representation of data</td>
<td>2.2 Recognise and explore patterns in data and represent data as pictures, symbols and diagrams.</td>
<td>4.2 Ab</td>
<td>Represent simple pubertal data and/or patterns, e.g. girl/boy height charts, as a symbol set, picture or diagram.</td>
</tr>
<tr>
<td>Collecting, managing and analysing data</td>
<td>2.3 Collect, explore and sort data, and use digital systems to present the data creatively.</td>
<td>4.2 Da</td>
<td>Make a 3D model, eg, box or papier-mâché nests, showing personal, family and classroom networks, and applicable data formats, e.g. historical family photos, contemporary Cloud or YouTube link.</td>
</tr>
<tr>
<td>Creating digital solutions by:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Defining</td>
<td>2.4 Follow, describe and represent a sequence of steps and decisions (algorithms) needed to solve simple problems.</td>
<td>6.1 Cc</td>
<td>Make a mind-map of steps and decisions needed to solve a simple family or pubertal issue, e.g. coping with siblings, or advanced growth-for-age, or tense friendship situations.</td>
</tr>
<tr>
<td>Designing</td>
<td>This sub-strand begins in Year 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Implementing</td>
<td>This sub-strand begins in Year 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluating</td>
<td>2.5 Explore how people safely use common information systems to meet information, communication and recreation needs.</td>
<td>3.2 Ca</td>
<td>Explain how people you know safely use common information systems to meet their information, friend communication and recreation needs.</td>
</tr>
</tbody>
</table>
Collaborating and managing

| 2.6 Work with others to create and organise ideas and information using information systems, and share these in safe online environments. |
|---|---|
| 6.3 Ce | Work with others in mixed gender groups with digital systems (text, images, audio) to plan and create a strategy of self-protection that each child could use, and then safely share this online. |

**Summary of Audit Table and Three-audit Box 6.10.2.1**

There are six Content descriptions in this Digital Technologies curriculum for Year 1 students aged 5 (ACARA, v7.2, October 2014), as shown here in Box 6.10.2.1. Audit One results show evidence of puberty education presence in quantitative incidence (n=6), and qualitative locational strength in the cells of Audit Table 6.10.2.1 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=6), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=6) for integrated puberty education, colour-coded in green for verbs and nouns.
Appendix J Digital Technologies LA, Year 5: Audit Table 6.10.2.2

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
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</thead>
<tbody>
<tr>
<td>A. Factual Knowledge</td>
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<td>A.b Specific</td>
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<tr>
<td>D. Meta-Cognitive Knowledge</td>
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<td>D.b Conditional</td>
<td></td>
</tr>
<tr>
<td>D.c Self-knowledge</td>
<td></td>
</tr>
</tbody>
</table>

Of nine Content descriptions in the Digital Technologies Year 5 curriculum for students aged 5 (ACARA, 2014a, v7.2 October), six Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

### Appendix J Digital Technologies LA, Year 5: Three-audit Box 6.10.2.2

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative presence of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Digital systems</td>
<td>6.1 Investigate the main components of common digital systems, their basic functions and interactions and how such digital systems may connect together to form networks to transmit data.</td>
<td>3.1 Ba</td>
<td>Represent pubertal data and interactions as a symbol set, picture or diagram, and show how they connect together in a network, e.g. hormone releases in girls and boys.</td>
</tr>
<tr>
<td>Representation of data</td>
<td>6.2 Investigate how digital systems use whole numbers as a basis for representing all types of data.</td>
<td>-----</td>
<td>Represent all types of data pertaining to demographics, e.g. nations’ population numbers, GDP, Gross Happiness Index, proportion of forced child marriages, in a digital system.</td>
</tr>
</tbody>
</table>

### Knowledge and understanding

#### Processes and production skills

| Collecting, managing and analysing data | 6.3 Acquire, store and validate different types of data, and use a range of commonly available software to interpret and visualise data in context to create information. | 6.1 Bc | Make maps or models of personal, family and classroom networks, and different data formats, e.g. hard copy family photos, recorded sound and film on vinyl/cassette, VHS/DVD, streaming via Cloud or Youtube link, to create context and meaning. |

### Creating digital solutions by:

#### Defining

| 6.4 Define problems in terms of data and functional requirements, and identify features similar to previously solved problems. | 2.2 Ab | Make a mind-map of the data types, functional requirements, steps and decisions previously used to solve problems, and apply it to a pubertal issue, e.g. suitable menstrual products for girls, appropriate knowledge-seeking strategies for boys regarding erections/ejaculations. |

#### Designing

| 6.5 Design a user interface for a digital system, generating and considering alternative designs. 6.6 Design, modify and follow simple algorithms represented diagrammatically and in English involving sequences of steps, branching, and iteration (repetition). | 6.1 Ba | Design a user interface for a digital system that would allow students to comfortably and safely discuss/explore sensitive issues, e.g. contraception, sexual responsibility. 6.6 Create a diagram or flow chart showing simple algorithms and sequences for pregnancy. |
| Implementing | 6.7 Implement digital solutions as simple visual programs involving branching, iteration (repetition), and user input. | 6.8 Differentiate and evaluate, for ease of user input and effective digital solutions, simple visual programs about pubertal issues and/or student questions. |
| Evaluating | 6.8 Explain how developed solutions and existing information systems are sustainable and meet local community needs, considering opportunities and consequences for future applications. | 4.3 Db Compile and correlate, where possible, four lists: a) existing information systems/developed solutions dealing with students’ pubertal issues and questions, b) criteria for sustainability, c) local community needs, and d) opportunities/consequences for future applications. |
| Collaborating and managing | 6.9 Manage the creation and communication of ideas and information including online collaborative projects, applying agreed ethical, social and technical protocols. | 6.1 Db What are/should be the “agreed ethical, social and technical protocols” for creating and disseminating ideas and information about puberty, sexuality, and reproductive health and safety issues? Map these and design an online collaborative project answering this question. |

**Summary of Audit Table and Three-audit Box 6.10.2.2**

There are nine Content descriptions in this Digital Technologies curriculum for Year 5 students aged 10 (ACARA, v7.2, October 2014), as shown here in Box 6.10.2.2. Audit One results show evidence of puberty education presence in quantitative incidence (n=6), and qualitative locational strength in the cells of Audit Table 6.10.2.2 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of presence of puberty education vocabulary, however slight, in Content descriptions (n=6), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative potential (n=9) for integrated puberty education, colour-coded in green for verbs and nouns.
## Appendix J Digital Technologies LA, Year 10: Audit Table 6.10.2.3

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.1 Recog</td>
</tr>
<tr>
<td>A. Factual Knowledge</td>
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</tr>
<tr>
<td>B. Conceptual Knowledge</td>
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</tr>
<tr>
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<tr>
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<tr>
<td></td>
<td>D.c Self-Knowledge</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
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<th>4.3</th>
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<th>6.2</th>
<th>6.3</th>
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Of 11 Content descriptions in the Digital Technologies Year 10 curriculum for students aged 15 (ACARA, 2014a, v7.2 October), nine Content descriptions indicate evidence of puberty education presence, as measured by quantitative incidence and qualitative location/strength in this Audit One.

### Appendix J Digital Technologies LA, Year 10: Three-audit Box 6.10.2.3

<table>
<thead>
<tr>
<th>Sub-strands</th>
<th>Audit Two: Evidence of qualitative <em>presence</em> of puberty education in Content descriptions, shown in blue for cognitive processes/verbs, and in red for knowledge content/nouns</th>
<th>Audit One: Evidence of <em>presence</em> in Grid cells, of quantitative incidence and qualitative strength</th>
<th>Audit Three: Evidence of qualitative <em>potential</em> for integrated puberty education in Content descriptions, shown in green for cognitive processes and knowledge content</th>
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<tbody>
<tr>
<td><strong>Knowledge and understanding</strong></td>
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<tr>
<td>Digital systems</td>
<td>10.1 Investigate the role of hardware and software in managing, controlling and securing the movement of and access to data in networked digital systems.</td>
<td>4.2 Ca### 4.2 Ca Create a collaborative online report on the role of hardware and software in managing, controlling and securing the networked system access/restriction to information about sexuality and reproductive health and safety.</td>
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<td>Representation of data</td>
<td>10.2 Analyse simple compression of data and how content data are separated from presentation.</td>
<td>4.1 Ba### 4.1 Ba Evaluate the network censorship, and teachers’ self-censorship, of school-based information and education about contentious sexuality issues.</td>
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<td><strong>Processes and production skills</strong></td>
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<td>Collecting, managing and analysing data</td>
<td>10.3 Develop techniques for acquiring, storing and validating quantitative and qualitative data from a range of sources, considering privacy and security requirements. 10.4 Analyse and visualise data to create information and address complex problems; and model processes, entities and their relationships using structured data.</td>
<td>5.1 Db### 5.1 Db Create a database of quantitative and qualitative data about adolescent sexuality development and its education from a range of sources, considering privacy and security requirements. 6.3 Db### 6.3 Db Evaluate the user experiences of a digital system that addresses the pubertal needs of class members, and compare it to an alternative design, using criteria including functionality, accessibility, usability, and aesthetics. Design algorithms relating to dating websites, representing them</td>
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<td><strong>Creating digital solutions by:</strong></td>
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<td>Defining</td>
<td>10.5 Precisely define and decompose real-world problems, taking into account functional and non-functional requirements and including interviewing stakeholders to identify needs.”</td>
<td>5.2 Dc### 5.2 Dc In an online collaborative project, define and decompose one real-world global pubertal problem impacting girls, e.g. forced child marriage, and one impacting boys, e.g. damaging messages of pornography. Add students’ suggested solutions.</td>
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<td>Designing</td>
<td>10.6 Design the user experience of a digital system, evaluating alternative designs against criteria including functionality, accessibility, usability, and aesthetics. 10.7 Design algorithms represented diagrammatically and</td>
<td>6.3 Dc### 6.3 Dc Evaluate the user experiences of a digital system that addresses the pubertal needs of class members, and compare it to an alternative design, using criteria including functionality, accessibility, usability, and aesthetics. Design algorithms relating to dating websites, representing them</td>
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<tr>
<td>Implementing</td>
<td>10.8 Implement modular programs, applying selected algorithms and data structures including using an object-oriented programming language.</td>
<td>----</td>
<td>Implement modular programs regarding pubertal phases and experiences, applying selected algorithms and data structures including using a relationship-oriented programming language.</td>
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<tr>
<td>Evaluating</td>
<td>10.9 <strong>Critically evaluate</strong> how well developed solutions and existing information systems and policies, take account of future risks and sustainability and provide opportunities for innovation and enterprise.</td>
<td>5.2 Db</td>
<td>Critically evaluate how existing information systems and policies on education for pubertal, sexual and reproductive health and safety take account of future health/wellbeing risks and social sustainability, and provide expression for human rights.</td>
</tr>
</tbody>
</table>
| Collaborating and managing | 10.10 Create interactive solutions for sharing ideas and information online, taking into account social contexts and legal responsibilities.  
10.11 Plan and manage projects using an iterative and collaborative approach, identifying risks and considering safety and sustainability. | 6.3 Db | 6.2 Db | Create interactive solutions for sharing pubertal issues and information online, taking into account social contexts and legal responsibilities.  
Plan and manage a project helping students with pubertal problems, using an iterative and collaborative approach, identifying risks and considering safety and sustainability. |

**Summary of Audit Table and Three-audit Box 6.10.2.3**
There are 11 Content descriptions in this Digital Technologies curriculum for Year 10 students aged 15 (ACARA, v7.2, October 2014), as shown here in Box 6.10.2.3. Audit One results show evidence of puberty education *presence* in quantitative incidence (n=9), and qualitative locational strength in the cells of Audit Table 6.10.2.3 (see Anderson & Krathwohl, 2001). Audit Two results show qualitative evidence of *presence* of puberty education vocabulary, however slight, in Content descriptions (n=9), colour-coded in blue for verbs, and in red for nouns. Audit Three results show evidence of qualitative *potential* (n=11) for integrated puberty education, colour-coded in green for verbs and nouns.
Appendix K Puberty Education: Teacher-preparation standards for effective school instruction

These standards address “unique elements intrinsic to sexuality education instruction” (2014, p. 396). They were developed by an expert panel of the Future of Sex Education (FoSE) Initiative “to guide curriculum, instruction, and assessment decisions in teacher-preparation programs serving candidates who will be responsible for teaching sexuality education... [The standards] represent an unprecedented unified effort to enable prospective health education teachers to become competent in teaching methods, theory, the practice of pedagogy, content, and skills, specifically within sexuality education” (p. 399). Each standard includes a rationale, set of indicators and examples (pp. 411-415). Successful teacher candidates will indicate their competence in:

1. **Professional disposition:** Demonstrate comfort with, commitment to and self-efficacy in teaching sexuality education (p. 406).
   - Demonstrate the ability to teach in ways that communicate that sexual[ity] development [see Tolman & McClelland, 2012] is an inherent part of child and adolescent development.
   - Describe the importance of sexuality education as an integral part of K-12 health education.
   - Demonstrate awareness of their own personal values, beliefs, biases, and experiences related to sexuality education.
   - Demonstrate how their own personal values, beliefs, biases, and experiences can influence the way they teach sexuality education.
   - Model self-efficacy to teach sexuality education in age- and developmentally-appropriate ways.
   - Select their own continuing professional development needs relating to school-based sexuality education.

2. **Diversity and equity:** Show respect for individual, family and cultural characteristics and experiences that may influence student learning about sexuality (p. 406).
   - Demonstrate the ability to create a safe and inclusive classroom environment for all students.
   - Describe how students’ diverse backgrounds and experiences may affect students’ personal beliefs, values, and knowledge about sexuality.
   - Demonstrate the ability to select or adapt sexuality education materials that both reflect the range of characteristics of the students and community and respect the visible and invisible diversities that exist in every classroom.
### 3. Content knowledge: Have accurate knowledge of the biological, emotional and social aspects of human sexuality and the laws relating to sexuality and youth (p. 407).

- Describe accurate and current content, as reflected in the *National Sexuality Education Standards* [FoSEI, 2012], in the following topic areas:
  a. anatomy and physiology,
  b. puberty and adolescent development,
  c. sexual orientation and gender identity and expressions,
  d. pregnancy and reproduction,
  e. sexually transmitted diseases [sic] and HIV,
  f. healthy relationships, and,
  g. personal safety.

- Explain the stages of child and adolescent sexual development including cognitive, physical, and emotional changes.
- Describe at least three health behaviour theories relevant to sexual health promotion.
- Describe current federal and state laws relating to sexuality that have an impact on youth.
- Demonstrate the ability to identify accurate and reliable sources of information to keep their own sexuality related content knowledge current and relevant.
- Demonstrate the ability to identify valid and reliable sexual health information, health products, and community services relevant to students.

### 4. Legal and professional ethics: Make decisions based on applicable federal, state and local laws, regulations and policies as well as professional ethics (p. 408).

- Explain how to determine relevant state and school district reporting laws and procedures relating to student disclosure regarding sexual abuse, incest, dating violence, and other associated sexual health issues.
- Explain the policies and ethics associated with student confidentiality relating to sexuality and sexual health issues.
- Describe when and from whom to seek guidance on sexuality related ethical/legal matters when there is no policy or the policy is unclear.
- Differentiate between professional and unprofessional conduct with students, both in and outside of the classroom and school.
### Planning
Plan developmentally and age- and developmentally-appropriate sexuality education that is aligned with standards, policies and laws and reflects the diversity of the community (p. 408).
- Apply learning and behavioural theories to sexuality education lesson planning.
- Apply state and/or district laws, policies, and standards to select and adapt curriculum content that is appropriate and permissible for a district.
- Identify appropriate resources and policies to guide instructional planning.
- Plan effective strategies to teach sexuality education in the cognitive, affective, and behavioural learning domains.
- Plan developmentally and age-appropriate sexuality education instruction.

### Implementation
Use a variety of effective strategies to teach sexuality education (p. 409).
- Demonstrate strategies for creating a safe, respectful learning environment that fosters open discussion about a wide range of sexuality related topics.
- Demonstrate effective classroom management skills specific to sexuality education.
- Engage learners using realistic and relevant situations relating to sexuality education.

### Assessment
Implement effective strategies to assess student knowledge, attitudes and skills in order to improve sexuality education instruction (p. 409).
- Use multiple strategies to assess knowledge, skills, and attitudes [KSA, see Chapter 2.24] about sexuality that are measureable, observable, and aligned with learning objectives.
- Analyse assessment results and determine any necessary changes for future sexuality education instruction.
- Apply assessment results to the continuous improvement of their sexuality education instruction.
