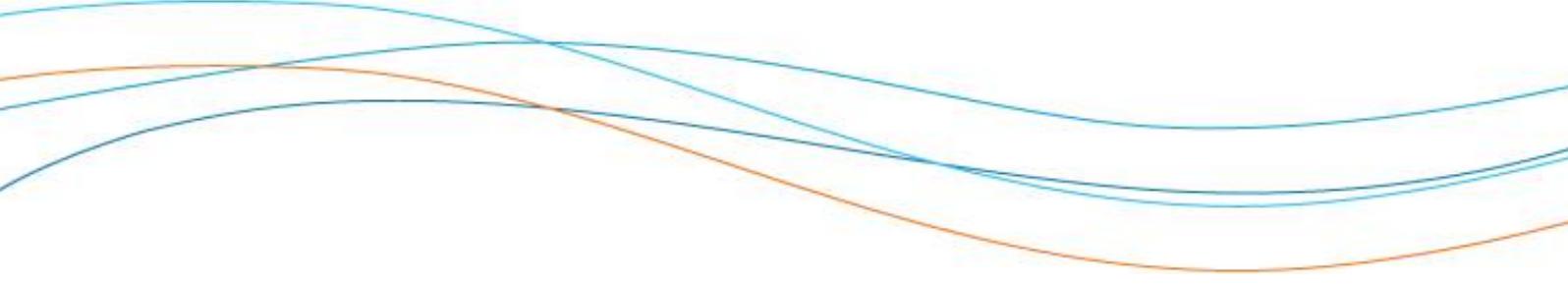


**DRAFT AUSTRALIAN CURRICULUM:
TECHNOLOGIES FOUNDATION TO YEAR 10**

Consultation Report



August 2013

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EXECUTIVE SUMMARY

Introduction

The Australian Curriculum, Assessment and Reporting Authority (ACARA) is responsible for the development of a national curriculum from Foundation to Year 12 in specified learning areas.

In August 2012, ACARA published the *Shape of the Australian Curriculum: Technologies*. During 2012 and 2013, ACARA began the process of developing curriculum for Technologies for Foundation to Year 10 (F–10) in two subjects: Design and Technologies and Digital Technologies.

The draft Australian Curriculum: Technologies Foundation to Year 10 was released for public consultation from 19 February to 10 May 2013.

The draft curriculum comprised a rationale, aims and introduction for the Technologies learning area; a rationale, aims and introduction to each of the two subjects and, for each subject, content descriptions, achievement standards and content elaborations for each band: Foundation to Year 2, Years 3 and 4, Years 5 and 6, Years 7 and 8, and Years 9 and 10.

Purpose of the report

This report presents the key findings from the consultation feedback on the draft Australian Curriculum: Technologies Foundation to Year 10. It outlines the methodology used to collect and analyse consultation data, and summarises the qualitative and quantitative data. This report will inform decisions on revisions to the draft Technologies curriculum.

Consultation processes and participants

Online survey and written submissions

The two main avenues for consultation feedback were through an online survey on the consultation portal of the Australian Curriculum website, and through written submissions sent directly to ACARA.

Feedback was sought on the rationales and aims for the learning area and subjects, the structural coherence of each subject, the coverage and clarity of content, and the clarity, coherence and appropriateness of achievement standards.

Across the Technologies curriculum (Technologies, Design and Technologies and Digital Technologies), ACARA received 352 responses to the online survey: 153 responses for Technologies, 112 responses for Design and Technologies and 87 responses for Digital Technologies. ACARA also received 81 written submissions. Single responses often incorporated the views of many respondents.

Intensive engagement activity

As part of the consultation, 50 schools participated in intensive engagement activities using the draft curriculum. This involved teachers considering the manageability of the draft curriculum, developing assessment items and collecting student work samples in response to these.

Key findings

Overall there was continued support for the development of an Australian Technologies curriculum for all Australian students in Foundation to Year 10. Although there were many suggestions for improvement, there was broad agreement with the structure and nature of the draft Design and Technologies and Digital Technologies curricula.

Strengths

The following strengths were identified:

- rationales and aims for the learning area and each subject
- the strand structure of the subjects
- the key ideas of systems thinking, creating preferred futures and project management
- the links to the general capabilities and the cross-curriculum priorities
- the intent of each of the subjects.

Concerns

Some key issues across the learning area and the two Technologies subjects were identified as requiring specific attention through the revision process. These included:

- greater clarity and simplified language generally, but in particular for Digital Technologies
- consistency of language and pitch across the subjects
- pitch and progression within each subject
- strengthening the focus on the processes and production strand
- manageability of the content (noting that participants in the intensive engagement activity did not identify this as an issue).
- messaging about particular technologies contexts and their relationship to other learning areas.

1. INTRODUCTION

1.1 Background

The draft Technologies curriculum was developed according to a set of design specifications that were approved by ACARA's Board following consultation with state and territory education authorities and are published in ACARA's *Curriculum and Development Process*, Version 6 (2012).

The draft curriculum specifies content and achievement standards for each Technologies subject (Design and Technologies and Digital Technologies) that will provide the basis for consistency in what is to be taught in Foundation to Year 10 in schools. Content refers to the knowledge, understanding and skills to be taught and learned in each subject. Achievement standards refer to descriptions of the quality of learning (the depth of understanding and sophistication of skill) expected of students who have studied the content for the subject.

1.2 Purpose of the report

This report presents the key findings from the consultation feedback on the draft Australian Curriculum: Technologies Foundation to Year 10. It outlines the methodology used to collect and analyse consultation data, and summarises the qualitative and quantitative data. This report will inform decisions on revisions to the draft Technologies curriculum.

2. CONSULTATION PROCESSES AND METHODOLOGY

2.1 Consultation processes

The draft curriculum was made available for nationwide consultation from 19 February to 10 May 2013.

The two main avenues for feedback were through an online survey on the consultation portal of the Australian Curriculum website, and through written submissions sent directly to ACARA.

Opportunities to provide feedback either via the online survey or by written submission were promoted on the ACARA website and through education authorities, professional associations, and academics in the field of education. Reminders were provided to subscribers to ACARA's e-newsletter, *ACARA Update*.

In addition to the nationwide consultation, ACARA conducted an intensive engagement activity with 50 schools.

2.2 Online survey

The online survey comprised a mixture of rating scale questions (four-point Likert scale) and space for comments that focused on suggestions for improvement.

Feedback was sought in relation to the following areas:

- rationale, aims and coherence of the structure for each subject
- coverage and clarity of curriculum content
- clarity and coherence of the achievement standards
- representation of general capabilities and cross-curriculum priorities.

All online survey questions are included in Appendix 1. A summary of respondents to the survey is provided in section 2.6 of this report.

2.3 Written submissions

Written submissions were received from state and territory education authorities, professional associations and bodies and other stakeholders. These typically offered more detailed feedback than was possible via the online survey. Respondents completed a cover sheet which included basic demographic information to assist in collation and analysis of responses. Organisations which provided written submissions are listed in Appendix 2.

2.4 Intensive engagement activity

As part of the consultation, 50 schools participated in intensive engagement activities using the draft curriculum. This involved teachers considering the manageability of the draft curriculum, developing sample assessment items and collecting student work samples.

Detailed information regarding this activity is outlined in the Draft Australian Curriculum: Technologies – Intensive engagement activity consultation report in Appendix 3.

2.5 Methodology

Quantitative data from the online survey are presented in charts and tables throughout this report. All quantitative data were collated and analysed in spread sheets from which charts and tables are produced. The quantitative data are drawn from the online survey while the qualitative data include commentary from the online survey and written submissions.

For questions in the online survey, each rating (strongly agree, agree, disagree and strongly disagree) was assigned a numeric value (for example, strongly agree – 4, agree – 3). Values were totalled and a percentage calculated for each category.

Data analysis included breakdowns of responses according to state and territory for each question.

Analysis of qualitative data was completed by independent experts in research and data analysis. The qualitative data were analysed using NVivo10 software. From responses to each question in the online survey, comments were categorised as strengths, concerns, areas for improvement and suggestions, with specific topic nodes developed within these four categories. Content was analysed for recurring themes and general trends.

An identical coding procedure was used for written submissions.

For reporting purposes, the analysed data were organised according to the broad structural organisers for the survey, that is, for the Technologies curriculum area:

- Rationale
- Aims
- Organisation of the learning area
- Foundation to Year 10 content
- Achievement standards
- Diversity of learners
- General capabilities
- Cross-curriculum priorities
- Links to other learning areas
- Implications for implementation
- Glossary.

For each of the Design and Technologies and Digital Technologies curriculum, feedback was sought based on the following areas:

- Rationale
- Aims
- Organisation
- Band level descriptions
- Content descriptions
- Content elaborations
- Achievement standards.

Findings are reported using these headings in terms of strengths, concerns and suggestions.

2.6 Summary of respondent demographics

Across the Technologies curriculum (Technologies, Design and Technologies and Digital Technologies), ACARA received 352 responses to the online survey: 153 responses for Technologies, 112 responses for Design and Technologies and 87 responses for Digital Technologies. ACARA also received 81 written submissions. Single responses often incorporated the views of many respondents.

Table 1 and figures 1, 2 and 3 illustrate the representation of respondents by state/territory, group or individual. All state and territory education authorities provided feedback on the draft curriculum, either through the online survey or via detailed written submissions.

Feedback was submitted by stakeholders throughout Australia including:

- state and territory education authorities
- representative bodies (such as teacher professional associations, government agencies and non-government organisations)
- industry groups
- schools
- individuals (teachers, academics, parents, members of the community).

Organisations which made written submissions are listed in Appendix 2.

Online survey

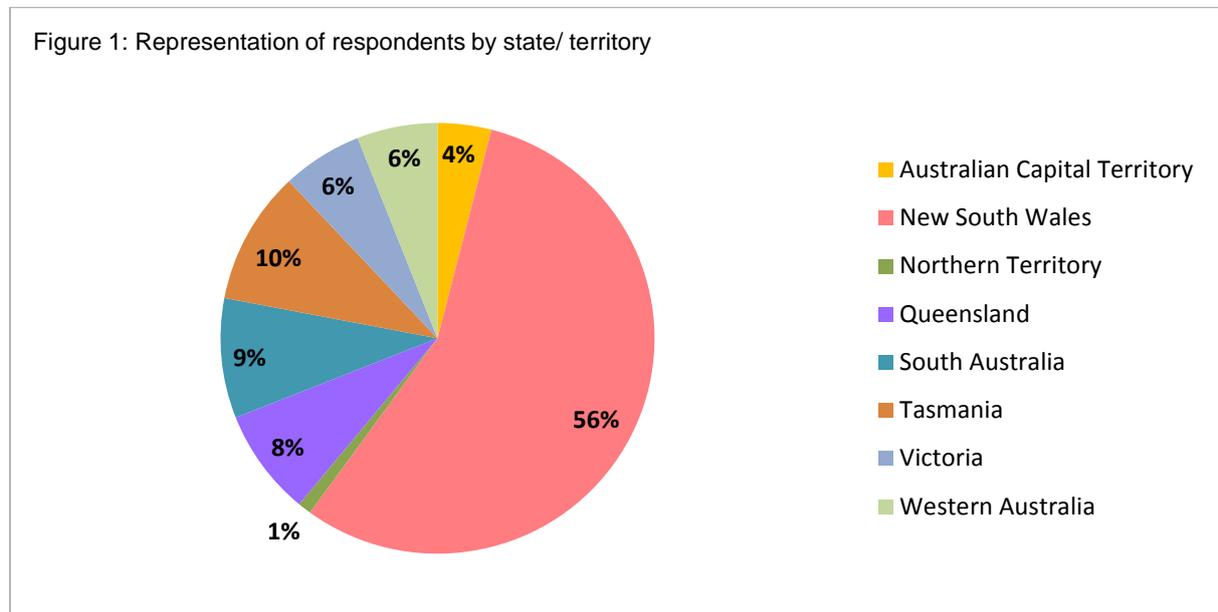
Table 1 provides a breakdown of respondents by location and background.

Table 1: Online survey respondents by location and category

Background of respondent	Location										Total
	ACT	NSW	NT	Qld	SA	Tas.	Vic.	WA	National	Inter-national	
Professional association		12		2	1	3	3				21
Education authority	2	2			1	5					10
School leader		13		1	2			2			18
Primary generalist				2			3	2			7
Primary specialist				1							1
School	5	66		4	10	8	5	4			102
Secondary generalist		5					1				6
Secondary specialist: Design and Technologies	1	81	2	10	10	13	3	1			121
Secondary specialist: Digital Technologies	2	18		4		1	2	6			33
Academic	2	5			1						8
Industry/business		5					3	1			9
Other	4	5			3	1	1	2			16
Total	16	212	2	24	28	31	21	18			352

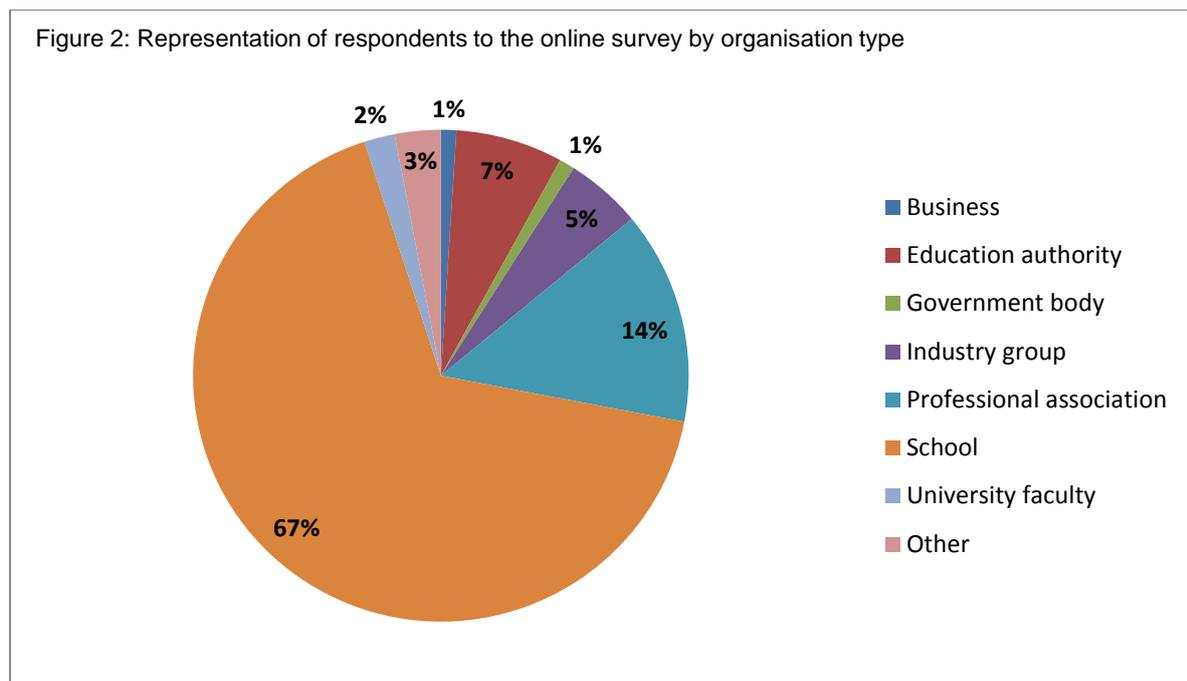
State/territory representation

As shown in Figure 1, the largest proportion of respondents to the online survey was from New South Wales, followed by Tasmania, South Australia and then Queensland. Victoria and Western Australia each represented six per cent of the total; the ACT and the Northern Territory had smaller proportions.



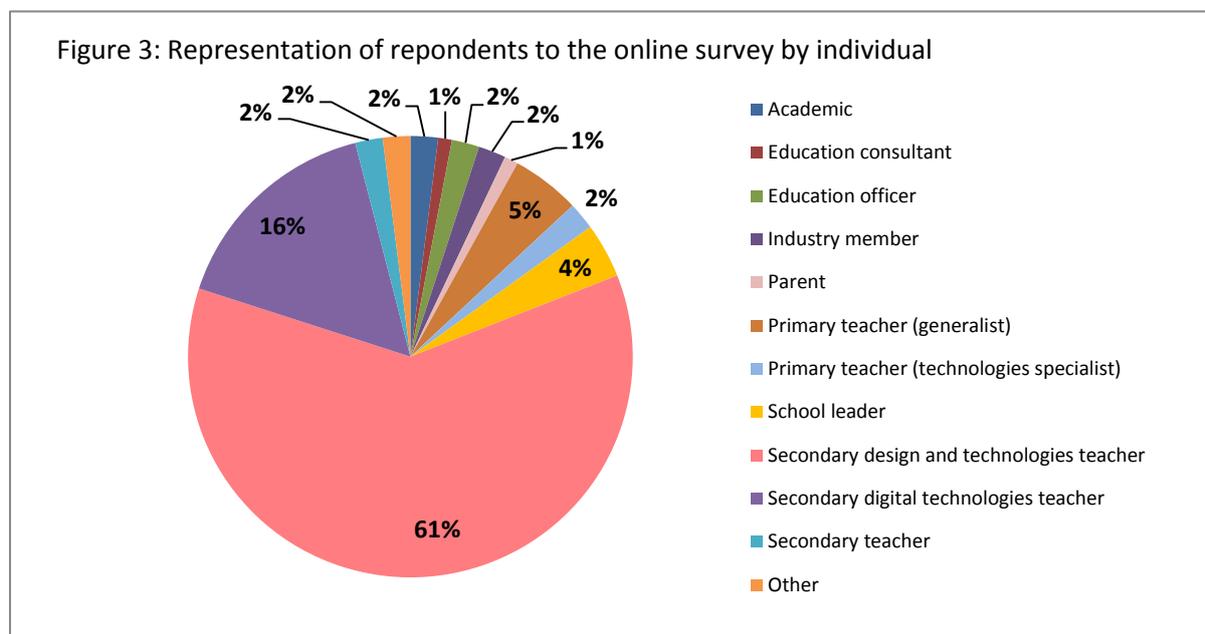
Group representation

Figure 2 shows the proportions of respondents to the online survey by organisation type. The largest proportion of contributions came from schools, followed by professional associations and education authorities.



Individual representation

Figure 3 shows the proportions of individual respondents to the online survey. The largest proportion of contributions came from secondary Design and Technologies teachers, followed by secondary Digital Technologies teachers. Generalist primary teachers and school leaders followed, with 5 per cent and 4 per cent respectively.



Written submissions

The written submissions are shown by sector and number in Table 2. Organisations that provided feedback are listed in Appendix 2.

Table 2: Number of written submissions, by sector

Sector	No. of submissions
State and territory education authorities	12
Professional teacher associations	15
Industry associations	8
Business	2
Government agencies	5
Not-for-profit organisations	2
Schools	6
Universities	9
Individuals	22
Total	81

3. CONSULTATION FINDINGS

3.1 Responses to survey questions

Table 3 summarises the percentages of respondents to the online survey who strongly agreed, agreed, disagreed and strongly disagreed with each statement. An analysis of feedback on each section of the survey is presented in the following pages.

Questions one to eight are omitted from the report as they refer to background and demographic information collected. For demographic information, refer to section 3.6 of this report.

Table 3: Technologies learning area – number of online survey responses and percentage of respondents by response

Questions	Total responses (number)	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
The Technologies Rationale and Aims					
9. The rationale for the Technologies learning area is clear about the nature and importance of the Technologies learning area for all Australian students.	133	21	71	6	2
10. The aims of the learning area clearly state the intent for the draft Australian Curriculum: Technologies Foundation to Year 10.	132	26	64	9	1
Organisation of the Technologies learning area					
Content structure; Technologies across Foundation to Year 10					
11. The organisation of the learning area provides a coherent view of the key components and features of the Technologies curriculum.	122	11	62	20	7
12. The content structure for the learning area is appropriate.	124	11	49	22	18
13. The common strand structure for Design and Technologies and Digital Technologies is appropriate for organising the curriculum content.	121	6	64	15	15
14. The key idea of systems thinking is appropriate for this learning area.	123	17	62	14	7
15. The key idea of creating preferred futures is appropriate for this learning area.	122	25	52	16	7
16. The key idea of project management is appropriate for this learning area.	121	37	48	13	2

Questions	Total responses (number)	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
17. The description of learning in Technologies across stages of schooling is pitched appropriately to the age group.	122	12	52	22	14
Achievement standards					
18. The explanation of the nature of achievement standards in Technologies is clear.	112	16	57	21	6
Diversity of learners					
19. The explanation of the ways in which the Australian Curriculum caters for the diversity of learners is clear.	113	15	55	23	7
General capabilities					
The relationship described between the learning area and each of the following general capabilities is evident in the curriculum content:					
20. Literacy	116	16	76	6	2
21. Numeracy	115	17	77	5	1
22. Information and communication technology capability	115	20	64	13	3
23. Critical and creative thinking	115	23	68	7	2
24. Ethical behaviour	115	17	70	10	3
25. Personal and social capability	115	16	75	7	2
26. Intercultural understanding	113	13	69	16	2
Cross-curriculum priorities					
The relationship described between the learning area and each of the following cross-curriculum priorities is evident in the curriculum content:					
27. Aboriginal and Torres Strait Islander histories and cultures	114	14	61	18	7
28. Asia and Australia's engagement with Asia	113	12	67	17	4
29. Sustainability	114	25	64	7	4
Links to other learning areas					
30. The links between Technologies and other learning areas are appropriate.	111	14	62	17	7
Implications for implementation					
31. The ways in which teachers can implement the Technologies curriculum to support student learning are clear.	115	7	44	39	10
32. The ways in which teachers can implement the Technologies curriculum to support assessment of student learning are clear.	114	8	48	33	11

Questions	Total responses (number)	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
The Technologies curriculum					
The draft content descriptions across the two Technologies subjects:					
33. cover the important content for the learning area	110	10	59	21	10
34. are coherent as a set, that is, clearly articulated across strands and band levels	107	9	50	30	11
35. are manageable in terms of implementation	109	6	39	36	19
36. provide flexibility for implementation	108	9	59	22	10
37. provide opportunities to explore connections between the two subjects	108	11	61	19	9
38. enable teachers to cater for the needs of all students	107	8	58	21	13
39. together with the achievement standards provide clarity about the depth of teaching and learning required.	107	8	50	27	15
The achievement standards across the two Technologies subjects:					
40. set challenging but realistic standards	109	7	48	27	18
41. are consistent in pitch or level of expectation at each band level.	108	6	52	30	12
Glossary					
42. The glossary includes the key terms requiring definition.	112	20	66	12	2
43. The glossary definitions are clear.	113	16	75	8	1

3.2 Rationale and aims

An analysis of the feedback on Questions 9 and 10 is presented below.

Key feedback

Strengths

The key strengths of the Technologies learning area rationale identified by respondents are its clarity, the strength of the justification of the importance of the learning area, and its emphasis on practical learning.

Respondents commended the Technologies learning area for recognising the importance and broader benefits of integrating technologies in students' learning experiences.

Teachers, professional associations and education authorities indicated that it gave a good overview of what is to be covered in the learning area. They made particular reference to the inclusion of sustainability.

'The nature and importance are clearly stated and they are underpinned throughout the document.' (Secondary teacher, Vic, online survey)

'Respondents felt the rationale is clear about the nature and importance of the Technologies learning area for all Australian students.' (NTDECS, written submission)

'The breadth of the rationale provides for curriculum implementation in a broad range of contexts across Australia. It also introduces a range of skills which can be taught in the different specialisations provided in the curriculum. The emphasis on higher-order thinking is valued.' (CEO Sydney, written submission)

Respondents considered the aims to be clear and concise. The aims were seen to provide a succinct outline of what is expected from the curriculum and what students will do as they engage in the learning area.

There was support for the layout and presentation of the aims, with respondents considering them to be easy for teachers to read and interpret. Teachers also endorsed the aspirational nature of the aims.

'Wouldn't it be great to achieve these aims?' (Primary teacher, WA, online survey)

'DATTA Australia supports the powerful aims outlined in the dot point statements.' (DATTA, written submission)

Concerns

A number of concerns were raised about the rationale. Respondents said that it is too broad and generic and that its length does not help in providing clarity. Respondents found it does not present a strong enough description of the integrated nature of learning across the two subjects, and little reference to what they believe are the considerable implementation challenges that schools will face.

'We are concerned, however, that the role of design is not included and that the defining characteristics of Design and Technologies and Digital Technologies and their commonalities are not identified.' (VCAA, written submission)

'ACCE is concerned that the rationale is somewhat generic and does not effectively reflect the significant changes and challenges that the introduction of Digital Technologies presents.' (ACCE, written submission)

Regarding the aims, some concerns were raised about the language used. It was considered that at times they were too broad and generic in what they try to cover. The language was also viewed as overly complex at times, and some inconsistencies in the way some language and terminology was used were identified.

'The intent of the Aims is supported but confused language, imprecise terminology and repetition reduce their strength ... There are several concerns with the Aims, including confusion with Glossary definitions, lack of attention to the key ideas of systems thinking and project management and lack of clarity of intent ... There are three different ways that 'solutions' are expressed in the Aims. This is confusing to the reader ('solutions', 'technologies solutions' and 'products, services, environments and digital solutions'). There is repetition/overlap between several aims, namely 2, 3 and 4.' (VCAA, written submission)

Suggestions

A general suggestion to improve the rationale was to consider reducing the length and using clearer, more succinct language. It was also recommended that the rationale include the defining statements for each subject (Design and Technologies and Digital Technologies), together with a clearer statement about how they relate to each other.

'It is proposed that the first sentence of the second paragraph (page 1) is replaced with the following: 'The Technologies learning area provides opportunities for students to apply practical skills and processes when using technologies and resources to create innovative solutions that meet current and future needs. It is comprised of distinct but related subjects: Design and Technologies and Digital Technologies. Then include the definitions of each.' (VCAA, written submission)

Respondents from professional association, industry and teaching perspectives were concerned that the language used was too generic and recommended the inclusion of more detail as it relates to specific technologies, subjects and contexts.

'ICTENSW recommends strengthening statements to reflect the importance of study of Digital Technologies to student futures, the Australian economy, and student engagement with Digital Technologies and further study and career opportunities.' (ICTENSW, written submission)

'Very broad inferred definition of practical skills ... No mention of industry or work in an area that has close links to training future industry employees.' (IIATE, written submission)

Improvements suggested by respondents included addressing some of the perceived inconsistencies identified in the previous section. There was also support for incorporating a

greater emphasis on Digital Technologies within the aims section of the Technologies learning area to better align the subject with the learning area. Representatives from design and technology professional associations also suggested a change in the ordering of the dot points to give greater prominence to the design process over purely theoretical considerations.

3.3 Organisation of the learning area

Content structure

An analysis of the feedback on Question 11 is presented below.

Feedback on the Technologies learning area indicated there was a high level of support (73 per cent) for the two-subject structure, with 62 per cent of respondents in agreement and 11 per cent in strong agreement. Respondents indicated that they believed the two-subject structure and the relationship between subjects are clearly recognisable in the draft Australian Curriculum: Technologies.

'The organisation is logical and coherent. The opportunity for all students from Foundation to Year 8 to study Design and Technologies and Digital Technologies is supported. The content structure and common strand structure are appropriate for Technologies.' (NTDECS, written submission)

'We strongly support:

...The focus on the two distinct but related subjects of Design and Technologies and Digital Technologies...

The specific focus in the Digital Technologies stream on building computational knowledge and skills... (AIIA, written submission)

Concerns

New South Wales respondents were concerned about the separation of the two subjects and the clarity of statements about the place of Technologies nationally.

'The separation of Digital Technologies from Design and Technologies is not reflective of a design process problem solving basis utilising project based learning.' (NSWBOS, written submission)

'Respondents expressed uncertainty about whether the curriculum is intended to replace all other technology subjects and that digital technology is now treated as an additional separate subject to be taught F–8.' (NSWBOS, written submission)

Common strand structure

An analysis of the feedback on Question 13 is presented below.

Respondents encouraged careful consideration regarding the balance of course content through the two strands.

'This is a rapidly changing area. Students can successfully design in both strands. Curriculum must emphasise the maintenance of a balance between the two strands and

ensure that neither of the two strands is over emphasised or takes priority over the other.’ (WASCSA, written submission)

There were also some concerns raised by professional associations about how the two strands will work together. These concerns were driven by the comment regarding the lack of reference to design process concepts.

There was support for further examples, expansion of Table 1 on page 4 of the draft curriculum, or insertion of a visual map or diagram to better demonstrate the interrelationship of the common strands with the two subjects.

Key ideas

Systems thinking

An analysis of the feedback on Question 14 is presented below.

Of the online respondents, 79 per cent strongly agreed or agreed that the relationship between the learning area and the key idea of systems thinking is appropriate.

‘This is a critical common feature of the two subjects. I wonder if it is emphasised enough in the Curriculum, and if teachers will see this important connection?’ (Primary teacher, Vic, online survey)

Some concern was raised about the applicability of ‘systems thinking’ to some design and technology contexts such as food and nutrition. Respondents recognised the merit in the key idea but were unsure about how appropriate it would be in a primary school setting.

‘Whilst “systems thinking” is ideal for evaluating designs in terms of sustainable, social and even ethical points of view, it does little to enable a student to engage in being creative as it asks them from the outset to be critical in their judgement and evaluate the impact of their ideas in relation to the larger system from the outset. “Design thinking” is about “possibilities thinking”, asking the question “What if?” This is an absolutely essential component required in a Design and Technologies Curriculum if we aim to produce creative and innovative students in the future – students who can imagine and think outside the square. What’s more it is this type of thinking that makes learning fun, personal and more engaging.’ (Barker College, NSW, written submission)

Preferred futures

An analysis of the feedback on Question 15 is presented below.

Of the online respondents, 77 per cent strongly agreed or agreed that the relationship between the learning area and the key idea of creating preferred futures is appropriate. Strengths observed by respondents include that generating preferred futures strongly aligns with concepts of sustainability and encourages cross-curricular approaches to teaching. Some respondents suggested broadening the key idea beyond a focus on sustainability, although others were concerned about implementation issues such as time and school resources associated with incorporating this key idea successfully into teaching programs.

Project management

An analysis of the feedback on Question 16 is presented below.

The focus on project management was commended by respondents as an important life skill that aligns well with teaching across technologies.

'Success in Design and Technology hinges on good project management skills.'
(Secondary teacher, Vic, online survey)

'ACCE strongly supports a focus on project management but recommends that this be much more strongly reflected in the curriculum as it is considered that this is currently weakly addressed.' (ACCE, written submission)

Despite this support, some respondents stressed that it is important for this concept to be applied in an age-appropriate manner. There were also a number of comments recommending a stronger and more explicit emphasis on project management throughout the rest of the curriculum.

'Project Management is a core skill in the area of Digital technologies, as it is in Design and technologies, so this is a highly appropriate idea for this learning area. However, despite this early mention, it fails to have any significant place in the subsequent descriptions of learning.' (Pre-service teacher, Tas, online survey)

In addition, some respondents were concerned about the inclusion of project management as it might restrict creativity and exploration.

'We strongly recommend removing project management from the syllabus completely, and instead including syllabus points on entrepreneurial thinking.' (USITAA, written submission)

3.4 Technologies across Foundation to Year 10

An analysis of the feedback on Question 17 is presented below.

Key feedback

Strengths

There was broad support for the description of learning across the different stages of schooling. The developmental approach to learning was supported and endorsed by a number of education authorities and stakeholders.

The affirmation of the importance of play in the early years of schooling was commended, as was the study of technologies for all young Australians between Foundation and Year 8.

'The statement: "The Australian Curriculum: Technologies is based on the principle that all young Australians are entitled to engage fully in a range of technologies and to be given a balanced and substantial foundation in the knowledge and skills base of each subject." (p.8) received strong support.' (QSA, written submission)

'Agree that it should be compulsory until Year 8. Years 7–10: developmentally appropriate and prepares students for moving onto Year 11 and Year 12.' (TASDOE, written submission)

Concerns

There was concern among respondents, particularly secondary teachers, that the content is pitched too high. This concern relates to the capacity of some primary schools to deliver on some contexts, but especially to the capacity of the current cohort of students to succeed within this curriculum.

Implementation issues across different school settings were another strong theme in the consultation data for this section.

'The way the learning is pitched at particular age groups would appear to be in accord with what is known about student learning, however there will be a need to treat these settings as tentative until there is some evidence from implementation.' (Griffith University, written submission)

'An unrealistic expectation for each of the age groups, this is an idealistic view point that has little relation to the reality faced in the classroom.' (Teacher, NSW, online survey)

'Assumes significant and deep engagement in technologies Foundation to Year 6.' (TASDOE, written submission)

3.5 Achievement standards

An analysis of the feedback on Question 18 is presented below.

Key feedback

Strengths

Feedback from a number of respondents suggested that the explanation about the achievement standards was clear and concise. Industry and professional associations supported the section on achievement standards.

The standards were considered generally appropriate in terms of their pitch across the different stages of schooling. There was also support for the degree of flexibility afforded for implementation.

'The achievement standards are appropriate indicators of expectations of progress and development.' (InTEACT, written submission)

'ACCE is supportive of the achievement standard statements as appropriate descriptions of content to be addressed for the bands.' (ACCE, written submission)

'The achievement standards across the two Technologies subjects set challenges but are consistent in pitch and level of expectation at each band level. However they may not be achievable in the time frame.'

Recommendation: Review of the teaching expectation (content descriptions and achievement standards) to ensure that the learning in Technologies is achievable when taking into account the other learning area requirements.’ (NTDECS, written submission)

‘The sequential nature and important features of quality and depth of understanding is included in the description of the achievement standards. Standards are broad, allow for flexibility. The portfolios of annotated student work will be critically important to describe a level of achievement.’ (HEIA, written submission)

3.6 Diversity of learners

An analysis of the feedback on Question 19 is presented below.

Key feedback

Strengths

Several respondents commented on the draft Technologies curriculum being clear, and commended the inclusion of a diverse range of technologies as appropriate acknowledgment of the diverse needs of learners throughout Australia.

‘There is a diverse range of technologies for students to immerse themselves in to achieve success.’ (WASCSA, written submission)

Concerns

Concerns often related to the broad scope of the draft curriculum. It was considered that the curriculum does not provide sufficient guidance on the practicalities of implementing the curriculum among a diverse cohort of learners.

Suggestions

Improvements suggested by respondents relate to providing extra guidance, resources and examples to teachers to assist them in implementing the curriculum to ensure the objectives for diversity of learners are achieved. Suggestions included providing practical examples and articulating how the wide range of technologies contexts enables different strategies and approaches through which to engage students.

3.7 General capabilities

An analysis of the feedback on Questions 20–26 is presented below.

Key feedback

Strengths

The relationship between the learning area and the general capabilities was endorsed by respondents, with between 82 and 95 per cent agreement from survey respondents that each general capability is evident in the curriculum content. Respondents described the

relationship between the learning area and each of the general capabilities as clear and explicit.

The capabilities were seen as an enabler to planned, holistic and cross-curriculum teaching. The articulation of the relationship also serves to demonstrate the importance of the learning area more generally.

'General capabilities encourage teachers to think 'cross-curricular' and transfer knowledge across subjects, 'teachers being mindful' of all these links is appropriate. It is agreed and valued that students must continually be reminded of their responsibilities and how their actions can affect others.' (WASCSEA, written submission)

Suggestions

Suggestions to improve the general capabilities included conducting a review of all capabilities to ensure they are clear, comprehensive, and provide practical examples as they relate to: curriculum key ideas; each of the two Technologies subjects; technologies contexts; and Digital Technologies key concepts.

Further comments made by respondents about specific general capabilities are outlined in the sections below.

Literacy

Of the online survey respondents, 92 per cent strongly agreed or agreed that the relationship described between the learning area and the Literacy general capability is evident in the draft Australian Curriculum: Technologies content.

The description of the relationship between the Literacy capability and the Technologies learning area was specifically commended by an education authority and a professional association. The range of examples outlining the relationship was also commended.

There was support to increase the examples used to incorporate a broader range of technologies contexts and industries. However, some education stakeholders were concerned that the literacy statement has too much of an office and business focus.

Numeracy

Of the online survey respondents, 94 per cent strongly agreed or agreed that the relationship described between the learning area and the Numeracy general capability is evident in the draft Australian Curriculum: Technologies content.

In particular, support was expressed for the description of the Numeracy capability and its relationship to the learning area, and the examples used to demonstrate the connection.

There were suggestions to strengthen the relationship between Numeracy and the Technologies learning area, with recommendations for more explicit reference to mathematical and science concepts, the engineering principles and systems technologies context, and an expansion on the current description of algorithmic thinking.

Information and communication technology capability

Of the online survey respondents, 84 per cent strongly agreed or agreed that the relationship described between the learning area and the Information and communication technology capability is evident in the draft Australian Curriculum: Technologies content.

However, there continues to be some concern about the distinction between the description of the capability and the Digital Technologies subject. The language used to describe the difference between the capability and the subject is considered confusing and does not align with course content and elaborations.

Suggestions included greater reinforcement of the difference between the capability and Digital Technologies subject by including a clear and succinct statement at the beginning of the capability that articulates the difference and by ensuring both subjects use consistent language to reference the capability.

'Use terms in the ICT capability section that are consistent with Digital Technologies; that Design and Technologies use terminology that is consistent with Digital Technologies, for example, 'digital hardware' and 'software tools' are used in Design and Technologies and the ICT capability statement in the learning area, but not in the Digital Technologies.' (VCAA, written submission)

Critical and creative thinking

Respondents identified the Critical and creative thinking capability as particularly relevant to Technologies, with the capability seen as an important enabler to emphasising the importance of creativity and critical thinking to Technologies.

Of the online survey respondents, 91 per cent strongly agreed or agreed that the relationship described between the learning area and the Critical and creative thinking general capability is evident in the draft Australian Curriculum: Technologies content.

Suggestions were made to emphasise a greater connection between the capability and the key idea of systems thinking.

Ethical behaviour

Of the online survey respondents, 87 per cent strongly agreed or agreed that the relationship described between the learning area and the Ethical behaviour general capability is evident in the draft Australian Curriculum: Technologies content.

Some concerns were raised about the complexity of language used to describe the capability.

Several Tasmanian stakeholders called for a more explicit connection between the Ethical behaviour capability and the key idea of creating preferred futures.

Personal and social capability

Of the online survey respondents, 91 per cent strongly agreed or agreed that the relationship described between the learning area and the Personal and social capability is evident in the draft Australian Curriculum: Technologies content.

Some concern was expressed that the language used in this general capability is too complex and could be simplified.

Intercultural understanding

Of the online survey respondents, 82 per cent strongly agreed or agreed that the relationship described between the learning area and the Intercultural understanding general capability is evident in the draft Australian Curriculum: Technologies content.

However, there were concerns expressed about the clarity and coherence of the intent and purpose of this capability. They stated that the language used in the description of how the capability relates to Technologies is too complex, and that the description is not detailed enough to provide any meaningful assistance to teachers.

3.8 Cross-curriculum priorities

An analysis of the feedback on Questions 27–29 is presented below.

While there was some concern expressed by individual survey respondents over what they perceived as generic advice on how to implement cross-curriculum priorities, there was broad support from other consultation participants for this section and the extent to which the priorities are embedded in the curriculum.

Aboriginal and Torres Strait Islander histories and cultures

Of respondents, 75 per cent agreed that the relationship described between the learning area and this priority is evident in the curriculum content. However, consultation participants were concerned about possible resourcing and implementation issues arising from meaningful engagement with Aboriginal and Torres Strait Islander histories and cultures.

'The cross-curriculum priorities of Aboriginal and Torres Strait Islander histories and culture and Asia and Australia's engagement with Asia are recognised as important to student learning in all areas, but teachers will need to consider carefully how these priorities are embedded in their Technologies curriculum. These priority areas need more explicit examples of elaborations. Teachers will need exemplar units of work that show how to incorporate the areas and professional development that supports its implementation.' (DATTA, written submission)

Asia and Australia's engagement with Asia

Of respondents, 79 per cent agreed that the relationship described between the learning area and this priority is evident in the curriculum content. However, consultation participants were concerned the references are not well articulated throughout the course content. There was support for revising and strengthening this priority in the curriculum.

'AEF recommends that the word 'Asia' be mentioned explicitly in the curriculum whenever the Asia region is being referred to. At this stage, the term 'region' or 'regionally' is used with implicit reference to Asia. Furthermore, the term 'regionally' should appear ahead of 'globally' – with particular reference to the Asia region – if a sequence of contexts is being mentioned, i.e. 'nationally, regionally and globally.' (AEF, written submission)

Sustainability

Of respondents, 89 per cent agreed that the relationship described between the learning area and Sustainability was evident in the curriculum content. Consultation participants consider the link between Technologies and sustainability is a strong one.

'Sustainability is and should be a dominant focus.' (Secondary teacher, NSW, online survey)

'Sustainability: the reference to individual and collective action is excellent, as is the reference to values and behaviours, as there is common perception that products alone can achieve sustainability whereas behaviours (aka systems thinking) are often the biggest factor.' (Victorian secondary teacher, online survey)

Notwithstanding this support, there are some consultation participants who expressed concern over what they considered too strong an emphasis on environmental sustainability.

'Sustainability – needs greater emphasis on economic (including consumer) and social sustainability issues that impact on design decisions in the elaborations (elaborations tend to focus mainly on environmental sustainability).' (HEIA Vic, written submission)

3.9 Links to other learning areas

An analysis of the feedback on Question 30 is presented below.

Key feedback

Strengths

Respondents expressed support for the concept of links to other learning areas, with 76 per cent in agreement. The links and examples demonstrating the relationship between Technologies and other learning areas were seen as valuable and considered an important enabler to integrating the Technologies into the other learning areas.

'The draft curriculum recognises that there are opportunities for integration of learning between Technologies and other learning areas. It was noted that this is of prime importance in primary schools where there is already a perception of a "crowded curriculum". It was recommended that mapping between learning areas occurs and is made available to support teaching that integrates learning areas.' (NTDECS, written submission)

Concerns

Despite the broad support from respondents, there were a number of concerns raised about some of the links to particular learning areas. Respondents expressed concern over the complexity and density of the language and descriptions and suggested the descriptions could be written in a more accessible format, with practical examples drawn from all of the technologies contexts.

Concerns were expressed about the overlap and repetition between food technology in the Technologies curriculum and food and nutrition in Health and Physical Education.

Respondents were also concerned about the implications of food and nutrition and home economics being split across more than one learning area.

These issues and others as they relate to specific learning areas are outlined in the sections below.

English

The description of the link to the English learning area was viewed as being too narrow. There were suggestions to broaden the description from one that focuses solely on literacy skills to one that considers language and multimodality.

'The English statement makes no reference to multimedia/multimodality and its link to Digital Technologies.' (VCAA, written submission)

Mathematics

Professional associations and industry welcomed the reference to computational thinking in the mathematics description.

However, other respondents believed that the mathematics description focuses too much on specific skills and does not engage deeply enough with all facets of mathematical thinking.

Science

Teachers, education authorities, professional associations and industry respondents supported the description of the link to the science learning area and the examples outlined in the curriculum. The examples provided were seen as useful and grounded in practical 'real-world' contexts.

However, some respondents suggested that a more equal balance of examples be used to demonstrate the links from across the range of technologies contexts.

The Arts

There was concern among respondents from a range of different perspectives regarding the description of the relationship between The Arts and Technologies learning areas, particularly around the way multimedia is addressed. There was concern about the spread of multimedia across multiple learning areas. Education authorities considered it poor curriculum design and industry and professional associations feared it would impact on how the subject is viewed and taught.

Suggested changes to address these issues include the following:

- Teachers and their professional associations wanted to see multimedia established as its own technologies context within the Design and Technologies subject, rather than taught within Digital Technologies.
- Incorporate more emphasis on design thinking and design elements into the description of the relationship to The Arts to broaden its focus beyond purely technical processes.

Health and Physical Education

Similarly to the issues discussed regarding The Arts learning area, respondents raised concerns over the description of the relationship with Health and Physical Education (HPE) and the proposed inclusion of food and nutrition. Education authorities and teachers were concerned that the splitting of elements of food and nutrition across HPE and Technologies would compromise learning within a food context.

Respondents indicated that Technologies is a better context than HPE to learn about the theory and application of food and nutrition and food technologies.

'The relationship between Food and fibre in the Design and Technologies curriculum and the Health and Physical Education curriculum needs to be strengthened ... with more food and fibre technology content elaborations and links with Health and Physical Education made evident.' (SADECD, written submission)

There was also concern that food content descriptions and elaborations across the two learning areas might be misaligned.

3.10 Implications for implementation

An analysis of the feedback on Questions 31–32 is presented below.

There was concern among respondents that the statements in the section about implications for implementation are too broad and generic, and would therefore be difficult to put into practice. Respondents were not convinced this section assures teachers that they would be prepared for the requirements of the Technologies subjects, in both primary and secondary school settings.

For Digital Technologies there was concern that the process for using the content and achievement standards is not as clear as it could be.

There was a view that there would need to be significant professional development for teachers to implement the curriculum; in particular, for primary school teachers. Furthermore, there was concern that the curriculum would not encourage specialist teachers to seek new skills and broaden teaching outside of their context.

Issues of expertise and resources were also raised by a number of industry-based respondents. They commented on the need for better partnership and coordination across school and industry sectors to share information, resources, training and skills.

'Good teaching resources will be critical to ensure that agricultural examples are used in the curriculum. There is a growing divide between the country and many metropolitan teachers will not be familiar with current agricultural practices and technologies and will not be comfortable using agriculture as a context in their classroom teaching.' (AIA, written submission)

There was also concern expressed that assessing over two-year bands could be problematic, especially for students in South Australia who begin high school mid-band, in Year 6.

3.11 Glossary

An analysis of the feedback on Questions 42–43 is presented below.

Key feedback

Strengths

The glossary was viewed as an important resource to interpreting and implementing the curriculum, particularly for primary school teachers. One education authority noted:

'The glossary was generally considered to be clear and concise.' (QSA, written submission)

Concerns

However, there were concerns that the glossary is incomplete. Respondents wanted to see considerable revision of the terms and definitions.

Several respondents also commented that the glossary uses terms that are too broadly defined and has misalignments between how terms are used in the curriculum and subsequently defined in the glossary.

Suggestions

To ensure a shared understanding in implementing the curriculum, respondents identified a number of terms and definitions for further work and revision. In the main they relate to Digital Technologies terms, and comprise: algorithm; augmented reality; cloud-based bookmarking tools; computational thinking; digital solutions; general-purpose programming language; object-oriented programming language; orthogonal; pseudocode; and structured query language.

Other terms identified as needing further definitional work are: food and fibre production – with concerns that the definition does not differentiate it from food technologies; technologies; tools and resources; and finally the term 'enterprise', with several respondents commenting that its current broad definition and the scope allow for misinterpretation.

Respondents also identified potential overlaps between terms. Examples highlighted include the terms 'environments' and 'designed environments', and 'solutions' and 'designed solutions'.

New terms

The new terms suggested for inclusion in the glossary by respondents are listed below. They are grouped under three broad categories.

The final category comprises terms that are not difficult or complex, but given their frequent use throughout the curriculum, respondents considered a common and shared understanding of them essential to implementation of the curriculum and recommended they be added to the glossary.

- Technical – new terms to assist in understanding the Digital Technologies content are: digital citizenship, digital play, digital technology ecology, networks, semantic language engine, and visualisation software.
- Technologies contexts – new terms to assist in understanding content associated with the technologies contexts are: balanced diet, biodiversity, contemporary food technology, eco design, food processing and food preparation, food technologies, functional properties, healthy eating, nutritious foods, precautionary principle, and smart materials.
- Other – analyse, complex, criteria, critique, emerging technologies, ethics, evaluation, inputs, interactions, internet, outputs, portfolio, processes, project management, simple, symbolically, technologist, and ubiquitous.

4. CONSULTATION FINDINGS – DESIGN AND TECHNOLOGIES

Table 4 below summarises the percentages of respondents to the online survey who strongly agreed, agreed, disagreed and strongly disagreed with each statement. An analysis of feedback on each section of the survey is presented in the following pages.

4.1 Responses to survey questions

Table 4: Design and technologies – number of online survey responses and percentage of respondents by response

Questions	Total responses (number)	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
The Design and Technologies Rationale and Aims					
45. The rationale for the draft Design and Technologies curriculum is clear about the nature and importance of Design and Technologies for all Australian students.	80	15	74	6	5
46. The aims of the draft Design and Technologies curriculum clearly state the intended learning in the subject.	77	18	74	7	1
Organisation of the learning area Content Structure; Learning in Design and Technologies					
47. The nature of the two strands and their relationship is clearly recognisable in the draft Australian Curriculum: Design and Technologies.	78	21	65	11	3
48. The Technologies contexts provide appropriate guidance for teachers F–8.	74	11	55	26	8
49. The processes in the Processes and production skills strand provide a useful organisational element in the draft curriculum.	75	17	59	16	8
50. The description of the processes for Design and Technologies is clear.	74	11	68	13	8
51. The description of learning in Design and Technologies is appropriate.	75	11	65	15	9

Questions	Total responses (number)	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
Foundation to Year 2 Curriculum					
Band level descriptions; Content descriptions; Content elaborations; Achievement standard					
52. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.	43	12	74	9	5
53. The draft content descriptions are clear and unambiguous statements of what students should be taught.	43	5	60	26	9
54. The draft content descriptions are pitched appropriately for this band level.	44	9	48	32	11
55. The draft content descriptions describe an appropriate progression across band levels.	43	5	53	35	7
56. The draft content descriptions provide a manageable set for this band level.	43	5	56	27	12
57. The draft content elaborations provide clear and relevant illustrations of the content descriptions.	41	5	71	14	10
58. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.	41	2	83	13	2
59. The draft achievement standard is pitched appropriately for this band level.	41	7	59	22	12
60. The draft achievement standard describes an appropriate progression of expected learning across band levels.	39	0	72	20	8
Year 3 to 4 Curriculum					
Band level descriptions; Content descriptions; Content elaborations; Achievement standard					
61. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.	24	4	79	4	13
62. The draft content descriptions are clear and unambiguous statements of what students should be taught.	23	4	74	9	13
63. The draft content descriptions are pitched appropriately for this band level.	23	4	65	22	9
64. The draft content descriptions describe an appropriate progression across band levels.	23	4	70	17	9

Questions	Total responses (number)	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
65. The draft content descriptions provide a manageable set for this band level.	23	9	65	17	9
66. The draft content elaborations provide clear and relevant illustrations of the content descriptions.	23	4	61	18	17
67. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.	24	4	67	25	4
68. The draft achievement standard is pitched appropriately for this band level.	24	4	63	33	0
69. The draft achievement standard describes an appropriate progression of expected learning across band levels.	24	4	58	38	0
Year 5 to 6 Curriculum					
Band level descriptions; Content descriptions; Content elaborations; Achievement standard					
70. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.	26	4	69	15	12
71. The draft content descriptions are clear and unambiguous statements of what students should be taught.	25	4	68	16	12
72. The draft content descriptions are pitched appropriately for this band level.	26	4	62	22	12
73. The draft content descriptions describe an appropriate progression across band levels.	26	4	58	30	8
74. The draft content descriptions provide a manageable set for this band level.	26	4	54	23	19
75. The draft content elaborations provide clear and relevant illustrations of the content descriptions.	27	4	48	37	11
76. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.	25	4	64	20	12
77. The draft achievement standard is pitched appropriately for this band level.	25	4	64	24	8
78. The draft achievement standard describes an appropriate progression of expected learning across band levels.	24	4	71	17	8

Questions	Total responses (number)	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
Year 7 to 8 Curriculum					
Band level descriptions; Content descriptions; Content elaborations; Achievement standard					
79. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.	71	14	72	8	6
80. The draft content descriptions are clear and unambiguous statements of what students should be taught.	70	7	61	21	11
81. The draft content descriptions are pitched appropriately for this band level.	70	9	54	23	14
82. The draft content descriptions describe an appropriate progression across band levels.	69	9	62	16	13
83. The draft content descriptions provide a manageable set for this band level.	69	12	58	17	13
84. The draft content elaborations provide clear and relevant illustrations of the content descriptions.	67	7	60	24	9
85. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.	69	9	71	16	4
86. The draft achievement standard is pitched appropriately for this band level.	69	7	58	25	10
87. The draft achievement standard describes an appropriate progression of expected learning across band levels.	69	9	57	25	9
Year 9 to 10 Curriculum					
Band level descriptions; Content descriptions; Content elaborations; Achievement standard					
88. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.	60	12	68	12	8
89. The draft content descriptions are clear and unambiguous statements of what students should be taught.	60	7	63	20	10
90. The draft content descriptions are pitched appropriately for this band level.	60	8	58	27	7
91. The draft content descriptions describe an appropriate progression across band levels.	59	8	61	21	10

Questions	Total responses (number)	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
92. The draft content descriptions provide a manageable set for this band level.	60	10	57	23	10
93. The draft content elaborations provide clear and relevant illustrations of the content descriptions.	59	8	68	17	7
94. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.	60	10	67	16	7
95. The draft achievement standard is pitched appropriately for this band level.	60	12	57	21	10
96. The draft achievement standard describes an appropriate progression of expected learning across band levels.	59	7	64	19	10

4.2 Rationale

An analysis of the feedback on Question 45 is presented below.

Key feedback

Strengths

The majority of survey respondents (approximately 88 per cent) agreed and strongly agreed that the rationale provides a clear foundation for the Design and Technologies subject.

Schools, secondary school teachers and industry respondents said the rationale clearly demonstrates the value of the subject and why it is important to individuals and the broader community.

Education authorities considered the rationale flexible enough to be implemented within different school environments and circumstances.

'The rationale for the draft Design and Technologies curriculum clearly outlines its intention to enrich and impact on the lives of people and societies globally. It also addresses the need for students to aim for consolidation of knowledge, understandings and skills, along with the opportunity for students to apply practical skills and challenge attitudes to sustainability, ethics and personal and social values.' (Secondary teacher, Vic, online survey)

'We support strongly the rationale, aims, and organisation, as expressed in the draft curriculum (pp. 23–32). It is ambitious, perhaps aspirationally so, and we congratulate its authors on that.' (ACED, written submission)

Concerns

The concerns raised were that the rationale might be too ambitious for students and that the inclusion of separate rationales for the learning area and each subject complicates understanding.

'Some of the language in the rationale is too ambitious and unrealistic. We are concerned that the bar is set too high for the majority of F–10 students. For example, students should aim to be creative, but very few students will develop completely 'innovate' designs in the true sense of the word. It could also be more appropriate to use the term 'analyse' rather than 'critically analyse.' (Barker College, written submission)

Suggestions

Teachers, other professionals and industry suggested that the rationale would be improved by making explicit reference to the technologies contexts, and by placing greater emphasis on design and the design process.

4.3 Aims

An analysis of the feedback on Question 46 is presented below.

Key feedback

Strengths

Respondents indicated that the aims of the draft Design and Technologies curriculum are easy to understand, clear and relevant to student development.

Secondary school teachers and other education professionals considered the aims to be concise and useful.

'Glad to see the aims are not vocational only, we are preparing students for life skills and the varied vocational and personal skills that students need to navigate life.'
(Secondary teacher, Tas, online survey)

Concerns

While the aims were broadly supported, one education authority expressed concern over the ordering and omission of key terms, and asserted that these issues reduce the strength of this section.

Suggestions

An improvement suggested by teachers, schools and at least one education authority was to include greater detail on specific contexts and clarify some terminology. It was also suggested that the aims be reordered to reflect the sequencing of the Design and Technologies processes and production skills strand.

'The intent of the Aims is supported but the confused ordering and omission of key terms reduces their strength. The order of the aims for Design and Technologies needs

to be reconsidered to accurately reflect the processes and production skills. 'Create' and 'evaluate' were two terms not evident in the Aims.

Action – Reorder the aims to reflect the sequencing of the Design and Technologies processes and production skills strand. All key terms in the design process are included in the Aims.' (VCAA, written submission)

4.4 Organisation

An analysis of the feedback on Questions 47–51 is presented below.

Content structure

Strengths

Respondents indicated that the draft Design and Technologies structure presents a clearly recognisable relationship between the two strands within each curriculum area, with 86 per cent of respondents in agreement and strong agreement.

'DATTA - Australia strongly supports the explanation contained in the section titled "Relationship between the two strands". It is very important that the strands are understood to be inter-related and supporting, and not seen as separate areas of content or study.' (DATTA, written submission)

'... happy to see the note about a substantial amount of time being devoted to developing processes and production skills. This ensures the course will be a practical course, not simply theory of design.' (Secondary teacher, NSW, online survey)

Concerns and suggestions

There was some questioning of the value of having two different Technologies subjects in the primary school years, with a particular focus around potential implementation issues.

Another comment expressed concern over a perceived lack of emphasis on the practical and hands-on nature for much of the technologies contexts, and a lack of explicit reference to the design process in the processes and production skills strand. This was seen as inhibiting easy and complete understanding of the content structure.

There was some support for a diagram to explain the structure of the subject.

'A diagram is required to show the interrelationship between key concepts in Design and Technologies, namely the technologies processes, the design process, the contexts and the types of solutions.' (VCAA, written submission)

Technologies contexts

There was general agreement – including most education authorities and the Design and Technology Teachers Association of Australia – that the technologies contexts provide appropriate guidance from Foundation to Year 8.

'Supports the structural framework that all specialisations/contexts are mandated at all band levels to Year 8 (recognising that Food Technologies and Food and Fibre Technologies are combined in F–4).' (DATTA, written submission)

Concerns and suggestions

Respondents expressed a number of concerns and suggested improvements regarding the technologies contexts section.

Teachers and schools were very concerned about how they would be able to implement the technologies contexts across Foundation to Year 8. A significant number of respondents commented that more support and guidance would need to be provided to teachers. There was also support for each of the contexts to be unpacked further.

'The context areas do provide guidance but they are too prescriptive. Not all schools may have the facilities to deliver all 4 areas equitably. Materials and technologies specialisation is very broad including many materials. More information is needed in what is encompassed in each area.' (Secondary teacher, NSW, online survey)

There were a number of concerns regarding the balance of technologies contexts across Foundation to Year 8. In particular, there was concern over the perceived overlap between food technologies and food and fibre, with some teachers and the NSW Board of Studies responding that food technologies are given too much emphasis in this section.

Table 3 on page 26 of the curriculum was viewed as unhelpful. There was support for a diagram or organiser to better demonstrate how students will study technologies contexts and types of design solutions.

'Specific examples of the technologies contexts would be valuable. Teachers who are not familiar with this subject may find it difficult to understand what the contexts are in each phase. A graphic organiser, table or flow chart would be beneficial.' (CEO Brisbane, written submission)

Also there was some objection to the use of the term 'context'. Respondents would welcome reconsideration of the term.

Processes within the Processes and Production Skills strand

The processes described in this section are generally viewed as useful organisational elements for the draft curriculum.

'The processes in the Processes and production skills strand provide a useful organisational element in the draft curriculum by outlining the factors of the design process, including the areas of investigating, developing, planning, producing and evaluating. There is the opportunity for students to provide time lines, trialling of ideas and making modifications throughout the process. There needs to be consideration given to the notion that not all students will be in a position to trial their ideas beyond the school facilities, which may prove to be a disadvantage in some instances.' (Teacher, Vic, online survey)

Suggested improvements to this section include: incorporating communication skills within the processes, giving greater emphasis to hands-on application and production, and including a diagram that demonstrates the relationship between each of the processes.

Description of processes

Respondents expressed concern about the description of the planning, producing and evaluating designed solutions process. It was seen as too prescriptive and not applicable to all technologies contexts.

'Teachers showed real concern regarding the direction for students to create products, environments and services when developing solutions. This is very inflexible – different forms of solutions relate better to some contexts than others and all are not always possible within band level. There is also a lack of understanding about what environments and services are, and teachers didn't understand the relevance to designing services in many contexts.' (DATTA Vic, written submission)

There was support for further detail and clarity around this process to help teachers plan their approach to teaching and assessment.

Learning in Design and Technologies

Strengths

Respondents indicated that the section on processes and production skills was generally viewed as a useful organisational element for the draft Design and Technologies curriculum.

The inclusion of play in the Technologies learning area was identified as a key strength of the curriculum. Respondents from industry, teaching, schools, professional associations and education authorities endorsed this focus.

Concerns

Comments received through the survey responses included concerns regarding implementation, support and balance. Teachers and schools expressed concern about how they would be able to implement the technologies contexts across Foundation to Year 8. There was a significant amount of commentary regarding the need for more support and guidance to be provided to teachers.

'The implications for teacher professional development are substantial, particularly for in K–6, eg Food safety and allergies create potential risks for K–6 educators.' (NSWBOS, written submission)

Concern and confusion were expressed about the scope and sequence chart. This related particularly to those contexts where cells have been left blank in particular bands.

Inconsistency was identified in the progression of learning among different contexts, with reference to differing expectations for each of the contexts. For example, in Years 5 to 6 'identify and explain', 'recognise', 'explain' and 'identify' are used across four contexts. There was also concern over the lack of detail on specific contexts.

Respondents said there was too much emphasis on knowledge and understanding over practical, hands-on learning.

Further, respondents thought there was too much emphasis on food in the section. The splitting of food content across Health and Physical Education and Technologies was not

regarded favourably. Respondents cited the HPE curriculum approach to home economics as a better description of the link.

Other suggested improvements included the inclusion of a detailed description of home economics in this section to help teachers implement that subject across this learning area and HPE, and clarification of the different contexts in Year 9 and 10.

'There needs to be some clarification of the contexts to be used in Years 9–10. From the scope and sequence, it appears that "Food and fibre", "Engineering principles and systems" and "Food technologies" are not being incorporated in Year 9–10. If this is the case, teachers are concerned that there will be insufficient development in these areas to be able to teach them effectively in Year 11–12. If this is not the intention, then there needs to be further clarification of how the content can be applied to the selected context.' (AISWA, written submission)

4.5 Foundation to Year 2 curriculum

An analysis of the feedback on Questions 52–60 is presented below.

Band level descriptions

Strengths

There was support for the Foundation to Year 2 draft Design and Technologies band level descriptions. They were viewed as clear and appropriate, with 86 per cent of respondents agreeing or strongly agreeing with the clarity, focus and breadth of learning in this band of schooling.

Concerns

There was some concern that the band level description is too ambitious for students at this level. Engineering principles and systems is one concept that was identified as too advanced for children in Foundation to Year 2.

Teachers also commented that the band level descriptions focus too much on analysis and evaluation at the expense of practical and hands-on learning.

Suggestions

A number of survey respondents stated that revising and clarifying the language used in the band level descriptions would make the descriptions more accessible to teachers, especially generalist primary teachers.

There was some confusion regarding a reference to food and fibre and food technologies that respondents wanted to see addressed.

'p. 33 refers to Food and fibre production (including Food technologies) – these are two separate contexts so needs to read 'Food and fibre production AND Food technologies (or Food and Nutrition as suggested earlier). Not too sure why it was decided greater emphasis is on the former context as it currently reads.' (HEIA Vic, written submission)

Content descriptions

There was a view among secondary school teachers that the F–2 content descriptions are too advanced and difficult for students.

Primary school teachers who responded in the survey were concerned that the content descriptions might not enable play-based experimentation.

'The content descriptions are very broad and do not read clearly in the context of Early Childhood. E.g. 2.4 Five year olds will certainly explore push and pull in mechanised objects and tools but taking this into electronics and electricity will move it away from experimental play-based learning to supervised demonstrations which will diminish the potential for deep understanding.' (Primary teacher, WA, online survey)

Content elaborations

Strengths

There was support for the Foundation to Year 2 draft Design and Technologies content elaborations. Of the online survey respondents, 76 per cent agreed or strongly agreed that they provide clear and relevant illustrations of the content descriptions.

Concerns

General concerns with the content elaborations were that they do not adequately cater for the diversity of school environments, and that they do not closely align with key curriculum ideas and contexts, or across the two Technologies subjects.

'The elaborations chosen for each subject do not make reference to the other. Nor do they highlight connections between the two subject areas back to the overall rationale, aims and key ideas of the Technologies learning area. Connections between the two technologies subjects should be made. For example, provide elaborations to demonstrate how Digital technologies might be connected to Design and technologies projects.' (QSA, written submission)

As with the descriptions for this band, many teachers thought the elaborations for Foundation to Year 2 were age-inappropriate.

Suggestions

There was support for more detail and guidance to be provided to teachers.

'These are vague for a band that will need considerable guidance in implementation. There needs to be specific examples of resources that would typically be used. There are few teachers in the F–2 years that have confidence or experience in this area.' (Education stakeholder, SA, online survey)

Industry submissions recommended greater reference in the content elaborations to their respective technologies contexts.

Achievement standard

Strengths

There was support for the Foundation to Year 2 draft Design and Technologies achievement standard, with 85 per cent of respondents agreeing or strongly agreeing that it is a clear and unambiguous statement of the expected quality of student learning. The pitch and appropriateness of the progression of the expected learning across the band levels was also supported, with 66 per cent and 72 per cent respectively in agreement or strong agreement.

Concerns

A number of survey respondents said that language used in the achievement standard lacked detail and guidance to assist teachers implement the standards.

'It would be very difficult to assess Foundation/Year 1 students according to this achievement standard. It does not take into account the vast development of certain skills, eg fine motor skills in this age range. It would be more appropriate to group Year 2 with Years 3 and 4.' (Primary teacher, WA, online survey)

Suggestions

Improvements suggested by respondents related to providing extra guidance and support to teachers to assist them in implementing the curriculum, for example, explicitly identifying each technologies context in the achievement standard.

'It is recommended that standards are written for each context for each band.'

No contexts are acknowledged in the achievement standard. Stating standards for each of the contexts will provide guidance around the expectations of what could be taught; there are Content descriptions from Years F–8 so it is unclear why contexts at Years 9–10 do not have specific Content descriptions. Action: Include standards for each of the contexts from Years F–10.' (VCAA, written submission)

There was support for explicitly identifying each technologies context in the achievement standard and placing more of an emphasis on doing or demonstrating rather than just describing.

4.6 Year 3 to Year 4 curriculum

An analysis of the feedback on Questions 61–69 is presented below.

Band level descriptions

Strengths

There was strong support for the Year 3 to 4 draft Design and Technologies band level descriptions, with 83 per cent of respondents agreeing or strongly agreeing that the band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.

Concerns

A number of concerns regarding band level description match those already summarised: the language used is too technical and sophisticated for students and teachers.

'The band level description is clear and possibly more appropriate than the F–2 content, but still too complex. The content will only be achievable with well trained teachers and lots of time – too broad and sophisticated.' (Professional association, online survey)

Suggestions

There was support for clearer guidance for teachers on how students will study each of the contexts and design, produce and evaluate each of the designed solutions.

Content descriptions

Strengths

There was support for the draft Design and Technologies content descriptions. Of respondents to the online survey, 69 per cent agreed or strongly agreed that the content descriptions are pitched appropriately, while 74 per cent agreed that they describe an appropriate progression and are manageable for this band level.

Concerns

Concerns of survey respondents reiterated the issue raised in the previous band: school teachers were concerned that the Year 3 to Year 4 content descriptions might be too advanced for students. There were also concerns regarding the capacity, ability and expertise of generalist primary school teachers to teach the Year 3 to Year 4 content.

It would appear this issue of teacher expertise was of less concern for schools that participated in the intensive engagement activity. (See Appendix 3.)

Content elaborations

Strengths

There was support for the Years 3 to 4 draft Design and Technologies content elaborations among respondents, with 65 per cent saying that they agreed or strongly agreed that the elaborations provide clear and relevant illustrations of the content descriptions. One comment made by a consultation participant with an industry perspective supported the explicit references to specific contexts within the elaborations.

Suggestions

More explicit references to specific contexts were supported by respondents with an industry or professional association perspective.

There was support for greater detail and examples within the elaborations. However, this was tempered by concerns that generalist teachers might view the elaborations as prescribed content rather than suggestions and ideas through which to deliver the subject.

Achievement standard

Strengths

Respondents who completed the survey about the draft Design and Technologies curriculum showed support for the achievement standard, with 71 per cent agreeing or strongly agreeing that the achievement standard is a clear and unambiguous statement of the expected quality of student learning. There was good support for the pitch of the achievement standard (67 per cent) and for the appropriate description of the progression of expected learning across band levels (62 per cent of respondents).

Concerns

Teachers and professional associations raised concerns about the pitch of the achievement standard and how the achievement standard supports progression of learning from Foundation to Year 2 through to Years 5 and 6.

Concerns were again raised about the emphasis on describing rather than more explicit hands-on outcomes for students.

Feedback from education authorities raised concern about the capacity of primary schools to adequately deliver each of the contexts. This was less of a concern for those teachers who participated in the intensive engagement activity. (See Appendix 3.)

'Concerns about manageability of the range of contexts in the limited time available for delivery for primary teachers.' (TASDOE, written submission)

Suggestions

Feedback from one education authority suggested including greater reference to the skills that students should attain within the achievement standard, to provide greater clarity and guidance for teachers.

4.7 Year 5 to Year 6 curriculum

An analysis of the feedback on Questions 70–78 is presented below.

Band level descriptions

Strengths

There was support for the Years 5 to 6 draft Design and Technologies band level descriptions among respondents. They are viewed as clear and appropriate, with 73 per cent agreeing or strongly agreeing with the clarity, focus and breadth of learning in this band of schooling.

Strengths observed by respondents included the introduction of the concept of safety in the band level description.

Concerns

There continued to be concerns raised over student expectations and the ability of some schools and teachers to adequately implement all of the technologies contexts.

'Clear – but too much content, looks good on paper but in a practical school setting difficult to deliver. It looks much more appropriate for a Year 7–8 curriculum.' (Teacher, Vic, online survey)

Suggestions

A number of education authorities suggested reducing the word count in the band level description to improve clarity.

Content descriptions

Strengths

Respondents commended the links being made to other learning areas and capabilities within the Years 5 to 6 band.

'The statements read quite well but for Primary teachers to be able to make this more manageable, there needs to be much more linking Technology to specific outcomes in Maths, English, Art, Science etc.' (TASDOE, written submission)

Concerns

Some respondents were concerned that the content descriptions in the draft Design and Technologies are too technical and well beyond the developmental level of this band level. Further concerns expressed were about complex language and ambiguity.

'The content descriptions are overly wordy. They are over written, with multiple ideas, processes and content within a single description. For example: "6.4 Explain how forces or electrical energy can be used to control movement, sound or light in a product or system and consider how material properties and construction processes influence the design and construction of structures."

This is made up of multiple understandings and processes and as a consequence the intent is not clear.' (QSA, written submission)

Suggestions

One education authority suggested reviewing the content descriptions in totality, noting that as individual descriptions they are appropriate; however, holistically they appear unnecessarily complex and disconnected.

Content elaborations

Concerns

There were some concerns raised about the expectation, appropriateness and language of the content elaborations in the Years 5 to 6 draft Design and Technologies curriculum.

Respondents didn't think that the content elaborations aligned with the content descriptions or the band level. They found the language overly complex. Implementation issues and access to resources that are mentioned specifically in the content elaborations were also commented upon. There was a view that food contexts dominate the content descriptions and elaborations in this band.

Suggestions

Respondents made a number of suggestions to improve the content elaborations. These included the provision of more concrete examples that go beyond conceptual ideas, and greater identification and emphasis on decision-making, planning activities, and safety considerations.

'6.1 elaborations could highlight decision-making strategies identified as being used in industry.'

'6.8 elaborations could give indications of useful planning and evaluation strategies, and guidance as to source of appropriate safety criteria to consider.' (ISQ, written submission)

Achievement standard

Strengths

Of the online survey respondents, 75 per cent agreed or strongly agreed that the achievement standard in the Years 5 to 6 draft Design and Technologies describes an appropriate progression of expected learning across band levels. More than two-thirds (68 per cent) indicated that the achievement standard is a clear and unambiguous statement of what students should be taught and 68 per cent also said the standard is pitched appropriately for this band level.

Concerns

There were concerns that the language used in the Years 5 to 6 achievement standard is beyond many teachers without a specialist background.

There was support for a wider range of contexts to be explicitly addressed in this band's achievement standard.

Suggestions

Respondents suggested that technologies contexts be explicitly addressed in this band's achievement standard. There was also support for a greater emphasis to be placed in the standards regarding the production of objects and items, rather than just focusing on reflecting on the process.

'While the emphasis on ethics and sustainability is fully supported and not to be withdrawn- the practical also needs valuing.'

'Again the only verbs of making or creating actual objects in the achievement standard are ... produce designed solutions ... The rest are reflection on the process. Some things

are only learnt by also making and doing long term projects. (Professional association, NSW, online survey)

4.8 Year 7 to Year 8 curriculum

An analysis of the feedback on Questions 79–87 is presented below.

Band level descriptions

Strengths

There was strong support for the Year 7 to 8 draft Design and Technologies band level descriptions. Of survey respondents, 86 per cent agreed or strongly agreed that the band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling. The curriculum was viewed as providing an achievable overview of learning over the two years.

Concerns

Some teachers expressed concern about the quality of learning that students would require in the primary years to be able to navigate learning at the Year 7 to 8 level.

Suggestions

Many suggestions were made supporting the revision of some of the language and length of the description to provide greater clarity for teachers on how to implement the required content across the different contexts.

'This band level description would be enhanced with some clear statements about the designed solutions and projects. For example, what would be an example of a project in the Materials and technologies specialisation context? What could we expect to design, produce and evaluate in the Engineering principles and systems context? Similarly, what is an example of a Food technologies product at this level?' (CEO Brisbane, written submission)

Content descriptions

Strengths

Survey respondents (68 per cent) found that the content descriptions are clear and unambiguous statements of what students should be taught and 63 per cent expressed support for the pitch of content descriptions.

Concerns

Respondents raised concerns about the language used in the content descriptions. It was believed that at times it is too broad, too complex and overly theoretical. There was also concern raised about the ability of some schools to teach the content at this band.

'I would like to see any school deliver all of this in the allocated time that is left for the Technologies subject. There is far too much content here. It needs to be stripped down.'

Please compare the hours it will take to complete these with the hours allocated. There must be mis-match. It is not achievable. (Secondary teacher, QLD, online survey)

However, these concerns were not reflected in the feedback from teachers who participated in the intensive engagement activity. (See Appendix 3.)

Suggestions

It was suggested that the content descriptions include a broadening of use of digital technologies, incorporation of life cycle analysis, and greater reference to specific technologies contexts and content descriptions.

Content elaborations

Strengths

There was support for the Years 7 to 8 draft Design and Technologies content elaborations. Of respondents, 67 per cent agreed or strongly agreed that they provide clear and relevant illustrations of the content descriptions.

Concerns

Significant concerns were raised by some teachers regarding implementation and resource issues. Specifically, respondents identified difficulty in accessing advanced printers and agriculture environments.

Respondents expressed concern that the elaborations in this band are ambiguous, lacking in detail and not focused enough on practical learning.

Examples offered are exceptionally poor. The majority are investigating, describing, evaluating, considering. What happened to hands on learning? Modelling, prototyping, testing and building. (Secondary teacher, Vic, online survey)

Suggestions

Respondents suggested that more explicit guidance and detail in the elaborations would provide greater clarity.

Achievement standard

Strengths

Respondents who completed the survey for the draft Design and Technologies curriculum showed support for the achievement standard, with 80 per cent agreeing or strongly agreeing that the achievement standard is a clear and unambiguous statement of the expected quality of student learning. Almost two-thirds (65 per cent) of respondents expressed support for the pitch of the achievement standard and agreed it is appropriate for this band, and 66 per cent also agreed or strongly agreed that the achievement standard describes the progression of expected learning across band levels appropriately.

Concerns

Survey respondents frequently raised similar issues – that the standards appear to be too heavily reliant on theoretical and written components of the subject.

'At Year 7 and 8 level they should be acquiring skills, they should be able to list rather than explain.' (AISWA, written submission)

Suggestions

Many suggestions supported a greater focus on the practical nature of the subject, and for greater depth in the standards than just explanation of designed technologies, products and services.

4.9 Year 9 to Year 10 Curriculum

An analysis of the feedback on Questions 88–96 is presented below.

Band level descriptions

Strengths

Of respondents to the online survey, 80 per cent agreed or strongly agreed that the band level descriptions provide a clear overview of the focus and breadth of learning in this band. In particular, respondents valued the references to project management and safety issues.

Concerns

There were concerns that the knowledge and understanding concepts are too sophisticated, and that they might be beyond the capacity of some students who study Design and Technologies.

Content descriptions

Strengths

There was support for the draft Design and Technologies content descriptions. Of respondents to the online survey, 70 per cent agreed or strongly agreed that the content descriptions are clear and unambiguous statements of what students should be taught.

Concerns

There was a view among respondents that the content descriptions within this band are too high and complex for the cognitive level of students. The descriptions were seen as aspirational, and while they may be appropriate for future students there was real concern over their suitability for the current student cohort.

Respondents expressed concern about the emphasis on theory and knowledge over design, the practical component and development of skills.

There were also various comments regarding the confusion about the contexts to be addressed in the Years 9 to 10 content and the lack of pathways to Food and fibre

production, Food technologies and Engineering principles and systems beyond this band level.

'In Years 9 and 10 the Design and technologies contexts – Food and fibre production, Engineering principles and systems, and Food technologies – do not have content descriptions. This implies a lack of importance for these contexts and does not provide adequate support for schools to design curriculum of suitable rigour in Year 9 and 10. All other optional subjects are specified with content descriptions for the full sequence of Foundation to Year 10. (Secondary teacher, QLD, online survey)

Content elaborations

Strengths

There was support for the Years 9 to 10 draft Design and Technologies content elaborations among respondents, 76 per cent of whom agreed or strongly agreed that they provide clear and relevant illustrations of the content descriptions.

Concerns

Comments received through the survey regarding concerns with the content elaborations of the Years 9 to 10 band of the draft Design and Technologies curriculum included the view that they were too text dense and there was too much content.

Respondents expressed concern over the significant implementation issues raised by many of the elaborations, in terms of school capacity and teacher expertise.

Suggestions

Respondents suggested that more explicit guidance, practical examples and detail in the elaborations would provide greater clarity.

Achievement standard

Strengths

Survey respondents showed support for the achievement standard, with 77 per cent agreeing or strongly agreeing that the achievement standard is a clear and unambiguous statement of the expected quality of student learning. Of respondents, 69 per cent expressed support for the appropriate pitch of the achievement standard and 71 per cent agreed or strongly agreed that the achievement standard describes an appropriate progression of expected learning across band levels.

Concerns

Respondents did not think that the standards' requirement of students to 'explain' is an adequate demonstration of students' learning and development through the preceding bands.

There was continuing support for an explicit aligning of the achievement standard with specific technologies contexts in this band.

'Organise the achievement standard accordingly for each of the specialisations for Design and technologies which will help with writing the teaching programs and assessment.

Remove repetition, technical jargon and replace it with suitable technical terminology for the appropriate specialisation.

Remove ambiguity where it exists.' (Secondary teacher, NSW, online survey)

Suggestions

Many suggestions from respondents called for an explicit aligning of the achievement standard with specific technologies contexts in this band.

4.10 State and territory perspectives

Table 5 provides a summary of the key perspectives raised in the written submissions provided by state and territory education authorities. (See Appendix 2.)

Table 5: Design and technologies – key perspectives by state/territory

Key perspectives	
AUSTRALIAN CAPITAL TERRITORY	
Strength	The draft Australian Curriculum adds an emphasis on learning about and within Design and Technologies.
Concern	Some of the content descriptions and achievement standards are quite aspirational. There is insufficient emphasis on skill mastery and the practical use of processes and technologies.
Improvement	Greater focus on skill acquisition and mastery in Design and Technologies.
NEW SOUTH WALES	
Strength	The concepts of 'play' in early years learning and experimentation in later years for solutions development are a strong part of the rationale. Some challenges with implementation, but worthwhile taking these on.
Concern	The context areas do not provide a balance of technologies experiences. There is an excessive emphasis on Food (Food and Fibre Production, Food Technologies). The hands-on understanding of tools, materials and equipment requires strengthening. Production (producing and making) and design processes require further clarification.
Improvement	Strengthen the content relating to the use and practical application of traditional, emerging and digital technologies as part of the technologies processes. Strengthen the requirements of practical experiences and development of skills for F–6. Integration of food safety issues, e.g. hygiene, contamination, appropriate storage, food handling.
NORTHERN TERRITORY	
Strength	Years 9 to 10 content is clear and appropriate and provides a pathway into Year 11 and 12.
Concern	Achievement standard for F–2 is very broad to cover three years. Years 7 to 8 seems to be weighted towards knowledge and understanding.
Improvement	Provide greater clarity about the place of multimedia in Design and Technologies by including as an area of specialisation within graphics technologies. Strengthen references to safe working practices. Make more explicit the links to other learning areas, particularly for F–6.

Key perspectives

QUEENSLAND

Strength	<p>The rationale for Design and technologies identifies the management of the subject through students' completion of independent and collaborative projects. This intent allows for a practical, hands-on approach.</p> <p>The curriculum gives a good description of the subject as traditional, contemporary and emerging.</p> <p>Table 1 and Table 2 are viewed favourably.</p> <p>The band level descriptions are viewed positively.</p> <p>The affirmation of play as a suitable approach was also commended.</p>
Concern	<p>Design and Technologies content descriptions are overly wordy, and complex. Students are asked to frequently critique and evaluate designs, but not explicitly asked to create or make.</p> <p>The omission of content descriptions for the Year 9 and 10 Design and Technologies contexts: Food and fibre production, Engineering principles and systems and Food technologies implies a lack of importance or emphasis on these contexts.</p>
Improvement	<p>Greater alignment between what is valued in the Rationale and Aims requires strengthening in the content and standards.</p> <p>Rewrite the content descriptions to be shorter and sharper.</p> <p>Produce content descriptions for all the contexts in Years 9 and 10.</p> <p>Emphasise the importance of practical performance.</p> <p>Embed project management more effectively throughout the curriculum.</p>

SOUTH AUSTRALIA

Strength	<p>The rationale is well written and describes opportunities for learners to succeed. The focus on active engagement and creativity is welcomed.</p> <p>The aims are clearly set out and are linked to the content structure.</p> <p>The two strands are clearly defined and can be differentiated.</p>
Concern	<p>Years 7–8 content is likely to cause technology resourcing and expertise implications given that Year 7 classes are in a primary environment in South Australia.</p>
Improvement	<p>Strengthen links with Health and Physical Education in relation to food and nutrition. The food and fibre production section could be strengthened by providing more detail about relevance and nature of this technology.</p> <p>Producing needs to be strengthened particularly in Years 9 to 10.</p>

TASMANIA

Strength	<p>The inclusion of play is positive.</p> <p>The Year 5 to 6 content descriptions read well.</p> <p>The Year 7 to 8 band level description provides a clear overview of the focus and breadth of learning in this band of schooling.</p> <p>The inclusion of project management and safety is commended.</p>
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Key perspectives	
Concern	<p>Concerns regarding manageability of the range of contexts in the limited time available for delivery, for primary teachers.</p> <p>There is no pathway in Years 9 and 10 for Food and fibre production, Food technologies and Engineering principles and systems.</p>
Improvement	<p>Provide greater links to other learning areas. The Food and fibre content elaboration could be expanded to include paddock to plate to link with 8.6, the cross-curriculum priority Sustainability and the HPE curriculum.</p> <p>Developing a pathway in Years 9 and 10 for Food and fibre production, Food technologies and Engineering principles and systems.</p>
VICTORIA	
Strength	<p>The intent of the aims is supported.</p> <p>Strong endorsement of sustainability as a cross-curriculum priority.</p> <p>Environmental sustainability is well represented in the content elaborations.</p>
Concern	<p>The term 'context' is ambiguous and adds confusion.</p> <p>The title 'Food technologies' limits the scope.</p> <p>Inconsistency of terminology, for example 'materials and technologies specialisation'.</p> <p>There are no specific content descriptions for the context 'Materials and technologies specialisations'.</p> <p>The scope and sequence has too great an emphasis on knowledge and understanding, rather than processes and production skills.</p> <p>There needs to be greater consistency in rigour at each band level for each of the contexts.</p> <p>Inconsistency of terminology used in Design and Technologies, as defined in the Glossary.</p> <p>Cognitive demands of the content descriptions and elaborations are not always appropriate for each band.</p>
Improvement	<p>Aims require reordering and inclusion of key terms.</p> <p>List the contexts alphabetically to reduce perceptions of a hierarchy.</p> <p>Change Food technologies to Food and Nutrition.</p> <p>Each context should have its own content description that provides information about the scope for each context.</p> <p>Content descriptions are too generic and need to be redeveloped so they specifically apply to the 'Materials and technologies specialisations' context.</p> <p>The cognitive demands for each of the content descriptions relating to each context at F–10 require review to ensure each is appropriately and sufficiently rigorous.</p> <p>Acknowledge the context in the achievement standard.</p> <p>Develop a diagram to represent the Design and Technologies curriculum by clearly showing the interrelationship between technologies processes, design process, technologies context, solutions and technologies and society.</p>

Key perspectives

WESTERN AUSTRALIA

Strength	<p>The draft aims are supported.</p> <p>The F–2 band level descriptions provide a good idea of what is expected for each year level.</p> <p>The content descriptions when read together describe a cohesive whole of the curriculum.</p>
Concern	<p>The imbalance between the theoretical and practical nature of work.</p> <p>Scope and sequence statements are too complex.</p> <p>Content descriptions, elaborations and achievement standards were too advanced for targeted band, and too complex.</p> <p>Required the Glossary to decode the band level description for Years 9 to 10.</p>
Improvement	<p>Aims can include: management as they design, plan and produce and apply specific skills appropriate to their project when creating and producing.</p> <p>The text describing contexts requires editing to improve clarity of the description.</p> <p>Inclusion of explicit statements identifying the appropriate skills required when using tools and operating equipment.</p> <p>Elaborations require greater clarity and practical ways of teaching the concepts described, for example, the provision of work samples.</p>

5. CONSULTATION FINDINGS – DIGITAL TECHNOLOGIES

Table 6 below summarises the percentages of respondents to the online survey who strongly agreed, agreed, disagreed and strongly disagreed with each statement. An analysis of feedback on each section of the survey is presented in the following pages.

5.1 Responses to survey questions

Table 6: Digital technologies – number of online survey responses and percentage of respondents by response

Questions	Total responses (number)	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
The Digital Technologies Rationale and Aims					
98. The rationale for the draft Digital Technologies curriculum is clear about the nature and importance of the Digital Technologies for all Australian students.	67	21	66	10	3
99. The aims of the draft Digital Technologies curriculum clearly state the intended learning in the subject.	63	24	67	7	2
Organisation of the learning area					
Content Structure; Key concepts, ICT in the Australian Curriculum, Learning in Digital Technologies					
100. The nature of the two strands and their relationship is clearly recognisable in the draft Australian Curriculum: Digital Technologies.	63	14	65	13	8
101. The key concepts provide a useful organisational element in the draft curriculum.	65	17	55	19	9
102. Content descriptions based on the key concepts will provide scope to incorporate future developments in digital technologies.	65	18	63	13	6
103. Content descriptions based on the key concepts will help prevent the curriculum from dating too quickly.	65	14	66	14	6
104. The description of the key concepts is clear.	65	14	66	14	6
105. The description of the place of information and communication technology (ICT) in the Australian Curriculum is clear.	62	23	65	7	5

Questions	Total responses (number)	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
106. The relationship between Digital Technologies and the general capability, ICT capability, is clearly stated.	63	22	56	11	11
107. The description of learning in Digital Technologies is appropriate.	61	21	51	17	11
Foundation to Year 2 Curriculum					
Band level descriptions; Content descriptions; Content elaborations; Achievement standard					
108. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.	40	15	68	12	5
109. The draft content descriptions are clear and unambiguous statements of what students should be taught.	37	14	46	21	19
110. The draft content descriptions are pitched appropriately for this band level.	36	14	36	22	28
111. The draft content descriptions describe an appropriate progression across band levels.	37	14	38	26	22
112. The draft content descriptions provide a manageable set for this band level.	37	16	32	28	24
113. The draft content elaborations provide clear and relevant illustrations of the content descriptions.	35	9	54	17	20
114. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.	37	8	54	27	11
115. The draft achievement standard is pitched appropriately for this band level.	36	14	39	33	14
116. The draft achievement standard describes an appropriate progression of expected learning across band levels.	37	14	43	27	16
Year 3 to 4 Curriculum					
Band level descriptions; Content descriptions; Content elaborations; Achievement standard					
117. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.	29	14	69	14	3
118. The draft content descriptions are clear and unambiguous statements of what students should be taught.	26	19	50	16	15

Questions	Total responses (number)	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
119. The draft content descriptions are pitched appropriately for this band level.	26	19	35	31	15
120. The draft content descriptions describe an appropriate progression across band levels.	26	23	42	20	15
121. The draft content descriptions provide a manageable set for this band level.	25	24	36	20	20
122. The draft content elaborations provide clear and relevant illustrations of the content descriptions.	24	29	46	8	17
123. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.	25	20	64	8	8
124. The draft achievement standard is pitched appropriately for this band level.	24	25	46	21	8
125. The draft achievement standard describes an appropriate progression of expected learning across band levels.	26	27	46	23	4
Year 5 to 6 Curriculum					
Band level descriptions; Content descriptions; Content elaborations; Achievement standard					
126. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.	27	26	63	11	0
127. The draft content descriptions are clear and unambiguous statements of what students should be taught.	23	30	35	26	9
128. The draft content descriptions are pitched appropriately for this band level.	23	26	43	22	9
129. The draft content descriptions describe an appropriate progression across band levels.	23	39	39	13	9
130. The draft content descriptions provide a manageable set for this band level.	23	35	39	17	9
131. The draft content elaborations provide clear and relevant illustrations of the content descriptions.	25	32	48	8	12
132. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.	25	24	48	16	12

Questions	Total responses (number)	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
133. The draft achievement standard is pitched appropriately for this band level.	24	38	38	12	12
134. The draft achievement standard describes an appropriate progression of expected learning across bands.	25	36	44	12	8
Year 7 to 8 Curriculum					
Band level descriptions; Content descriptions; Content elaborations; Achievement standard					
135. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.	49	18	58	16	8
136. The draft content descriptions are clear and unambiguous statements of what students should be taught.	51	20	53	20	7
137. The draft content descriptions are pitched appropriately for this band level.	49	12	35	35	18
138. The draft content descriptions describe an appropriate progression across band levels.	51	12	51	25	12
139. The draft content descriptions provide a manageable set for this band level.	50	14	34	34	18
140. The draft content elaborations provide clear and relevant illustrations of the content descriptions.	49	10	63	22	4
141. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.	49	12	55	27	6
142. The draft achievement standard is pitched appropriately for this band level.	49	16	33	37	14
143. The draft achievement standard describes an appropriate progression of expected learning across band levels.	48	19	38	33	10
Year 9 to 10 Curriculum					
Band level descriptions; Content descriptions; Content elaborations; Achievement standard					
144. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.	51	16	67	13	4

Questions	Total responses (number)	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
145. The draft content descriptions are clear and unambiguous statements of what students should be taught.	48	13	60	19	8
146. The draft content descriptions are pitched appropriately for this band level.	47	11	36	32	21
147. The draft content descriptions describe an appropriate progression across band levels.	47	15	53	17	15
148. The draft content descriptions provide a manageable set for this band level.	48	13	40	30	17
149. The draft content elaborations provide clear and relevant illustrations of the content descriptions.	49	10	63	21	6
150. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.	49	10	63	21	6
151. The draft achievement standard is pitched appropriately for this band level.	48	17	46	27	10
152. The draft achievement standard describes an appropriate progression of expected learning across band levels.	48	15	52	27	6

5.2 Rationale

An analysis of the feedback on Question 98 is presented below.

Key feedback

Strengths

The Digital Technologies rationale was viewed as a clear, succinct and well-balanced statement. Teachers, schools and other stakeholders considered it an important statement on the nature and significance of learning digital technology skills and understanding.

'We believe the rationale for the proposed curriculum is a good summary of why we support this curriculum. The key themes of empowering students and fostering curiosity, confidence, persistence, innovation, creativity, respect and cooperation resonate strongly with us.' (NCSS, written submission)

'The new curriculum specifically addresses digital technologies, which is a very welcome step in the right direction. Digital technologies are increasingly important in our society and economy, and it is of great importance that Australia prepares itself to face future challenges. Many of the challenges ahead need to be addressed with science and digital technologies, and it is therefore of crucial importance that our students not only learn how to use technologies as users, but also how to constructively embrace technology to solve future problems, create solutions and improve future generations' lives.' (Individual academic, written submission)

Concerns

Professional associations raised some concerns that the rationale does not go far enough in acknowledging how significant a challenge it will be to introduce a digital technologies subject from Foundation in the school environment.

'ACCE is concerned that the rationale does not fully reflect the significant changes and challenges that the introduction of Digital Technologies presents.' (ACCE, written submission)

5.3 Aims

An analysis of the feedback on Question 99 is presented below.

Key feedback

Strengths

There was considerable support for the aims section. The aims were viewed as clear and flexible in design, and were seen to encourage creativity and innovation. Of respondents, 91 per cent agreed and strongly agreed that the aims of the draft Digital Technologies clearly state the intended learning.

'There is considerable support for the Aims section. They are viewed as clear and flexible in design, and are seen to encourage creativity and innovation.' (Barker College NSW, written submission)

'The aims appear to be couched in sufficiently general terms to allow sufficient openness of application and for the introduction of new technologies as they emerge. QSITE is pleased to see the use of active words reinforcing the notion of Digital Technologies as a subject where students learn by doing.' (QSITE, written submission)

'In any event, a curriculum that builds students' creative use - and development – of technology in a structured way is a big step forward.' (Individual academic ACT, online survey)

'Supports the move from students being users of technology to students being creators.' (TASDOE, written submission)

Suggestions

While there were some concerns raised by respondents who believe the aims are too high for students, the bulk of suggested improvements related to making more explicit the links to the overall learning area and further strengthening the aspirational elements of the aims section.

'The aims of Digital Technologies should better reflect the aims of the draft Technologies overview. This will increase the consistency between the Design and Technologies and Digital Technologies curriculum documents.' (DATTA, written submission)

'ACCE recommends that there be clearer linkage of aims to the content structure, key concepts, and strands.'

ACCE recommends the inclusion of aspirational aims to reflect a strengthened rationale on the import of Digital Technologies.

ACCE recommends that the Digital Technologies aims have more direct reflection into the overarching aims of Technologies.' (ACCE, written submission)

One education authority suggested including key dispositions such as curiosity, innovativeness and confidence to enhance the aims.

5.4 Organisation

An analysis of the feedback on Questions 100–106 is presented below.

Content structure

Strengths

The results were favourable for the two-strand structure within the draft Digital Technologies, with 79 per cent of respondents either agreeing or strongly agreeing that the nature of the draft Digital Technologies structure presents a clearly recognisable relationship between the two strands within the curriculum area.

'This is pretty well done. The way the understanding strand and the production skills strand relate is pretty clear in the document.' (Individual academic SA, online survey)

Concerns

Respondents identified areas of concern when considering the appropriateness of the term 'production' in the processes and production strand.

Some feedback indicated that the document was too verbose, with respondents having to proceed significantly into the document before they begin to understand the subject. Furthermore, respondents did not consider Table 4 helpful in clarifying content structure.

Suggestions

There was support for a better table or diagram to be introduced to better demonstrate the organisational elements of the subject and better connect the strands with the overarching key ideas in the Technologies learning area.

Key concepts

Strengths

Respondents responded favourably to the key concepts, with broad support for how the key concepts section is structured. One respondent noted that the key concepts are seen as useful organisational elements of the curriculum.

Concerns

There was some concern about the complexity of the language used in describing the key concepts. Addressing these key concepts (and ideas such as computational thinking) was acknowledged as a challenging but important task. Nevertheless, there were some concerns about efforts to distil these ideas into a summarised form.

'There is an emphasis on computational thinking and algorithmic logic in Digital Technologies. It is agreed that that using correct terminology is important but it needs to be presented in a way teachers without digital expertise can understand. Otherwise many teachers will feel overwhelmed and disengage before they read through to content descriptions and elaborations.' (NTDECS, written submission)

There were some concerns raised about possible overlap between the interactions concept and the broader general capabilities outlined in the learning area. ICT professional associations recommended incorporating this concept into the general capabilities section.

'ACCE recommends that the interactions key concept be reframed as a specific elaboration of the General Capability as it relates to Digital Technologies, not as a distinct content/key concept of DT.' (ACCE, written submission)

Information and communication technology in the Australian Curriculum

The distinction between Digital Technologies and the ICT general capability drew a varied response from consultation participants. Of survey respondents, 88 per cent agreed or strongly agreed that the description of the place of ICT in the Australian Curriculum is clear.

There was some support from ICT industry perspectives for the distinction, but among education authorities and the ICT professional associations there was still some concern.

Concerns

From a NSW perspective there was a strong view that the distinction between the ICT general capability and Digital Technologies remains unclear. The Australian Council for Computers in Education (ACCE) and other responses coordinated with ACCE shared this concern.

Multimedia

The section on multimedia also drew significant comment from consultation participants. There was concern over the splitting of multimedia across learning areas. Consultation participants were also concerned that design elements are not afforded enough focus in the description.

'QSITE is concerned firstly with the description of multimedia and its allocation to the Media Arts subject. This indicates to us a narrow understanding of multimedia and denies to Digital Technologies the opportunity to work with multimedia as is currently seen to good effect in the Queensland senior secondary subject of Information Technology Systems. In this, students use high-end software (such as the Adobe suite) and come to gain quite sophisticated understandings of the data representation and management of image and audio. This is coupled with creative application.' (QSITE, written submission)

'The wording of the statement that identifies the place of multimedia distinctly from the Digital Technologies and Media Arts can be interpreted as "anti-multimedia", when in fact the distinction is intended to clarify the role that both subjects (Media Arts and Digital Technologies) play in the study of multimedia.' (InTEACT, written submission)

5.5 Learning in Digital Technologies

Key feedback

Strengths

Of respondents to the survey, 72 per cent agreed or strongly agreed that the description of learning in the draft Digital Technologies curriculum is appropriate.

The inclusion of 'play' in the Technologies learning area was identified as a key strength of the curriculum. Respondents from industry, teaching, schools, professional associations and education authorities endorsed this focus.

'It is reassuring to see the affirmation of play as a suitable approach to technologies learning within the early bands.' (ISQ, written submission)

There was also support from specialist ICT teachers, professional associations and industry for the introduction and progression of programming and computational skills.

'We also agree that learning deep computing and informatics concepts and associated skills is feasible for children from a young age, as envisaged by the curriculum. In most

ways, the draft has a sensible pacing, and staging, of the material, with an excellent progression and enhancement as students get older.

In particular, we applaud the way programming ideas and skills are placed, with a start using games and real-world processes, then moving to visual programming, and then considering textual approaches. Similarly, the sequence of material on data is very well thought out, and it is great to see students learning to critique the data and model it, as well as gather it and manipulate it.’ (CORE, written submission)

Concerns

Significant concern was expressed from other teachers and education authorities on the implementation issues for Digital Technologies. Commenting on the scope and sequence table, respondents raised a number of implementation issues related to student capacity and teachers with a generalist background or working within in a primary school environment.

‘However they are not ideal or achievable for a K–6 student. E.g. how is a primary school student expected to ‘describe the internal and external components of digital systems?’ (Gilroy Catholic College, written submission)

‘Primary teachers are very concerned about the nature of the digital technologies. The content seems to be cognitively and developmentally more suited to secondary school students with a specialist teacher. There is also perceived to be a mismatch with the corresponding Mathematics curriculum.

The value of the learning outcomes gained from digital technologies does not warrant the time allocated in an already very tight timetable for primary schools. The time allocation given to digital technologies could more valuably be spent on more fundamental aspects of the curriculum, including numeracy and literacy.

Professional development and resources are of concern. Most teachers in the primary years are not computer science trained and will need specialised professional development. This is seen to be broadening the scope of their teaching beyond what is necessary.’ (AISWA, written submission)

Some feedback from online respondents expressed concern over the appropriateness of the communicating online section; respondents suggested it would be better suited within the general capabilities. Respondents also expressed their view that there is a lack of clarity around the communications solutions area, with some respondents questioning its meaning and specificity.

ICT professional associations and education authorities perceived the balance between automation and communication as problematic for the course content and elaborations.

Suggestions

Suggested improvements included the introduction of more opportunities for creativity, curiosity, and innovation in the ‘Solutions in Digital Technologies’ section. Other suggestions included strengthening integrating content from the strands section to ensure that design elements and practical learning are achieved in the teaching and learning of the subject.

5.6 Digital Technologies across Foundation to Year 10

Band level descriptions

There was considerable support from teachers, ICT professional associations, and the digital technologies industry for the band level descriptions.

'Google is generally supportive of the band level descriptions. The progression through the bands is indicative of a sequence of learning that builds on concepts and consolidated knowledge of computer science. If followed until year 10 this will enable students to pursue studies in computer science at both a senior secondary and subsequently tertiary level.' (Google, written submission)

Content descriptions

Industry and ICT professional associations supported the Digital Technologies content descriptions and the way in which they support development and progression of learning. A number of education authorities shared their views on the progression of learning; however, there was concern among the education authorities and others over the pitch of the content and the reliance on technical and programmatic language.

The issue of teacher capacity and the need for professional development and training was also raised.

There were suggestions from professional associations and education authorities to revisit the pitch, balance and language of the content descriptions.

'... refine the content descriptions for Digital technologies to:

minimise the use of technical language and jargon;

ensure they are broad enough to avoid narrowing the opportunities for teachers and students to be creative in Digital technologies; and

provide a better balance of computer science concepts with the other aspects identified in Digital technologies rationale. Provide a balance of fundamental programming understandings and skills with the inventive use of digital technologies to solve authentic real world problems. Include opportunities for connecting learning to innovation, reasoning, problem-solving, ideation processes and open-ended abstract thinking during the study of Digital technologies.

Re-evaluate the pitch of the Digital technologies content descriptions. They are currently set too high.' (QSA, written submission)

Content elaborations

Overall, there were a number of concerns raised by ICT professional associations and education authorities about the content elaborations.

There was concern that the elaborations are too complex and technical. Combined with the way they are presented, there were fears they would be viewed as mandatory content by teachers rather than as options with which to explore the content.

There were suggestions to broaden the range of examples included in the elaborations and to make clearer that they represent possibilities and not mandated learning activities.

'The digital technologies elaborations ignore a whole range of technologies that students use and are interested in. For example, writing apps, Claymation, expert systems, and mobile games. Revise the elaborations to include more relevant learning for students.' (QSA, written submission)

'ACCE recommends that it be made much clearer that content elaborations present suggested means of achieving the Content Descriptions and do not represent an aggregation of required content.' (ACCE, written submission)

Achievement standards

ICT industry and professional associations were generally supportive of the achievement standards.

However, education authorities and ICT professional associations raised concerns regarding the language used in the standards and the manner in which they relate to the content descriptions.

There was support for more explicit mapping of content descriptions and achievement standards and ensuring they are flexible enough to enable assessment of student high performance.

'Although achievement standards describe a typical performance it is important to acknowledge that many Digital Technologies learning activities will permit students to demonstrate achievement at higher levels.' (ICTENSW, written submission)

5.7 Foundation to Year 2 curriculum

An analysis of the feedback on Questions 108–116 is presented below.

Band level descriptions

Strengths

There was support for the Foundation to Year 2 draft Digital Technologies band level descriptions. They were viewed as providing a clear overview of the focus and breadth of learning in this band of schooling by 83 per cent of survey respondents. Respondents also commended the Foundation to Year 2 band level description for its focus on play, investigation, fun and creativity.

Concerns

There were some concerns raised about the age appropriateness of introducing concepts of computational thinking and online interaction.

Suggestions

Respondents suggested simplifying some of the terminology and providing further clarity around concepts of safety.

'Foundation to Year 2 phase description includes the statement "...creating ideas and information and sharing them online with known people." This is not age appropriate and should be moved into the next phase.' (QSA, written submission)

Content descriptions

Strengths

Professional associations and industry partners commended the introduction of fundamental concepts of the Digital Technologies subject to children in Foundation to Year 2 in fun and creative ways.

'We strongly support the teaching of algorithmic and computational thinking in early primary years.' (ITIIC, written submission)

Concerns

Teachers expressed concern that much of the content is beyond the cognitive level of children in this band. Additional concerns around implementation, time allocation and teacher expertise were also raised. Only 50 per cent of survey respondents thought the content descriptions were pitched appropriately.

'Teachers are not trained to deliver this content. Descriptions are beyond the intellectual capability of students.' (Secondary teacher, NSW, online survey)

Suggestions

There was support from respondents for a greater emphasis on play based and experimental content descriptions.

Content elaborations

Strengths

Respondents commended and welcomed the breadth of possibilities within the Foundation to Year 2 elaborations. Some feedback indicated a preference for the game and play focus.

'Things that we like: the "Game" and "play focus, especially in the second half of 2.4, with the creative/experimental play. Cool stuff to play with.' (USSITAA, written submission)

Concerns

The concerns of respondents were focused on the age appropriateness of the pitch and the content elaborations.

'Again as aforementioned I believe a lot of these would be unachievable – it is very tech focused. Some of the descriptions are pitched at a very high level of knowledge and skills bordering on being university based.' (Secondary teacher, WA, online survey)

Suggestions

Respondents indicated that they would like to see further emphasis on play-based learning; and expansion of 2.1 to include social media and greater exploration of the term 'safety'.

Achievement standard

Strengths

One education authority noted:

'The achievement standard's inclusion of restricted online environments was regarded as very important and appropriate to these year levels in particular, and it was important to see this carried onto Years 3–4 at least, if not continued onto Years 5-6.' (WASCSA, written submission)

Concerns

There was concern regarding the appropriateness of the pitch and progression of expected learning across this band level. While 62 per cent of respondents said the achievement standard is clear and unambiguous, they noted that the statements are too broad, do not reflect the content descriptions and require further information and expansion of ideas.

'The achievement standard is written in a more simplistic form than the content descriptions and elaborations. This creates mismatch and confusion as to at what level the content is to be treated.' (Education officer ACT, online survey)

The term 'experiment' was identified as being particularly problematic when used within achievement standards because it might be difficult to assess.

Suggestions

Respondents called for the provision of samples and more information to guide and make the achievement standard more accessible to teachers.

5.8 Year 3 to Year 4 curriculum

An analysis of the feedback on Questions 117–125 is presented below.

Band level descriptions

Strengths

There was strong support for the Year 3 to 4 draft Digital Technologies band level descriptions, with 83 per cent of respondents in agreement that the band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.

Concerns

There were some concerns raised about the ability of generalist teachers to adequately deliver and implement the content.

Several respondents were also concerned with the language used in this band level description. The language and sentence structure was considered overly long and complex with too many competing ideas being introduced.

Suggestions

A number of survey respondents suggested further revision of the bands, using more direct and succinct language.

Content descriptions

Strengths

There was support among respondents for the clarity and coherence of the Years 3 to Years 4 content descriptions. The introduction of algorithms was commended, with feedback noting it is well pitched and appropriate for this band.

Concerns

Only 54 per cent of survey respondents indicated that the content descriptions are pitched appropriately.

While respondents commended the introduction of algorithms, significant concern was expressed regarding the need for practical examples and work resources to assist and guide teachers on concepts that are new to them.

'Years 3/4: the reference to algorithms (4.5) is seen as challenging for students of this age, and is not a familiar concept for many teachers. Practical examples suited to this age range will be required if this concept and language are retained.' (TASDOE, written submission)

Some respondents perceived that concepts of fun and play-based learning fall away too quickly from the language of the descriptions in this band.

Content elaborations

Strengths

There was support for the Years 3 to 4 draft Digital Technologies content elaborations. Among respondents, 75 per cent agreed or strongly agreed that the elaborations provide clear and relevant illustrations of the content descriptions.

A number of respondents identified the elaborations for 4.2, 4.4 and 4.5 as particularly strong.

Concerns

Respondents expressed concern about the validity and currency of some examples within elaborations, for example, joysticks and memory cards at 4.4 were seen as items that would date very quickly.

Suggestions

Respondents suggested that to enhance the elaborations 4.2 could be expanded on by incorporating concepts of security and 4.7 could include further elaboration on the concept of digital citizenship.

Achievement standard

Strengths

There was strong support for the Years 3 to 4 draft Digital Technologies achievement standard, with 84 per cent of respondents agreeing or strongly agreeing that it is a clear and unambiguous statement of the expected quality of student learning. The pitch and appropriateness of the progression of the expected learning across the band levels was also supported, with 71 per cent and 73 per cent respectively in agreement or strong agreement.

Concerns

The concerns identified reiterated the concerns summarised above; in particular, the issue around teachers without a specialist computer background finding it difficult to use the standard to assess students.

Suggestions

Respondents suggested ensuring an element of creativity and enjoyment is retained in the standard.

Some respondents also identified a need for the provision of specific detail to match the standard within the content descriptions and elaborations.

5.9 Year 5 to Year 6 curriculum

An analysis of the feedback on Questions 126–134 is presented below.

Band level descriptions

Strengths

The Years 5 to 6 draft Digital Technologies band level descriptions were viewed as providing a clear overview of the focus and breadth of learning in this band of schooling by 89 per cent of survey respondents.

Concerns

Some teachers and education officials were concerned that the language used is becoming increasingly technical in this band level description. This was considered a particular issue for primary school teachers.

'The progression for students is appropriate, but InTEACT has concerns about how teachers with limited knowledge will respond to this expectation. Implementation will prove to be a challenge.' (InTEACT, written submission)

Content descriptions

Strengths

Of survey respondents, 78 per cent agreed or strongly agreed that the draft content descriptions describe an appropriate progression across this band level. Almost two-thirds of respondents (65 per cent) found the content descriptions clear and unambiguous statements of what students should be taught and 69 per cent agreed the content descriptions are pitched appropriately for this band level.

'We strongly support every Australian student being taught a programming language in years 5–6 (including visual programming languages).' (NCSS, written submission)

Concerns

However, there were concerns raised by teachers and education authorities that the content descriptions in this band become very technical and beyond the capacity of many students and primary school teachers.

'The content descriptions have become quite technical and above the capacity of Year 5–6 students but more importantly well above the capacity of most primary school teachers. The content descriptions describe material which has normally been addressed at high school level and are inappropriate for Years 5–6.' (Education stakeholder ACT, written submission)

Content elaborations

Strengths

There was support for the Years 5 to 6 draft Digital Technologies content elaborations; 80 per cent of respondents agreed or strongly agreed that they provide clear and relevant illustrations of the content descriptions.

Concerns

There were concerns raised by some respondents that the language becomes technical and abstract in the Years 5 to 6 elaborations. Elaborations for 6.2 were seen as 'heavy' and were instead recommended to be spread across years.

Achievement standard

Strengths

There was support for the Years 5 to 6 draft Digital Technologies achievement standard, with 80 per cent of respondents agreeing and strongly agreeing that the standard describes an appropriate progression of expected learning across band levels. Of survey respondents, 72 per cent agreed or strongly agreed the draft achievement standard is a clear and unambiguous statement of the expected quality of student learning and 76 per cent agreed the standard is pitched appropriately for this band level.

Concerns

There were concerns that the Years 5 to 6 achievement standard is too high and not aligned to the cognitive developmental needs of students in this band. In particular, the extent to which students can comprehend binary code and algorithms was questioned.

5.10 Year 7 to Year 8 curriculum

An analysis of the feedback on Questions 135–143 is presented below.

Band level descriptions

Strengths

There was strong support for the Year 7 to 8 draft Digital Technologies band level descriptions among respondents, 76 per cent of whom agreed or strongly agreed that the band level descriptions provide a clear overview of the focus and breadth of learning in this band.

Concerns

Many of the concerns reiterated those previously summarised. In particular, teachers were concerned about the increasingly technical language used in the band level description. There were also concerns about the repetitiveness of some of the language and concepts.

Suggestions

Many of the suggestions for improvement related to providing greater clarity and differentiation of key concepts across preceding bands, particularly across Years 5 to 6 to Years 7 to 8.

Content descriptions

Strengths

The draft content descriptions in Years 7 to 8 Digital Technologies were acknowledged as clear and unambiguous statements of what students should be taught.

We strongly support every Australian student being taught a general purpose programming language in Years 7–8. (USITAA, written submission)

Concerns

However, there were significant concerns raised about the pitch of content and age appropriateness. Respondents said that the Years 7–8 content descriptions are too technical and advanced for students. Only 49 per cent of survey respondents strongly agreed or agreed that the content descriptions are pitched appropriately for this band level.

'However, there is very significant concern over the pitch of the draft Digital Technologies content for Years 7 and 8, with most respondents considering it to be far too aspirational for students at this level.' (CEO Sydney, written submission)

Implementation issues were also raised, with references made to the need for significant time dedicated to teacher training and the provision of adequate resources.

Suggestions

Feedback suggested the following improvements be made to specific content descriptions: 8.1 should include hexadecimal rather than just binary, 8.2 was viewed as very technical and requiring significant theory, and 8.9 was considered very broad and possibly beyond the time allowed for it.

Sustaining student interest in the subject was another suggested improvement to the content descriptions.

'Ensure that the mandatory years of the Digital technologies curriculum is focused on building students' enthusiasm. Years 9 and 10 can then accelerate students who have chosen to continue their study of Digital technologies to learn about high level concepts and programming skills.' (QSA, written submission)

Content elaborations

Strengths

Respondents with industry and professional association perspectives considered the Years 7 to 8 elaborations comprehensive and appropriately challenging for students.

Concerns

Respondents, in particular teachers, identified concerns regarding the overly technical language used.

Some concern was raised about the extent to which some of the elaborations repeat examples explored in previous years, and the inconsistency in approach used in the elaborations with some being overly specific, and others remaining "abstract".

Suggestions

There was support for revisiting these elaborations to provide more examples of work and to strengthen multimedia examples.

'Reconsider the recommended programming language; clarify the status of website development; and reorder content elaborations, starting with the most recognisable examples.' (VCAA, written submission)

Achievement standard

Concerns

Some concern remained about the appropriateness of the draft achievement standard in the Digital Technologies curriculum for this band level. Respondents supported the clarity of the statement, yet indicated it was not suitable for the cognitive development of the band level. It was believed that at times the achievement standard is too broad and generic in what it tries to cover.

Teachers expressed concern over what they perceived as a considerable jump in achievement standard from Years 5 to 6 to Years 7 to 8. They view the standards as very technical and too advanced for students. They were concerned about how capable primary schools are to prepare students to meet the Years 7–8 standards.

Some teachers and education authorities identified a misalignment between the achievement standard at this level and its corresponding content descriptions and elaborations.

'It is recommended that content descriptions and achievement standard for Years 7 to 10 are reviewed to redress concerns of over pitching and discontinuity of algorithmic development.' (VCAA, written submission)

There was concern that the achievement standard in its current form is too open to interpretation, and that this could result in considerable variation in how schools implement the standard.

Suggestions

Improvements suggested by survey respondents related to providing additional guidance and support to teachers to assist in implementing the curriculum.

5.11 Year 9 to Year 10 curriculum

An analysis of the feedback on Questions 144–152 is presented below.

Band level descriptions

Strengths

There was strong support for the Year 9 to 10 draft Digital Technologies band level descriptions. Of survey respondents, 83 per cent agreed or strongly agreed that the band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.

Concerns

Teachers were concerned about the advanced and technical nature of the Years 9 to 10 band level description.

There were also concerns about the consistency of the language used in the description. Respondents observed a contrast between the use of very specific terms, for example, pseudocode, and quite broad descriptions, for example, manipulating data.

Suggestions

Improvements suggested by survey respondents related to placing a greater emphasis on implementing rather than just identifying solutions.

Content descriptions

Strengths

There was support for the Digital Technologies draft content descriptions, with 73 per cent of respondents to the online survey agreeing or strongly agreeing that the content descriptions are clear and unambiguous statements of what students should be taught.

Concerns

There was concern from respondents regarding, in particular, the appropriateness of the pitch and the manageability of the content descriptions for this band level. It was believed that at times they are too broad, overly theoretical and complex for the band level. This is coupled with concerns that the content would not excite and appeal to students, and that teachers would struggle to implement the content.

'Content requires teachers with very specialist knowledge. This will have significant staffing implications. Some of the content seems more appropriate to Yr11 and 12. Much of the content (and even from Yr5/6 and 7/8 bands) is beyond what is found in Certificate 1 and Certificate 2 VET courses.' (ACTDOE, written submission)

Survey respondents were also concerned about terminology. There were objections to terms such as 'agile development' and 'stakeholders'. There were fears that some of the language and concepts would date quickly.

Suggestions

Respondents would welcome greater emphasis on teamwork and collaboration within the content descriptions.

Content elaborations

Strengths

There was support for the Years 9 to 10 draft Digital Technologies content elaborations. Of the online survey respondents, 73 per cent agreed or strongly agreed that they provide clear and relevant illustrations of the content descriptions.

There was support among respondents for the explicit links to ethical, moral and real-world challenges as explored in the elaborations. The linking to other learning areas was also supported.

Suggestions

Respondents suggested that examples of and links to business skills and enterprise could be expanded, though reference to 'clients' and 'stakeholders' was not viewed favourably.

'In Years 9 and 10, it may be desirable to critique more explicitly (and bring in examples) of the many potential occupational areas that this curriculum underpins. There are few people, we believe, who would call themselves 'digital technologists'; while we have many graduates of software engineering, computer engineering and

telecommunications engineering, alongside computer scientists, IT professionals and information systems managers.' (ACED, written submission)

'Remove mentions of "interviewing stakeholders" and project management related issues. It's boring and irrelevant to students' needs. Instead focus on entrepreneurial aspects. We're not educating a generation of consultants who will work for a big bank, we're educating for students to be able to take on the digital world (and win)!' (NCSS, written submission)

Achievement standard

Strengths

There was strong support for the Years 9 to 10 draft Digital Technologies achievement standard, with 73 per cent of respondents agreeing or strongly agreeing that it is a clear and unambiguous statement of the expected quality of student learning. The pitch and appropriateness of the progression of the expected learning across the bands was also supported, with 63 per cent and 67 per cent respectively in agreement or strong agreement.

Concerns

There were concerns that the standard is too advanced and demanding on students in Years 9 and 10. Respondents indicated the standard is not age appropriate and is overpitched. Further concerns regarding the pitch of the standard were the perceived discontinuity of the learning continuum and students' development in some areas, for example, algorithmic development.

Suggestions

Improvements suggested by survey respondents were to place greater emphasis on production and provide better links to multimedia and other creative processes.

Respondents suggested developing a stronger relationship between the achievement standard and the content descriptions and elaborations.

Consultation participants also called for clearer definitions and statements to be contained in the standards to help teachers.

'The achievement standards are very technical and more applicable to a senior IT course. The technical complexity of the material greatly reduces its appeals to students. If this were put up as a year 9 elective very few students would choose it.' (Education officer ACT, online survey)

5.12 State and territory perspectives

Table 7 provides a summary of the key perspectives raised in the written submissions provided by state and territory education authorities. (See Appendix 2.)

Table 7: Digital technologies – key perspectives by state/territory

Key perspectives	
AUSTRALIAN CAPITAL TERRITORY	
Strength	Content, in particular collection and representation of data, sits well within current teaching practices and programs and will readily integrate into Maths, Science and the Social Sciences.
Concern	Content that emphasises databases, visual programming languages and sharing files online are pitched inappropriately for many F to Year 4 classes. Content requires teachers with specialist knowledge.
Improvement	Greater differentiation between the ICT general capability and Digital Technologies content.
NEW SOUTH WALES	
Strength	The content within the subject Digital Technologies is appropriate to 21st century learning.
Concern	The draft curriculum for Digital Technologies utilises and interchanges complex language and terminology that requires specialised understanding of computer programming for the development of digital products. Content in Digital Technologies is not project based and is narrow in its focus only on computational and algorithmic thinking. There is a lack of a full and complete design or engineering process in the Digital Technologies to produce products that meet human needs. The distinction between ICT general capability and the Digital Technologies curriculum is not clear.
Improvement	Critically analyse the level of content in Digital Technologies for its age appropriateness, especially non-visual programming in Years 5 to 6. Ensure the Digital Technologies curriculum is written using language that is clear and easily understood by teachers who are not specifically trained in this area. Broaden the scope beyond computational and algorithmic thinking so that a process of design and production of solutions and the application of knowledge is clear. Clarify the importance of project-based learning.
NORTHERN TERRITORY	
Strength	The rationale and aims clearly articulate the reason behind the curriculum. The key concepts are comprehensive. Appropriate progression in Years 7–10.
Concern	Using correct terminology is important but it needs to be presented in a way teachers without digital expertise can understand.
Improvement	More reference to cyber safety in F–2.

Key perspectives

QUEENSLAND

Strength	<p>The algorithmic, step-by-step, methodological approach in Digital Technologies is rigorous.</p> <p>The rationale for Digital Technologies promotes computational thinking.</p> <p>Table 4 in the Digital Technologies content structure was received positively.</p> <p>The overall development from Foundation to Year 10 is logical.</p> <p>Robotics in the younger years was viewed favourably.</p> <p>It was possible to see alignment with other learning areas.</p> <p>There is a clear link from the band level descriptions to the content descriptions and achievement standards.</p>
Concern	<p>The Digital technologies content descriptions specify a level of technical knowledge and skills that represent a significant increase in expectations for students and non-specialist teachers. They are too demanding for the year levels at which they are pitched, particularly from Foundation to Year 6.</p> <p>Concern about the volume of material to be covered.</p> <p>Less opportunity for the development of creative solutions.</p> <p>The elaborations have very specific technical content that is often not developmentally appropriate.</p> <p>Sequence of learning is not adequately specified in the content descriptions for each band.</p> <p>Too heavily program based and overly technical.</p> <p>The focus on programming is not balanced with an end user and use of digital technologies approach.</p> <p>Some content is 'old-fashioned' and lacks currency and links to current industry.</p> <p>Much of the specific content is related to desktop computing and does not obviously link to other computing, such as smartphones and other specialised computing devices.</p>
Improvement	<p>Revise the curriculum with a focus on plain language and remove repetition.</p> <p>Include diagrams to explain various relationships, e.g. how all the components come together; and the relationships between technologies processes and design processes.</p> <p>Make the design process clear or outline a common design process.</p> <p>Increase ideation and creativity in the content.</p> <p>Specific content was related to desktop computing; linking to smartphones and other specialised computing devices would enhance relevance.</p> <p>Re-evaluate the pitch of the content descriptions, particularly F to 8. Remove reference to 'binary'.</p> <p>Ensure that the mandatory years of the Digital Technologies curriculum is focused on building students' enthusiasm.</p>

SOUTH AUSTRALIA

Strength	<p>Support the inclusion of multimedia, particularly the opportunity to integrate with Media Arts ... this will offer multiple entry points for understanding and using technologies.</p>
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Key perspectives	
Concern	The terminology is complex and educators will need extensive familiarisation. Foundation to Year 2 content elaborations need to be more engaging.
Improvement	Expand the notion of play through virtual environments, gaming and social media. Teachers and students need to be described as co-learners in this process as the rate of change in this area is rapid.
TASMANIA	
Strength	Project management is useful, especially in the senior years.
Concern	Pitch too high for bands. The Years 3 to 4 reference to algorithms is seen as challenging for students of this age. Strong focus on theoretical: knowledge and understanding, over practical. Content is too complex.
Improvement	Practical examples will be required to guide teachers. Include hexadecimal, rather than just binary. A common methodology and approach to project management would be useful especially in terms of sharing resources and pedagogical approaches. To support software exploration and creativity, it is recommended that there is explicit emphasis on 'software exploration'. Include popular personal technologies such as mobile phones and personal devices and their operating systems in the scope and sequence.
VICTORIA	
Strength	The rationale is supported. The criterion for determining an 'automated' solution is clear and robust. The cognitive demand for F to 6 is appropriate.
Concern	Using technical terminology is supported, however, in some band level descriptions and content descriptions/elaborations there is concern about the density of language and tone. The intended focus of computational thinking is not reflected in the content descriptions. From Year 7 there is concern about the complexity of programming languages to be studied, and at Years 9 and 10 there is concern at the high level of content, for example, the inclusion of relational data, agile development techniques and compression.
Improvement	The rationale could be enhanced with the inclusion of curiosity, innovativeness and confidence. The key concepts should begin with a definition and statement on the relationship between computational thinking and the key concepts. Strengthen criterion for 'communications' as it lacks specificity. Using creativity terms when describing the content descriptions would make the tone more accessible to teachers. Provide examples where possible. Focus on a process rather than featuring objects/artefacts.

Key perspectives	
	Incorporate problem solving methodology such as define, design, develop/implement and evaluate.
WESTERN AUSTRALIA	
Strength	<p>The rationale highlights the importance of the subject and discusses the wide variety of Digital Technologies.</p> <p>Aims and computational thinking reflect a 21st century direction for the subject and learning area.</p> <p>Content descriptions for Foundation to Year 2 are appropriate and achievable.</p> <p>Years 5 to 6 achievement standard is well structured and clearly shows what students should be achieving at this band level.</p>
Concern	<p>Some aspects of the aims such as computational thinking will be unfamiliar to teachers.</p> <p>Lack of creativity and multimedia is a concern.</p> <p>Innovation appears lost, especially when dealing with function, target audiences, and design for a reason.</p> <p>The transition, content and pitch within the 'Specifications, algorithms and implementation' elements of the curriculum scope are viewed as too difficult.</p> <p>The elaborations provided are not clear for the generalist teacher, e.g. use of the concept of branching and binary.</p> <p>Sequence of content descriptions present disconnections and are unnecessarily complex.</p> <p>Some technologies utilised are out of date.</p>
Improvement	<p>Strengthen the relationship between Digital Technologies and links to other learning areas.</p> <p>Include the concepts of aesthetics and the sense of audience.</p> <p>Re-evaluate the achievement standards to increase clarity.</p> <p>Re-evaluate the use of the word 'data' as it is seen as dry and lacks the attention to aesthetic use of data and to a sense of audience. Also remove the confusion between the word data and information; they appear interchangeably.</p>

5.13 Conclusion

Overall, the consolidated findings of all the feedback indicate a high level of support for the directions proposed for the Draft Australian Curriculum: Technologies. Respondents indicated support for the Design and Technologies and Digital Technologies curriculum, identifying the broader benefits that these subjects will bring to the students' learning experience.

The following propositions and features were strongly endorsed:

- The opportunity for all students to access Design and Technology and Digital Technologies from Foundation to Year 8.
- The Rationale and Aims for the Technologies, Design and Technologies and Digital Technologies.
- The strand structure of each subject.
- The intent of the subjects.
- The key ideas of systems thinking, creating preferred futures and project management.
- The relationship between the Technologies learning area and the general capabilities and the cross-curriculum priorities, in particular sustainability.

Proposed areas to address in revisions to the draft Australian Curriculum: Technologies include:

- greater clarity and simplified language generally, but in particular for Digital Technologies
- consistency of language and pitch across the subjects
- pitch and progression within each subject
- strengthening the focus on the processes and production strand
- manageability of the content
- messaging about particular technologies contexts and their relationship to other learning areas.

A greater number of individual responses were recorded for the online survey in comparison to organisation responses. State and territory education authorities and professional teacher associations were the largest contributors of written submissions sent directly to ACARA.

While implementation received the greatest proportion of negative feedback compared to other sections of the *Draft Australian Curriculum: Technologies*, as a whole, the curriculum was well received by Technologies stakeholders and their feedback was mostly constructive and detailed. The analysis of consultation data will inform the final *Australian Curriculum: Technologies*. It should be noted that ACARA is facilitating implementation discussions with professional associations, universities and industry groups to address concerns in relation to professional development and resources.

The ACARA Board acknowledges with appreciation the contributions of all respondents to the consultation.

APPENDIX 1: ONLINE SURVEY

Foundation to Year 10 Draft Australian Curriculum: Technologies consultation survey

This information is to provide respondents with a full copy of the online survey and may be used to structure formal written submissions. To facilitate analysis of data surveys must be completed online.

Introduction

The draft Australian Curriculum: Technologies Foundation to Year 10 reflects the directions described in the *Shape of the Australian Curriculum: Technologies* (August 2012). The Shape paper was finalised following national consultation with a wide range of stakeholders from school, state and territory education authorities, professional associations, universities, community organisations and the general public.

The draft curricula for Design and Technologies and Digital Technologies provide the first opportunity for all those interested in Technologies learning in Australian schools to see the directions described in the Shape paper realised in a curriculum document.

ACARA anticipates that responses will reflect a range of views and perspectives and welcomes and encourages all feedback and suggestions for improvement.

About the survey

To complete the online survey, respondents will need to register on the Australian Curriculum consultation website (<http://consultation.australiancurriculum.edu.au/>). Once registered, respondents can access and complete the online survey via the Surveys tab.

The purpose of this survey is to enable individuals and groups to provide feedback on the Draft Foundation to Year 10 Australian Curriculum: Technologies.

Feedback is sought on the curriculum in relation to:

- rationale and aims for the Technologies learning area
- structure of the curriculum
- manageability of content for teachers
- flexibility for teachers in developing teaching and learning programs.

More specific feedback in each Technologies subject is sought in relation to:

- the rationale and aims
- coverage, clarity and pitch of curriculum content and sequence across the bands
- pitch, sequence, clarity, usability and coherence of the achievement standards
- representation of key concepts, general capabilities and cross-curriculum priorities.

The first section of the survey seeks background information that is required for purposes of analysis. You can then choose to provide feedback on any other section of the survey. You can skip the sections you do not wish to provide feedback on. This will enable you to focus on the sections most relevant to your expertise and omit other sections. The sections of the survey are as follows:

- Background information
- Draft Australian Curriculum: Technologies
- Draft Australian Curriculum: Design and Technologies
- Draft Australian Curriculum: Digital Technologies

For each section reviewed, please provide a rating for all the key statements. If you wish to elaborate on your rating, provide examples, disagree with any of the statements or outline why and how you believe improvements can be made, there are opportunities to include comments. Comments are optional and can be accessed following completion of the ratings. If more detailed feedback is required, additional notes to the survey can be forwarded to technologies@acara.edu.au.

Background information

1. In which state or territory are you based?

Australian Capital Territory
 International
 New South Wales
 Northern Territory
 Queensland
 South Australia
 Tasmania
 Victoria
 Western Australia

Individual response

2. Which CATEGORY OF RESPONDENT best describes your perspective?

Primary teacher (generalist)
 Primary teacher (technologies specialist)
 Secondary Design and Technologies teacher
 Please specify technologies specialisation: _____
 Secondary Digital Technologies teacher
 Special school teacher
 Support class teacher
 School leader
 Academic
 Parent
 Student
 Education officer
 Other, please specify: _____

3. If you have identified yourself as a teacher or school leader, which sector of schooling best describes your view:

Catholic
 Independent
 Government
 Other (please specify): _____

4. I am participating in consultation as part of the Intensive Engagement Program (trial) during Terms 1–2 2013?

Group response

5. If you are providing a group response (eg school, professional association, university faculty, education authority) which CATEGORY OF RESPONDENT best describes the group's perspective?

School
Professional association
University faculty
Education authority
Industry group
Other, please specify: _____

6. Please indicate the NAME of the group below.

Group name: _____

7. If group response, how many people have contributed DIRECTLY to this response?
8. If other organisations or affiliates have contributed to this response, please list below:

Draft Australian Curriculum: Technologies

NOTE: 4 point scale for all questions

Technologies rationale and aims

9. The Rationale for the Technologies learning area is clear about the nature and importance of the Technologies learning area for all Australian students.

Comments:

10. The Aims of the learning area clearly state the intent for the draft Australian Curriculum: Technologies Foundation to Year 10.

Comments:

Organisation of the Technologies learning area

11. The organisation of the learning area provides a coherent view of the key components and features of the Technologies curriculum.

Content structure

12. The content structure for the learning area is appropriate.

Comments:

13. The common strand structure for Design and Technologies and Digital Technologies is appropriate for organising the curriculum content.

Comments:

14. The key idea of systems thinking is appropriate for this learning area.

Comments:

15. The key idea of creating preferred futures is appropriate for this learning area.

Comments:

16. The key idea of project management is appropriate for this learning area.

Comments:

Technologies across Foundation to Year 10

17. The description of learning in Technologies across stages of schooling is pitched appropriately to the age group.

Comments:

Achievement standards

18. The explanation of the nature of achievement standards in Technologies is clear.

Comments:

Diversity of learners

19. The explanation of the ways in which the Australian Curriculum caters for the diversity of learners is clear.

Comments:

General capabilities

The relationship described between the learning area and each of the following general capabilities is evident in the curriculum content:

20. Literacy
21. Numeracy
22. Information and Communication Technology capability
23. Critical and creative thinking
24. Ethical behaviour
25. Personal and social capability
26. Intercultural understanding

Comments:

Cross-curriculum priorities

The relationship described between the learning area and each of the following cross-curriculum priorities is evident in the curriculum content:

27. Aboriginal and Torres Strait Islander histories and cultures
28. Asia and Australia's engagement with Asia
29. Sustainability

Comments:

Links to other learning areas

30. The links between Technologies and other learning areas are appropriate.

Comments:

Implications for implementation

31. The ways in which teachers can implement the Technologies curriculum to support student learning are clear.
32. The ways in which teachers can implement the Technologies curriculum to support assessment of student learning are clear.

Comments:

The Technologies Curriculum

Note: You can choose to respond in relation to both subjects together as the Technologies curriculum or to each subject separately in the following sections.

The draft content descriptions across the two Technologies subjects:

33. cover the important content for the learning area
34. are coherent as a set, that is clearly articulated across strands and band levels
35. are manageable in terms of implementation
36. provide flexibility for implementation
37. provide opportunities to explore connections between the two subjects
38. enable teachers to cater for the needs of all students
39. together with the achievement standards provide clarity about the depth of teaching and learning required.

The achievement standards across the two Technologies subjects:

40. set challenging but realistic standards
41. are consistent in pitch or level of expectation at each band level.

Glossary

42. The glossary includes the key terms requiring definition.
43. The glossary definitions are clear.

Comments (please indicate specific strengths and/or definitions for improvement)

Other comments

44. Please provide any additional comments on the draft Australian Curriculum: Technologies (for example, strengths, priority areas for improvement).

DRAFT AUSTRALIAN CURRICULUM: DESIGN AND TECHNOLOGIES

NOTE: 4 point scale for all questions

Rationale

45. The Rationale for the draft Design and Technologies curriculum is clear about the nature and importance of Design and Technologies for all Australian students.

Comments:

Aims

46. The Aims of the draft Design and Technologies curriculum clearly state the intended learning in the subject.

Comments:

Organisation

Content structure

47. The nature of the two strands and their relationship is clearly recognisable in the draft Australian Curriculum: Design and Technologies.

Comments:

48. The Technologies contexts provide appropriate guidance for teachers F–8.

Comments:

49. The processes in the Processes and production skills strand provide a useful organisational element in the draft curriculum.

Comments:

50. The description of the processes for Design and Technologies is clear.

Comments:

Learning in Design and Technologies

51. The description of learning in Design and Technologies is appropriate.

Comments:

Foundation to year 2 curriculum

Band level descriptions

52. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.

Comments:

Content descriptions

53. The draft content descriptions are clear and unambiguous statements of what students should be taught.

54. The draft content descriptions are pitched appropriately for this band level.

55. The draft content descriptions describe an appropriate progression across band levels.

56. The draft content descriptions provide a manageable set for this band level.

Comments:

Content elaborations

57. The draft content elaborations provide clear and relevant illustrations of the content descriptions.

Comments:

Achievement standard

58. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.

59. The draft achievement standard is pitched appropriately for this band level.

60. The draft achievement standard describes an appropriate progression of expected learning across band levels.

Comments:

Years 3 to 4 curriculum

Band level descriptions

61. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.

Comments:

Content descriptions

62. The draft content descriptions are clear and unambiguous statements of what students should be taught.
63. The draft content descriptions are pitched appropriately for this band level.
64. The draft content descriptions describe an appropriate progression across band levels.
65. The draft content descriptions provide a manageable set for this band level.

Comments:

Content elaborations

66. The draft content elaborations provide clear and relevant illustrations of the content descriptions.

Comments:

Achievement standard

67. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.
68. The draft achievement standard is pitched appropriately for this band level.
69. The draft achievement standard describes an appropriate progression of expected learning across band levels.

Comments:

YEARS 5 to 6 curriculum

Band level descriptions

70. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.

Comments:

Content descriptions

- 71. The draft content descriptions are clear and unambiguous statements of what students should be taught.
- 72. The draft content descriptions are pitched appropriately for this band level.
- 73. The draft content descriptions describe an appropriate progression across band levels.
- 74. The draft content descriptions provide a manageable set for this band level.

Comments:

Content elaborations

- 75. The draft content elaborations provide clear and relevant illustrations of the content descriptions.

Comments:

Achievement standard

- 76. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.
- 77. The draft achievement standard is pitched appropriately for this band level.
- 78. The draft achievement standard describes an appropriate progression of expected learning across band levels.

Comments:

YEARS 7 to 8 curriculum

Band level descriptions

- 79. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.

Comments:

Content descriptions

- 80. The draft content descriptions are clear and unambiguous statements of what students should be taught.
- 81. The draft content descriptions are pitched appropriately for this band level.
- 82. The draft content descriptions describe an appropriate progression across band levels.
- 83. The draft content descriptions provide a manageable set for this band level.

Comments:

Content elaborations

84. The draft content elaborations provide clear and relevant illustrations of the content descriptions.

Comments:

Achievement standard

85. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.

86. The draft achievement standard is pitched appropriately for this band level.

87. The draft achievement standard describes an appropriate progression of expected learning across band levels.

Comments:

YEARS 9 to 10 curriculum

Band level descriptions

88. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.

Comments:

Content descriptions

89. The draft content descriptions are clear and unambiguous statements of what students should be taught.

90. The draft content descriptions are pitched appropriately for this band level.

91. The draft content descriptions describe an appropriate progression across band levels.

92. The draft content descriptions provide a manageable set for this band level.

Comments:

Content elaborations

93. The draft content elaborations provide clear and relevant illustrations of the content descriptions.

Comments:

Achievement standard

- 94. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.
- 95. The draft achievement standard is pitched appropriately for this band level.
- 96. The draft achievement standard describes an appropriate progression of expected learning across band levels.

Comments:

Other comments

- 97. Please provide any additional comments on the draft Australian Curriculum: Design and Technologies (for example, strengths, priority areas for improvement).

DRAFT AUSTRALIAN CURRICULUM: DIGITAL TECHNOLOGIES

NOTE: 4 point scale for all questions

Rationale

98. The Rationale for the draft Digital Technologies curriculum is clear about the nature and importance of the Digital Technologies for all Australian students.

Comments:

Aims

99. The Aims of the draft Digital Technologies curriculum clearly state the intended learning in the subject.

Comments:

Organisation

Content structure

100. The nature of the two strands and their relationship is clearly recognisable in the draft Australian Curriculum: Digital Technologies.

Comments:

Key concepts

101. The key concepts provide a useful organisational element in the draft curriculum.

102. Content descriptions based on the key concepts will provide scope to incorporate future developments in digital technologies.

103. Content descriptions based on the key concepts will help prevent the curriculum from dating too quickly.

104. The description of the key concepts is clear.

Comments:

Information and communication technology in the Australian Curriculum

105. The description of the place of information and communication technology (ICT) in the Australian Curriculum is clear.

106. The relationship between Digital Technologies and the general capability, ICT capability, is clearly stated.

Learning in Digital Technologies

107. The description of learning in Digital Technologies is appropriate.

Foundation to year 2 curriculum

Band level descriptions

108. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.

Comments:

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Content descriptions

109. The draft content descriptions are clear and unambiguous statements of what students should be taught.

110. The draft content descriptions are pitched appropriately for this band level.

111. The draft content descriptions describe an appropriate progression across band levels.

112. The draft content descriptions provide a manageable set for this band level.

Comments:

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Content elaborations

113. The draft content elaborations provide clear and relevant illustrations of the content descriptions.

Comments:

--

Achievement standard

114. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.

115. The draft achievement standard is pitched appropriately for this band level.

116. The draft achievement standard describes an appropriate progression of expected learning across band levels.

Comments:

--

Years 3 to 4 curriculum

Band level descriptions

117. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.

Comments:

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Content descriptions

118. The draft content descriptions are clear and unambiguous statements of what students should be taught.

119. The draft content descriptions are pitched appropriately for this band level.

120. The draft content descriptions describe an appropriate progression across band levels.

121. The draft content descriptions provide a manageable set for this band level.

Comments:

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Content elaborations

122. The draft content elaborations provide clear and relevant illustrations of the content descriptions.

Comments:

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Achievement standard

123. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.

124. The draft achievement standard is pitched appropriately for this band level.

125. The draft achievement standard describes an appropriate progression of expected learning across band levels.

Comments:

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Years 5 to 6 curriculum

Band level descriptions

126. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.

Comments:

Content descriptions

- 127. The draft content descriptions are clear and unambiguous statements of what students should be taught.
- 128. The draft content descriptions are pitched appropriately for this band level.
- 129. The draft content descriptions describe an appropriate progression across band levels.
- 130. The draft content descriptions provide a manageable set for this band level.

Comments:

Content elaborations

- 131. The draft content elaborations provide clear and relevant illustrations of the content descriptions.

Comments:

Achievement standard

- 132. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.
- 133. The draft achievement standard is pitched appropriately for this band level.
- 134. The draft achievement standard describes an appropriate progression of expected learning across band levels

Comments:

Years 7 to 8 curriculum

Band level descriptions

- 135. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.

Comments:

Content descriptions

- 136. The draft content descriptions are clear and unambiguous statements of what students should be taught.
- 137. The draft content descriptions are pitched appropriately for this band level.
- 138. The draft content descriptions describe an appropriate progression across band levels.
- 139. The draft content descriptions provide a manageable set for this band level.

Comments:

Content elaborations

- 140. The draft content elaborations provide clear and relevant illustrations of the content descriptions.

Comments:

Achievement standard

- 141. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.
- 142. The draft achievement standard is pitched appropriately for this band level.
- 143. The draft achievement standard describes an appropriate progression of expected learning across band levels.

Comments:

Years 9 to 10 curriculum

Band level descriptions

- 144. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.

Comments:

Content descriptions

- 145. The draft content descriptions are clear and unambiguous statements of what students should be taught.
- 146. The draft content descriptions are pitched appropriately for this band level.
- 147. The draft content descriptions describe an appropriate progression across band levels.

148. The draft content descriptions provide a manageable set for this band level.

Comments:

Content elaborations

149. The draft content elaborations provide clear and relevant illustrations of the content descriptions.

Comments:

Achievement standard

150. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.

151. The draft achievement standard is pitched appropriately for this band level.

152. The draft achievement standard describes an appropriate progression of expected learning across band levels.

Comments:

Other comments

153. Please provide any additional comments on the draft Australian Curriculum: Digital Technologies (for example, strengths, priority areas for improvement).

APPENDIX 2: ORGANISATIONS WHICH SUBMITTED WRITTEN RESPONSES

List of written submissions – State and Territory education authorities

Australian Capital Territory

- Australian Capital Territory Department of Education (ACTDOE)

New South Wales

- New South Wales Board of Studies (NSWBOS) Written submissions were received from the NSW Department of Education and Communities, the Institute of Industrial Arts Technology Education, the Information Technology Educators Association of NSW, the Design and Technology Teachers Association and individual teachers and representatives of industry and academia.
- Catholic Education Office (CEO), Sydney

Northern Territory

- Northern Territory Department of Education and Children's Services (NTDECS)

Queensland

- Queensland Studies Authority (QSA), in partnership with Education Queensland (EQ), Queensland Catholic Education Commission (QCEC) and Independent Schools Queensland (ISQ)
- Independent Schools of Queensland (ISQ)
- Catholic Education Office (CEO), Brisbane

South Australia

- South Australia Department of Education and Child Development (SADECD)

Tasmania

- Tasmanian Department of Education (TASDOE)

Victoria

- Victorian Curriculum and Assessment Authority (VCAA), in partnership with and on behalf of Department of Education and Early Childhood Development (DEECD), Catholic Education Commission Victoria (CECV) and Independent Schools Victoria

Western Australia

- Association of Independent Schools Western Australia (AISWA)
- Government of Western Australia School Curriculum and Standards Authority, in partnership with Department of Education, Catholic Education Office of WA, Association of Independent Schools of WA (WASCSA)

List of written submissions – representative bodies

Professional teacher associations

- Australian Council for Computers in Education, National (ACCE)
- Design and Technology Teachers Association, National (DATTA)
- Design and Technology Teachers Association, Australian Capital Territory (DATTA ACT)
- Design and Technology Teachers Association, Victoria (DATTA VIC)
- Education Computing Association of Western Australia (ECAWA)
- Home Economics Institute of Australia, National (HEIA)
- Home Economics Institute of Australia, Victoria (HEIA VIC)
- ICT Educators of New South Wales (ICTENSW)
- ICT in Education, Victoria (ICTEVIC)
- Institute of Industrial Arts Technology Education, New South Wales (IIATE)
- Information Technology Educators, Australian Capital Territory (InTEACT)
- National Association of Agricultural Educators, National (NAAE)
- Queensland Society for Information Technology in Education (QSITE)
- Tasmanian Society for Information Technology in Education (TASITE)
- Technology in Primary Schools, New South Wales (TiPS)

Industry associations

- Agriculture Institute Australia, National (AIA)
- Australian Computer Society, National (ACS)
- Australian Computer Society, Western Australia (ACS WA)
- Australian Information Industry Association, National (AIIA)
- Cotton Australia, National (CA)
- Fisheries Research and Development Corporation, National (FRDC)
- Forest and Wood Products Australia, National (FWPA)
- Open Source Industry Australia Ltd, Victoria (OSIA)

Business

- Google Australia
- National Instruments

Government agencies

- Asia Education Foundation (AEF)
- Australian Communications and Media Authority, National (ACMA)
- Australian Securities and Investments Commission, National (ASIC)
- Department of Agriculture and Food, Western Australia (DAFWA)

- Information Technology Industry Innovation Council, Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education, National (ITIIC)

Not for profit organisations

- Gene Ethics, Friends of the Earth Australia, Mothers are Demystifying Genetic Engineering, Victoria
- Media Access Australia, NSW
- The Warren Centre for Advanced Engineering Limited (WCAE)

List of written submissions – schools, universities, and individuals

Schools

- Barker College, New South Wales
- Central Coast Grammar School, New South Wales
- Gilroy Catholic College, New South Wales
- Strathcona Baptist Girls Grammar School, Victoria
- Stromlo High School, Faculty of Technology, Australian Capital Territory
- Wesley College, Western Australia

Universities

- Australian Council of Deans of Information and Communications Technology, National (ACDICT)
- Australian Council of Engineering Deans, National (ACED)
- Computing Research and Education – Computer Science Academics Association (CORE)
- Griffith University, School of Education and Professional Studies, Queensland
- National Computer Science School (NCSS)
- Queensland University of Technology, Faculty of Education, Queensland (QUT)
- The University of Adelaide, School of Computer Science, South Australia (UA)
- The University of Sydney, School of IT Alumni Association, New South Wales (USSITAA)

Individuals

- 22 submissions from individuals were received

APPENDIX 3: DRAFT AUSTRALIAN CURRICULUM: TECHNOLOGIES – INTENSIVE ENGAGEMENT ACTIVITY CONSULTATION REPORT

OVERVIEW

Intensive engagement activity: Technologies

During the consultation period for the Draft Australian Curriculum: Technologies 134 teachers from 50 schools were involved in an intensive engagement activity which collected feedback from practising teachers about the manageability and usability of the draft curriculum for Technologies. As part of their involvement in this project, teachers helped to develop assessment documents and collect work samples to illustrate how the draft curriculum could be implemented for their selected band of learning. The teachers also mapped content descriptions across a band and completed the online survey.

Induction sessions

All participating schools were required to attend an induction session via teleconference that provided key information about the project, a brief overview of the draft curriculum structure and details of the activities that were to be undertaken as part of the intensive engagement project.

Online collaboration space

During the project, the teachers used a Microsoft SharePoint site to collaborate with other participants, to access project activities and template documents, and to upload completed templates for sharing. Each teacher was given an individual login to the site.

Mentors

Four teacher mentors – two primary teachers and two secondary teachers (one for each subject) – were available to provide feedback on the assessment tasks.

Intensive engagement tasks

Teachers were required to use the draft Technologies curriculum to teach part of the draft content for a particular level, map content descriptions across a band, develop at least one associated assessment task to assess student learning of the draft content and collect at least six student work samples. Each of the tasks is outlined below.

Developing assessment tasks

Purpose

The assessment task planning exercise aimed to support teachers to intensively engage with the draft Technologies curriculum as a planning document in order to develop an assessment task that could be used to make an informed judgment about how well students demonstrate an aspect of the achievement standard for a selected band of learning.

Process

Teachers were provided with an assessment task template (see Appendix 3a) and the following steps to support them in completing it.

1. Review the curriculum for the subject and band you are planning to teach during intensive engagement. Identify the aspects of the achievement standard for a band that you would be able to address during the consultation period and identify which content descriptions will need to be addressed. Record this information in the wiki for your subject and band on SharePoint.
2. Draft the assessment task using the assessment task template and upload to SharePoint for mentor feedback. You will need to:
 - identify the key idea(s), context(s) and content description(s) to be targeted
 - identify opportunities to address the general capabilities and cross-curriculum priorities
 - provide background information about what learning students have undertaken prior to completing the task
 - complete the description of what the students will be required to demonstrate as they complete the task.
 - evaluate the assessment task using the assessment task analysis sheet.
3. Revise the assessment task based on mentor feedback.
4. Use the assessment task with a class and collect student work samples.

Planning overview – mapping exercise

Purpose

The aim of the mapping exercise was for teachers who had intensively engaged with the draft Technologies curriculum to map how the content descriptions could be addressed across their selected band of learning.

Process

Teachers were provided with a template (see Appendix 3b) to complete and followed these steps:

1. Review the curriculum for the subject and band you are planning to teach during intensive engagement.
2. Using the template, insert an X where each content description would be addressed in a unit across a band. Some content descriptions would only be addressed once while others may be addressed in every unit. Upload to SharePoint.

Online survey

Intensive engagement participant schools were asked to complete the online survey. Their data has been compared with other respondent

CONSULTATION FINDINGS – TECHNOLOGIES

Responses to survey questions

Table 8 below is a summary of a selection of the statements in the online survey. The percentages below are indicative of participants in the intensive engagement activity who responded to the online survey and who strongly agreed, agreed, disagreed and strongly disagreed with each statement. An analysis of feedback on each section of the survey is presented in the following pages.

Table 8: Technologies learning area – number of online survey responses from intensive engagement activity participants and percentage of participants by response

Questions	Total responses (number)	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
The Technologies Rationale and Aims					
9. The rationale for the Technologies learning area is clear about the nature and importance of the Technologies learning area for all Australian students.	17	29	71	0	0
10. The aims of the learning area clearly state the intent for the draft Australian Curriculum: Technologies Foundation to Year 10.	17	24	65	12	0
Organisation of the Technologies learning area					
Content structure; Technologies across Foundation to Year 10					
11. The organisation of the learning area provides a coherent view of the key components and features of the Technologies curriculum.	18	11	61	28	0
12. The content structure for the learning area is appropriate.	18	39	39	22	0
13. The common strand structure for Design and Technologies and Digital Technologies is appropriate for organising the curriculum content.	18	11	72	11	6
14. The key idea of systems thinking is appropriate for this learning area.	18	11	72	17	0
15. The key idea of creating preferred futures is appropriate for this learning area.	18	28	61	11	0
16. The key idea of project management is appropriate for this learning area.	18	39	50	11	0

Questions	Total responses (number)	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
17. The description of learning in Technologies across stages of schooling is pitched appropriately to the age group.	18	17	56	22	6
Achievement standards					
18. The explanation of the nature of achievement standards in Technologies is clear.	17	29	65	6	0
Diversity of learners					
19. The explanation of the ways in which the Australian Curriculum caters for the diversity of learners is clear.	18	11	67	22	0
General capabilities					
The relationship described between the learning area and each of the following general capabilities is evident in the curriculum content:					
20. Literacy	11	18	73	9	0
21. Numeracy	18	22	72	6	0
22. Information and communication technology capability	18	22	72	6	0
23. Critical and creative thinking	18	22	72	6	0
24. Ethical behaviour	18	22	61	17	0
25. Personal and social capability	18	17	67	17	0
26. Intercultural understanding.	18	11	72	17	0
Cross-curriculum priorities					
The relationship described between the learning area and each of the following cross-curriculum priorities is evident in the curriculum content:					
27. Aboriginal and Torres Strait Islander histories and cultures	17	18	53	24	6
28. Asia and Australia's engagement with Asia	17	18	53	29	0
29. Sustainability.	17	35	65	0	0
Links to other learning areas					
30. The links between Technologies and other learning areas are appropriate.	16	25	69	6	0
Implications for implementation					
31. The ways in which teachers can implement the Technologies curriculum to support student learning are clear.	18	6	72	22	0

Questions	Total responses (number)	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
32. The ways in which teachers can implement the Technologies curriculum to support assessment of student learning are clear.	18	6	78	17	0
The Technologies curriculum					
The draft content descriptions across the two Technologies subjects:					
33. cover the important content for the learning area	15	13	67	20	0
34. are coherent as a set, that is clearly articulated across strands and bands	15	7	67	27	0
35. are manageable in terms of implementation	15	7	73	20	0
36. provide flexibility for implementation	15	7	80	13	0
37. provide opportunities to explore connections between the two subjects	14	7	79	14	0
38. enable teachers to cater for the needs of all students	15	13	73	13	0
39. together with the achievement standards provide clarity about the depth of teaching and learning required.	15	7	67	27	0
The achievement standards across the two Technologies subjects					
40. set challenging but realistic standards	15	7	80	7	7
41. are consistent in pitch or level of expectation at each band.	15	7	67	27	0
Glossary					
42. The glossary includes the key terms requiring definition.	17	12	88	0	0
43. The glossary definitions are clear.	17	12	88	0	0

Technologies rationale and aims

Rationale

The intensive engagement participants who responded to the survey indicated that the strength of the rationale for the Technologies curriculum clearly articulated the nature, purpose and importance of learning in the Technologies for all Australian students.

'The nature and importance are clearly stated and they are underpinned throughout the document.' (Secondary teacher, VIC)

Aims

Intensive engagement participants who responded to the survey indicated that the strength of the aims is that they are well-articulated, succinct and clearly state the intent for the draft Australian Curriculum: Technologies Foundation to Year 10.

Organisation of the learning area

Feedback on the Technologies as a learning area indicated there was support for the two-subject structure, with 78 per cent of intensive engagement participants who responded in agreement. The intensive engagement participants indicated that they felt the two-subject structure and their relationship were clearly recognisable in the draft Australian Curriculum: Technologies, and that the organisation of the learning area provides a coherent view of the key components and features of the Technologies curriculum.

Common strand structure

The intensive engagement participants who responded indicated that the common strand structure for Design and Technologies and Digital Technologies is appropriate for organising the curriculum content.

However, there were concerns about the level of difficulty of the two strands, in particular, the Digital Technologies strand.

The intensive engagement participants also suggested that Table 1 on page 4 be converted to a visual map or diagram.

'Table 1 should be set out as a graphic instead of a table.' (Primary teacher, SA)

We thought that the content was too difficult for our students.' (Primary teacher, NT)

Key ideas

Systems thinking

The intensive engagement participants who responded to the survey expressed support for the key idea of systems thinking. Participants indicated that the key idea of systems thinking is an integral component of the design process and is appropriate for this learning area.

'Systems thinking is integral to good design and design solutions, particularly where sustainability is concerned.' (Secondary teacher, VIC)

Creating preferred futures

The intensive engagement participants who responded to the survey commended the inclusion of engaging in creating preferred futures. Of participants who responded to the survey, 89 per cent agreed that this key idea is appropriate for this learning area.

Project management

The inclusion of project management was deemed a positive inclusion and appropriate for the Technologies learning area.

Participants who responded suggested strengthening the relationship between project management and the curriculum content by making greater reference to project management throughout each stage of schooling.

'The use of the title "Project Management" should also be mentioned throughout the document, not only in the beginning, especially in the band level descriptions showing how this skill develops over the year levels.' (Primary teacher, SA)

Technologies across Foundation to Year 10

Strengths observed by the intensive engagement participants who responded to the survey include the opportunity for the learning area to engage students in a diverse range of contexts: technologies processes and production, and design and computational thinking. Participants also noted the workability of the curriculum, and the broader benefits of the Technologies in students' learning experience.

'A workable document that values most of the key areas of technology education.' (Secondary teacher, SA)

'We can seamlessly work with its spirit, structure and content.' (Secondary teacher, SA)

Despite this support, some participants suggested increasing the emphasis on the practical and hands-on nature of the learning area. There were also a number of comments identifying the inappropriateness of the content and band descriptors for each stage of schooling identified.

'More emphasis should however be given to the realisation/producing of products, i.e., the Making. This is the reason that most students attend Technologies lessons, and that is to get 'hands on', and realise a product.' (Secondary teacher, SA)

'We felt that the learning in Technologies description was too difficult for our students and resources.' (Primary teacher, NT)

Achievement standards

There was a high level of support for the clarity of the achievement standards. Participants who responded also supported the flexibility afforded by the two-year bands, with one participant noting the ease with you could link to other learning areas.

'I found using the achievement standards to extract outcomes for reporting straightforward, with enough flexibility to suit my needs.' (Primary teacher, SA)

'Content is good.' (Secondary teacher, SA)

'It is good that it addresses bands and not year groups as that does allow for flexibility and integration with other learning areas. However it is not clear how much should be achieved within a year group.' (Primary teacher, WA)

Diversity of learners

Several intensive engagement participants commented on the draft Technologies curriculum being clear and giving appropriate acknowledgement to the diverse needs of learners throughout Australia.

General capabilities

There was considerable support among intensive engagement participants for the relationship between the learning area and each of the general capabilities. The links were viewed as clear and explicit.

'The general capabilities are detailed enough to give the reader a sound understanding of what is wanted to be portrayed.' (Primary teacher, SA)

Literacy

The description of the relationship between the Literacy capability and the Technologies learning area was commended by the intensive engagement participants who responded, with 91 per cent expressing agreement.

Numeracy

The description of the relationship between the Numeracy capability and the Technologies learning area was commended by the intensive engagement participants, with 94 per cent expressing agreement.

Information and communication technology capability

The description of the relationship between the Information and communication technology capability and the Technologies learning area was commended by the intensive engagement participants, with 94 per cent expressing agreement.

Critical and creative thinking

The description of the relationship between the Critical and creative thinking capability and the Technologies learning area was commended by the intensive engagement participants, with 94 per cent expressing agreement.

Ethical behaviour

The description of the relationship between the Ethical behaviour capability and the Technologies learning area was commended by the intensive engagement participants, with 83 per cent expressing agreement.

Personal and social capability

The description of the relationship between the Personal and social capability and the Technologies learning area was commended by the intensive engagement participants, with 84 per cent expressing agreement.

Intercultural understanding

The description of the relationship between the Intercultural understanding capability and the Technologies learning area was commended by the intensive engagement participants, with 83 per cent expressing agreement.

Cross-curriculum priorities

Aboriginal and Torres Strait Islander histories and cultures

The description of the relationship between the Aboriginal and Torres Strait Islander histories and cultures cross-curriculum priority and the Technologies learning area was commended by the intensive engagement participants who responded to the survey, with 71 per cent expressing agreement.

Asia and Australia's engagement with Asia

The description of the relationship between the Asia and Australia's engagement with Asia cross-curriculum priority and the Technologies learning area was commended by the intensive engagement participants, with 71 per cent expressing agreement.

Sustainability

The intensive engagement participants overwhelmingly agreed (100 per cent) that the relationship between the sustainability cross-curriculum priority and the Technologies learning area was clear, purposeful and featured throughout the curriculum.

'Sustainability is obvious throughout however the other two aren't as explicit.'
(Secondary teacher, SA)

Links to other learning areas

The intensive engagement participants who responded expressed support for the concept of links to other learning areas, with 94 per cent in agreement. Participants commented that the possibilities to integrate the other learning areas in the Technologies are broad and logical.

'Both will be able to be integrated with other learning areas, especially within primary and middle school.' (Secondary teacher, SA)

Implications for implementation

Of participants in the intensive engagement activity who responded to the survey, 78 per cent agreed that the ways in which teachers can implement the Technologies curriculum to support student learning are clear.

Of intensive engagement activity participants who responded to the survey, 84 per cent agreed or strongly agreed that the ways in which teachers can implement the Technologies curriculum to support assessment of student learning are clear.

The Technologies curriculum

Participants in the intensive engagement activity who responded to the survey agreed that the draft content descriptions across the two Technologies subjects: cover the important content for the learning area; are coherent as a set that is clearly articulated across strands and band levels; are manageable in terms of implementation; provide flexibility for implementation; provide opportunities to explore connections between the two subjects; enable teachers to cater for the needs of all students; and together with the achievement standards provide clarity about the depth of teaching and learning required.

However, some teachers expressed concerns about the emphasis of teaching technological and computing concepts over integrating technology for learning.

'Very concerned about what this document is trying to achieve. It is focused more on learning about Technologies than learning with Technologies, which is a critical error.'

'When computers first appeared in schools in the early 1980s we taught programming to students, even in primary schools, because our knowledge in the educational use of computers was only in the early stages of development.' (Secondary teacher, VIC)

'In Digital Technologies the language is not teacher or parent friendly, it is assumed that teachers have the knowledge to teach this when they haven't been required to in the past.' (Secondary teacher, SA)

Achievement standards

The intensive engagement participants expressed support for the achievement standards, with 87 per cent agreeing or strongly agreeing that the achievement standards across the two Technologies subjects set challenging but realistic standards.

Participants in the intensive engagement activity who responded to the survey also expressed agreement that the achievement standards across the two Technologies subjects are consistent in pitch or level of expectation at each band level.

Glossary

The glossary was viewed by intensive engagement activity participants as an important resource to interpreting and implementing the curriculum. Two teachers noted that the definitions provided in the glossary are clear, easy to follow and interpret.

'Explanations are very easy to follow; they include straightforward, plain English. Excellent.' (Primary teacher, SA)

However, one participant suggested that the word 'data' be reconsidered or explained in more detail. This teacher also thought the term was too limited for the context(s).

For ease of reference, it was suggested that the words in the curriculum text be hyperlinked to the definitions in the glossary.

'The choice of the word "data" in the Digital Technologies isn't possibly the best word choice or should be explained what it encompasses straight away. When I read the curriculum I had been doing maths and still had my maths head on and straight away thought of speed sheets, tables, etc., when it is implying a lot more.'

The definitions given in the glossary are generally quite clear and explanatory.

The words that appear in the glossary should be hyperlinked to corresponding words in the documents shown with an underscore and/or a different text colour so readers can get the definition without going to the glossary. This would help people with the word "data".' (Primary teacher, SA)

CONSULTATION FINDINGS – DESIGN AND TECHNOLOGIES

Table 9 below summarises the percentages of participants in the intensive engagement activity who responded to the online survey and who strongly agreed, agreed, disagreed and strongly disagreed with each statement. An analysis of feedback on each section of the survey is presented in the following pages.

Responses to survey questions

Table 9: Design and Technologies – number of online survey responses from intensive engagement activity participants and percentage of participants by response

Questions	Total responses (number)	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
The Design and Technologies Rationale and Aims					
44. The rationale for the draft Design and Technologies curriculum is clear about the nature and importance of Design and Technologies for all Australian students.	24	17	83	0	0
45. The aims of the draft Design and Technologies curriculum clearly state the intended learning in the subject.	23	22	78	0	0
Organisation of the learning area					
Content structure; Learning in Design and Technologies					
46. The nature of the two strands and their relationship is clearly recognisable in the draft Australian Curriculum: Design and Technologies.	24	29	67	4	0
47. The Technologies contexts provide appropriate guidance for teachers F–8.	23	9	74	17	0
48. The processes in the Processes and production skills strand provide a useful organisational element in the draft curriculum.	22	14	77	9	0
49. The description of the processes for Design and Technologies is clear.	22	14	77	5	5
50. The description of learning in Design and Technologies is appropriate.	22	18	68	14	0
Foundation to Year 2 Curriculum					
Band level description; Content descriptions; Content elaborations; Achievement standard					
51. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.	11	9	82	9	0

Questions	Total responses (number)	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
52. The draft content descriptions are clear and unambiguous statements of what students should be taught.	11	18	64	18	0
53. The draft content descriptions are pitched appropriately for this band level.	11	18	64	18	0
54. The draft content descriptions describe an appropriate progression across band levels.	11	9	91	0	0
55. The draft content descriptions provide a manageable set for this band level.	11	9	73	18	0
56. The draft content elaborations provide clear and relevant illustrations of the content descriptions.	9	11	67	22	0
57. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.	9	11	89	0	0
58. The draft achievement standard is pitched appropriately for this band level.	9	11	78	0	11
59. The draft achievement standard describes an appropriate progression of expected learning across band levels.	8	0	88	0	13
60. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.	4	25	75	0	0
Year 3 to 4 Curriculum					
Band level description; Content descriptions; Content elaborations; Achievement standard					
61. The draft content descriptions are clear and unambiguous statements of what students should be taught.	4	25	75	0	0
62. The draft content descriptions are pitched appropriately for this band.	4	25	75	0	0
63. The draft content descriptions describe an appropriate progression across bands.	4	25	75	0	0
64. The draft content descriptions provide a manageable set for this band.	4	25	75	0	0
65. The draft content elaborations provide clear and relevant illustrations of the content descriptions.	4	25	75	0	0

Questions	Total responses (number)	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
66. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.	4	25	75	0	0
67. The draft achievement standard is pitched appropriately for this band level.	4	25	75	0	0
68. The draft achievement standard describes an appropriate progression of expected learning across band levels.	4	25	75	0	0
Year 5 to 6 Curriculum					
Band level description; Content descriptions; Content elaborations; Achievement standard					
69. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.	4	25	75	0	0
70. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.	6	17	83	0	0
71. The draft content descriptions are clear and unambiguous statements of what students should be taught.	6	17	83	0	0
72. The draft content descriptions are pitched appropriately for this band level.	6	17	83	0	0
73. The draft content descriptions describe an appropriate progression across band levels.	6	17	67	17	0
74. The draft content descriptions provide a manageable set for this band level.	6	17	83	0	0
75. The draft content elaborations provide clear and relevant illustrations of the content descriptions.	6	17	67	17	0
76. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.	6	17	67	17	0
77. The draft achievement standard is pitched appropriately for this band level.	6	17	83	0	0
78. The draft achievement standard describes an appropriate progression of expected learning across band levels.	5	20	80	0	0

Questions	Total responses (number)	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
Year 7 to 8 Curriculum					
Band level description; Content descriptions; Content elaborations; Achievement standard					
79. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.	18	28	72	0	0
80. The draft content descriptions are clear and unambiguous statements of what students should be taught.	18	17	83	0	0
81. The draft content descriptions are pitched appropriately for this band level.	18	17	78	6	0
82. The draft content descriptions describe an appropriate progression across band levels.	18	17	83	0	0
83. The draft content descriptions provide a manageable set for this band.	18	11	83	6	0
84. The draft content elaborations provide clear and relevant illustrations of the content descriptions.	18	11	89	0	0
85. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.	19	16	84	0	0
86. The draft achievement standard is pitched appropriately for this band level.	19	16	74	11	0
87. The draft achievement standard describes an appropriate progression of expected learning across band levels.	19	21	74	5	0
Year 9 to 10 Curriculum					
Band level description; Content descriptions; Content elaborations; Achievement standard					
88. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.	14	14	79	7	0
89. The draft content descriptions are clear and unambiguous statements of what students should be taught.	14	14	79	0	7
90. The draft content descriptions are pitched appropriately for this band level.	14	14	64	21	0
91. The draft content descriptions describe an appropriate progression across band levels.	13	23	69	8	0

Questions	Total responses (number)	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
92. The draft content descriptions provide a manageable set for this band level.	14	14	79	7	0
93. The draft content elaborations provide clear and relevant illustrations of the content descriptions.	13	15	85	0	0
94. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.	14	21	79	0	0
95. The draft achievement standard is pitched appropriately for this band level.	14	14	71	14	0
96. The draft achievement standard describes an appropriate progression of expected learning across band levels.	14	14	79	7	0

Rationale and aims

Rationale

All of the intensive engagement participants who responded to the survey agreed that the rationale for the draft Design and Technologies curriculum is clear about the nature and importance of Design and Technologies for all Australian students.

Aims

The participants in the intensive engagement activity who responded all agreed (100 per cent) that the aims of the draft Design and Technologies curriculum clearly state the intended learning in the subject.

However, one teacher commented that there was too great an emphasis on design and the design process.

'Far too much emphasis on designing and documenting.' (Secondary teacher, NT)

Organisation

Content structure

The intensive engagement activity participants indicated that the two-strand structure of the draft Design and Technologies curriculum is clearly recognisable in the draft Australian Curriculum: Design and Technologies, with 96 per cent of participants expressing agreement.

Participants said that the Technologies context provided necessary guidance for teachers F to 8. However, while the processes and production skills were easily understood, it was noted that the knowledge and understanding section was complex and ambiguous.

'I found some of the content descriptions very complex and confusing. The processes and production skills are clear but the knowledge and understanding sections are very hard to understand and grasp the concept to teach.' (Secondary teacher, QLD)

Participants in the intensive engagement activity commended the processes in the processes and production skills strand, and stated the strand provides a useful organisational element in the draft curriculum. Participants also commended the description of the processes for Design and Technologies, stating they found it clear and easily understood.

One participant suggested reformatting this section, in particular the inclusion of headings, to make the interrelationships and content clearer and provide greater clarity for teachers.

'The layout and heading choices caused me some confusion. The two dot points at the top of page 25 then appear as orange headings further down in this section – along with the heading for the relationship between the strands... I think with some clearer formatting these few pages would be much easier to follow.' (Primary teacher, SA)

Could the achievement standard refer to the specific strands eg food and fibre content, food technology etc. This is how the other subjects currently in use seem to be set out. Also grammar and sentence structure needs to be checked.' (Secondary teacher, SA)

Learning in Design and Technologies

Participants in the intensive engagement activity commended the description of learning in Design and Technologies. They commented that the learning was appropriate, easy to read and inclusive of all student needs and interests.

'This area was easy to read and provided relevant information in a range of contexts.'
(Primary teacher, SA)

'Students have the opportunity have access to a greater range of learning i.e. Food and Fibre being placed as its own strand, from R- 8.' (Secondary teacher, SA)

'Needs to include information in "implementing the curriculum" about materials and technologies specialisations and engineering principles and systems.' (Primary teacher, TAS)

Foundation to Year 2 curriculum

Band level description

Participants in the intensive engagement activity who responded to the survey agreed (91 per cent) that the band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.

Content descriptions

There was support for the draft Design and Technologies content descriptions, with 82 per cent of intensive engagement participants agreeing or strongly agreeing that the content descriptions are pitched appropriately and are manageable for this band level. There was overwhelming support for the appropriateness of the content descriptions across the bands, with 100 per cent of participants in agreement.

Content elaborations

The intensive engagement participants expressed support for the draft content elaborations, with 78 per cent in agreement that they provide clear and relevant illustrations of the content descriptions.

Achievement standard

There was support for the draft Design and Technologies achievement standard. One hundred per cent of intensive engagement participants agreed that the standard is a clear and unambiguous statement of the expected quality of student learning. Participants also agreed (88 per cent) that the achievement standard describes an appropriate progression of expected learning across band levels.

Years 3 to 4 curriculum

Band level description

All of the participants who responded to the survey commented that the band level description is clear and appropriate and provides a coherent overview of the focus and breadth of learning in this band of schooling.

Content descriptions

Across the draft Year 3 to 4 curriculum, there was support for the content descriptions. Participants commented that the descriptions are clear and unambiguous statements of what students should be taught and are pitched appropriately for this band. Teachers who responded to the survey agreed with the appropriateness of the progression across bands, commending the manageability of the descriptions for this band.

Content elaborations

Across the draft 3 to 4 curriculum, there was support for the examples provided in the elaborations. Teachers agreed that the elaborations provide clear and relevant illustrations of the content descriptions.

Achievement standard

All of the participants in the intensive engagement activity who responded to the survey agreed (100 per cent) that the draft achievement standard is a clear and unambiguous statement of the expected quality of student learning, is pitched appropriately for this band, and describes an appropriate progression of expected learning across bands.

Years 5 to 6 curriculum

Band level description

All of the participants in the intensive engagement activity who responded to the survey agreed (100 per cent) that the band level description provides a clear overview of the focus and breadth of learning in this band of schooling.

Content descriptions

There was support from participants who responded to the survey for the draft Design and Technologies content descriptions. All agreed (100 per cent) that the content descriptions are clear and unambiguous statements of what students should be taught and provide a manageable set for this band.

Participants who responded to the survey agreed (84 per cent) that the draft content descriptions describe an appropriate progression across bands.

Content elaborations

Feedback indicated there was support for the elaborations, with 84 per cent in agreement. Participants indicated that the elaborations provide clear and relevant illustrations of the content descriptions.

Achievement standard

The intensive engagement participants indicated that the draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.

All of the participants considered that the achievement standard was pitched appropriately for this band, and describes an appropriate progression of expected learning across bands.

Years 7 to 8 curriculum

Band level description

Across the draft 7 to 8 band, there was support for the band level descriptions provided. All of the participants agreed that the descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.

Content descriptions

All of the intensive engagement participants who responded to the survey indicated that the draft content descriptions are clear and unambiguous statements of what students should be taught and describe an appropriate progression across bands.

Some feedback from participants indicated that while the content descriptions had appropriate clarity and manageability, they might present some challenges to students in terms of expectations and pitch.

'Made sense and was easy to follow.' (Secondary teacher, SA)

'The content descriptions are set a little high given the context of timeframe for each subject.' (Secondary teacher, TAS)

'In my context, my students wouldn't get through enough to achieve at a level high enough.' (Secondary teacher, NSW)

Content elaborations

All of the participants in the intensive engagement activity who responded considered that the content elaborations provide clear and relevant illustrations of the content descriptions.

Achievement standard

All of the participants in the intensive engagement activity who responded to the survey agreed that the draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.

In addition, 95 per cent of participants in the intensive engagement activity who responded to the survey agreed that the draft achievement standard describes an appropriate progression of expected learning across bands.

One participant identified the challenges of implementing the achievement standard in South Australia.

'In South Australia Year 7 students are currently still in primary schools – the achievement standard spanning across the two year levels (one in primary school and one in high school) leads to some challenges and each schooling situation can be resourced very differently. For this reason, as a South Australian educator in primary only setting, I would have found it beneficial to have a 'by the end of Year 7...' achievement standard.' (Primary teacher, SA)

'Could the achievement standard refer to the specific strands, eg food and fibre content.' (Secondary teacher, SA)

Years 9 to 10 curriculum

Band level description

Feedback regarding the band level description for Year 9 to 10 identified the descriptions as providing a clear overview of the focus and breadth of learning in this band of schooling.

Content descriptions

There was support for the Years 9 to 10 draft Design and Technologies content descriptions, with 93 per cent of participants agreeing that the draft content descriptions are clear and unambiguous statements of what students should be taught, are manageable and describe an appropriate progression across band levels. Of participants, 78 per cent expressed support for the pitch of the content descriptions and agreed they are appropriate for this band.

Participants expressed concern about the emphasis on theory and knowledge over the practical. One participant from South Australia stated that the explicit inclusion of making solutions, not just designing, is required to ensure a balance between the theory and practical component is established by teachers.

'One key area for improvement is prioritising making in the curriculum. Whilst the design process is extremely important, the subject is based on designing AND making solutions, not just designing. The way the content descriptors are listed in the draft curriculum leaves making until 10.6 and this could be interpreted as only 1/6th of the curriculum if you were to split time evenly.' (Secondary teacher, SA)

Content elaborations

All of the participants in the intensive engagement activity considered that the content elaborations provide clear and relevant illustrations of the content descriptions.

Achievement standard

Participants in the intensive engagement activity who responded to the survey showed unanimous support for the achievement standard, with 100 per cent agreeing that it is a clear and unambiguous statement of the expected quality of student learning. Participant respondents expressed good support (85 per cent) for the pitch of the achievement standard and thought it was appropriate for this band, and most agreed (93 per cent) that the achievement standard describes the progression of expected learning across band levels appropriately.

CONSULTATION FINDINGS – DIGITAL TECHNOLOGIES

Table 10 below summarises the percentages of participants in the intensive engagement activity responding to the online survey who strongly agreed, agreed, disagreed and strongly disagreed with each statement. An analysis of feedback on each section of the survey is presented in the following pages.

Responses to survey questions

Table 10: Digital Technologies – number of online survey responses from intensive engagement activity participants and percentage of participants by response

Questions	Total responses (number)	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
The Digital Technologies Rationale and Aims					
98. The rationale for the draft Digital Technologies curriculum is clear about the nature and importance of the Digital Technologies for all Australian students.	12	33	58	8	0
99. The aims of the draft Digital Technologies curriculum clearly state the intended learning in the subject.	12	33	58	8	0
Organisation of the learning area					
Content Structure; Key concepts, ICT in the Australian Curriculum, Learning in Digital Technologies					
100. The nature of the two strands and their relationship is clearly recognisable in the draft Australian Curriculum: Digital Technologies.	13	0	85	15	0
101. The key concepts provide a useful organisational element in the draft curriculum.	13	15	62	23	0
102. Content descriptions based on the key concepts will provide scope to incorporate future developments in digital technologies.	13	31	54	15	0
103. Content descriptions based on the key concepts will help prevent the curriculum from dating too quickly.	13	15	77	8	0
104. The description of the key concepts is clear.	13	8	46	46	0
105. The description of the place of information and communication technology (ICT) in the Australian Curriculum is clear.	13	8	71	8	0

Questions	Total responses (number)	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
106. The relationship between Digital Technologies and the general capability, ICT capability, is clearly stated.	13	15	69	8	8
107. The description of learning in Digital Technologies is appropriate.	12	16	50	17	17
Foundation to Year 2 Curriculum					
Band level descriptions; Content descriptions; Content elaborations; Achievement standard					
108. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.	4	25	75	0	0
109. The draft content descriptions are clear and unambiguous statements of what students should be taught.	4	0	50	50	0
110. The draft content descriptions are pitched appropriately for this band level.	4	0	100	0	0
111. The draft content descriptions describe an appropriate progression across band levels.	4	0	100	0	0
112. The draft content descriptions provide a manageable set for this band level.	4	0	100	0	0
113. The draft content elaborations provide clear and relevant illustrations of the content descriptions.	4	0	75	25	0
114. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.	4	0	75	25	0
115. The draft achievement standard is pitched appropriately for this band level.	4	25	75	0	0
116. The draft achievement standard describes an appropriate progression of expected learning across band levels.	4	25	75	0	0
YEAR 3 to 4 Curriculum					
Band level descriptions; Content descriptions; Content elaborations; Achievement standard					
117. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.	4	0	75	25	0

Questions	Total responses (number)	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
118. The draft content descriptions are clear and unambiguous statements of what students should be taught.	3	0	67	33	0
119. The draft content descriptions are pitched appropriately for this band level.	4	0	75	25	0
120. The draft content descriptions describe an appropriate progression across band levels.	3	33	67	0	0
121. The draft content descriptions provide a manageable set for this band level.	3	0	100	0	0
122. The draft content elaborations provide clear and relevant illustrations of the content descriptions.	3	33	67	0	0
123. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.	3	33	67	0	0
124. The draft achievement standard is pitched appropriately for this band level.	3	33	67	0	0
125. The draft achievement standard describes an appropriate progression of expected learning across band levels.	4	25	75	0	0
Year 5 to 6 Curriculum					
Band level descriptions; Content descriptions; Content elaborations; Achievement standard					
126. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.	5	20	60	20	0
127. The draft content descriptions are clear and unambiguous statements of what students should be taught.	5	0	60	40	0
128. The draft content descriptions are pitched appropriately for this band level.	5	0	100	0	0
129. The draft content descriptions describe an appropriate progression across band levels.	5	20	80	0	0
130. The draft content descriptions provide a manageable set for this band level.	5	0	80	20	0
131. The draft content elaborations provide clear and relevant illustrations of the content descriptions.	5	20	80	0	0

Questions	Total responses (number)	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
132. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.	5	20	60	20	0
133. The draft achievement standard is pitched appropriately for this band level.	5	20	80	0	0
134. The draft achievement standard describes an appropriate progression of expected learning across band levels	5	20	80	0	0
Year 7 to 8 Curriculum					
Band level descriptions; Content descriptions; Content elaborations; Achievement standard					
135. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.	5	20	80	0	0
136. The draft content descriptions are clear and unambiguous statements of what students should be taught.	5	0	80	20	0
137. The draft content descriptions are pitched appropriately for this band level.	5	0	80	20	0
138. The draft content descriptions describe an appropriate progression across band levels.	5	0	80	20	0
139. The draft content descriptions provide a manageable set for this band level.	5	0	80	20	0
140. The draft content elaborations provide clear and relevant illustrations of the content descriptions.	5	20	80	0	0
141. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.	5	20	60	20	0
142. The draft achievement standard is pitched appropriately for this band level.	5	20	80	0	0
143. The draft achievement standard describes an appropriate progression of expected learning across band levels.	5	20	80	0	0

Questions	Total responses (number)	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
Year 9 to 10 Curriculum					
Band level descriptions; Content descriptions; Content elaborations; Achievement standard					
144. The band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.	7	15	71	14	0
145. The draft content descriptions are clear and unambiguous statements of what students should be taught.	7	0	86	0	14
146. The draft content descriptions are pitched appropriately for this band level.	7	0	29	57	14
147. The draft content descriptions describe an appropriate progression across band levels.	7	0	57	29	14
148. The draft content descriptions provide a manageable set for this band level.	7	0	29	57	14
149. The draft content elaborations provide clear and relevant illustrations of the content descriptions.	7	14	86	0	0
150. The draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.	7	0	57	29	14
151. The draft achievement standard is pitched appropriately for this band level.	7	14	43	29	14
152. The draft achievement standard describes an appropriate progression of expected learning across band levels.	7	14	43	29	14

Rationale and aims

Participants in the intensive engagement activity who responded to the survey endorsed the rationale and aims, with 91 per cent agreeing that the rationale and aims for the draft Digital Technologies curriculum are clear about the nature and importance of Digital Technologies for all Australian students.

Some participants queried if the rationale and aims for Digital Technologies could be made clearer.

'It is extremely important for students not only have the ability to assess and use digital technologies but to understand how it work so they are able to make decision on best practices.' (Primary teacher, NSW)

'Less complicated terminology would make it easier for non-specialist teachers.'
(Primary teacher, NT)

Organisation

Content structure

Participants in the intensive engagement activity who responded to the survey commended the clarity with which the relationship between the two strands is presented. Of participants, 85 per cent expressed agreement that the nature of the two strands and their relationship is clearly recognisable in the draft Australian Curriculum: Digital Technologies.

There was some questioning regarding the complexity of the language and content, with one participant querying if the Digital Technologies could be simplified for generalist teachers.

'In the case of the Design and Tech yes, for info tech, it is very specialised and over the heads of most educators. I believe it is on the right track however may need to be implemented in stages or be simplified for ordinary teachers to address, especially in the year 4–8 section where you won't always have specialist teachers on site.' (Secondary teacher, SA)

'Too much jargon.' (Primary teacher, SA)

'I would much prefer to have year-level descriptors so that I clearly understand what is required for a particular year.' (Primary teacher, QLD)

'The Creating and Interacting band could be two separate outcomes.' (Primary teacher, WA)

Key concepts

There was support for the key concepts among respondents who participated in the intensive engagement activity, with 77 per cent agreeing that the key concepts provide a useful organisational element in the draft curriculum and will provide scope to incorporate future developments in digital technologies.

Respondents raised concern regarding the clarity and currency of the descriptions in the key concepts, with one participant identifying that the concepts are already dated and would not foster enthusiasm for the curriculum content.

'The document key concepts are dated, and need to be much broader to encourage self-directed learning, and a more diverse range of school and teacher resources.'
(Secondary teacher, SA)

'I do not see it as necessary to separate the key concepts into two strands, but it does not make it any less clear what it is that the Digital Technologies curriculum is trying to achieve. My concern is that it may provide an indication to separate theory and practical components of the curriculum, rather than encouraging integration.' (Secondary teacher, TAS)

One participant called for clarification of the term 'Digital Technologies'.

'It is not clear anywhere in the document what actually are digital technologies. For example, using image manipulation software is clearly a digital technology, does that fit, or is it a Technologies?' (Secondary teacher, SA)

Information and communication technology in the Australian Curriculum

Of intensive engagement activity participants who responded to the survey, 91 per cent agreed that the place of information communication and technology (ICT) in the Australian Curriculum is clear and 84 per cent agreed that the relationship between Digital Technologies and the general capability, ICT, is clearly stated.

Learning in Digital Technologies

Of the respondents who participated in the intensive engagement activity, 67 per cent agreed that the description of learning in Digital Technologies is appropriate. A number of participants commended the diverse range of learning opportunities available to students, with one participant commenting that the learning directed the inception of an assessment task.

'Provides learning opportunities for students to be learning about IT at a deeper level which is not just program based; rather it goes beyond the scenes and show students what is actually going on.' (Secondary teacher, SA)

'Found it very useful when designing the task. It gave direction.' (Primary teacher, NSW)

A comment received about learning in Digital Technologies suggested that the content is appropriate and necessary to create functional global citizens. However, there was concern about the transition from the current curriculum content to the one prescribed in the draft Australian Curriculum: Technologies.

'This is a huge jump and change in what is to be taught. I fear that teachers may become overwhelmed with the content ... much of what has been suggested is a good thing to aim for and a basic understanding is essential for students to function in today's world.' (Secondary teacher, SA)

One teacher noted particularly that there was too much emphasis on coding and networking compared to the design process.

'Our faculty believe there is way too much emphasis on coding and networking, as a fundamental understanding of both is all that is required. Eg use Dreamweaver for html, and QuickCAM for G&M. Use the software to create the code, and concentrate on the design process to create a successful outcome.' (Secondary teacher, SA)

Foundation to Year 2 curriculum

Band level description

All intensive engagement activity respondents agreed that the band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.

Content descriptions

There was support from respondents for the draft Digital Technologies content descriptions. All of the intensive engagement participant respondents agreed that the content descriptions are pitched appropriately, manageable and describe an appropriate progression across band levels.

Content elaborations

There was support for the draft Digital Technologies content elaborations. Of intensive engagement participants who responded to the survey, 75 per cent agreed that the content elaborations provide clear and relevant illustrations of the content descriptions.

Achievement standard

There was support from participants for the draft Digital Technologies achievement standard, with 100 per cent of intensive engagement survey respondents agreeing that the standard is pitched appropriately and describes an appropriate progression of expected learning across band levels. Participants also agreed that the achievement standard is a clear and unambiguous statement of the expected quality of student learning.

Years 3 to 4 curriculum

Band level description

Of the intensive engagement activity participants who responded to the survey, 75 per cent agreed that the band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.

Content descriptions

Across the draft Year 3 to 4 curriculum, there was support for the content descriptions. Participants commented that the descriptions are clear and unambiguous statements of what students should be taught and are pitched appropriately for this band level. All participants who responded to the survey agreed with the appropriateness of the progression across band levels, commending the manageability of the descriptions for this band level.

Content elaborations

Across the draft 3 to 4 curriculum, there was 100 per cent support from respondents for the examples provided in the elaborations. Teachers agreed that the elaborations provide clear and relevant illustrations of the content descriptions.

Achievement standard

All of the participants in the intensive engagement activity who responded to the survey agreed that the draft achievement standard is a clear and an unambiguous statement of the expected quality of student learning, is pitched appropriately for this band level, and describes an appropriate progression of expected learning across band levels.

Years 5 to 6 curriculum

Band level description

The majority of participants (80 per cent) in the intensive engagement activity who responded to the survey agreed that the band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.

One participant noted that the band level descriptions provide a clear and logical learning continuum.

'Each skill and understanding is building upon the previous band level.' (Primary teacher, NSW)

Content descriptions

There was support for the draft Digital Technologies content descriptions. All of the intensive engagement participants who responded agreed (100 per cent) that the content descriptions are pitched appropriately and describe an appropriate progression across band levels.

Of participants who responded to the survey, 60 per cent endorsed the draft content descriptions as clear and unambiguous statements of what students should be taught and 80 per cent agreed they are a manageable set for this band level.

Content elaborations

All participants in the intensive engagement activity who responded to the survey agreed that the draft content elaborations provide clear and relevant illustrations of the content descriptions.

Achievement standard

Of the intensive engagement participants, 80 per cent indicated that the draft achievement standard is a clear and unambiguous statement of the expected quality of student learning.

All respondents said that the achievement standard is pitched appropriately for this band level, and agreed that it describes an appropriate progression of expected learning across band levels.

Years 7 to 8 curriculum

Band level description

Of the participants in the intensive engagement activity who responded to the survey, all agreed that the band level descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.

Content descriptions

The majority of the intensive engagement participants (80 per cent) indicated that the draft content descriptions are clear and unambiguous statements of what students should be taught and agreed they describe an appropriate progression across band levels.

Some feedback from participants indicated that while the content descriptions have appropriate clarity and manageability, providing examples on how teachers could foster metacognition through play and experimentation would strengthen the content description.

'It would be nice if the concept of play, experimentation and the link to deep thinking came across more in the content descriptors and the examples under them.'

(Secondary teacher, TAS)

Content elaborations

All participants in the intensive engagement activity who responded to the survey agreed that the draft content elaborations provide clear and relevant illustrations of the content descriptions.

Achievement standard

All participants in the intensive engagement activity who responded to the survey agreed that the draft achievement standard is a clear and unambiguous statement of the expected quality of student learning. They also agreed that the Year 7 to 8 achievement standard is pitched appropriately and that it describes an appropriate progression of expected learning across band levels.

Years 9 to 10 curriculum

Band level description

For Years 9 to 10, 85 per cent of participants in the intensive engagement activity who responded to the survey endorsed the band level descriptions. Participants indicated that the descriptions provide a clear overview of the focus and breadth of learning in this band of schooling.

Content descriptions

Of participants in the intensive engagement activity who responded to the survey, 86 per cent agreed that the draft content descriptions are clear and unambiguous statements of what students should be taught.

Concerns regarding the appropriateness of the pitch and progression across the band were identified by participants.

'The content descriptors for Year 9 and 10 are at an appropriate level, but the experience from our school is that students have opted out of subjects that emphasise content similar to the descriptors 10.2, 10.3, 10.4 and 10.5, in favour of more hands-on subjects such as programming, control technology, computer graphics and multimedia. The fact that it is an optional subject for Year 9 and 10 takes care of this issue and I certainly think that while students are choosing not to enrol in subjects that were based on these content descriptors there are opportunities to develop hands-on subjects that can cover some of them.' (Secondary teacher, TAS)

Content elaborations

All participants in the intensive engagement activity who responded to the survey agreed that the draft content elaborations provide clear and relevant illustrations of the content descriptions.

Achievement standard

Of participants who responded to the survey, 43 per cent did not agree that the Years 9 to 10 achievement standard is a clear and unambiguous statement of the expected quality of student learning. Participants also stated that the standard is pitched too high and does not describe an appropriate progression of the expected learning across band levels.

APPENDIX 3A: ASSESSMENT PROCESS AND SAMPLE TASK

Section 1: Summary of assessment task

Title of assessment task	
Year level(s)	

Links to the Draft Australian Curriculum: Technologies

Additional links to other learning areas may also be noted.

Achievement standard/s

Insert relevant achievement standard/s and highlight or underline those aspects of the standard/s that this task allows students to demonstrate

Content descriptions

Depending on the focus/nature of this task and the professional judgment of the teacher, please reference relevant content description/s addressed by this task (insert number)

Content strands and sequences

Please highlight which sequences are addressed in this task

Design and Technologies Knowledge and understanding	Design and Technologies Processes and production skills	Digital Technologies Knowledge and understanding	Digital Technologies Processes and production skills
<i>Technologies and society</i> <i>Technologies context</i> <ul style="list-style-type: none"> Materials and technologies specialisations Food and fibre production Engineering principles and systems Food technologies 	<i>Critiquing, exploring and investigating</i> <i>Generating, developing and evaluating ideas</i> <i>Planning, producing and evaluating solutions</i>	<i>Representation of data</i> <i>Digital systems</i> <i>Interactions and impact</i>	<i>Using digital systems</i> <i>Specification, algorithms and implementation</i> <i>Creating and interacting online</i>

General capabilities and cross-curriculum priorities

Please highlight any of the general capabilities and cross-curriculum priorities that are represented in this task (where appropriate)

General capabilities	Literacy	Numeracy	ICT capability	Critical and creative thinking	Ethical behaviour	Personal and social capability	Intercultural understanding
Cross-curriculum priorities	Aboriginal and Torres Strait Islander histories and cultures			Asia and Australia's engagement with Asia		Sustainability	

Background information

Outline the context for the learning, for example:

- intended cohort (for example, heterogeneous or educational support)
- prior teaching/learning that has taken place (if applicable)
- level of teacher input (such as scaffolding or feedback)

Task features

Summary of the activity students would be asked to complete and where applicable, the following:

- word or time length (for example, 1,000 word report or a 5 minute presentation)
- risk and safety considerations
- access to resources
- duration (that is, how long students would be given to complete the task, for example four 50 minute lessons over three weeks, one 40 minute session under examination conditions)

Example:

Prior to completing this task, students investigated aspects of the solar system, including how we obtain information about other planets, and viewed a DVD about key features of the solar system.

Students were asked to research features of planets in the solar system, and were directed to focus on the planets closest to the Earth, and how these planets compare to Earth. They were given a choice of how to present their information and this student chose a slide presentation.

Task summary

Summary of the task for inclusion in a portfolio of student work.

Example:

Students will research and produce a report on a designer whose work has inspired them, then design and produce a product in a given medium reflecting this inspiration. The influence of this designer should be evident in the subsequent development of their ideas for a product. Students should be able to explain how they have incorporated some elements of the chosen designer's work into their product. The design development process will be documented using the Design and Technologies processes and production skills strand: Critiquing, exploring and investigating; Generating, developing and evaluating ideas; Planning, producing and evaluating solutions.

Section 2: Support materials

Insert the following teacher support material:

- copy of the assessment task provided to students (including instructions, marking guidelines/rubric/marking criteria)
- additional materials such as adjustments made to the task to cater to diverse students.

APPENDIX 3B: PROGRAM OVERVIEW

Teaching and learning overview across the band: Design and Technologies

Insert an **X** where each content description is addressed in a unit. Some content descriptions may only be addressed once while others may be addressed in every unit.

School name: _____ Teacher: _____

Foundation to Year 2 <add extra columns if required>

Content descriptions	Foundation: Unit 1	Year 1: Unit 2	Year 1: Unit 3	Year 2: Unit 4	Year 2: Unit 5
2.1					
2.2					
2.3					
2.4					
2.5					
2.6					
2.7					

Years 3 to 4 <add extra columns if required>

Content descriptions	Year 3: Unit 1	Year 3: Unit 2	Year 4: Unit 3	Year 4: Unit 4
4.1				
4.2				
4.3				
4.4				
4.5				
4.6				
4.7				

Years 5 to 6 <add extra columns if required>

Content descriptions	Year 5: Unit 1	Year 5: Unit 2	Year 6: Unit 3	Year 6: Unit 4
6.1				
6.2				
6.3				
6.4				
6.5				
6.6				
6.7				
6.8				

Years 7 to 8 <add extra columns if required>

Content descriptions	Year 7: Unit 1	Year 7: Unit 2	Year 8: Unit 3	Year 8: Unit 4
8.1				
8.2				
8.3				
8.4				
8.5				
8.6				
8.7				
8.8				
8.9				

Years 9 to 10 <add extra columns if required>

Content descriptions	Year 9: Unit 1	Year 9: Unit 2	Year 10: Unit 3	Year 10: Unit 4
10.1				
10.2				
10.3				
10.4				
10.5				
10.6				

Teaching and learning overview across the band: Digital Technologies

Insert an **X** where each content description is addressed in a unit. Some content descriptions may only be addressed once while others may be addressed in every unit.

School name: _____ Teacher: _____

Foundation to Year 2 <add extra columns if required>

Content descriptions	Foundation: Unit 1	Year 1: Unit 2	Year 1: Unit 3	Year 2: Unit 4	Year 2: Unit 5
2.1					
2.2					
2.3					
2.4					
2.5					
2.6					

Years 3 to 4 <add extra columns if required>

Content descriptions	Year 3: Unit 1	Year 3: Unit 2	Year 4: Unit 3	Year 4: Unit 4
4.1				
4.2				
4.3				
4.4				
4.5				
4.6				
4.7				

Years 5 to 6 <add extra columns if required>

Content descriptions	Year 5: Unit 1	Year 5: Unit 2	Year 6: Unit 3	Year 6: Unit 4
6.1				
6.2				
6.3				
6.4				
6.5				
6.6				
6.7				
6.8				

Years 7 to 8 <add extra columns if required>

Content descriptions	Year 7: Unit 1	Year 7: Unit 2	Year 8: Unit 3	Year 8: Unit 4
8.1				
8.2				
8.3				
8.4				
8.5				
8.6				
8.7				
8.8				
8.9				
8.10				
8.11				

Years 9 to 10 <add extra columns if required>

Content descriptions	Year 9: Unit 1	Year 9: Unit 2	Year 10: Unit 3	Year 10: Unit 4
10.1				
10.2				
10.3				
10.4				
10.5				
10.6				
10.7				
10.8				
10.9				
10.10				
10.11				