# Years 7–8 standard elaborations — Australian Curriculum v9.0: Technologies

ACiQ | v9.0

## Purpose

The standards elaborations (SEs) support teachers to connect curriculum to evidence in assessment so that students are assessed on what they have had the opportunity to learn. The SEs can be used to:

- make consistent and comparable judgments, on a five-point scale, about the evidence of learning in a folio of student work across a year/band
- develop task-specific standards (or marking guides) for individual assessment tasks
- quality assure planning documents to ensure coverage of the achievement standard across a year/band.

## Structure

The SEs have been developed using the Australian Curriculum achievement standard. The achievement standard for Technologies describes what students are expected to know and be able to do at the end of each year. Teachers use the SEs during and at the end of a teaching period to make on-balance judgments about the qualities in student work that demonstrate the depth and breadth of their learning.

In Queensland, the achievement standard represents the C standard — a sound level of knowledge and understanding of the content, and application of skills. The SEs are presented in a matrix where the discernible differences and/or degrees of quality between each performance level are highlighted. Teachers match these discernible differences and/or degrees of quality to characteristics of student work to make judgments across a five-point scale.

In Years 7–8 the Learning area achievement standard may be used to assess within and across the Technologies subjects.

| Years 7–8 Australian Curriculum: Technologies achievement standard |
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| By the end of Year 8 students explain how people design, innovate and produce products, services and environments for preferred futures. For each of the 4 prescribed technologies contexts students explain how the features of technologies impact on design decisions, and create designed solutions based on analysis of needs or opportunities. They acquire, interpret and model with spreadsheets and represent data with integers and binary. Students design and trace algorithms; and implement them in a general-purpose programming language. Students create and adapt design ideas, processes and solutions, and justify their decisions against developed design criteria that include sustainability. They communicate design ideas and solutions to audiences using technical terms and graphical representation techniques, including using digital tools. They select appropriate hardware for particular tasks, explain how data is transmitted and secured in networks, and identify cyber security threats. They use a range of digital tools to individually and collaboratively document and manage production processes to safely and responsibly produce designed or digital solutions for the intended purpose. Students manage their digital footprint. |
| Source: Australian Curriculum, Assessment and Reporting Authority (ACARA), *Australian Curriculum Version 9.0 Technologies for Foundation–10* https://v9.australiancurriculum.edu.au/f-10-curriculum/learning-areas/design-and-technologies_digital-technologies/year-7?view=quick&detailed-content-descriptions=0&hide-ccp=0&hide-gc=0&side-by-side=1&strands-start-index=0&subjects-start-index=0 |

# Years 7–8 Technologies standard elaborations

| | | A | B | C | D | E |
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| | | **The folio of student work contains evidence of the following:** | | | | |
| **Knowledge and understanding** | **Technologies and society** | discerning explanation of how people design, innovate and produce products, services and environments for preferred futures | detailed explanation of how people design, innovate and produce products, services and environments for preferred futures | explanation of how people design, innovate and produce products, services and environments for preferred futures | description of how people design, innovate and produce products, services and environments for preferred futures | statement/s about how people design, innovate and/or produce designed solutions |

| | | A | B | C | D | E |
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| | **Technologies contexts** | discerning explanation of how the features of technologies impact on design decisions for each of the 4 prescribed technologies contexts:<br>• Engineering principles and systems<br>• Food and fibre production<br>• Food specialisations<br>• Materials and technologies specialisations | detailed explanation of how the features of technologies impact on design decisions for each of the 4 prescribed technologies contexts:<br>• Engineering principles and systems<br>• Food and fibre production<br>• Food specialisations<br>• Materials and technologies specialisations | explanation of how the features of technologies impact on design decisions for each of the 4 prescribed technologies contexts:<br>• Engineering principles and systems<br>• Food and fibre production<br>• Food specialisations<br>• Materials and technologies specialisations | description of how the features of technologies impact on design decisions for each of the 4 prescribed technologies contexts:<br>• Engineering principles and systems<br>• Food and fibre production<br>• Food specialisations<br>• Materials and technologies specialisations | statement/s about the features of technologies for one or more of the prescribed technologies contexts:<br>• Engineering principles and systems<br>• Food and fibre production<br>• Food specialisations<br>• Materials and technologies specialisations |
| | **Digital systems** | proficient selection of appropriate hardware for particular tasks | effective selection of appropriate hardware for particular tasks | selection of appropriate hardware for particular tasks | guided selection of appropriate hardware for particular tasks | directed selection of appropriate hardware for particular tasks |
| | | considered explanation of how data is transmitted and secured in networks | detailed explanation of how data is transmitted and secured in networks | explanation of how data is transmitted and secured in networks | description of how data is transmitted and/or secured in networks | statement/s about data transmission and/or security |
| | **Data representation** | reasoned representation of data with integers and binary | effective representation of data with integers and binary | representation of data with integers and binary | partial representation of data with integers and binary | fragmented representation of data with integers and/or binary |

| | | A | B | C | D | E |
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| **Processes and production skills** | **Acquiring, managing and analysing data** | proficient acquisition, interpretation and modelling with spreadsheets | effective acquisition, interpretation and modelling with spreadsheets | acquisition, interpretation and modelling with spreadsheets | partial acquisition, interpretation and/or modelling with spreadsheets | fragmented acquisition, interpretation and/or modelling with spreadsheets |
| | **Investigating and defining** | proficient analysis of needs or opportunities for each of the 4 prescribed technologies contexts:<br>• Engineering principles and systems<br>• Food and fibre production<br>• Food specialisations<br>• Materials and technologies specialisations | effective analysis of needs or opportunities for each of the 4 prescribed technologies contexts:<br>• Engineering principles and systems<br>• Food and fibre production<br>• Food specialisations<br>• Materials and technologies specialisations | analysis of needs or opportunities for each of the 4 prescribed technologies contexts:<br>• Engineering principles and systems<br>• Food and fibre production<br>• Food specialisations<br>• Materials and technologies specialisations | superficial analysis of needs or opportunities for each of the 4 prescribed technologies contexts:<br>• Engineering principles and systems<br>• Food and fibre production<br>• Food specialisations<br>• Materials and technologies specialisations | identification of needs or opportunities for one or more of the 4 prescribed technologies contexts:<br>• Engineering principles and systems<br>• Food and fibre production<br>• Food specialisations<br>• Materials and technologies specialisations |
| | **Generating and designing** | proficient design and tracing of algorithms | effective design and tracing of algorithms | design and tracing of algorithms | guided design and/or tracing of algorithms | directed design and/or tracing of algorithms |
| | | proficient creation and adaptation of comprehensive design ideas, processes and solutions based on analysis of needs or opportunities | informed creation and adaptation of effective design ideas, processes and solutions based on analysis of needs or opportunities | creation and adaptation of design ideas, processes and solutions based on analysis of needs or opportunities | partial creation and adaptation of simple design ideas, processes and solutions based on analysis of needs or opportunities | fragmented creation and/or adaptation of basic design ideas, processes and solutions based on needs or opportunities |

| | | A | B | C | D | E |
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| | | communication of design ideas and solutions to audiences with:<br>• considered use of technical terms<br>• comprehensive use of graphical representation techniques, including using digital tools | communication of design ideas and solutions to audiences with:<br>• effective use of technical terms<br>• detailed use of graphical representation techniques, including using digital tools | communication of design ideas and solutions to audiences using:<br>• technical terms<br>• graphical representation techniques, including using digital tools | communication of design ideas and solutions to audiences with:<br>• superficial use of technical terms and/or<br>• simple use of graphical representation techniques, including using digital tools | communication of design ideas and solutions to audiences with:<br>• fragmented use of technical terms and/or<br>• basic use of graphical representation techniques, including using digital tools |
| | **Producing and implementing** | proficient, safe and responsible production of designed or digital solutions for the intended purpose | effective, safe and responsible production of designed or digital solutions for the intended purpose | safe and responsible production of designed or digital solutions for the intended purpose | safe and responsible production of aspects of designed or digital solutions for the intended purpose | safe and responsible production of aspects of designed or digital solutions for the intended purpose, with direction |
| | | proficient implementation of algorithms in a general-purpose programming language | effective implementation of algorithms in a general-purpose programming language | implementation of algorithms in a general-purpose programming language | partial implementation of algorithms in a general-purpose programming language | directed implementation of algorithms |
| | **Evaluating** | discerning justification of their decisions against developed design criteria that include sustainability | plausible justification of their decisions against developed design criteria that include sustainability | justification of their decisions against developed design criteria that include sustainability | partial justification of their decisions against aspects of developed design criteria that include sustainability | statement/s about design decisions |
| | **Collaborating and managing** | individual and collaborative:<br>• comprehensive documentation<br>• proficient management of production processes using a range of digital tools | individual and collaborative:<br>• detailed documentation<br>• effective management of production processes using a range of digital tools | individual and collaborative documentation and management of production processes using a range of digital tools | individual and collaborative:<br>• partial documentation<br>• guided management of production processes using digital tools | individual and/or collaborative:<br>• fragmented documentation<br>• directed management of production processes using digital tools |

| | | A | B | C | D | E |
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| | Privacy and security | discerning identification of cyber security threats | informed identification of cyber security threats | identification of cyber security threats | partial identification of cyber security threats | directed identification of cyber security threats |
| | | justified management of their digital footprint. | informed management of their digital footprint. | management of their digital footprint. | management of aspects of their digital footprint. | directed management of their digital footprint. |

| Key | shading emphasises the qualities that discriminate between the A–E descriptors |
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