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| Years 7–10 multi-age Digital Technologies Curriculum and assessment plan  [Insert school name, implementation year] |

Use this template in a multi-age context to plan an overview or summary of the teaching, learning and assessment for multiple year levels in the Australian Curriculum: Digital Technologies. For planning advice, refer to the *Planning for teaching, learning and assessment* document available on the Planning tab for each learning area at [www.qcaa.qld.edu.au/p-10/aciq/version-9/learning-areas](http://www.qcaa.qld.edu.au/p-10/aciq/version-9/learning-areas).

**How to use this template:** Type information into the fields (yellow shading). When the plan is complete, delete the highlighted instructions (blue shading). To do so, select the instruction text, click the **Home tab > Styles dropdown > Clear All/Clear Formatting >** text will revert to Normal style and you can delete the text.

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| --- |
| Context and cohort considerations (if applicable) |
| Describe the context and cohort.  Consider the following to make informed professional decisions during the planning process:   * + relevant student data and information, e.g. achievement data   + available resources, e.g. timetabling   + school and sector priorities.   [Insert context and cohort considerations] |

| Level description — Years 7–8 | Level description — Years 9–10 |
| --- | --- |
| By the end of Year 8 students should have had the opportunity to apply computational thinking by defining and decomposing real-world problems, creating user experiences, designing and modifying algorithms, and implementing them in a general purpose programming language. This involves students practising problem decomposition, using approaches such as divide and conquer to more clearly understand a problem by describing its component parts. Students represent and communicate their algorithmic solutions using flowcharts and pseudocode. Students check their solutions meet the specifications by testing and debugging their algorithms before and during implementation. They develop a deeper understanding of abstraction by explaining how and why digital systems represent data as whole numbers, which are then represented in binary.  Students build on their skills from Mathematics (Statistics) in acquiring and interpreting data. In Digital Technologies, students continue to advance these skills and are also given opportunities to validate the data they acquire to ensure it is accurate and consistent. They collect and transform many types of data from a wide range of sources. Students model structured data in meaningful ways using spreadsheets and single-table databases, and analyse and visualise the data to extract meaning from it.  They apply design thinking by using divergent techniques, such as mind mapping, role-play and using graphic organisers, to generate design ideas for user experiences and solution designs. Students review these ideas against design criteria and created user stories throughout their implementation as general-purpose programming by assessing them against current and future needs. They extend the use of these design criteria and user stories to evaluate the future impact of existing solutions.  Students apply systems thinking by exploring the connections between hardware capabilities and tasks users want to perform. They investigate how data is transmitted via wired and wireless networks and explain the need for encryption to protect and secure data. Students use an increasing range of the features of digital tools to improve their efficiency and the consistency of the content they create, locate and communicate. They plan and manage projects individually and collaboratively, improving their control over the quality of their content. Students investigate personal security controls, including multi-factor authentication, to protect their data if passwords are compromised, and they understand the impact of phishing and other cyber security threats on people and data.  In Digital Technologies, students should have frequent opportunities for authentic learning by making key connections with other learning areas. | By the end of Year 10 students should have had the opportunity to apply computational thinking by defining and decomposing real-world problems, creating user experiences, designing and modifying algorithms, and implementing them, including in an object-oriented programming language. Students use techniques, including interviewing stakeholders to develop user stories, to increase the precision of their problem definitions and solution specifications. They verify their solutions solve the problem by validating their algorithms, represented as flowcharts and pseudocode, and using test cases to confirm the correctness of their solutions. Students develop their object-oriented programming skills, and apply them to develop, modify and debug programs. They explain the importance of abstraction by representing online documents in terms of content, structure and presentation, as well as exploring simple data compression techniques and comparing their effectiveness.  Students consolidate their skills in data acquisition and interpretation, cleaning and validating data to ensure it is accurate, consistent and domain appropriate. They model multidimensional data in more complex spreadsheets and relational databases, filtering and querying it to give insights into its meaning, and to pose further questions or make conclusions. They visualise this data in customisable ways, allowing greater exploration of trends and outliers to support or challenge their analyses.  Students apply design thinking by using divergent techniques to generate design ideas for user experiences and solutions. They filter and prototype these ideas, developing user stories and applying design criteria based on current and future needs and enterprising opportunities, as well as their created user stories, and revise and further develop their preferred ideas based on their analysis. Students extend on these design criteria and user stories to evaluate the enterprise opportunities and future impact of existing solutions.  Students consolidate their systems thinking by exploring how the hardware and software components of digital systems interact to manage, control and secure access to data. They increasingly use advanced features of existing and emerging digital tools to create interactive content for a diverse audience. They explore simple tools that help plan tasks, timelines and responsibilities for individual and collaborative projects. Students extend their knowledge of the importance of security by developing cyber security threat models and exploring an example of a supply chain vulnerability. They critique the digital footprint created by existing systems and their own solutions by applying the Australian Privacy Principles.  In Digital Technologies, students should have frequent opportunities for authentic learning by making key connections to other learning areas. |

**Note:** Insert/delete rows/columns, as required, to provide an overview of the teaching, learning and assessment sequence across the bands.

|  | Unit 1 — [Insert unit title] | Unit 2 — [Insert unit title] | Unit 3 — [Insert unit title] | Unit 4 — [Insert unit title] |
| --- | --- | --- | --- | --- |
|  | Duration: [Insert semester, term and/or weeks] | Duration: [Insert semester, term and/or weeks] | Duration: [Insert semester, term and/or weeks] | Duration: [Insert semester, term and/or weeks] |
|  | [Insert unit description and learning focus] | [Insert unit description and learning focus] | [Insert unit description and learning focus] | [Insert unit description and learning focus] |
| Years 7–8 | [Insert relevant band-specific detail] | [Insert relevant band-specific detail] | [Insert relevant band-specific detail] | [Insert relevant band-specific detail] |
| Years 9–10 | [Insert relevant band-specific detail] | [Insert relevant band-specific detail] | [Insert relevant band-specific detail] | [Insert relevant band-specific detail] |

# Years 7–8

**Note:**

Adjust the table to reflect the number of units you will offer.

Highlight the aspects of the achievement standard that will be assessed within each unit. A learning area achievement standard is provided if a multi-technologies subject is offered.

|  | Unit 1 | | Unit 2 | | Unit 3 | | Unit 4 | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Assessment — [Insert assessment title] | Timing | Assessment — [Insert assessment title] | Timing | Assessment — [Insert assessment title] | Timing | Assessment — [Insert assessment title] | Timing |
| Assessment | [Insert concise description of assessment]  [Insert technique]  [Insert mode, if applicable]  [Insert conditions] | [Insert week/s or date/s] | [Insert concise description of assessment]  [Insert technique]  [Insert mode, if applicable]  [Insert conditions] | [Insert week/s or date/s] | [Insert concise description of assessment]  [Insert technique]  [Insert mode, if applicable]  [Insert conditions] | [Insert week/s or date/s] | [Insert concise description of assessment]  [Insert technique]  [Insert mode, if applicable]  [Insert conditions] | [Insert week/s or date/s] |
| Achievement standard | By the end of Year 8 students develop and modify creative digital solutions, decompose real-world problems, and evaluate alternative solutions against user stories and design criteria. Students acquire, interpret and model data with spreadsheets and represent data with integers and binary. They design and trace algorithms and implement them in a general-purpose programming language. Students select appropriate hardware for particular tasks, explain how data is transmitted and secured in networks, and identify cyber security threats. They select and use a range of digital tools efficiently and responsibly to create, locate and share content; and to plan, collaborate on and manage projects. Students manage their digital footprint. | | By the end of Year 8 students develop and modify creative digital solutions, decompose real-world problems, and evaluate alternative solutions against user stories and design criteria. Students acquire, interpret and model data with spreadsheets and represent data with integers and binary. They design and trace algorithms and implement them in a general-purpose programming language. Students select appropriate hardware for particular tasks, explain how data is transmitted and secured in networks, and identify cyber security threats. They select and use a range of digital tools efficiently and responsibly to create, locate and share content; and to plan, collaborate on and manage projects. Students manage their digital footprint. | | By the end of Year 8 students develop and modify creative digital solutions, decompose real-world problems, and evaluate alternative solutions against user stories and design criteria. Students acquire, interpret and model data with spreadsheets and represent data with integers and binary. They design and trace algorithms and implement them in a general-purpose programming language. Students select appropriate hardware for particular tasks, explain how data is transmitted and secured in networks, and identify cyber security threats. They select and use a range of digital tools efficiently and responsibly to create, locate and share content; and to plan, collaborate on and manage projects. Students manage their digital footprint. | | By the end of Year 8 students develop and modify creative digital solutions, decompose real-world problems, and evaluate alternative solutions against user stories and design criteria. Students acquire, interpret and model data with spreadsheets and represent data with integers and binary. They design and trace algorithms and implement them in a general-purpose programming language. Students select appropriate hardware for particular tasks, explain how data is transmitted and secured in networks, and identify cyber security threats. They select and use a range of digital tools efficiently and responsibly to create, locate and share content; and to plan, collaborate on and manage projects. Students manage their digital footprint. | |
| Learning area achievement standard | 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. | | 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. | | 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. | | 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. | |
| Moderation | [Insert moderation details, including when moderation will occur and how it will be conducted] | | [Insert moderation details, including when moderation will occur and how it will be conducted] | | [Insert moderation details, including when moderation will occur and how it will be conducted] | | [Insert moderation details, including when moderation will occur and how it will be conducted] | |

**Note:** Adjust the table to reflect the number of units you will offer. Check or uncheck the columns as appropriate for each unit.

| Content descriptions | Units | | | | Content descriptions | Units | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Knowledge and understanding | 1 | 2 | 3 | 4 | Processes and production skills | 1 | 2 | 3 | 4 |
| **Digital systems**  explain how hardware specifications affect performance and select appropriate hardware for particular tasks and workloads  AC9TDI8K01 |  |  |  |  | **Acquiring, managing and analysing data**  acquire, store and validate data from a range of sources using software, including spreadsheets and databases  AC9TDI8P01 |  |  |  |  |
| investigate how data is transmitted and secured in wired and wireless networks including the internet  AC9TDI8K02 |  |  |  |  | analyse and visualise data using a range of software, including spreadsheets and databases, to draw conclusions and make predictions by identifying trends  AC9TDI8P02 |  |  |  |  |
| **Data representation**  investigate how digital systems represent text, image and audio data using integers  AC9TDI8K03 |  |  |  |  | model and query the attributes of objects and events using structured data  AC9TDI8P03 |  |  |  |  |
| explain how and why digital systems represent integers in binary  AC9TDI8K04 |  |  |  |  | **Investigating and defining**  define and decompose real-world problems with design criteria and by creating user stories  AC9TDI8P04 |  |  |  |  |
|  |  |  |  |  | **Generating and designing**  design algorithms involving nested control structures and represent them using flowcharts and pseudocode  AC9TDI8P05 |  |  |  |  |
|  |  |  |  |  | trace algorithms to predict output for a given input and to identify errors  AC9TDI8P06 |  |  |  |  |
|  |  |  |  |  | design the user experience of a digital system  AC9TDI8P07 |  |  |  |  |
|  |  |  |  |  | generate, modify, communicate and evaluate alternative designs  AC9TDI8P08 |  |  |  |  |
|  |  |  |  |  | **Producing and implementing**  implement, modify and debug programs involving control structures and functions in a general-purpose programming language  AC9TDI8P09 |  |  |  |  |
|  |  |  |  |  | **Evaluating**  evaluate existing and student solutions against the design criteria, user stories and possible future impact  AC9TDI8P10 |  |  |  |  |
|  |  |  |  |  | **Collaborating and managing**  select and use a range of digital tools efficiently, including unfamiliar features, to create, locate and communicate content, consistently applying common conventions  AC9TDI8P11 |  |  |  |  |
|  |  |  |  |  | select and use a range of digital tools efficiently and responsibly to share content online, and plan and manage individual and collaborative agile projects  AC9TDI8P12 |  |  |  |  |
|  |  |  |  |  | **Privacy and security**  explain how multi-factor authentication protects an account when the password is compromised and identify phishing and other cyber security threats  AC9TDI8P13 |  |  |  |  |
|  |  |  |  |  | investigate and manage the digital footprint existing systems and student solutions collect and assess if the data is essential to their purpose  AC9TDI8P14 |  |  |  |  |

# Years 9–10

**Note:**

Adjust the table to reflect the number of units you will offer.

Highlight the aspects of the achievement standard that will be assessed within each unit.

|  | Unit 1 | | Unit 2 | | Unit 3 | | Unit 4 | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Assessment — [Insert assessment title] | Timing | Assessment — [Insert assessment title] | Timing | Assessment — [Insert assessment title] | Timing | Assessment — [Insert assessment title] | Timing |
| Assessment | [Insert concise description of assessment]  [Insert technique]  [Insert mode, if applicable]  [Insert conditions] | [Insert week/s or date/s] | [Insert concise description of assessment]  [Insert technique]  [Insert mode, if applicable]  [Insert conditions] | [Insert week/s or date/s] | [Insert concise description of assessment]  [Insert technique]  [Insert mode, if applicable]  [Insert conditions] | [Insert week/s or date/s] | [Insert concise description of assessment]  [Insert technique]  [Insert mode, if applicable]  [Insert conditions] | [Insert week/s or date/s] |
| Achievement standard | By the end of Year 10 students develop and modify innovative digital solutions, decompose real-world problems, and critically evaluate alternative solutions against stakeholder elicited user stories. Students acquire, interpret and model complex data with databases and represent documents as content, structure and presentation. They design and validate algorithms and implement them, including in an object-oriented programming language. Students explain how digital systems manage, control and secure access to data; and model cyber security threats and explore a vulnerability. They use advanced features of digital tools to create interactive content, and to plan, collaborate on, and manage agile projects. Students apply privacy principles to manage digital footprints. | | By the end of Year 10 students develop and modify innovative digital solutions, decompose real-world problems, and critically evaluate alternative solutions against stakeholder elicited user stories. Students acquire, interpret and model complex data with databases and represent documents as content, structure and presentation. They design and validate algorithms and implement them, including in an object-oriented programming language. Students explain how digital systems manage, control and secure access to data; and model cyber security threats and explore a vulnerability. They use advanced features of digital tools to create interactive content, and to plan, collaborate on, and manage agile projects. Students apply privacy principles to manage digital footprints. | | By the end of Year 10 students develop and modify innovative digital solutions, decompose real-world problems, and critically evaluate alternative solutions against stakeholder elicited user stories. Students acquire, interpret and model complex data with databases and represent documents as content, structure and presentation. They design and validate algorithms and implement them, including in an object-oriented programming language. Students explain how digital systems manage, control and secure access to data; and model cyber security threats and explore a vulnerability. They use advanced features of digital tools to create interactive content, and to plan, collaborate on, and manage agile projects. Students apply privacy principles to manage digital footprints. | | By the end of Year 10 students develop and modify innovative digital solutions, decompose real-world problems, and critically evaluate alternative solutions against stakeholder elicited user stories. Students acquire, interpret and model complex data with databases and represent documents as content, structure and presentation. They design and validate algorithms and implement them, including in an object-oriented programming language. Students explain how digital systems manage, control and secure access to data; and model cyber security threats and explore a vulnerability. They use advanced features of digital tools to create interactive content, and to plan, collaborate on, and manage agile projects. Students apply privacy principles to manage digital footprints. | |
| Moderation | [Insert moderation details, including when moderation will occur and how it will be conducted] | | [Insert moderation details, including when moderation will occur and how it will be conducted] | | [Insert moderation details, including when moderation will occur and how it will be conducted] | | [Insert moderation details, including when moderation will occur and how it will be conducted] | |

**Note:** Adjust the table to reflect the number of units you will offer. Check or uncheck the columns as appropriate for each unit.

| Content descriptions | Units | | | | Content descriptions | Units | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Knowledge and understanding | 1 | 2 | 3 | 4 | Processes and production skills | 1 | 2 | 3 | 4 |
| **Digital systems**  investigate how hardware and software manage, control and secure access to data in networked digital systems  AC9TDI10K01 |  |  |  |  | **Acquiring, managing and analysing data**  develop techniques to acquire, store and validate data from a range of sources using software, including spreadsheets and databases  AC9TDI10P01 |  |  |  |  |
| **Data representation**  represent documents online as content (text), structure (markup) and presentation (styling) and explain why such representations are important  AC9TDI10K02 |  |  |  |  | analyse and visualise data interactively using a range of software, including spreadsheets and databases, to draw conclusions and make predictions by identifying trends and outliers  AC9TDI10P02 |  |  |  |  |
| investigate simple data compression techniques  AC9TDI10K03 |  |  |  |  | model and query entities and their relationships using structured data  AC9TDI10P03 |  |  |  |  |
|  |  |  |  |  | **Investigating and defining**  define and decompose real-world problems with design criteria and by interviewing stakeholders to create user stories  AC9TDI10P04 |  |  |  |  |
|  |  |  |  |  | **Generating and designing**  design algorithms involving logical operators and represent them as flowcharts and pseudocode  AC9TDI10P05 |  |  |  |  |
|  |  |  |  |  | validate algorithms and programs by comparing their output against a range of test cases  AC9TDI10P06 |  |  |  |  |
|  |  |  |  |  | design and prototype the user experience of a digital system  AC9TDI10P07 |  |  |  |  |
|  |  |  |  |  | generate, modify, communicate and critically evaluate alternative designs  AC9TDI10P08 |  |  |  |  |
|  |  |  |  |  | **Producing and implementing**  implement, modify and debug modular programs, applying selected algorithms and data structures, including in an object-oriented programming language  AC9TDI10P09 |  |  |  |  |
|  |  |  |  |  | **Evaluating**  evaluate existing and student solutions against the design criteria, user stories, possible future impact and opportunities for enterprise  AC9TDI10P10 |  |  |  |  |
|  |  |  |  |  | **Collaborating and managing**  select and use emerging digital tools and advanced features to create and communicate interactive content for a diverse audience  AC9TDI10P11 |  |  |  |  |
|  |  |  |  |  | use simple project management tools to plan and manage individual and collaborative agile projects, accounting for risks and responsibilities  AC9TDI10P12 |  |  |  |  |
|  |  |  |  |  | **Privacy and security**  develop cyber security threat models, and explore a software, user or software supply chain vulnerability  AC9TDI10P13 |  |  |  |  |
|  |  |  |  |  | apply the Australian Privacy Principles to critique and manage the digital footprint that existing systems and student solutions collect  AC9TDI10P14 |  |  |  |  |

**Note:** Adjust the table to reflect the number of units you will offer. Check or uncheck the columns as appropriate for each unit.

| General capabilities | Units | | | |  | Cross-curriculum priorities | Units | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 |  |  | 1 | 2 | 3 | 4 |
| Critical and creative thinking |  |  |  |  |  | Aboriginal and Torres Strait Islander histories and cultures |  |  |  |  |
| Digital literacy |  |  |  |  |  | Asia and Australia’s engagement with Asia |  |  |  |  |
| Ethical understanding |  |  |  |  |  | Sustainability |  |  |  |  |
| Intercultural understanding |  |  |  |  |
| Literacy |  |  |  |  |
| Numeracy |  |  |  |  |
| Personal and social capability |  |  |  |  |

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