Years 7–8 Digital Technologies
Curriculum and assessment plan

Example A

ACiQ v9.0

Level description	Context and cohort considerations
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.	Digital Technologies is timetabled for one semester in Year 7 and one semester in Year 8. Lessons are scheduled twice a week for one semester. The knowledge and skills taught in this band provide a foundation for students selecting Digital Technologies as an elective in Years 9 and 10. Cultivating active citizens who have a positive impact on the community is part of the school's vision. In Digital Technologies, this is embedded in the investigation and creation of digital solutions that respond to community needs. The real-world examples used within the units (e.g. citizen science platforms, websites) can be selected to respond to the interests of the cohort.

Unit 1 — Data and citizen science	Unit 2 — Website design	Unit 3 — Game-based learning	Unit 4 — Digital creators
Timing: Term 1, Year 7 Duration: 10 weeks	Timing: Term 2, Year 7 Duration: 10 weeks	Timing: Term 3, Year 8 Duration: 10 weeks	Timing: Term 4, Year 8 Duration: 10 weeks
According to the Australian Citizen Science Association (n.d.), citizen science 'involves public participation and collaboration in scientific research with the aim to increase scientific knowledge'[1]. Digital platforms are increasingly being used to facilitate public engagement in citizen science programs. In this unit, students examine a range of citizen science platforms that collect animal or plant data to investigate how the citizen science platforms facilitate and encourage community members to contribute data, and how the platforms support data visualisation and analysis. They discuss how citizen science programs and their matching platforms contribute to individual and community engagement in actions for sustainability. Students investigate how data is transmitted in a platform's network, and represent data flow using flowcharts. To develop the skills and understanding required for their assessment, they develop familiarity with the features of spreadsheets, and with the selection and use of digital tools and conventions	Websites increasingly play an important role in processing, sharing and displaying information (e.g. advertising and selling products, streaming movies, accessing financial and government services). In this unit, students examine websites across a range of contexts and purposes. They analyse how each website meets a need, and predict the impact of the websites on individuals, society and/or businesses. Students examine basic features of website user interface design including structure and style. They evaluate two websites against design criteria and user stories. Students learn how to create a website storyboard. They develop familiarity with the basic structure and syntax of HTML and CSS, and learn how to use digital tools to modify and develop webpages. They investigate how and why data can be represented as integers (RGB and HEX values). Students identify cyber-security threats such as	Developers of digital educational resources frequently incorporate game elements as they seek to enhance engagement and student learning. In this unit, students explore how the features of digital educational games can support user engagement and student learning. Students analyse, design and trace algorithms, including nested control structures and functions, for elements of a digital educational game (e.g. checking answers, keeping score, providing feedback). They represent selected algorithms using flowcharts and pseudocode. Students develop familiarity with the literacy demands of writing code, including syntax, and with the features of the programming software. They implement, modify and debug a range of these elements in a general-purpose programming language. They explore collaboration and project management tools and techniques, e.g. goal setting, spreadsheet checklists. Students collaborate in small groups to each develop part of a simple digital educational game for younger students.	Digital content creators produce digital content such as videos, blogs, photos and graphics for a range of purposes including education, product promotion and entertainment. They apply an understanding of the types and features of digital tools to create and distribute content to online audiences. In this unit, students explore how digital systems and networks enable digital content creators to generate content and connect with their online audience. They explore a range of hardware and software used by digital creators. Students consider the selection of hardware for particular tasks and examine how specifications affect content quality. They investigate how audio can be represented as integers, and explain how and why digital systems represent integers in binary. Students examine the design of a creator's content and of a sharing platform, and evaluate their design against user stories, design criteria and possible future impacts. They consider how creators apply social awareness and ethical considerations when

[1] Australian Citizen Science Association, n.d., 'About us', citizenscience.org.au/who-we-are/.

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(e.g. file naming protocols) to manage digital files. Students learn how to use spreadsheets and pre-defined single-table databases to collect, analyse and visualise data, and to model and query the attributes of objects and events (e.g. adding column headings such as 'species', location' and 'number'; simple SQL queries). They learn how to acquire and analyse publicly available data from a platform. Students independently choose a citizen science platform from a provided list. They explain how data is transmitted in the platform's network. Students acquire biodiversity data from the platform and use spreadsheets to model, analyse and visualise the data to help answer an environmental question. They use digital tools to locate and create content.	phishing websites and investigate how multi-factor authentication protects a user's account. Students design a prototype webpage that aims to boost local tourism. They individually create a user story for a targeted segment of the tourism market (e.g. grey nomads, active young adults, families with children). Students create two webpage storyboards and evaluate them to select a design. They modify a provided template using HTML and CSS to produce a webpage for the selected design. They represent data as integers by including RGB and HEX values. Students identify potential improvements and cyber security threats for the webpage.	They individually design and trace algorithms for their game part and implement them using a general-purpose programming language. Students evaluate their game part. They select and use digital tools to plan, collaborate on and manage this project.	developing content. Students consider the ethical obligations of organisations regarding ownership and privacy of data and information, and how users and creators can manage their digital footprint. They investigate how data transmitted online can be secured. Students select and use technologies to create a mock 'life-hack' video designed to support students to transition to secondary school (e.g. study tips for high school). They evaluate it against a user story and design criteria. Students explain how their digital footprint could be managed, and how data shared online can be secured. Students responsibly and efficiently use digital tools to create, locate and share content, and to plan and manage the project. They represent simple text and image elements as binary.

	Unit 1 — Data and citizen science		Unit 2 — Website design		Unit 3 — Game-based learning		Unit 4 — Digital creators	
	Assessment 1 — Bringing data to life	**Term/ week**	**Assessment 2 — Website for a purpose**	**Term/ week**	**Assessment 3 — Brain on, game on**	**Term/ week**	**Assessment 4 — Life-hacks for teens**	**Term/ week**
Assessment	**Description:** Students explain how data is transmitted in a citizen science platform. They acquire, interpret and model data from the platform using spreadsheets to help answer an environmental question. Students use platform tools, spreadsheets and other digital tools to locate and create the content. **Technique:** Investigation **Mode:** Multimodal **Conditions:** • written responses that may include annotated graphical representations 300–400 words • digital solution (spreadsheet)	Term 1 Week 10	**Description:** Students create a webpage aiming to boost local tourism. They generate a user story for their selected target audience. Students sketch and annotate two storyboard designs for their webpage. They evaluate them against provided design criteria and their user story before selecting one which will be used as the basis of their webpage. They produce a prototype webpage for their selected storyboard by modifying the HTML and CSS of a skeleton webpage, including representing data as integers. Students identify two or three aspects of their website that could be improved if it were to be published online. They identify potential cyber security threats if an online purchasing feature was added. **Technique:** Project **Mode:** Multimodal **Conditions:** • 2–4 A3 pages or equivalent digital media pages that include annotated graphical representations 300–400 words • digital solution (webpage)	Term 2 Week 9	**Description:** Students collaborate in small groups to each make part of a simple educational game for younger students (e.g. different levels). They individually design and trace algorithms and implement them in a general-purpose programming language. Students evaluate their game part against design criteria. They select and use digital tools to create and share content, and to plan, collaborate on and manage the project. **Technique:** Project **Mode:** Multimodal **Conditions:** • written responses that include annotated diagrams and/or screenshots 300–400 words (excluding code) • digital solution (educational game)	Term 1 Week 10	**Description:** Students develop a mock 'life-hack' video to support students to transition to secondary school. They evaluate their digital solution against a user story and design criteria. Students explain how they could manage their digital footprint if they were to publish the video on a content sharing platform. They explain how data shared online can be secured. They select and use appropriate hardware and software to create, locate and share content, and use digital tools to plan and manage the content creation process. Students represent simple text and images with binary. **Technique:** Project **Mode:** Multimodal **Conditions:** • written responses that may include annotated graphical representations 200–300 words • digital solution (video) including visuals and spoken/signed responses 2–3 minutes	Term 2 Week 9

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.
Moderation	**Conferencing** Refer to QCAA moderation advice on the QCAA website under the Assessment tab in the learning area.	**Calibration** Refer to QCAA moderation advice on the QCAA website under the Assessment tab in the learning area.	**Conferencing** Refer to QCAA moderation advice on the QCAA website under the Assessment tab in the learning area.	**Calibration** Refer to QCAA moderation advice on the QCAA website under the Assessment tab in the learning area.

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	☐	☐	☐	☑

General capabilities	Units			
Unit	**1**	**2**	**3**	**4**
Critical and creative thinking	☐	☑	☑	☑
Digital literacy	☑	☑	☑	☑
Ethical understanding	☐	☐	☐	☑
Intercultural understanding	☐	☐	☐	☐
Literacy	☐	☑	☑	☐
Numeracy	☑	☑	☐	☐
Personal and social capability	☐	☐	☑	☑

Cross-curriculum priorities	Units			
Unit	**1**	**2**	**3**	**4**
Aboriginal and Torres Strait Islander histories and cultures	☐	☐	☐	☐
Asia and Australia's engagement with Asia	☐	☐	☐	☐
Sustainability	☑	☐	☐	☐