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|  | Years 3 and 4 band plan — Technologies  Overview for planning with the Australian Curriculum: Digital Technologies |

This band plan has been developed in consultation with the Curriculum into the Classroom (C2C) project team.

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| School name: | | | | | | | |
| Australian Curriculum: Digital Technologies Band: Years 3 and 4 | | | | | | | |
| Identify curriculum[[1]](#footnote-1) | Technologies learning area | | The Technologies curriculum provides students with opportunities to consider how solutions that are created now will be used in the future. Students will identify the possible benefits and risks of creating solutions and learn to recognise that views about the priority of the benefits and risks will vary and that preferred futures are contested. They will use critical and creative thinking to weigh up possible short-term and long-term impacts. They develop solutions to meet needs considering impacts on liveability, economic prosperity and environmental sustainability.  The Australian Curriculum: Technologies describes two distinct but related subjects:   * Design and Technologies, in which students use design thinking and technologies to generate and produce designed solutions for authentic needs and opportunities * Digital Technologies, in which students use computational thinking and information systems to define, design and implement digital solutions.   The Australian Curriculum: Digital Technologies empowers students to shape change by influencing how contemporary and emerging information systems and practices are applied to meet current and future needs. A deep knowledge and understanding of information systems enables students to be creative and discerning decision-makers when they select, use and manage data, information, processes and digital systems to meet needs and shape preferred futures.  Digital Technologies provides students with practical opportunities to use design thinking, and to be innovative developers of digital solutions and knowledge. The subject helps students to become innovative creators of digital solutions, effective users of digital systems and critical consumers of information conveyed by digital systems.  Digital Technologies provides students with authentic learning challenges that foster curiosity, confidence, persistence, innovation, creativity, respect and cooperation. These are all necessary when using and developing information systems to make sense of complex ideas and relationships in all areas of learning. Digital Technologies helps students to be regional and global citizens capable of actively and ethically communicating and collaborating. | | | | |
| Course organisation | | In the Australian Curriculum: Digital Technologies, the two strands — Knowledge and Understanding, and Processes and Production Skills — are interrelated and inform and support each other. In Digital Technologies, students are actively engaged in the process of defining problems and opportunities, designing, implementing and evaluating digital solutions, and creating and sharing information that meets a range of current and future needs. These solutions and information are created through the application of computational and design thinking, and technical skills.  Students will create digital solutions that will use data, require interactions with users and within systems, and will have impacts on people, the economy and environments. Solutions may be developed using combinations of readily available hardware and software applications, and/or specific instructions provided through programming. Some examples of solutions are instructions for a robot, an adventure game, products featuring interactive multimedia including digital stories, animations and websites.  When developing teaching and learning programs teachers should consider:   * the relationship between each of the curriculum components (band descriptions, content descriptions, elaborations and achievement standards) and how they contribute to the development of coherent programs * integrating the two strands, as content in Processes and Production skills strand frequently draws on understanding of concepts in the Knowledge and Understanding strand, and focus on a digital technologies application in a unit of work * combining aspects of the strands within a subject in different ways to provide students with learning experiences that meet their needs and interests * providing opportunity for ongoing practice and consolidation of previously introduced knowledge and skills as many aspects of Technologies curriculum are recursive * developing a variety of learning experiences that are relevant, rigorous and meaningful and allow for different rates of development, in particular for younger students and for those who need extra support * opportunities for integration of learning between the Technologies subjects and with other learning areas.   Teaching and learning programs should providing opportunities for students to:   * use their knowledge and understanding of data and digital systems to apply processes and production skills as they create digital solutions * engage in learning activities that do not require the full use of the process, particularly in the early years * be safe when they use information systems and create and communicate information online.   The Band plan for Digital Technologies is organised to:   * provide flexibility when making decisions about how the subject will be implemented, based on the local context and needs of students in schools * align with the Australia Curriculum: Digital Technologies, which is organised in bands for the achievement standards and content descriptions * provide a course structure and content that includes a sequence of teaching and learning and identification of opportunities for assessment and feedback, organised in units according to year levels, and developed using the Australian Curriculum: Digital Technologies content descriptions and achievement standards. | | | | |
|  | | The Band plan course organisation allows schools to implement the Australian Curriculum: Digital Technologies in:   * conjunction with other learning areas/subjects * a term * a semester * only one year of a band of years.   Safety  All practical work must be organised with student safety in mind. Identifying and managing risk in Technologies learning addresses the safe use of technologies, as well as risks that can impact on project timelines. It covers all necessary aspects of health, safety and injury prevention and, in any technologies context, the use of potentially dangerous materials, tools and equipment. It includes ergonomics, safety including cyber safety, data security, and ethical and legal considerations when communicating and collaborating online. The current safety requirements are clearly explained on the Queensland Government Education Health and Safety webpage: [http://education.qld.gov.au/health/safety](http://education.qld.gov.au/health/safety/). School must ensure that their practices meet current guidelines.  Animal ethics  Any teaching activities that involve caring, using, or interacting with animals must comply with the Australian code of practice for the care and use of animals for scientific purposes in addition to relevant state or territory guidelines. The *Animal Care and Protection Act 2001* and the accompanying Animal Care and Protection Regulation 2002 govern the treatment and use of all animals in Queensland (see [www.legislation.qld.gov.au](http://www.legislation.qld.gov.au/Acts_SLs/Acts_SL.htm)). The Department of Agriculture, Fisheries and Forestry Queensland (DAFF), through Biosecurity Queensland, is responsible for enforcement of the legislation. | | | | |
| Phase curriculum focus | | Curriculum focus: Years 3 to 6  Through the primary years, students draw on their growing experience of family, school and the wider community to develop their understanding of the world and their relationships with others. During these years of schooling, students’ thought processes become more complex and consistent, and they gradually become more independent. Students also develop their capacity to work in teams. They develop a sense of social, ethical and environmental responsibility and are interested in and concerned about the future (systems thinking). Students may share changes in their own thinking and making, giving reasons for their actions, and explaining and demonstrating their organisation and sequence of ideas. They begin to recognise and appreciate the different ways in which others think and respond to problems and situations, including those with a regional perspective. They respond resourcefully to a range of design and computing problems and situations using creative and innovative ideas to realise solutions. They communicate and record their ideas in diagrams and drawings using a range of technologies. They explain the main functions of their solutions and the systems, materials, tools and equipment which could be used.  In these years, learning in Technologies occurs through integrated curriculum and Technologies subject-specific approaches. Students’ activities in the early years develop into an interest in learning technologies thinking, processes and production. Students increasingly recognise the connections between Technologies and other learning areas. | | | | |
| Band description | | Learning in Digital Technologies focuses on further developing understanding and skills in computational thinking, such as categorising and outlining procedures; and developing an increasing awareness of how digital systems are used, and could be used at home, in school and in the local community.  By the end of Year 4, students will have had opportunities to create a range of digital solutions, such as interactive adventures that involve user choice, modelling simplified real world systems and simple guessing games.  In Years 3 and 4, students explore digital systems in terms of their components, and peripheral devices such as digital microscopes, cameras and interactive whiteboards. They collect, manipulate and interpret data, developing an understanding of the characteristics of data and their representation.  Using the concept of abstraction, students define simple problems using techniques, such as summarising facts to deduce conclusions. They record simple solutions to problems through text and diagrams, and develop their designing skills, from initially following prepared algorithms, to describing their own that support branching (choice of options) and user input. Their solutions are implemented using appropriate software, including visual programming languages that use graphical elements rather than text instructions. They explain, in general terms, how their solutions meet specific needs, and consider how society may use digital systems to meet needs in environmentally sustainable ways.  With teacher guidance, students identify and list the major steps needed to complete a task or project. When sharing ideas and communicating in online environments, they develop an understanding of why it is important to consider the feelings of their audiences, and apply safe practices and social protocols agreed by the class that demonstrate respectful behaviour. | | | | |
| Achievement standard | | By the end of Year 4, students [describe](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Describe) how a range of digital systems (hardware and software) and their peripheral devices can be used for different purposes. They [explain](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Explain) how the same data sets can be represented in different ways. Students define simple problems, [design](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Design) and implement digital solutions using algorithms that involve decision-making and user input. They [explain](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Explain) how the solutions meet their purposes. They collect and [manipulate](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Manipulate) different data when creating information and digital solutions. They safely use and manage information systems for identified needs using agreed protocols and [describe](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Describe) how information systems are used. | | | | |
| Teaching and learning | | Unit overviews  The Australian Curriculum assumes that all students will study the two Technologies subjects from Foundation to the end of Year 8.  Schools decide which units of study per subject to complete, and how and when. This band plan provides two potential units. | Unit 1 — What digital systems do you use? | Unit 2 — What’s your waste footprint? | | |
| Students explore and use a range of digital systems including peripheral devices and create a digital solution (an interactive guessing game) using a visual programming language.  Students will:   * explore and describe how digital systems are used and meet needs at home, in school and in the local community, and use a range of peripheral devices to transmit data * define problems and identify needs * develop technical skills in using a visual programming language to create a digital solution * describe, follow and apply a sequence of steps and decisions (algorithms) in non-digital contexts and when using a visual programming language * implement a simple digital solution that involves branching algorithms and user input when creating a simple guessing game * explain how their solutions and information systems, such as learning software, meet personal, school and community needs * develop skills in computational and systems thinking when solving problems and creating solutions.   Cross-curriculum connections  This unit could complement the concepts taught in the *Year 3 plan: Science exemplar* unit *Is it living?* Students gather images and create simple groups to classify living and non-living things. A key could be developed to decide unknown items.  See [www.qcaa.qld.edu.au/p-10/aciq/p-10-science/year-3-science](https://www.qcaa.qld.edu.au/p-10/aciq/p-10-science/year-3-science) > Planning > *Year 3 plan: Science exemplar* > Term 1: Is it living? | Students explore and manipulate different types of data and transform data into information. They will create a digital solution that presents data as meaningful information to address a school or community issue (such as how waste can be managed more effectively).  Students will:   * examine different types of data and represent the same data in different ways * collect, access and present data as information using simple software (such as spreadsheets) * explore and describe how a range of common information systems present data as information to meet personal, school and community needs * develop skills in computational and systems thinking when solving problems and creating solutions * work with others to communicate ideas and information using online tools, applying agreed social and ethical protocols * design and implement an interactive resource using a visual programming language * explain how their solutions and information systems meet personal, school and community needs.   Cross-curriculum connections  This unit could complement the concepts taught in the *Year 4 plan: Geography exemplar* unit *Investigating sustainable uses of environments and resources. Students* explore ways to represent data in meaningful ways and transform this into information.  See [www.qcaa.qld.edu.au/p-10/aciq/humanities/p-10-geography/year-4-geography](https://www.qcaa.qld.edu.au/p-10/aciq/humanities/p-10-geography/year-4-geography) > Planning > *Year 4 plan: Geography exemplar >* Unit 2: Investigating sustainable uses of environments and resources. | | |
|  | | **Content descriptions** | Knowledge and Understanding | | Unit 1 | Unit 2 |
| Explore and use a range of [digital systems](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=Digital+systems) with [peripheral devices](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=Peripheral+devices) for different purposes, and transmit different types of [data](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=Data) [(ACTDIK007)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACTDIK007) | | ✓ |  |
| Recognise different types of [data](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=Data) and explore how the same [data](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=Data) can be represented in different ways [(ACTDIK008)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACTDIK008) | |  | ✓ |
| Processes and Production Skills | | Unit 1 | Unit 2 |
| Collect, access and present different types of [data](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=Data) using simple software to create information and solve problems [(ACTDIP009)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACTDIP009) | |  | ✓ |
| Define simple problems, and describe and follow a sequence of steps and decisions (algorithms) needed to solve them [(ACTDIP010)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACTDIP010) | | ✓ | ✓ |
| Implement simple digital solutions as visual programs with algorithms involving [branching](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=Branching) (decisions) and user input [(ACTDIP011)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACTDIP011) | | ✓ | ✓ |
| Explain how developed solutions and existing [information systems](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=Information+systems) meet common personal, school or community needs, and envisage new ways of using them [(ACTDIP012)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACTDIP012) | | ✓ | ✓ |
| Work with others to plan the creation and communication of ideas and information safely, applying agreed ethical and [social protocols](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=Social+protocols) [(ACTDIP013)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACTDIP013) | |  | ✓ |
| **General capabilities** | Literacy    Numeracy    ICT capability    Critical and creative thinking    Personal and social capability    Ethical understanding | | | |
| Develop assessment | | **Assessment**  The *Years 3 to 6 Technologies: Australian Curriculum in Queensland — assessment and reporting advice and guidelines* brings together advice about assessment, making judgments and reporting in a single document.  See [www.qcaa.qld.edu.au/p-10/aciq/p-10-technologies/year-3-technologies](https://www.qcaa.qld.edu.au/p-10/aciq/p-10-technologies/year-3-technologies) > *Years 3 to 6 Technologies: ACiQ.* | Students use their knowledge and understanding of data and digital systems to apply processes and production skills as they create digital solutions. In both teaching and learning and assessment students undertake projects. A project is a set of activities to address specified content, involving understanding the nature of a problem, situation or need; creating, designing and producing a solution to the project task; and documenting the process. Students progress from managing the independent creation of ideas and information to managing collaborative projects in online environments.  The assessment for each unit provides evidence of student learning and provides opportunities for teachers to make judgments about whether students have met the Australian Curriculum: Digital Technologies Years 3 and 4 achievement standard. Students should contribute to an individual assessment folio that provides evidence of their learning and represents their achievements. The folio should include a range and balance of assessments for teachers to make valid judgments about whether the student has met the achievement standard. | | | |
| Unit 1 — What digital systems do you use? | Unit 2 — What’s your waste footprint? | | |
| The assessment will gather evidence of students ability to:   * design digital systems that fulfil different purposes in a home by:   + selecting appropriate hardware, software and peripheral devices for each purpose   + describing how their chosen digital components meet different purposes. * create an interactive guessing game using a visual programming language by:   + defining the problem by explaining features of the problem, such as the needs, and who has the problem, and why   + writing algorithms that include user input and involve decision making (branching) both in the design and in the implementation of the game   + explaining how their solution meets their purpose   + describing how learning software is used at home, in school and within the community. | The assessment will gather evidence of students ability to:   * create an interactive digital resource that meets a school or community need by:   + collecting and manipulating data using a spreadsheet to create information   + explaining how the same data sets can be represented in different ways   + defining the problem by explaining features of the problem, such as the needs, and who has the problem, and why   + following algorithms that involve decision making (branching) and user input in the solution   + explaining how their solution meets their purpose   + identifying safe social and ethical protocols when communicating ideas online. | | |
| Make judgments  and use feedback | | **Consistency of teacher judgments** | Identify opportunities to moderate samples of student work at a school or cluster level to reach consensus and consistency. | | | |

1. Source: Australian Curriculum, Assessment and Reporting Authority (ACARA), *Australian Curriculum: Technologies*: [www.australiancurriculum.edu.au/technologies/rationale](http://www.australiancurriculum.edu.au/technologies/rationale) and   
   *Australian Curriculum: Digital Technologies*: [www.australiancurriculum.edu.au/technologies/digital-technologies/curriculum/f-10?layout=1](http://www.australiancurriculum.edu.au/technologies/digital-technologies/curriculum/f-10?layout=1). [↑](#footnote-ref-1)