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|  | Years 3 and 4 band plan — Technologies  Overview for planning with the Australian Curriculum: Design and 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: Design and 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. They will use critical and creative thinking to weigh up possible short-term and long-term impacts.  As students’ progress through the Technologies curriculum, they will begin to identify possible and probable futures, and their preferences for the future. They develop solutions to meet needs considering impacts on liveability, economic prosperity and environmental sustainability. Students will learn to recognise that views about the priority of the benefits and risks will vary and that preferred futures are contested.  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: Technologies will ensure that all students benefit from learning about and working with traditional, contemporary and emerging technologies that shape the world in which we live. This learning area encourages students to apply their knowledge and practical skills and processes when using technologies and other resources to create innovative solutions, independently and collaboratively, that meet current and future needs.  The practical nature of the Technologies learning area engages students in critical and creative thinking, including understanding interrelationships in systems when solving complex problems. A systematic approach to experimentation, problem-solving, prototyping and evaluation instils in students the value of planning and reviewing processes to realise ideas. | | | | | | |
| **Course organisation** | The Australian Curriculum: Design and Technologies actively engages students in creating quality designed solutions for identified needs and opportunities across a range of technologies contexts. Students consider the economic, environmental and social impacts of technological change and how the choice and use of technologies contributes to a sustainable future.  By the end of each band, students will have had the opportunity to create different types of designed solutions that address the technologies contexts: Engineering principles and systems, Food and fibre production, Food specialisations and Materials and technologies specialisations. For breadth of study, the curriculum has been developed to enable students to complete at least one product, one service and one environment within each band.  In the Australian Curriculum: Design and Technologies the two strands — Knowledge and Understanding, and Processes and Production Skills — are interrelated and inform and support each other. Students work independently and collaboratively on projects as they critique, explore and investigate needs and opportunities; generate, develop and evaluate ideas; and plan, produce and evaluate designed solutions. They use criteria for success that are predetermined, negotiated with the class or developed by students.  The Design and Technologies Processes and Production Skills strand is based on the major aspects of design thinking, design processes and production processes. The content descriptions in this strand reflect a design process and would typically be addressed through a design brief. The Design and Technologies Processes and Production Skills strand focuses on creating designed solutions by:   * investigating * generating * producing * evaluating * collaborating and managing.   The band plan for Design and 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: Design and Technologies, which is organised in two-year bands * provide a course structure and content that includes a sequence of teaching and learning and identified opportunities for assessment and feedback, developed using the Australian Curriculum content descriptions and achievement standards.   When developing teaching and learning programs, teachers should consider opportunities to:   * combine aspects of the strands within a subject in different ways and to integrate content from each strand as it may be possible to address multiple technologies contexts in a unit * provide ongoing practice and consolidation of previously introduced knowledge and skills; while content descriptions do not repeat key skills across the bands, many aspects of the Technologies curriculum are recursive * provide students with learning experiences that meet their needs and interests and are relevant, rigorous and meaningful and allow for different rates of development, in particular for younger students and for those who need extra support * apply design and systems thinking and design processes to investigate ideas, generate and refine ideas, plan, produce and evaluate designed solutions | | | | | | |
|  |  | * use a design brief when developing a unit of work; a design brief is a concise statement clarifying the project task and defining the need or opportunity to be resolved after some analysis, investigation and research; it usually identifies the users, criteria for success, constraints, available resources, timeframe for the project and may include possible consequences and impacts. In the early years of learning, design briefs may be fairly prescriptive and teacher directed. * enable students to create different types of designed solutions that address the technologies contexts and complete at least one product, one service and one environment within each band; the combination of technologies contexts and types of designed solutions is a school decision * integrate the learning between the Technologies subjects and with other learning areas.   The band plan course organisation allows schools to implement the Australian Curriculum: Design and Technologies:   * in conjunction with other learning areas/subjects * in a term * in a semester * in only one year of a band.   **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 at the Queensland government, Department of Education, Training and Employment website: <http://education.qld.gov.au/health/safety> [.](http://education.qld.gov.au/health/safety/.%20) Schools 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/)). 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 Design and Technologies builds on concepts, skills and processes developed in earlier years, and teachers will revisit, strengthen and extend these as needed.  By the end of Year 4 students will have had the opportunity to create designed solutions at least once in the following technologies contexts: Engineering principles and systems; Food and fibre production and Food specialisations; and Materials and technologies specialisations. Students should have opportunities to experience designing and producing products, services and environments.  In Year 3 and 4 students develop a sense of self and ownership of their ideas and thinking about their peers and communities and as consumers. Students explore and learn to harness their creative, innovative and imaginative ideas and approaches to achieve designed products, services and environments. They do this through planning and awareness of the characteristics and properties of materials and the use of tools and equipment. They learn to reflect on their actions to refine their working and develop their decision-making skills. Students examine social and environmental sustainability implications of existing products and processes to raise awareness of their place in the world. They compare their predicted implications with real-world case studies including those from the Asia region, and recognise that designs and technologies can affect people and their environments. They become aware of the role of those working in design and technologies occupations and how they think about the way a product might change in the future.  Using a range of technologies including a variety of graphical representation techniques to communicate, students clarify and present ideas, for example by drawing annotated diagrams; modelling objects as three-dimensional images from different views by visualising rotating images and using materials. Students recognise techniques for documenting design and production ideas such as basic drawing symbols, and use simple flow diagrams.  Students become aware of the appropriate ways to manage their time and focus. With teacher guidance, they identify and list criteria for success including in relation to preferred futures and the major steps needed to complete a design task. They show an understanding of the importance of planning when designing solutions, in particular when collaborating. Students identify safety issues and learn to follow simple safety rules when producing designed solutions. | | | | | | |
| Achievement standard | By the end of Year 4 students [explain](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Explain) how products, services and environments are designed to best meet needs of communities and their environments. They [describe](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Describe) contributions of people in [design](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Design) and technologies occupations. Students [describe](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Describe) how the features of technologies can be used to produce designed solutions for each of the prescribed technologies contexts.  Students create designed solutions for each of the prescribed technologies contexts. They [explain](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Explain) needs or opportunities and [evaluate](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Evaluate) ideas and designed solutions against identified criteria for success, including environmental sustainability considerations. They [develop](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Develop) and expand [design](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Design) ideas and communicate these using models and drawings including annotations and symbols. Students plan and [sequence](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Sequence) major steps in [design](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Design) and production. They [identify](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Identify) appropriate technologies and techniques and [demonstrate](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Demonstrate) safe work practices when producing designed solutions. | | | | | | |
| 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 three potential units. | Unit 1 — Materials and technologies specialisations: Repurpose it | Unit 2 — Food and fibre production includes Food specialisations: What’s for lunch? | | Unit 3 — Engineering principles and systems: Pinball wizard | | | |
| Students investigate the suitability of materials, systems, components, tools and equipment for specific purposes. They repurpose an item of clothing to create another useful item and explore the role of people in design and technologies occupations as well as factors, including sustainability, that impact on designs that meet community needs.  Students apply the following processes and production skills:   * investigating by: * communicating with clients and critiquing needs or opportunities for designs * testing materials including fabrics and exploring techniques for shaping and joining them * identifying examples of recycling, up-cycling, re-using * generating design ideas for a useful item and communicating them with annotated design drawings * producing a useful item by selecting relevant tools and resources and using them safely * evaluating design ideas, processes and solutions * collaborating and working individually throughout the process * managing by sequencing production steps.   This unit could complement the concepts taught in the *Year 4 plan: Science* unit *— Material use* by investigating how the properties of materials influence their use for work, recreation and play. See: [www.qcaa.qld.edu.au/p-10/aciq/p-10-science/year-4-science](https://www.qcaa.qld.edu.au/p-10/aciq/p-10-science/year-4-science%20%20) > Planning > *Year 4 plan: Science exemplar.* | Students investigate food and fibre production and food technologies used in modern and traditional societies. They design and make a lunch item that includes modern and traditional technologies and explore how people in different times developed food and fibre technologies to meet human needs.  Students apply the following processes and production skills:   * investigating by: * exploring traditional food and fibre production and food technologies * identifying contemporary technologies for growing food and fibre and preserving and preparing foods * generating, developing and communicating design ideas for a food product * producing by working safely with equipment and ingredients to create a food product * evaluating design ideas and processes for the product * collaborating as well as working individually throughout the design and production * managing by sequencing production steps.   This unit could complement the concepts taught in the *Year 3 plan: History* unit *— Exploring Aboriginal peoples and Torres Strait Islander peoples and our communities* by investigating change and continuity over time in local, regional and state and territory contexts, e.g. in relation to transport, work, education, entertainment, daily life, and natural and built environments. See: [www.qcaa.qld.edu.au/p-10/aciq/humanities/p-10-history/year-3-history](https://www.qcaa.qld.edu.au/p-10/aciq/humanities/p-10-history/year-3-history) > Planning > *Year 3 plan: History exemplar*. | | Students investigate how forces and the properties of materials affect the behaviour of a product or system. They will create a box pinball machine and design a games room experience for students, and explore the role of people in engineering technology occupations including how they address factors that meet client needs.  Students apply the following processes and production skills:   * investigating by: * exploring games with moving parts * testing materials, tools and techniques * exploring techniques for shaping and joining materials and creating mechanisms * generating, developing and communicating design ideas for: * a pinball machine * a games room environment * producing by working safely with components and materials to create a functioning product * evaluating design ideas and processes for the product and environment * collaborating as well as working individually throughout the design and production * managing by sequencing production steps. | | | |
| **Content descriptions** | Knowledge and Understanding | | | | Unit 1 | Unit 2 | Unit 3 |
| Recognise the role of people in design and [technologies](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Technologies) occupations and explore factors, including sustainability that impact on the design of products, services and environments to meet community needs [(ACTDEK010)](http://v7-5.australiancurriculum.edu.au/curriculum/contentdescription/ACTDEK010) | | | | ✓ | ✓ | ✓ |
| Investigate how forces and the [properties](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Properties) of [materials](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Materials) affect the behaviour of a [product](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Product) or system [(ACTDEK011)](http://v7-5.australiancurriculum.edu.au/curriculum/contentdescription/ACTDEK011) | | | |  |  | ✓ |
| Investigate [food and fibre production](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Food+and+fibre+production) and food [technologies](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Technologies) used in modern and traditional societies [(ACTDEK012)](http://v7-5.australiancurriculum.edu.au/curriculum/contentdescription/ACTDEK012) | | | |  | ✓ |  |
| Investigate the suitability of [materials](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Materials), [systems](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Systems), [components](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Components), [tools](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Tools) and [equipment](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Equipment) for a range of purposes [(ACTDEK013)](http://v7-5.australiancurriculum.edu.au/curriculum/contentdescription/ACTDEK013) | | | | ✓ |  |  |
| Processes and Production Skills | | | | Unit 1 | Unit 2 | Unit 3 |
| Critique needs or opportunities for designing and explore and test a variety of [materials](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Materials), [components](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Components), [tools](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Tools) and [equipment](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Equipment) and the techniques needed to produce [designed solutions](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Designed+solutions) [(ACTDEP014)](http://v7-5.australiancurriculum.edu.au/curriculum/contentdescription/ACTDEP014) | | | | ✓ | ✓ | ✓ |
| Generate, develop, and communicate design ideas and decisions using appropriate technical terms and [graphical representation techniques](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Graphical+representation+techniques) [(ACTDEP015)](http://v7-5.australiancurriculum.edu.au/curriculum/contentdescription/ACTDEP015) | | | | ✓ | ✓ | ✓ |
| Select and use [materials](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Materials), [components](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Components), [tools](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Tools) and [equipment](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Equipment) using safe work practices to make [designed solutions](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Designed+solutions) [(ACTDEP016)](http://v7-5.australiancurriculum.edu.au/curriculum/contentdescription/ACTDEP016) | | | | ✓ | ✓ | ✓ |
| Evaluate design ideas, processes and solutions based on [criteria for success](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Criteria+for+success) developed with guidance and including care for the [environment](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Environment) [(ACTDEP017)](http://v7-5.australiancurriculum.edu.au/curriculum/contentdescription/ACTDEP017) | | | | ✓ | ✓ | ✓ |
| Plan a sequence of production steps when making [designed solutions](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Designed+solutions) individually and collaboratively [(ACTDEP018)](http://v7-5.australiancurriculum.edu.au/curriculum/contentdescription/ACTDEP018) | | | | ✓ | ✓ | ✓ |
| **General capabilities** | Literacy  Numeracy  ICT capability   Critical and creative thinking   Personal and social capability  Ethical understanding  Intercultural understanding | | | | | | |
|  | **Cross-curriculum capabilities** | Description: Description: cc_sust Sustainability Aboriginal and Torres Strait Islander histories and cultures | | | | | | |
| 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: [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*. | In Design and Technologies students are actively engaged in the processes of creating designed solutions for personal, domestic, commercial and global settings for sustainable and preferred futures. In both teaching and learning and assessment students undertake projects.  A project is a set of activities undertaken by students 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. Project work has a benefit, purpose and use; a user or audience who can provide feedback on the success of the solution; limitations to work within; and a real-world technologies context influenced by social, ethical and environmental issues. Students work independently and collaboratively on projects as they critique, explore and investigate needs and opportunities; generate, develop and evaluate ideas; and plan, produce and evaluate designed solutions. They use criteria for success that are predetermined, negotiated with the class or developed by students.  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: Design and 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.  It will gather evidence of students ability to: | | | | | | |
| Unit 1 — Materials and technologies specialisations: Repurpose it | Unit 2 — Food and fibre production includes Food specialisations: What’s for lunch? | | Unit 3 — Engineering principles and systems: Pinball wizard | | | |
| Repurpose an item of clothing to design and create another useful item by:   * identifying how people in design and technologies occupations use materials and technologies to meet the needs of communities and their environments * explaining the needs or opportunities related to their client, and generate design ideas and communicate them in models or drawings including annotations and symbols * selecting and safely using appropriate technologies and techniques * evaluating ideas and their product against identified criteria, including environmental sustainability considerations * planning and sequencing major steps in design and production. | Design and make a lunch item that includes modern and traditional technologies by:   * identifying how people in design and technologies occupations design food and fibre environments and food products to meet human needs * explaining needs or opportunities related to food and fibre * generating design ideas and communicating them with drawings including annotations * selecting and safely using appropriate technologies and techniques * evaluating ideas and their designed product against identified criteria, including environmental sustainability considerations * planning and sequencing major steps in design and production. | | Create a box pinball machine and design a game environment by:   * identifying how people in design and technologies occupations use mechanisms to meet needs of communities and their environments * explaining needs or opportunities related to their client group * generating design ideas and communicating them with models or drawings including annotations and symbols * selecting and safely using appropriate technologies and techniques * evaluating ideas and their machine against identified criteria * planning and sequencing major steps in design and production. | | | |
| 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)