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|  | Years 5 and 6 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 5 and 6 | | | | | | |
| 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.  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/index.html.> 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/)). 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 6 students will have had the opportunity to create designed solutions at least once in four technologies contexts: Engineering principles and systems, Food and fibre production, Food specialisations and Materials and technologies specialisations. Students should have opportunities to experience designing and producing products, services and environments.  In Years 5 and 6 students critically examine technologies — materials, systems, components, tools and equipment — that are used regularly in the home and in local, national, regional or global communities, with consideration of society, ethics and social and environmental sustainability factors. Students consider why and for whom technologies were developed.  Students engage with ideas beyond the familiar, exploring how design and technologies and the people working in a range of technologies contexts contribute to society. They seek to explore innovation and establish their own design capabilities. Students are given new opportunities for clarifying their thinking, creativity, analysis, problem-solving and decision-making. They explore trends and data to imagine what the future will be like and suggest design decisions that contribute positively to preferred futures.  Using a range of technologies including a variety of graphical representation techniques to communicate, students represent objects and ideas in a variety of forms such as thumbnail sketches, models, drawings, diagrams and storyboards to illustrate the development of designed solutions. They use a range of techniques such as labelling and annotating sequenced sketches and diagrams to illustrate how products function; and recognise and use a range of drawing symbols in context to give meaning and direction.  Students work individually and collaboratively to identify and sequence steps needed for a design task. They negotiate and develop plans to complete design tasks, and follow plans to complete design tasks safely, making adjustments to plans when necessary. Students identify, plan and maintain safety standards and practices when making designed solutions. | | | | | | | | | |
| **Achievement standard** | By the end of Year 6 students [describe](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Describe) some competing considerations in the [design](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Design) of products, services and environments taking into account sustainability. They [describe](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Describe) how [design](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Design) and technologies contribute to meeting present and future needs. Students [explain](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Explain) how the features of technologies impact on designed solutions for each of the prescribed technologies contexts.  Students create designed solutions for each of the prescribed technologies contexts suitable for identified needs or opportunities. They [suggest](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Suggest) criteria for success, including sustainability considerations and use these to [evaluate](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Evaluate) their ideas and designed solutions. They combine [design](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Design) ideas and communicate these to audiences using graphical representation techniques and technical terms. Students [record](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Record) project plans including production processes. They [select](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Select) and use appropriate technologies and techniques correctly and safely to produce 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 four potential units. | Unit 1 — Food specialisations: Quench | Unit 2 — Engineering principles and systems: Hands off | | | Unit 3 — Food and fibre production: Sow and grow | | Unit 4 — Materials and technologies specialisations: Design for nature | | | |
| Students investigate the role of food preparation in maintaining good health and the importance of food safety and hygiene. They design a safe and hygienic environment to make a healthy drink that meets a specific need and explore food technology occupations and how people in those roles address factors such as sustainability in the production and delivery of food to meet community needs.  Students apply the following processes and production skills:  investigating by:   * critiquing needs or opportunities for different types of drink * testing ingredients, equipment and processes   generating and documenting design ideas for a drink suited to a purpose and client group and a safe hygienic environment for preparing it  producing a drink by applying safe and hygienic procedures in a designed environment  evaluating design ideas, processes and solutions against negotiated criteria for success, including sustainability  collaborating as well as working individually throughout the process  managing by developing project plans that include resources. | Students investigate how forces or electrical energy can control movement, sound or light in a designed product or system. They produce a prototype electrical security device to protect a personal item or area and explore the role of people in engineering technology occupations in developing solutions for current and future use.  Students apply the following processes and production skills:  investigating by:   * analysing technologies applied in security systems * testing circuits and devices that control movement, sound or light   generating and documenting design ideas for security devices using technical terms and graphical representation techniques  producing a functional prototype by safely using materials, components, tools and techniques  evaluating design ideas, processes and solutions against negotiated criteria for success including sustainability  collaborating as well as working individually throughout the process  managing by developing project plans that include resources.  This unit could complement the concepts taught in the *Year 6 plan: Science exemplar* unit — *A sustainable planet* by investigating how energy from a variety of sources can be used to generate electricity. See: [www.qcaa.qld.edu.au/p-10/aciq/p-10-science/year-6-science](https://www.qcaa.qld.edu.au/p-10/aciq/p-10-science/year-6-science) > Planning > *Year 6 plan: Science exemplar*. | | | Students investigate how and why food and fibre are produced in managed environments. They design service for the distribution of plants in the local community and explore the role of design in food and fibre production occupations to develop solutions for current and future use.  Students apply the following processes and production skills:  investigating by:   * analysing managed environments in food and fibre production * testing packaging options and methods for delivering information   generating and documenting design ideas for production environments using technical terms and graphical representation techniques  maintaining the health of plants, creating care instructions and packaging for safe delivery using materials, components, tools and techniques  evaluating design ideas, processes and solutions against negotiated criteria for success including sustainability  collaborating as well as working individually throughout the process  managing by developing sequenced project plans that include resources.  This unit could complement the concepts taught in the *Year 6 plan: Science exemplar* unit — *Life on* *earth* by investigating the relationship between the growth and survival of living things and the physical conditions of their environment. See: [www.qcaa.qld.edu.au/p-10/aciq/p-10-science/year-6-science](https://www.qcaa.qld.edu.au/p-10/aciq/p-10-science/year-6-science) > Planning > *Year 6 plan: Science exemplar*. | | Students investigate characteristics and properties of a range of materials, systems, components, tools and equipment and evaluate their suitability for use. They design a product to meet an identified need or opportunity for wildlife in their local area and explore the role of people in a range of technologies occupations and the tools and techniques they use.  Students apply the following processes and production skills:  investigating by:   * analysing needs and opportunities for designing * analysing technologies and design features used in wildlife management * testing tools and techniques with a range of materials   generating and documenting design ideas for a wildlife management product  producing a wildlife management product for an identified need  evaluating design ideas, processes and solutions against negotiated criteria for success  collaborating as well as working individually throughout the process  managing by developing project plans that include resources.  This unit could complement the concepts taught in the *Year 5 plan: Science exemplar* unit — *Survival in the environment* by examining the behavioural and structural features and adaptations that allow living things to survive in their environment. See:  [www.qcaa.qld.edu.au/p-10/aciq/p-10-science/year-5-science](https://www.qcaa.qld.edu.au/p-10/aciq/p-10-science/year-5-science) > *Year 5 plan: Science exemplar*. | | | |
| **Content descriptions** | Knowledge and Understanding | | | | | | Unit 1 | Unit 2 | Unit 3 | Unit 4 |
| Investigate how people in design and [technologies](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Technologies) occupations address competing considerations, including sustainability in the design of products, services and environments for current and future use [(ACTDEK019)](http://v7-5.australiancurriculum.edu.au/curriculum/contentdescription/ACTDEK019) | | | | | | ✓ | ✓ | ✓ | ✓ |
| Investigate how forces or electrical energy can control movement, sound or light in a designed [product](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Product) or system [(ACTDEK020)](http://v7-5.australiancurriculum.edu.au/curriculum/contentdescription/ACTDEK020) | | | | | |  | ✓ |  |  |
| Investigate how and why food and [fibre](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Fibre) are produced in [managed environments](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Managed+environments) [(ACTDEK021)](http://v7-5.australiancurriculum.edu.au/curriculum/contentdescription/ACTDEK021) | | | | | |  |  | ✓ |  |
| Investigate the role of food preparation in maintaining good [health](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Health) and the importance of food safety and hygiene [(ACTDEK022)](http://v7-5.australiancurriculum.edu.au/curriculum/contentdescription/ACTDEK022) | | | | | | ✓ |  |  |  |
| Investigate [characteristics](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Characteristics) and [properties](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Properties) of a range 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) and evaluate the impact of their use [(ACTDEK023)](http://v7-5.australiancurriculum.edu.au/curriculum/contentdescription/ACTDEK023) | | | | | |  |  |  | ✓ |
|  |  | Processes and Production Skills | | | | | | Unit 1 | Unit 2 | Unit 3 | Unit 4 |
| Critique needs or opportunities for designing, and investigate [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), [equipment](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Equipment) and processes to achieve intended [designed solutions](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Designed+solutions) [(ACTDEP024)](http://v7-5.australiancurriculum.edu.au/curriculum/contentdescription/ACTDEP024) | | | | | | ✓ | ✓ | ✓ | ✓ |
| Generate, develop, communicate and document design ideas and processes for audiences using appropriate technical terms and [graphical representation techniques](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Graphical+representation+techniques) [(ACTDEP025)](http://v7-5.australiancurriculum.edu.au/curriculum/contentdescription/ACTDEP025) | | | | | | ✓ | ✓ | ✓ | ✓ |
| Apply safe procedures when using 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), [equipment](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Equipment) and techniques to make [designed solutions](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Designed+solutions) [(ACTDEP026)](http://v7-5.australiancurriculum.edu.au/curriculum/contentdescription/ACTDEP026) | | | | | | ✓ | ✓ | ✓ | ✓ |
| Negotiate [criteria for success](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Criteria+for+success) that include consideration of sustainability to evaluate design ideas, processes and solutions [(ACTDEP027)](http://v7-5.australiancurriculum.edu.au/curriculum/contentdescription/ACTDEP027) | | | | | | ✓ | ✓ | ✓ | ✓ |
| Develop [project](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Project) plans that include consideration of [resources](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Resources) when making [designed solutions](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Designed+solutions) individually and collaboratively [(ACTDEP028)](http://v7-5.australiancurriculum.edu.au/curriculum/contentdescription/ACTDEP028) | | | | | | ✓ | ✓ | ✓ | ✓ |
| **General capabilities** | Literacy  Numeracy  ICT capability   Critical and creative thinking     Personal and social capability  Ethical understanding | | | | | | | | | |
| **Cross-curriculum capabilities** | Description: Description: cc_sust Sustainability | | | | | | | | | |
| 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 5 and 6 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 — Food specialisations: Quench | | Unit 2 — Engineering principles and systems: Hands off | | Unit 3 — Food and fibre production: Sow and grow | Unit 4 — Materials and technologies specialisations: Design for nature | | | | |
| Design a safe and hygienic environment to make a healthy drink that meets specific needs by:  describing how people in design and technologies occupations use food technologies to meet client needs  explaining the role of food preparation in producing a healthy drink and explaining how a hygienic environment contributes to food safety  explaining needs or opportunities related to their client, generating design ideas and communicating them using appropriate representations and terms  selecting and safely using appropriate ingredients, techniques and equipment to produce a drink, and a safe and hygienic production environment  evaluating ideas, processes and work environment by negotiating success criteria, including sustainability  developing sequenced steps, production processes and following project plans. | | Design an electrical security device by:  describing how people in design and technologies occupations use electricity and forces to meet client needs  explaining needs or opportunities, generating design ideas and communicating them appropriately  selecting and safely using appropriate tools and techniques to create a functional prototype  evaluating ideas, processes and the security solution by negotiating criteria, including sustainability  planning and sequencing a project plan that includes production processes. | | Design a system to ensure a delivery of healthy plants with suitable packaging and care instructions by:  describing how people in design and technologies occupations use managed environments to produce food and fibre  explaining needs or opportunities, generating design ideas and communicating them appropriately  selecting and safely using appropriate tools and techniques when maintaining and preparing for plant distribution  evaluating ideas, processes and the security solution by negotiating criteria, including sustainability  planning and sequencing a project plan that includes production processes. | Design a wildlife shelter or management product for a local need by:  describing how people use a range of technologies to manage wildlife  explaining needs or opportunities, generating design ideas and communicating them appropriately  producing a practical product by safely using appropriate tools and techniques  evaluating ideas, processes and designed solutions by negotiating criteria  planning and sequencing a project plan that includes production processes. | | | | |
| 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)