Years 3–4 Design and Technologies Curriculum and assessment plan

Example

Level description	Context and cohort considerations (if applicable)
By the end of Year 4 students should have had the opportunity to create 3 types of designed solutions, and addressed each of these 2 technologies contexts: • Engineering principles and systems; Materials and technologies specialisations • Food and fibre production; Food specialisations. Students should have opportunities to experience designing and producing products, services and environments. There are rich connections to Digital Technologies and other learning areas, including Science and Health and Physical Education. Students investigate technologies – tools, equipment, processes, materials, systems and components – developing a sense of self and ownership of their ideas and thinking about their peers and communities and as consumers. They consider the purpose of technologies and how they meet needs. 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 processes, develop their decision-making skills and improve their solutions. Students examine social and environmental sustainability implications of existing products and processes. They become aware of the role of those working in design and technologies occupations and how these people think about the way a product might change in the future. Students clarify and present ideas, using a range of technologies and graphical representation techniques, for example drawing annotated diagrams and modelling objects as 3-dimensional images from different views. Students use symbols, flow diagrams and charts for documenting design and production ideas. Students become aware of appropriate ways to manage their time and co-develop and use design criteria. They list 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 safety rules when producing designed solutions.	Design and Technologies is timetabled for one lesson each week, for one semester in Year 3 and one semester in Year 4. It is facilitated by a classroom teacher in a regular classroom space. Students engage in a range of authentic learning opportunities and have access to digital devices, a school kitchen and resources to create 2D designs and 3D models. Teachers may consider connections to Years 3 and 4 Science in these units. In Unit 1, teachers consider the dietary requirements of their cohort. **Note:** Digital Technologies is also studied for one semester each year.

Unit 1 — From farm to freezer	Unit 2 — Keeping cool	Unit 3 — Sustainable solution: insect hotel	Unit 4 — Sustainable solution: hydroponic greenhouse
Timing: Year 3, Term 3 **Duration:** 10 weeks	**Timing:** Year 3, Term 4 **Duration:** 10 weeks	**Timing:** Year 4, Term 3 **Duration:** 10 weeks	**Timing:** Year 4, Term 4 **Duration:** 10 weeks
Students explore how people design products to meet community needs by investigating how frozen yoghurt is made. They trace the journey of milk being made into frozen yoghurt, from farm to fridge. Students explore and describe the features and uses of technologies involved in producing frozen yoghurt. They investigate how the ingredients of yoghurt align with the Australian Guide to Healthy Eating. Students develop their own frozen yoghurt flavour using seasonal and/or local ingredients, e.g. mango and passionfruit or lemon myrtle. They communicate their design ideas to their peers and/or teacher. Students plan and sequence the steps to make their flavoured yoghurt, including the selection of tools and techniques. **Note**: As a culminating activity, students make and share their frozen yoghurt through a tasting celebration with their class.	Students investigate how products are designed and tested to address the challenge of cooling. They investigate the features and uses of insulating materials to identify their relative effectiveness, by deconstructing an existing product (e.g. an esky) to identify how materials affect cooling performance. Working with a partner, students design a system to keep frozen yoghurt cold during transportation. Using annotated drawings to communicate their design ideas, they plan and sequence the steps needed to construct their system. They explain how their chosen materials function as insulators e.g. metal panels reflect heat and light, and foam prevents heat transfer. After creating and testing their designs, students evaluate their designed solution against co-developed design criteria and describe how the properties of materials affect their function in an insulating product.	Students explore how products are designed to support ecosystems and address environmental challenges. They investigate the role of pollinators, and the benefits of designing habitats (e.g. to provide protection from wind, rain and predators) and the importance of using sustainable natural materials. They investigate the properties and characteristics of natural and recycled materials to identify their suitability, (e.g. wood — durable, bamboo — lightweight and weather resistant). They describe tools, equipment and procedures to improve insect habitats. Working in pairs, students plan, communicate and construct an insect hotel. They use annotated drawings to communicate their design ideas. Students plan and sequence the steps needed to construct their hotel in order to make their design.	Students explore how engineered solutions (e.g. automated irrigation systems or vertical farming) are designed and tested to address food production challenges. They investigate the principles of hydroponics and how greenhouse systems can support efficient plant growth. Students apply this understanding to create a conceptual design for a small-scale hydroponic greenhouse. They draw and annotate a design for a hydroponic greenhouse or terrarium. Students communicate their ideas using digital tools to demonstrate how the greenhouse will function. **Note**: As a culminating activity, students may co-construct a hydroponic greenhouse or terrarium system to implement their ideas.

	Unit 1		Unit 2		Unit 3		Unit 4	
	Assessment — Dream, design, scoop project	Timing	**Assessment — Keep it cool project**	Timing	**Assessment — Home sweet home project**	Timing	**Assessment — Greenhouse greatness investigation**	Timing
Assessment	**Description:** Students design their own frozen yoghurt flavour. They investigate ingredients and describe how frozen yoghurt is produced. Students create a frozen yoghurt flavour using seasonal and/or local ingredients (e.g. mango and passionfruit or lemon myrtle), and describe technologies and techniques required produce to their frozen yoghurt. They deliver a multimodal presentation to communicate the features of their frozen yoghurt flavour and the technologies used to produce it. **Technique:** Investigation **Mode:** Multimodal (written and visual) **Conditions:** • 1–2 A4 pages or equivalent digital media that may include graphical representations with annotations	Term 3 Week 9	**Description:** Working with a partner, students design and create a system to keep frozen yoghurt cold during transportation. They describe the features and uses of their design solution and how the designed solution meets people's needs. While creating the system, students test its effectiveness against co-developed design criteria. **Technique:** Project **Mode:** Multimodal (written, visual and practical) **Conditions:** • 1–2 A4 pages that may include graphical representations with annotations • 1 designed solution (service — insulating system)	Term 4 Week 8	**Description:** Working with a partner, students design and create an insect hotel. They describe how the hotel meets the needs of the insect and promotes sustainability. Students plan and sequence the steps to construct their design. They describe their selected materials and the features and uses of the technologies they use to safely produce their solution. **Technique:** Project **Mode:** Multimodal (written, visual and practical) **Conditions:** • 1–2 A4 pages that may include graphical representations with annotations • 1 designed solution (environment — insect hotel)	Term 3 Week 9	**Description:** Students design a hydroponic greenhouse or terrarium that demonstrates how plants can grow without soil. They draw and annotate their design to describe how the greenhouse or terrarium will function. **Technique:** Investigation **Mode:** Multimodal (written and visual) **Conditions:** • 1–2 A4 pages or equivalent digital media that include graphical representations with annotations	Term 4 Week 8
Achievement standard	By the end of Year 4 students describe how people design products, services and environments to meet the needs of people, including sustainability. For each of the 2 prescribed technologies contexts they describe the features and uses of technologies and create designed solutions. Students select design ideas against design criteria. They communicate design ideas using models and drawings including annotations and symbols. Students plan and sequence steps and use technologies and techniques to safely produce designed solutions.		By the end of Year 4 students describe how people design products, services and environments to meet the needs of people, including sustainability. For each of the 2 prescribed technologies contexts they describe the features and uses of technologies and create designed solutions. Students select design ideas against design criteria. They communicate design ideas using models and drawings including annotations and symbols. Students plan and sequence steps and use technologies and techniques to safely produce designed solutions.		By the end of Year 4 students describe how people design products, services and environments to meet the needs of people, including sustainability. For each of the 2 prescribed technologies contexts they describe the features and uses of technologies and create designed solutions. Students select design ideas against design criteria. They communicate design ideas using models and drawings including annotations and symbols. Students plan and sequence steps and use technologies and techniques to safely produce designed solutions.		By the end of Year 4 students describe how people design products, services and environments to meet the needs of people, including sustainability. For each of the 2 prescribed technologies contexts they describe the features and uses of technologies and create designed solutions. Students select design ideas against design criteria. They communicate design ideas using models and drawings including annotations and symbols. Students plan and sequence steps and use technologies and techniques to safely produce designed solutions.	
Moderation	**Consensus:** 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.		**Consensus:** 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**
Technologies and society examine design and technologies occupations and factors including sustainability that impact on the design of products, services and environments to meet community needs AC9TDE4K01	☐	☑	☑	☑	**Investigating and defining** explore needs or opportunities for designing, and test materials, components, tools, equipment and processes needed to create designed solutions AC9TDE4P01	☑	☐	☑	☐
Technologies context: Engineering principles and systems; Materials and technologies specialisations describe how forces and the properties of materials affect function in a product or system AC9TDE4K02	☐	☑	☑	☐	**Generating and designing** generate and communicate design ideas and decisions using appropriate attributions, technical terms and graphical representation techniques, including using digital tools AC9TDE4P02	☐	☐	☐	☑
Technologies context: Food and fibre production; Food specialisations describe the ways of producing food and fibre AC9TDE4K03	☑	☐	☐	☐	**Producing and implementing** select and use materials, components, tools, equipment and techniques to safely make designed solutions AC9TDE4P03	☐	☐	☑	☐
describe the ways food can be selected and prepared for healthy eating AC9TDE4K04	☑	☐	☐	☐	**Evaluating** use given or co-developed design criteria including sustainability to evaluate design ideas and solutions AC9TDE4P04	☐	☑	☐	☐
					Collaborating and managing sequence steps to individually and collaboratively make designed solutions AC9TDE4P05	☐	☐	☑	☐

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

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