The Australian Curriculum
Technologies

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Design and Technologies Foundation to Year 10 scope and sequence

Strand		Foundation to Year 2	Years 3 and 4	Years 5 and 6	Years 7 and 8	Years 9 and 10 (Elective subject)
Design and Technologies knowledge and understanding	*Technologies and society*	2.1 Identify how people design and produce familiar products, services and environments and consider sustainability to meet personal and local community needs	4.1 Recognise the role of people in design and technologies occupations and explore factors, including sustainability that impact on the design of products, services and environments to meet community needs	6.1 Investigate how people in design and technologies occupations address competing considerations including sustainability in the design of products, services, and environments and for current and future use	8.1 Examine and prioritise competing factors, including social, ethical and sustainability considerations, in the development of technologies and designed solutions to meet community needs for preferred futures	10.1 Critically analyse factors, including social, ethical and sustainability considerations that impact on designed solutions for global preferred futures and the complex design and production processes involved
					8.2 Investigate the ways in which products, services and environments evolve locally, regionally and globally through the creativity, innovation and enterprise of individuals and groups	10.2 Explain how products, services and environments evolve with consideration of preferred futures and the impact of emerging technologies on design decisions
	Technologies contexts	*By the end of Year 2 students will have had the opportunity to create designed solutions addressing the three technologies contexts below.*	*By the end of Year 4 students will have had the opportunity to create designed solutions addressing the three technologies contexts below.*	*By the end of Year 6 students will have had the opportunity to create designed solutions addressing the four technologies contexts below.*	*By the end of Year 8 students will have had the opportunity to create designed solutions addressing the four technologies contexts below.*	*By the end of Year 10 students will have had the opportunity to design and create for **one or more** of the technologies contexts below.*
	Engineering principles and systems	2.2 Explore how technologies use forces to create movement in products	4.2 Investigate how forces and the properties of materials affect the behaviour of a product or system	6.2 Investigate how forces or electrical energy can control movement, sound or light in a designed product or system	8.3 Analyse how motion, force and energy, are used to manipulate and control electromechanical systems when designing simple, engineered solutions	10.3 Investigate and make judgments on how the characteristics and properties of materials are combined with force, motion and energy to create engineered solutions
	Food and fibre production	2.3 Explore how plants and animals are grown for food, clothing and shelter and how food is selected and prepared for healthy eating	4.3 Investigate food and fibre production and food technologies used in modern and traditional societies	6.3 Investigate how and why food and fibre are produced in managed environments	8.4 Analyse how food and fibre are produced when designing managed environments and how these can become more sustainable	10.4 Investigate and make judgments on the ethical and sustainable production and marketing of food and fibre
	Food specialisations			6.4 Investigate the role of food preparation in maintaining good health and the importance of food safety and hygiene	8.5 Analyse how characteristics and properties of food determine preparation techniques and presentation when designing solutions for healthy eating	10.5 Investigate and make judgments on how the principles of food safety, preservation, preparation, presentation and sensory perceptions influence the creation of food solutions for healthy eating

	Materials and technologies specialisations	2.4 Explore the characteristics and properties of materials and components that are used to produce designed solutions	4.4 Investigate the suitability of materials, components, systems, tools and equipment for a range of purposes	6.5 Investigate characteristics and properties of a range of materials, systems, components, tools and equipment and evaluate the impact of their use	8.6 Analyse ways to produce designed solutions through selecting and combining materials, systems, components, tools and equipment	10.6 Investigate and make judgments on how the characteristics and properties of materials, systems, components, tools and equipment can be combined to create designed solutions 10.7 Investigate and make judgments, within a range of technologies specialisations, on how technologies can be combined to create designed solutions
Design and Technologies processes and production skills	*Creating designed solutions by:*					
	Investigating	2.5 Explore needs or opportunities for designing and the technologies needed to realise designed solutions	4.5 Critique needs or opportunities for designing and explore and test a variety of materials, components, tools and equipment and the techniques needed to produce designed solutions	6.6 Critique needs or opportunities for designing and investigate materials, components, tools, equipment and processes to achieve intended designed solutions	8.7 Critique needs or opportunities for designing and investigate, analyse and select from a range of materials, components, tools, equipment and processes to develop design ideas	10.8 Critique needs or opportunities to develop design briefs and investigate and select an increasingly sophisticated range of materials, systems, components, tools and equipment to develop design ideas
	Generating	2.6 Visualise, generate, develop and communicate design ideas through describing, drawing and modelling	4.6 Generate, develop, and communicate design ideas and decisions using technical terms and graphical representation techniques	6.7 Generate, develop and communicate design ideas and processes for audiences using appropriate technical terms and graphical representation techniques	8.8 Generate, develop, test, and communicate design ideas, plans and processes for various audiences using appropriate technical terms and technologies including graphical representation techniques	10.9 Apply design thinking, creativity, innovation and enterprise skills to develop, modify and communicate design ideas of increasing sophistication
	Producing	2.7 Use materials, components, tools, equipment and techniques to safely make designed solutions	4.7 Select and use materials, components, tools and equipment using safe work practices to make designed solutions	6.8 Apply safe procedures when using a variety of materials, components, tools, equipment and techniques to make designed solutions	8.9 Effectively and safely use a broad range of materials, components, tools, equipment and techniques to make designed solutions	10.10 Work flexibly to safely test, select, justify and use appropriate technologies and processes to make designed solutions
	Evaluating	2.8 Use personal preferences to evaluate the success of design ideas, processes and solutions including their care for environment	4.8 Evaluate design ideas, processes and solutions based on criteria for success developed with guidance and including care for the environment	6.9 Negotiate criteria for success that include consideration of sustainability to evaluate design ideas, processes and solutions	8.10 Independently develop criteria for success to assess design ideas, processes and solutions and their sustainability	10.11 Evaluate design ideas, processes and solutions against comprehensive criteria for success recognising the need for sustainability
	Collaborating and managing	2.9 Sequence steps for making designed solutions and working collaboratively	4.9 Plan a sequence of production steps when making designed solutions individually and collaboratively	6.10 Develop project plans that include consideration of resources when making designed solutions individually and collaboratively	8.11 Use project management processes individually and collaboratively to coordinate production of designed solutions	10.12 Develop project plans using digital technologies to plan and manage projects individually and collaboratively, taking into consideration time, cost, risk and production processes

Digital Technologies Foundation to Year 10 scope and sequence

Strand		Foundation to Year 2	Years 3 and 4	Years 5 and 6	Years 7 and 8	Years 9 and 10 (Elective subject)
Digital Technologies knowledge and understanding	*Digital systems*	2.1 Identify and use digital systems (hardware and software components) for a purpose	4.1 Explore and use a range of digital systems with peripheral devices for different purposes, and transmit different types of data	6.1 Investigate the main components of common digital systems, their basic functions and interactions and how such digital systems may connect together to form networks to transmit data	8.1 Investigate how data are transmitted and secured in wired, wireless and mobile networks, and how the specifications of hardware components impact on network activities	10.1 Investigate the role of hardware and software in managing, controlling and securing the movement of and access to data in networked digital systems
	Representation of data	2.2 Recognise and explore patterns in data and represent data as pictures, symbols and diagrams	4.2 Recognise different types of data and explore how the same data can be represented in different ways	6.2 Investigate how digital systems use whole numbers as a basis for representing all types of data	8.2 Investigate how digital systems represent text, image and audio data in binary	10.2 Analyse simple compression of data and how content data are separated from presentation
Digital Technologies processes and production skills	*Collecting, managing and analysing data*	2.3 Collect, explore and sort data, and use digital systems to present the data creatively	4.3 Collect, access and present different types of data using simple software to create information and solve problems	6.3 Acquire, store and validate different types of data, and use a range of commonly available software to interpret and visualise data in context to create information	8.3 Acquire data from a range of digital sources and evaluate its authenticity, accuracy and timeliness	10.3 Develop techniques for acquiring, storing and validating quantitative and qualitative data from a range of sources, considering privacy and security requirements
					8.4 Analyse and visualise data using a range of software to create information; and use structured data to model objects or events	10.4 Analyse and visualise data to create information and address complex problems; and model processes, entities and their relationships using structured data
	Creating digital solutions by:					
	Defining	2.4 Follow, describe and represent a sequence of steps and decisions (algorithms) needed to solve simple problems	4.4 Define simple problems, and describe and follow a sequence of steps and decisions (algorithms) needed to solve them	6.4 Define problems in terms of data and functional requirements, and identify features similar to previously solved problems	8.5 Define and decompose real-world problems taking into account functional requirements and economic, environmental, social, technical and usability constraints	10.5 Precisely define and decompose real-world problems, taking into account functional and non-functional requirements and including interviewing stakeholders to identify needs

Designing			6.5 Design a user interface for a digital system, generating and considering alternative designs	8.6 Design the user experience of a digital system, generating, evaluating and communicating alternative designs	10.6 Design the user experience of a digital system, evaluating alternative designs against criteria including functionality, accessibility, usability, and aesthetics
			6.6 Design, modify and follow simple algorithms represented diagrammatically and in English involving sequences of steps, branching, and iteration (repetition)	8.7 Design algorithms represented diagrammatically and in English; and trace algorithms to predict output for a given input and to identify errors	10.7 Design algorithms represented diagrammatically and in structured English and validate algorithms and programs through tracing and test cases
Implementing		4.5 Implement digital solutions as simple visual programs with algorithms involving branching (decisions), and user input	6.7 Implement digital solutions as simple visual programs involving branching, iteration (repetition), and user input	8.8 Implement and modify programs with user interfaces involving branching, iteration and functions in a general-purpose programming language	10.8 Implement modular programs, applying selected algorithms and data structures including using an object-oriented programming language
Evaluating	2.5 Explore how people safely use common information systems to meet information, communication and recreation needs	4.6 Explain how developed solutions and existing information systems meet common personal, school or community needs; and envisage new ways of using them	6.8 Explain how developed solutions and existing information systems are sustainable and meet local community needs, considering opportunities and consequences for future applications	8.9 Evaluate how well developed solutions and existing information systems meet needs, are innovative, and take account of future risks and sustainability	10.9 Critically evaluate how well developed solutions and existing information systems and policies, take account of future risks and sustainability and provide opportunities for innovation and enterprise
Collaborating and managing	2.6 Work with others to create and organise ideas and information using information systems, and share these in safe online environments	4.7 Work with others to plan the creation and communication of ideas and information safely, applying agreed ethical and social protocols	6.9 Manage the creation and communication of ideas and information including online collaborative projects, applying agreed ethical, social and technical protocols	8.10 Create and communicate interactive ideas and information collaboratively online, taking into account social contexts	10.10 Create interactive solutions for sharing ideas and information online, taking into account social contexts and legal responsibilities
				8.11 Plan and manage projects, including tasks, time and other resources required, considering safety and sustainability	10.11 Plan and manage projects using an iterative and collaborative approach, identifying risks and considering safety and sustainability