Australian CURRICULUM Review

TECHNOLOGIES

CONSULTATION CURRICULUM

Design and Technologies – Scope and sequence – F–10

Design and Technologies		Foundation	Years 1 and 2
		Design and Technologies achievement standard	
		By the end of Foundation students explore familiar products, services and environments. They use materials and equipment to safely make a solution for a school-selected context.	By the end of Year 2 students identify the purpose of familiar products, services and environments. For each of the two prescribed technologies contexts they explore the features and uses of technologies and create designed solutions. Students evaluate their ideas based on their personal preferences. They communicate design ideas using models and simple drawings and follow sequenced steps to safely produce designed solutions.
		Technologies achievement standard	
		By the end of Foundation students identify familiar products, services and environments and develop familiarity with and show confidence in using digital systems. They use materials and equipment to safely make a solution for a school-selected context and show how digital systems can be used to solve problems. Students use objects, pictures and symbols to represent data. They identify if data is personal and owned by them.	By the end of Year 2 students describe the purpose of familiar products, services and environments and use basic computational thinking to create simple digital solutions to known problems or opportunities. For each of the two prescribed technologies contexts they identify the features and uses of technologies and create designed solutions. They evaluate their ideas, based on their personal preferences. Students communicate design ideas using models and simple drawings, describe and represent algorithms that involve repetition and decisions, and follow sequenced steps to safely produce designed solutions. They identify examples of personal data that may be stored online.
Strand	**Sub-strand**	**Content description**	
		Students learn to:	
Knowledge and understanding	Technologies and society	explore how local products, services and environments are designed by people (AC9TDEFK01)	identify how people design and produce familiar products, services and environments and consider sustainability to meet personal and local community needs (AC9TDE2K01)
	Technologies contexts	By the end of Foundation students will have had the opportunity to design and make a solution for a school-selected context.	By the end of Year 2 students will have had the opportunity to create designed solutions at least once in each of the two combined technologies contexts.
	Technologies context: Engineering principles and systems; Materials and technologies specialisations		explore how technologies including materials affect movement in products (AC9TDE2K02)
	Technologies context: Food and fibre production; Food specialisations		explore how plants and animals are grown for food, clothing and shelter (AC9TDE2K03)
			explore how food can be selected and prepared for healthy eating (AC9TDE2K04)

Australian Curriculum: Technologies: Design and Technologies – Scope and sequence F–10
Consultation curriculum

Processes and production skills	Investigating and defining			
	Generating and designing	generate ideas and manipulate materials and equipment to safely make a solution for a purpose (AC9TDEFP01)	generate, develop and record design ideas through describing, drawing or modelling (AC9TDE2P01)	
	Producing and implementing		use materials, components, tools, equipment and techniques to safely make designed solutions (AC9TDE2P02)	
	Evaluating		evaluate the success of design ideas and solutions based on personal preferences and including care for the natural environment (AC9TDE2P03)	
	Collaborating and managing		sequence steps for making designed solutions (AC9TDE2P04)	

Design and Technologies	Years 3 and 4	Years 5 and 6
	Design and Technologies achievement standard	
	By the end of Year 4 students describe how people design products, services and environments to meet the needs of people and consider sustainability. For each of the two prescribed technologies contexts they describe the features and uses of technologies and create designed solutions. Students evaluate ideas against criteria for success. They use models and drawings including annotations and symbols to plan, sequence and communicate steps in design and production. Students use technologies and techniques to safely produce designed solutions.	By the end of Year 6 students explain how people design products, services and environments to meet the needs of communities, including sustainability. For each of the three prescribed technologies contexts they explain how the features of technologies impact on design decisions and they create designed solutions. Students evaluate ideas and solutions against criteria for success. They use technical terms and graphical representation techniques to communicate ideas to an audience. Students develop project plans including production processes and select appropriate technologies and techniques to safely produce designed solutions.
	Technologies 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, and use computational thinking to create scaffolded digital solutions. They recognise different types of data and identify how they are transmitted by digital systems. For each of the two prescribed technologies contexts they describe the features of technologies and create designed solutions. Students evaluate ideas against identified criteria for success. They define problems and identify opportunities, then design and implement solutions using algorithms and visual programming that involve decision-making, repetition and user input. Students use models and drawings including annotations and symbols to plan, sequence and communicate major steps in design and production. They use technologies and techniques to safely produce solutions. Students use passphrases and agreed behaviours to safely access and explore digital systems, tools and online or networked environments independently and with others.	By the end of Year 6 students describe how people design products, services and environments to meet the needs and opportunities of communities, including sustainability. For each of the three prescribed technologies contexts students explain how the features of technologies impact on design decisions and they create designed solutions. They use computational thinking to design and create digital solutions by developing algorithms to address problems or opportunities and implement them as visual programs. They evaluate ideas and solutions against criteria for success. Students use technical terms and graphical representation techniques to communicate ideas to an audience. They record project plans, including production processes, and select appropriate technologies and techniques to safely produce designed solutions. Students understand and describe how data is transmitted, how behaviours and ethics help protect data and describe what effect supplied data can have on their digital footprint.

Strand	Sub-strand	Content description	
		Students learn to:	
Knowledge and understanding	Technologies and society	describe design and technologies occupations and explore factors including sustainability that impact on the design of products, services and environments to meet community needs (AC9TDE4K01)	explain how people in design and technologies occupations consider competing factors including sustainability in the design of products, services and environments for current and future use (AC9TDE6K01)
	Technologies contexts	By the end of Year 4 students will have had the opportunity to create designed solutions at least once in each of the two combined technologies contexts.	By the end of Year 6 students will have had the opportunity to create designed solutions at least once in each of these three technologies contexts.
	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)	explain how electrical energy can be transformed into movement, sound or light in a product or system (AC9TDE6K02)
			explain how characteristics and properties of materials, systems, components, tools and equipment affect their use when producing designed solutions (AC9TDE6K03)

	Technologies context: Food and fibre production; Food specialisations		describe the ways of producing food and fibre (AC9TDE4K03)	explain how and why food and fibre are produced in managed environments (AC9TDE6K04)
			describe the ways food can be selected and prepared for healthy eating (AC9TDE4K04)	explain how the characteristics of foods influence selection and preparation for healthy eating (AC9TDE6K05)
Processes and production skills	Investigating and defining		explore needs or opportunities for designing, and test materials, components, tools, equipment and processes needed to create designed solutions (AC9TDE4P01)	analyse needs or opportunities for designing, and investigate the materials, components, tools, equipment and processes needed to create designed solutions (AC9TDE6P01)
	Generating and designing		generate, develop and communicate design ideas and decisions using technical terms and graphical representation techniques (AC9TDE4P02)	generate, develop and communicate design ideas, decisions and processes using technical terms and graphical representation techniques (AC9TDE6P02)
	Producing and implementing		select and use materials, components, tools, equipment and techniques to safely make designed solutions (AC9TDE4P03)	select suitable materials, components, tools, equipment and techniques and use safe procedures to make designed solutions (AC9TDE6P03)
	Evaluating		develop criteria for success including care for the environment to evaluate design ideas and solutions (AC9TDE4P04)	develop criteria for success collaboratively that include sustainability to evaluate design ideas, processes and solutions (AC9TDE6P04)
	Collaborating and managing		sequence steps to individually and collaboratively make designed solutions (AC9TDE4P05)	develop project plans that include consideration of resources to individually and collaboratively make designed solutions (AC9TDE6P05)

Design and Technologies	Years 7 and 8	Years 9 and 10
	Design and Technologies achievement standard	
	By the end of Year 8 students analyse how people design products, services and environments to meet present and future needs. For each of the four prescribed technologies contexts they analyse how the features of technologies influence and impact design decisions, and create designed solutions based on evaluation of needs or opportunities. Students develop criteria for success including sustainability and use these to evaluate the suitability of ideas, processes and designed solutions. They create, adapt, justify and iterate design ideas and communicate to audiences using suitable technologies, technical terms and graphical representation techniques. Students independently and collaboratively document and manage production processes to safely produce effective designed solutions for the intended purpose.	By the end of Year 10 students analyse how people working in design and technologies occupations consider factors that impact on design decisions and the technologies used to produce products, services and environments. They analyse the contribution of emerging technologies, innovation and enterprise skills to society. For one or more of the technologies contexts, students create designed solutions based on an evaluation of needs or opportunities and evaluate the features of technologies and their appropriateness for purpose. They identify the requirements for designed solutions to realise the preferred futures they have described. Students develop criteria for success, including sustainability, and use these to evaluate and refine their ideas, processes and designed solutions. They create, adapt and iterate design ideas and processes of increasing complexity and justify their decisions. They communicate and document projects for a range of audiences. Students independently and collaboratively develop and apply production and project management plans when producing designed solutions, adjusting processes when necessary. They select and use appropriate technologies skilfully and safely to produce quality designed solutions suitable for the intended purpose.
	Technologies achievement standard	
	By the end of Year 8 students explain how people design products, services and environments to meet present and future needs. For each of the four prescribed technologies contexts students explain how the features of technologies influence and impact on design decisions, and they create designed solutions based on evaluation of needs or opportunities. They use computational thinking to independently and collaboratively design and create effective digital solutions to real-world problems and opportunities by creating a variety of algorithmic designs and implementing them using a general-purpose programming language. They use a range of tools to make predictions and draw conclusions based on acquired, stored and validated data. Students develop criteria for success including sustainability and use these to judge the suitability of ideas, processes and solutions. They create, adapt and iterate design ideas and communicate to audiences using suitable technologies, technical terms and graphical representation techniques. Students explain how digital systems represent, transmit and secure data. They independently and collaboratively plan to document and manage production processes and to safely produce effective designed solutions for the intended purpose. Students identify cyber security threats and risks and explain how to protect against threats and manage the risks of sharing and curating their digital footprint.	

Strand	Sub-strand	Content description	
		Students learn to:	
Knowledge and understanding	Technologies and society	analyse ways in which products, services and environments evolve locally, regionally and globally (AC9TDE8K01)	analyse and make judgements about factors, including social, ethical, security and sustainability, that impact on designed solutions for global preferred futures and the complex design and production processes involved (AC9TDE10K01)
		analyse how social, ethical and sustainability factors impact on the development of technologies and designed solutions for preferred futures (AC9TDE8K02)	analyse and make judgements about how products, services and environments evolve with consideration of preferred futures and the impact of emerging technologies on design decisions (AC9TDE10K02)
	Technologies contexts	By the end of Year 8 students will have had the opportunity to create designed solutions at least once in each of the four technologies contexts.	By the end of Year 10 students will have had the opportunity to create designed solutions for one or more of the four technologies contexts.

	Technologies context: Engineering principles and systems	analyse how force, motion and energy are used to manipulate and control simple, engineered systems (AC9TDE8K03)	analyse and make judgements on how the characteristics and properties of materials are combined with force, motion and energy to control engineered systems (AC9TDE10K03)
	Technologies context: Materials and technologies specialisations	analyse how characteristics and properties of materials, systems, components, tools and equipment can be combined to create designed solutions (AC9TDE8K04)	analyse and make judgements on how characteristics and properties of materials, systems, components, tools and equipment can be combined to create designed solutions (AC9TDE10K04)
	Technologies context: Food and fibre production	analyse how food and fibre are produced in managed environments and how these can become sustainable (AC9TDE8K05)	analyse and make judgements on the ethical, secure and sustainable production and marketing of food and fibre enterprises (AC9TDE10K05)
	Technologies context: Food specialisations	analyse how properties of foods determine preparation and presentation techniques when designing solutions for healthy eating (AC9TDE8K06)	analyse and make judgements on how the principles of food preparation, preservation, safety, presentation and sensory and functional properties influence the creation of food solutions for healthy eating (AC9TDE10K06)
Processes and production skills	Investigating and defining	analyse needs or opportunities for designing, and investigate and select materials, components, tools, equipment and processes to create designed solutions (AC9TDE8P01)	analyse needs or opportunities for designing and develop design briefs, and investigate, analyse and select materials, systems, components, tools and equipment to create designed solutions (AC9TDE10P01)
	Generating and designing	generate, develop, test and communicate design ideas, plans and processes using technical terms and technologies including graphical representation techniques (AC9TDE8P02)	generate, develop, test and communicate design ideas, plans and processes by applying design thinking, creativity, innovation and enterprise skills (AC9TDE10P02)
	Producing and implementing	select and justify choices of materials, components, tools, equipment and techniques and apply safe procedures to effectively make designed solutions (AC9TDE8P03)	work flexibly to effectively and safely test, select, justify and use appropriate technologies and processes to make designed solutions (AC9TDE10P03)
	Evaluating	develop criteria for success independently that include sustainability to evaluate design ideas, processes and solutions (AC9TDE8P04)	develop criteria for success that include sustainability to iteratively evaluate design ideas, processes and solutions (AC9TDE10P04)

Collaborating and managing	develop project plans to individually and collaboratively manage time, cost and production of designed solutions (AC9TDE8P05)	develop project plans for intended purposes and audiences to individually and collaboratively manage projects, taking into consideration time, cost, risk, processes and production of designed solutions (AC9TDE10P05)