

DESIGN AND TECHNOLOGIES – Scope and sequence P–6

| | Pre-primary | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|--|--|--|--|--|---|---|
| Knowledge and understanding | | | | | | | |
| Technologies and society | People produce familiar products to meet personal and community needs | People produce familiar products and services to meet personal and community needs | People design and produce familiar products, services and environments to meet local and community needs | Role of people in design and technologies occupations Ways products, services and environments are designed to meet community needs | Role of people in design and technologies occupations Ways products, services and environments are designed to meet community needs, including consideration of sustainability | How people address competing considerations when designing products, services and environments | How people address competing considerations, including sustainability when designing products, services and environments for current and future use |
| Technologies contexts | <i>In Pre-primary, students will have opportunities to create designed solutions in at least one of the technologies contexts below (Food and fibre production includes Food specialisations in Pre-primary)</i> | <i>In Year 1, students will have opportunities to create designed solutions in at least one of the technologies contexts below (Food and fibre production includes Food specialisations in Year 1)</i> | <i>In Year 2, students will have opportunities to create designed solutions in at least one of the technologies contexts below (Food and fibre production includes Food specialisations in Year 2)</i> | <i>In Year 3, students will have opportunities to create designed solutions in at least one of the technologies contexts below (Food and fibre production includes Food specialisations in Year 3)</i> | <i>In Year 4, students will have opportunities to create designed solutions in at least one of the technologies contexts below (Food and fibre production includes Food specialisations in Year 4)</i> | <i>In Year 5, students will have opportunities to create designed solutions in at least one of the technologies contexts below</i> | <i>In Year 6, students will have opportunities to create designed solutions in at least one of the technologies contexts below</i> |
| Engineering principles and systems | Ways in which objects move: push, pull, bounce, slide, fall, spin, float | Ways objects can be moved using technology | Forces create movement in objects | Forces, and the properties of materials, affect the behaviour of objects | Forces, and the properties of materials, affect the behaviour of a product or system | Forces can control movement, sound or light in a product or system | Electrical energy and forces can control movement, sound or light in a product or system |
| Food and fibre production | Plant and animal products are used in everyday life for food, clothing and shelter | Plants and animals used for production have basic needs, such as food/nutrients, water, space, protection | Food and fibre choices for healthy living | Types of food and fibre produced in different environments, cultures or time periods, including the equipment used to produce or prepare them | Types of technologies used in food and fibre production or processing, including how they are used to help meet consumer needs | People in design and technologies occupations aim to increase efficiency of production systems, or consumer satisfaction of food and natural fibre products | Past performance, and current and future needs are considered when designing sustainable food and fibre systems for products |

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| | Pre-primary | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|--|--|---|---|--|--|--|
| Food specialisations | | | | | | Food safety and hygiene practices | Principles of food preparation for healthy eating |
| Materials and technologies specialisations | Characteristics of materials can be explored using senses | Characteristics and behaviours of individual materials used in products | Characteristics and properties of materials and individual components that are used to produce design solutions | Suitability and safe practice when using materials, tools and equipment for a range of purposes | Suitability and safe practice when using materials, systems and components for a range of purposes | Characteristics and properties of a range of materials and components, and the suitability and safe practice of their use | Characteristics, properties and safe practice of a range of materials, systems, tools and equipment; and evaluate the suitability of their use |
| Processes and production skills | | | | | | | |
| Creating solutions by: | | | | | | | |
| Investigating and defining | Explore needs for design | Explore opportunities for design | Explore design to meet needs or opportunities | Create a sequence of steps to solve a given task | Define a sequence of steps to design a solution for a given task Identify and choose the appropriate resources from a given set | Define a problem, and set of sequenced steps, with users making a decision to create a solution for a given task Identify available resources | Define a problem, and set of sequenced steps, with users making decisions to create a solution for a given task Identify available resources |
| Designing | Generate and record design ideas through describing, drawing, modelling and/or a sequence of written or spoken steps | Develop and communicate design ideas through describing, drawing, modelling and/or a sequence of written or spoken steps | Develop, communicate and discuss design ideas through describing, drawing, modelling and/or a sequence of steps | Develop and communicate ideas using labelled drawings and appropriate technical terms | Develop and communicate design ideas and decisions using annotated drawings and appropriate technical terms | Develop and communicate alternative solutions, and follow design ideas, using annotated diagrams, storyboards and appropriate technical terms | Design, modify, follow and represent both diagrammatically, and in written text, alternative solutions using a range of techniques, appropriate technical terms and technology |
| Producing and implementing | Use given components and equipment to safely make simple solutions | Use given components and equipment to safely make solutions | Use components and given equipment to safely make solutions | Select, and safely use, appropriate components with given equipment to make a solution | Select, and safely use, appropriate components and equipment to make solutions | Select, and apply, safe procedures when using components and equipment to make solutions | Select, and apply, safe procedures when using a variety of components and equipment to make solutions |

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| Evaluating | Use personal preferences to evaluate the success of simple solutions | Use personal preferences to evaluate the success of design processes | Use simple criteria to evaluate the success of design processes and solutions | Use criteria to evaluate design processes and solutions developed | Use criteria to evaluate and justify simple design processes and solutions | Develop negotiated criteria to evaluate and justify design processes and solutions | Develop collaborative criteria to evaluate and justify design processes and solutions |
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DESIGN AND TECHNOLOGIES – Scope and sequence 7–10

| | Pre-primary | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|-----------------------------------|---|--|--|--|--|---|--|
| Collaborating and managing | Work independently, or with others when required, for solutions | Work independently, or with others when required, to safely create and share sequenced steps for solutions | Work independently, or collaboratively when required, to organise information and ideas to safely create and share sequenced steps for solutions | Work independently, or collaboratively when required, to plan, safely create and communicate sequenced steps | Work independently, or collaboratively when required, to plan, safely create and communicate ideas and information for solutions | Work independently, or collaboratively when required, to plan, safely develop and communicate ideas and information for solutions | Work independently, or collaboratively when required, considering resources and safety, to plan, develop and communicate ideas and information for solutions |

| | Year 7 | Year 8 | Year 9 | Year 10 |
|---|--|--|---|--|
| Knowledge and understanding | | | | |
| Technologies and society | <p>Competing factors, including social, ethical and sustainability considerations, in the development of technologies</p> <p>Ways in which products, services and environments evolve locally, regionally and globally</p> | <p>Social, ethical and sustainability considerations, in the development of technologies and designed solutions, to meet community needs for economic, environmental and social sustainability</p> <p>Development of products, services and environments through the creativity, innovation and enterprise of individuals and groups</p> | <p>Social, ethical and sustainability considerations that impact on designed solutions</p> <p>Development of products, services and environments, with consideration of economic, environmental and social sustainability</p> | <p>Social, ethical and sustainability considerations that impact on designed solutions, complexity of design, and production processes involved</p> <p>Impact of emerging technologies on design decisions, and/or economic, environmental and social sustainability</p> |
| Technologies contexts | <i>In Year 7, students will have opportunities to create designed solutions in at least one of the technologies contexts below</i> | <i>In Year 8, students will have opportunities to create designed solutions in at least one of the technologies contexts below</i> | <i>In Year 9, students will have opportunities to create designed solutions in at least one of the technologies contexts below</i> | <i>In Year 10, students will have opportunities to create designed solutions in at least one of the technologies contexts below</i> |
| Engineering principles and systems | The use of motion, force and energy to manipulate and control electromechanical and mechanical systems | The design of simple solutions using motion, force and energy, to manipulate and control electromechanical and mechanical systems | The characteristics and properties of materials, combined with force, motion and energy, to create solutions | The process of materials being combined with force, motion and energy to create solutions |
| Food and fibre production | Production systems for food and fibre or their products, including key features of their design | Sustainable production systems are subject to competing demands (social, environmental, economic) and how these factors influence their design | Food and fibre production and/or marketing, and the generation of sustainable solutions | The role of emerging research and technology in the design of ethical and sustainable products |
| Food specialisations | Nutritional value and physical properties of food determine preparation techniques and presentation | Sensory properties of food to create healthy eating solutions | Principles of food including safety, nutrition, preservation, preparation, presentation, physical and sensory properties and perceptions | Healthy eating through the skills and knowledge of nutrients and the application of the principles of food safety, preservation, preparation, presentation and sensory perceptions |
| Materials and technologies specialisations | Material and technology decisions and processes influence the selection and combination of materials, systems, components, tools and equipment | The process for the selection and combination of materials, systems, components, tools and equipment | <p>Characteristics and properties of materials, systems, components, tools and equipment used to create designed solutions</p> <p>Technologies can be combined and used to create designed solutions</p> | <p>The combination of a range of characteristics and properties of materials, systems, components, tools and equipment to create designed solutions</p> <p>Designed solutions within a range of technologies specialisations, using combined technologies</p> |

DIGITAL TECHNOLOGIES – Scope and sequence P–6

| | Year 7 | Year 8 | Year 9 | Year 10 |
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| Processes and production skills | | | | |
| Creating solutions by: | | | | |
| Investigating and defining | <p>Define and break down a given task, identifying the purpose</p> <p>Consider components/resources to develop solutions, identifying constraints</p> | <p>Investigate a given need or opportunity for a specific purpose</p> <p>Evaluate and apply a given brief</p> <p>Consider components/resources to develop solutions, identifying constraints</p> | <p>Identify and define the needs of a stakeholder, to create a brief, for a solution</p> <p>Investigate a selection of components/resources to develop solution ideas, identifying and considering constraints</p> | <p>Identify the needs of the client/stakeholder to determine the basis for a solution</p> <p>Create and critique briefs to solutions</p> <p>Investigate components/resources to develop increasingly sophisticated solutions, identifying and considering associated constraints</p> |
| Designing | <p>Design, develop, review and communicate design ideas, plans and processes within a given context, using a range of techniques, appropriate technical terms and technology</p> <p>Follow a plan designed to solve a problem, using a sequence of steps</p> | <p>Design, develop, evaluate and communicate alternative solutions, using appropriate technical terms and technology</p> <p>Produce a simple plan designed to solve a problem, using a sequence of steps</p> | <p>Apply design thinking, creativity and enterprise skills</p> <p>Design solutions assessing alternative designs against given criteria, using appropriate technical terms and technology</p> | <p>Apply design thinking, creativity, enterprise skills and innovation to develop, modify and communicate design ideas of increasing sophistication</p> <p>Design possible solutions, analysing designs against criteria, including functionality, accessibility, usability and aesthetics, using appropriate technical terms and technology</p> |
| Producing and implementing | <p>Safely make solutions using a range of components, equipment and techniques</p> | <p>Safely apply appropriate techniques to make solutions using a range of components and equipment</p> | <p>Select, and safely implement and test appropriate technologies and processes, to make solutions</p> | <p>Select, justify, and safely implement and test appropriate technologies and processes, to make solutions</p> |
| Evaluating | <p>Independently apply given contextual criteria to evaluate design processes and solutions</p> | <p>Develop contextual criteria independently to assess design processes and solutions</p> | <p>Evaluate design processes and solutions against student-developed criteria</p> | <p>Analyse design processes and solutions against student-developed criteria</p> |
| Collaborating and managing | <p>Work independently, and collaboratively when required, to plan, develop and communicate ideas and information, using management processes</p> | <p>Work independently, and collaboratively when required, to plan, develop and communicate ideas and information when managing projects</p> | <p>Work independently, and collaboratively to manage projects, using digital technology and an iterative and collaborative approach. Considers time, cost, risk and safety</p> | <p>Work independently, and collaboratively to manage projects, using digital technology and an iterative and collaborative approach. Considers time, cost, risk, safety, production processes, sustainability and legal responsibilities</p> |

DESIGN AND TECHNOLOGIES – Scope and sequence 7–10

| | Pre-primary | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|--|---|---|---|--|---|---|
| Knowledge and understanding | | | | | | | |
| Digital systems | Digital systems (hardware and software) are used at home, in the school and in the community | Digital systems (hardware and software) are used in everyday life and have specific features | Digital systems (hardware and software) are used for an identified purpose | Digital systems and peripheral devices are used for different purposes | Digital systems and peripheral devices are used for different purposes and can store and transmit different types of data | Digital systems have components with basic functions that may connect together to form networks which transmit data | Digital systems have components with basic functions and interactions that may be connected together to form networks which transmit different types of data |
| Representations of data | Data can have patterns and can be represented as pictures and symbols | Data can have patterns and can be represented as pictures, symbols and diagrams | Data can have patterns and can be represented and used to make simple conclusions | Different types of data can be represented in different ways | Data can be represented in different ways | Data is represented using codes | Whole numbers are used to represent data in a digital system |
| Processes and production skills | | | | | | | |
| Collecting managing and analysing data | Collect and use data of any kind | Present data of any kind using a variety of digital tools | Present data using a variety of digital tools | Collect and present different types of data using simple software to create useful information | Collect and present different types of data for a specific purpose using software | Collect, store and present different types of data for a specific purpose using software | Collect, sort, interpret and visually present different types of data using software to manipulate data for a range of purposes |
| Digital implementation | Use data to complete a task Engage with information known people have shared in an online environment, and model strategies to stay safe online | Use data to solve a simple task/problem Share and publish information with known people in an online environment, modelling strategies to stay safe online | Use data to solve similar tasks/problems Share and publish information in a safe online environment, with known people | Use visually represented sequenced steps (algorithms), including steps with decisions made by the user (branching) Create and communicate ideas and information safely | Use simple visual programming environments that include a sequence of steps (algorithm) involving decisions made by the user (branching) Create and communicate ideas and information safely, using agreed protocols (netiquette) | Design solutions to a user interface for a digital system Design, follow and represent diagrammatically, a simple sequence of steps (algorithm), involving branching (decisions) and iteration (repetition) Implement and use simple programming environments that include branching (decisions) and iteration (repetition) | Design, modify, follow and represent both diagrammatically, and in written text, simple algorithms (sequence of steps) involving branching (decisions) and iteration (repetition) Implement and use simple visual programming environments that include branching (decisions), iteration (repetition) and user input |

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| | Pre-primary | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|-----------------------------------|--|--|---|--|--|--|--|
| Digital implementation | | | | | | Create and communicate information, including online collaborative projects, using agreed social, ethical and technical protocols (codes of conduct) | Manage the creation and communication of information, including online collaborative projects, using agreed social, ethical and technical protocols |
| Creating solutions by: | | | | | | | |
| Investigating and defining | Explore needs for design | Explore opportunities for design | Explore design to meet needs or opportunities | Create a sequence of steps to solve a given task | Define a sequence of steps to design a solution for a given task Identify and choose the appropriate resources from a given set | Define a problem, and set of sequenced steps, with users making a decision to create a solution for a given task Identify available resources | Define a problem, and a set of sequenced steps, with users making decisions to create a solution for a given task Identify available resources |
| Designing | Generate and record design ideas through describing, drawing, modelling and/or a sequence of written or spoken steps | Develop and communicate design ideas through describing, drawing, modelling and/or a sequence of written or spoken steps | Develop, communicate and discuss design ideas through describing, drawing, modelling and/or a sequence of steps | Develop and communicate ideas using labelled drawings and appropriate technical terms | Develop and communicate design ideas and decisions using annotated drawings and appropriate technical terms | Develop and communicate alternative solutions, and follow design ideas, using annotated diagrams, storyboards and appropriate technical terms | Design, modify, follow and represent both diagrammatically, and in written text, alternative solutions using a range of techniques, appropriate technical terms and technology |
| Producing and implementing | Use given components and equipment to safely make simple solutions | Use given components and equipment to safely make solutions | Use components and given equipment to safely make solutions | Select, and safely use, appropriate components with given equipment to make a solution | Select, and safely use, appropriate components and equipment to make solutions | Select, and apply, safe procedures when using components and equipment to make solutions | Select, and apply, safe procedures when using a variety of components and equipment to make solutions |
| Evaluating | Use personal preferences to evaluate the success of simple solutions | Use personal preferences to evaluate the success of design processes | Use simple criteria to evaluate the success of design processes and solutions | Use criteria to evaluate design processes and solutions developed | Use criteria to evaluate and justify simple design processes and solutions | Develop negotiated criteria to evaluate and justify design processes and solutions | Develop collaborative criteria to evaluate and justify design processes and solutions |

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|-----------------------------------|---|--|--|---|---|--|---|
| Collaborating and managing | Technologies – Scope and sequence P–6 Work independently, or with others when required, for solutions | Work independently, or collaboratively when required, to create and safely share sequenced steps for solutions | Work independently, or collaboratively when required, to organise information and ideas to create and safely share sequenced steps for solutions | Work independently, or collaboratively when required, to plan, create and communicate sequenced steps | Work independently, or collaboratively when required, to plan, create and communicate ideas and information for solutions | Work independently, or collaboratively when required, to plan, develop and communicate ideas and information for solutions | Work independently, or collaboratively when required, considering resources, to plan, develop and communicate ideas and information for solutions |
|-----------------------------------|---|--|--|---|---|--|---|

DIGITAL TECHNOLOGIES – Scope and sequence 7–10

| | Year 7 | Year 8 | Year 9 | Year 10 |
|--|--|--|--|---|
| Knowledge and understanding | | | | |
| Digital systems | Different types of networks, including wired, wireless and mobile networks Hardware components of a network | Methods of data transmission and security in wired, wireless and mobile networks Specifications of hardware components and their impact on network activities | Role of hardware and software in managing, controlling and securing the movement of data in a digital system | Role of hardware and software in managing, controlling and securing access to data, in networked digital systems |
| Representation of data | Digital systems represent text, image and audio data | Binary is used to represent data in digital systems | Different methods of manipulation, storage and transmission of data | Simple compression of data and how content data is separated from presentation data |
| Processes and production skills | | | | |
| Collecting, managing and analysing data | Explore how to acquire data from a range of digital sources Create information using relevant software, and create data to model objects and/or events | Evaluate the authenticity, accuracy and timeliness of acquired data Evaluate and visualise data, using a range of software, to create information, and use structured data to model objects or events | Explore techniques for acquiring, storing and validating quantitative and qualitative data Analyse and visualise data to create information and address complex problems | Apply techniques for acquiring, storing and validating quantitative and qualitative data from a range of sources, considering privacy and security requirements Analyse, visualise and model processes and entities, and their relationships, using structured data |
| Digital implementation | Design the user experience of a digital system Create digital solutions that include a user interface where choices can be made Create and communicate information collaboratively online, taking into account social contexts | Design the user experience of a digital system Design plans, using a sequence of steps, and represent them diagrammatically and in English, to solve a problem and to predict output for a given input to identify errors Implement and modify solutions, that include user interfaces within a programming environment, including the need for choice of options and/or repeating options Create and communicate interactive ideas collaboratively online, taking into account social contexts | Design the user experience of a digital system Design algorithms, represented diagrammatically and in structured English, and validate plans and programs through tracing Implement and apply data storage and organisation techniques Create and use interactive solutions for sharing ideas and information online, taking into account social contexts | Design algorithms represented diagrammatically and in structured English, including iteration Validate algorithms and programs using common acceptable methods Implement data storage and organisation techniques within a programming environment Create interactive solutions for sharing ideas and information online, taking into account social contexts and legal responsibilities |

DIGITAL TECHNOLOGIES – Scope and sequence 7–10

| | Year 7 | Year 8 | Year 9 | Year 10 |
|-----------------------------------|--|--|--|--|
| Creating solutions by: | | | | |
| Investigating and defining | <p>Define and break down a given task, identifying the purpose</p> <p>Consider components/resources to develop solutions, identifying constraints</p> | <p>Investigate a given need or opportunity for a specific purpose</p> <p>Evaluate and apply a given brief</p> <p>Consider components/resources to develop solutions, identifying constraints</p> | <p>Identify and define the needs of a stakeholder, to create a brief, for a solution</p> <p>Investigate a selection of components/resources to develop solution ideas, identifying and considering constraints</p> | <p>Identify the needs of the client/stakeholder to determine the basis for a solution</p> <p>Create and critique briefs to solutions</p> <p>Investigate components/resources to develop increasingly sophisticated solutions, identifying and considering associated constraints</p> |
| Designing | <p>Design, develop, review and communicate design ideas, plans and processes within a given context, using a range of techniques, appropriate technical terms and technology</p> <p>Follow a plan designed to solve a problem, using a sequence of steps</p> | <p>Design, develop, evaluate and communicate alternative solutions, using appropriate technical terms and technology</p> <p>Produce a simple plan designed to solve a problem, using a sequence of steps</p> | <p>Apply design thinking, creativity and enterprise skills</p> <p>Design solutions assessing alternative designs against given criteria, using appropriate technical terms and technology</p> | <p>Apply design thinking, creativity, enterprise skills and innovation to develop, modify and communicate design ideas of increasing sophistication</p> <p>Design possible solutions, analysing designs against criteria, including functionality, accessibility, usability and aesthetics, using appropriate technical terms and technology</p> |
| Producing and implementing | <p>Safely make solutions using a range of components, equipment and techniques</p> | <p>Safely apply appropriate techniques to make solutions using a range of components and equipment</p> | <p>Select, and safely implement and test appropriate technologies and processes, to make solutions</p> | <p>Select, justify, and safely implement and test appropriate technologies and processes, to make solutions</p> |
| Evaluating | <p>Independently apply given contextual criteria to evaluate design processes and solutions</p> | <p>Develop contextual criteria independently to assess design processes and solutions</p> | <p>Evaluate design processes and solutions against student developed criteria</p> | <p>Analyse design processes and solutions against student developed criteria</p> |
| Collaborating and managing | <p>Work independently, and collaboratively when required, to plan, develop and communicate ideas and information when using management processes</p> | <p>Work independently, and collaboratively when required, to plan, develop and communicate ideas and information when managing projects</p> | <p>Work independently, and collaboratively to manage projects, using digital technology and an iterative and collaborative approach. Considers time, cost, risk and safety</p> | <p>Work independently, and collaboratively to manage projects, using digital technology and an iterative and collaborative approach. Considers time, cost, risk, safety, production processes, sustainability and legal responsibilities</p> |