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**food and fibre: years 3 and 4**

The following table identifies how the key aspects of understanding food and fibre production are evident in content descriptions from across the Australian Curriculum Version 9.0. From this information, teachers can develop a sequential program for learning about food and fibre by connecting the key aspects of learning with learning area and subject-specific content descriptions.

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| Years 3 and 4 |
| Key aspect 1: Sustaining life |
| Learning area/subject | Strand/sub-strand | Content descriptions | Content elaborations |
| **Design and Technologies** | **Knowledge and understanding**Technologies context: Food and fibre production; Food specialisations | describe the ways of producing food and fibre AC9TDE4K03 | * researching food and fibre production techniques and technologies developed by First Nations Australians, such as burning, tilling, planting, transplanting, watering, irrigating, weeding, thinning, cropping, storing and trading food
* describing tools, equipment and procedures to improve plant and animal production, for example when growing vegetables in the school garden and producing environments such as a glasshouse (protected cropping) or animal housing including safe chicken shelters
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| **Science – Year 3** | **Science understanding**Biological sciences | compare characteristics of living and non-living things and examine the differences between the life cycles of plants and animalsAC9S3U01 | * representing stages of a plant or animal’s life cycle using drawings, digital photographs, graphic organisers or concrete materials
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| **Science – Year 4** | **Science understanding**Biological sciences | explain the roles and interactions of consumers, producers and decomposers within a habitat and how food chains represent feeding relationshipsAC9S4U01 | * researching the different types of decomposers and their importance within a habitat
* representing feeding relationships of producers and consumers as a food chain and comparing food chains across different habitats
* recognising how First Nations Australians perceive themselves as being an integral part of the environment
* investigating the impact of introduced predators such as foxes on small mammal species in Australia
* researching how the removal of a food source from within a habitat, such as through an insect or rodent infestation, affected other living things within that habitat
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| **Science understanding**Earth and space sciences | identify sources of water and describe key processes in the water cycle, including movement of water through the sky, landscape and ocean; precipitation; evaporation; and condensationAC9S4U02 | * identifying local water sources and exploring how they change over time, such as rain puddles that evaporate or a local creek that flows faster after rain
* exploring First Nations Australians’ connections with and valuing of water and water resource management
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| **Humanities and Social Sciences (HASS) –** **Year 4** | **Knowledge and understanding** Geography | the importance of environments, including natural vegetation and water sources, to people and animals in Australia and on another continentAC9HS4K05 | * identifying the main types of vegetation, including forest, savannah, grassland, woodland and desert, and exploring natural vegetation in Australia and another continent such as Africa or South America
* exploring how vegetation has an important role in sustaining the environment by producing oxygen, protecting food-producing land from erosion, retaining rainfall, providing habitat for animals, sheltering crops and livestock, providing shade for people, cooling urban places, producing medicines, wood and fibre, and making places appear more attractive
* explaining how people’s connections with their environment can also be aesthetic, emotional and spiritual
* exploring strategies to protect particular environments that provide habitats for animals; for example, planting bird-attracting vegetation
* identifying the importance of water to the environment and to sustaining the lives of people and animals
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| sustainable use and management of renewable and non-renewable resources, including the custodial responsibility First Nations Australians have for Country/PlaceAC9HS4K06 | * exploring how some resources are used and managed in sustainable and non-sustainable ways; for example, auditing use of renewable and non-renewable resources in the classroom, investigating recycling and waste disposal of non-renewable resources in the school and by local government, reducing waste through “nude food” lunch boxes and using recycled toilet paper, examining how renewable resources such as timber are managed
* investigating how First Nations Australians adapted ways using knowledge and practices linked to the sustainable use of resources and environments (for example, rotational use and harvesting of resources; mutton-bird harvesting in Tasmania; the use of fire; the use of vegetation endemic in the local area for food, shelter, medicine, tools and weapons; and the collection of bush food from semi-arid rangelands), and how this knowledge can be taught through stories and songs, reflecting their inherent, custodial responsibilities
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| Years 3 and 4 |
| Key aspect 2: Valuing resources |
| Learning area/subject | Strand/sub-strand | Content descriptions | Content elaborations |
| **Design and Technologies** | **Knowledge and understanding** 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 needsAC9TDE4K01 | * exploring how many First Nations Australians were and continue to be recognised for their specialist skills in designing and producing products made from local materials and providing related services, using sustainable practices to ensure future access to meet community needs, for example traditional adhesives
* examining the suitability of a service or system and proposing improvements, for example a water-saving system for a bathroom at home or school, traffic management systems to reduce traffic jams around the school, remote and regional services including medical services
* exploring how Australian designers consider sustainability when designing products, services or environments, for example designing products from 100% recycled materials, designing services that use minimal energy, or designing landscapes that require minimal water
* examining products and environments to discover the factors that may have influenced the design and, choice of technologies used, for example discussing energy-efficient cooking with a wok, or sustainable wood products for home use including furniture made from plantation timbers, bamboo toothbrushes or coconut shell bowls
 |
| **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 | * exploring and testing a range of materials under different conditions for suitability including sustainability considerations, for example the compostability of paper-based materials or the strength and durability of natural materials
* exploring the different uses of materials in a range of products, including those from a country in Asia, to inform design decisions, for example in shelters, boats, handmade tools, baskets, wooden items, musical instruments, clothing and fabric
 |
| **Processes and production skills** Producing and implementing | select and use materials, components, tools, equipment and techniques to safely make designed solutions AC9TDE4P03 | * selecting and using materials, components, tools, equipment and processes with consideration of the environmental impact at each stage of the production process, for example considering how packaging and offcuts could be recycled or used for other purposes before choosing materials for a project
 |
| **Processes and production skills** Evaluating | use given or co-developed design criteria including sustainability to evaluate design ideas and solutions AC9TDE4P04 | * developing design criteria with others including considering universal design principles to address social sustainability, for example a criterion that specifies flexible or intuitive use or low physical effort
* using design criteria to evaluate, revise and select design ideas, for example when designing an e-textile toy for a young child to ensure it will be safe
* comparing the amount of waste that would be produced from different design ideas and the potential for recycling waste, for example exploring the choice of materials to construct a toy and whether these materials are repairable or able to be recycled once the toy breaks or is no longer wanted
* reflecting on how well their designed solution meets design criteria, such as ensuring safety and wellbeing of users and meeting the needs of communities or different cultures, for example reviewing and discussing the choice of fabrics used to make re-usable bags and how they could be made more appealing to all cultural groups by considering modifications to style
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| **Science – Year 3** | **Science understanding**Earth and space sciences | compare the observable properties of soils, rocks and minerals and investigate why they are important Earth resourcesAC9S3U02 | * examining different soils from local areas and using magnifying glasses to observe their components, such as pebbles, sand or plant matter as well as living things such as earthworms and insects
* describing ways in which living things including humans depend on soils, such as for food, growing plants, providing habitat for organisms, and holding and cleaning water
* examining information on plant tags and exploring the vocabulary used to describe soils and different plant soil requirements
 |
| **Science – Year 4** | **Science understanding**Earth and space sciences | identify sources of water and describe key processes in the water cycle, including movement of water through the sky, landscape and ocean; precipitation; evaporation; and condensationAC9S4U02 | * identifying local water sources and exploring how they change over time, such as rain puddles that evaporate or a local creek that flows faster after rain
* exploring First Nations Australians’ connections with and valuing of water and water resource management
 |
| **Humanities and Social Sciences (HASS) –** **Year 4** | **Knowledge and understanding** Geography | the importance of environments, including natural vegetation and water sources, to people and animals in Australia and on another continentAC9HS4K05 | * identifying the main types of vegetation, including forest, savannah, grassland, woodland and desert, and exploring natural vegetation in Australia and another continent such as Africa or South America
* exploring how vegetation has an important role in sustaining the environment by producing oxygen, protecting food-producing land from erosion, retaining rainfall, providing habitat for animals, sheltering crops and livestock, providing shade for people, cooling urban places, producing medicines, wood and fibre, and making places appear more attractive
* explaining how people’s connections with their environment can also be aesthetic, emotional and spiritual
* exploring strategies to protect particular environments that provide habitats for animals; for example, planting bird-attracting vegetation
* identifying the importance of water to the environment and to sustaining the lives of people and animals
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|  | **Knowledge and understanding** Geography | sustainable use and management of renewable and non-renewable resources, including the custodial responsibility First Nations Australians have for Country/PlaceAC9HS4K06 | * exploring how some resources are used and managed in sustainable and non-sustainable ways; for example, auditing use of renewable and non-renewable resources in the classroom, investigating recycling and waste disposal of non-renewable resources in the school and by local government, reducing waste through “nude food” lunch boxes and using recycled toilet paper, examining how renewable resources such as timber are managed
* investigating how First Nations Australians adapted ways using knowledge and practices linked to the sustainable use of resources and environments (for example, rotational use and harvesting of resources; mutton-bird harvesting in Tasmania; the use of fire; the use of vegetation endemic in the local area for food, shelter, medicine, tools and weapons; and the collection of bush food from semi-arid rangelands), and how this knowledge can be taught through stories and songs, reflecting their inherent, custodial responsibilities
 |
| **Skills** Questioning and researching | develop questions to guide investigations about people, events, places and issuesAC9HS4S01 | * developing questions that address the disciplinary concepts; for example, “What was the cause…?”, “Why was this event significant?”, “How did daily life change?”, “What are the characteristics of this place?”, “How can we manage resources sustainably?”, “What rules are used by different groups I belong to?” and “What laws protect our local environment?”
 |
| **Skills** Questioning and researching | locate, collect and record information and data from a range of sources, including annotated timelines and mapsAC9HS4S02 | * brainstorming ways that information might be collected for an inquiry, such as surveys, interviews and tallying, and choosing, with teacher guidance, the most effective sources of data; for example, the internet, thematic maps, photographs, satellite imagery, field data collection, interviewing members of local government
* using graphic organisers, timelines, maps, graphs or tables to display data and information (for example, a food web; consequence wheels for an issue; creating a timeline related to the First Fleet; mapping locations of different types of vegetation, the loss of native species, the movement of peoples over time, or social, cultural and religious groups in Australia’s society) and using digital applications as appropriate
 |
| **Skills** Interpreting, analysing and evaluating | analyse information and data, and identify perspectivesAC9HS4S04 | * analysing information collected from interviews with different people about the same issue; for example, developers, businesspeople and their employees, council members, local Elders and conservationists, regarding the management of resources
 |
| **Skills** Concluding and decision-making | draw conclusions based on analysis of informationAC9HS4S05 | * explaining how seeking resources is connected to trade, world exploration, colonisation, economic development and environmental change
* analysing sources to draw conclusions; for example, 'What are the relationships between plants and animals in an ecosystem?", 'What can local government do to improve services?' and 'How do students benefit from school rules?'
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| Years 3 and 4 |
| Key aspect 3: Designing solutions and meeting challenges |
| Learning area/subject | Strand/sub-strand | Content descriptions | Content elaborations |
| **Design and Technologies** | **Knowledge and understanding** 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 needsAC9TDE4K01 | * examining the suitability of a service or system and proposing improvements, for example a water-saving system for a bathroom at home or school, traffic management systems to reduce traffic jams around the school, remote and regional services including medical services
* exploring how Australian designers consider sustainability when designing products, services or environments, for example designing products from 100% recycled materials, designing services that use minimal energy, or designing landscapes that require minimal water
* examining products and environments to discover the factors that may have influenced the design and, choice of technologies used, for example discussing energy-efficient cooking with a wok, or sustainable wood products for home use including furniture made from plantation timbers, bamboo toothbrushes or coconut shell bowls
 |
| **Knowledge and understanding**Technologies context: Engineering principles and systems; Materials and technologies specialisations | describe how forces and the properties of materials affect function in a product or systemAC9TDE4K02 | * identifying engineered systems and experimenting with available local materials, tools and equipment to solve problems, for example designing a container or parachute that will keep an egg intact when dropped from a height; a pop-up card; a tower; or a vehicle
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|  | **Knowledge and understanding**Technologies context: Food and fibre production; Food specialisations | describe the ways of producing food and fibre AC9TDE4K03 | * describing tools, equipment and procedures to improve plant and animal production, for example when growing vegetables in the school garden and producing environments such as a glasshouse (protected cropping) or animal housing including safe chicken shelters
 |
| **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 | * exploring and testing a range of materials under different conditions for suitability including sustainability considerations, for example the compostability of paper-based materials or the strength and durability of natural materials
* exploring the different uses of materials in a range of products, including those from a country in Asia, to inform design decisions, for example in shelters, boats, handmade tools, baskets, wooden items, musical instruments, clothing and fabric
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| **Processes and production skills** Generating and designing | generate and communicate design ideas and decisions using appropriate attributions, technical terms and graphical representation techniques, including using digital tools AC9TDE4P02 | * visualising innovative design ideas by producing thumbnail sketches, models and labelled drawings to explain features and modifications, for example drawing one or more designs for a machine to collect waste, and including labels and descriptions to explain materials used, their properties and the intended function of components or the whole system
* planning, sharing and documenting creative designs, ideas and processes using digital tools and appropriate terms and privacy considerations, for example a class blog or collaborative document that has been selectively shared with peers
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|  | **Processes and production skills** Producing and implementing | select and use materials, components, tools, equipment and techniques to safely make designed solutions AC9TDE4P03 | * exploring ways of joining, connecting and assembling components that ensure success including the impact digital tools have on these processes, for example using virtual reality or simulations to experience assembling materials or using tools
* using tools and equipment accurately when measuring, marking and cutting, for example when creating a template or pattern, measuring ingredients in a recipe or preparing a garden bed for sowing seeds
* explaining the importance of safe, responsible, inclusive and cooperative work practices when designing and making, for example when handling sharp equipment such as knives and scissors
* selecting and using materials, components, tools, equipment and processes with consideration of the environmental impact at each stage of the production process, for example considering how packaging and offcuts could be recycled or used for other purposes before choosing materials for a project
 |
| **Processes and production skills** Evaluating | use given or co-developed design criteria including sustainability to evaluate design ideas and solutions AC9TDE4P04 | * developing design criteria with others including considering universal design principles to address social sustainability, for example a criterion that specifies flexible or intuitive use or low physical effort
* using design criteria to evaluate, revise and select design ideas, for example when designing an e-textile toy for a young child to ensure it will be safe
* comparing the amount of waste that would be produced from different design ideas and the potential for recycling waste, for example exploring the choice of materials to construct a toy and whether these materials are repairable or able to be recycled once the toy breaks or is no longer wanted
* reflecting on how well their designed solution meets design criteria, such as ensuring safety and wellbeing of users and meeting the needs of communities or different cultures, for example reviewing and discussing the choice of fabrics used to make re-usable bags and how they could be made more appealing to all cultural groups by considering modifications to style
 |
| **Processes and production skills** Collaborating and managing | sequence steps to individually and collaboratively make designed solutions AC9TDE4P05 | * determining planning processes as a class, for example recording when parts of a project need to be completed on a timeline, in a spreadsheet, calendar or list
* discussing the importance of managing time and resource allocation throughout production, for example discussing the roles different people might take in a team and identifying the tasks they will complete and the resources they will each need
* identifying the steps in a mass production process, for example drawing a flowchart or making a video recording of a procedure for packing identical boxes of food for community members in need, where each student in a group has a separate task as part of the production process
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| **Digital Technologies** | **Knowledge and understanding**Data representation | recognise different types of data and explore how the same data can be represented differently depending on the purpose AC9TDI4K03 | * identifying rock paintings and other cultural expressions to understand that images are used to encode and represent ethnobotanical knowledge, for example the representation of plant use in the Kimberley cave paintings and ancient engravings including important data on medicinal and food plant classification and their usable parts
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| **Processes and production skills**Producing and implementing | implement simple algorithms as visual programs involving control structures and input AC9TDI4P04 | * writing programs that take input from the user or environment, for example asking the user for their name and displaying it or sensing the temperature from the environment to make a decision
* writing programs that make decisions involving comparison, for example comparing whether the temperature is above 25 degrees Celsius to label the weather hot or cold
 |
| **Processes and production skills**Evaluating | discuss how existing and student solutions satisfy the design criteria and user storiesAC9TDI4P05 | * describing the way familiar digital systems allow the user to perform tasks, for example discussing how a family member could place an order online for something they cannot buy locally
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| **Science – Year 3** | **Science understanding**Physical sciences | identify sources of heat energy and examine how temperature changes when heat energy is transferred from one object to anotherAC9S3U03 | * exploring how First Nations Australians developed clothing from animal skins such as possum furs and kangaroo skin cloaks that trap heat close to the body to stay warm
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| **Science as a human endeavour**Nature and development of science | examine how people use data to develop scientific explanationsAC9S3H01 | * exploring how farmers use soil tests to monitor and manage the health of farms
 |
| **Science as a human endeavour**Use and influence of science | consider how people use scientific explanations to meet a need or solve a problem AC9S3H02 | * recognising how First Nations Australians observe and describe developmental changes in plants and animals to make decisions about when to harvest certain resources
* exploring the history of manure and compost use in agriculture and how composting can improve soil condition and plant growth
* investigating how understanding of life cycles of insect pests such as fruit flies led to effective control strategies
* investigating how engineers test the insulation properties of materials, and how this information is used to design food and beverage packaging, building insulation or clothing
 |
| **Science inquiry**Questioning and predicting | pose questions to explore observed patterns and relationships and make predictions based on observationsAC9S3I01 | * posing questions about the relationship between soil characteristics and the growth of particular plants, such as: ‘Will beans grow best in sandy, loamy or clay soils?’
* comparing simple maps of Australian agriculture and soil types and posing questions about observed patterns, such as: ‘Does wheat grow in particular soils?’
 |
| **Science inquiry**Planning and conducting | use provided scaffolds to plan and conduct investigations to answer questions or test predictions, including identifying the elements of fair tests, and considering the safe use of materials and equipment AC9S3I02 | * examining an example of a soil profile after soil has settled in water and planning an investigation to compare and contrast the components and particle sizes of different soils
* discussing safety rules to follow when conducting investigations, such as following teacher instructions, manipulating equipment and materials with care and wearing appropriate personal safety gear, such as gloves, safety goggles and face masks when handling soils
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| **Science – Year 4** | **Science understanding**Chemical sciences | examine the properties of natural and made materials including fibres, metals, glass and plastics and consider how these properties influence their useAC9S4U04 | * exploring vocabulary for describing properties; observing different fibres, metals, glass and plastics; and using appropriate terms to describe, compare and contrast their properties
* designing, building and testing an object or structure for a specific purpose, such as a tent, lunchbox or bird feeder
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| **Science as a human endeavour**Use and influence of science | consider how people use scientific explanations to meet a need or solve a problemAC9S4H02 | * investigating how knowledge of the role of decomposers has helped people design industrial composting systems to manage plant and animal waste
* investigating how First Nations Australians of arid regions of Australia use scientific knowledge to manage precious water resources
* considering how knowledges of plant biology enable First Nations Australians to sustainably harvest and use plants to make tools and weapons, musical instruments, clothing, cosmetics and artworks
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|  | **Science inquiry**Questioning and predicting | pose questions to explore observed patterns and relationships and make predictions based on observationsAC9S4I01 | * posing questions about why some materials are used more often than others for particular products
* predicting the effect on food chains when living things are removed from or die out in an area
* consulting with First Nations Australians about how to predict the location of water sources from observation of landscape features
 |
| **Science inquiry**Planning and conducting | use provided scaffolds to plan and conduct investigations to answer questions or test predictions, including identifying the elements of fair tests, and considering the safe use of materials and equipmentAC9S4I02 | * predicting effects of changing numbers of producers or consumers, and using a virtual or roleplay food chain simulation to explore possible outcomes by running the simulation multiple times
* following safety rules when conducting investigations, such as wearing personal safety gear correctly, using equipment according to guidelines and demonstrating safe behaviours in field sites or when interacting with biological specimens
 |
| **Science inquiry**Processing, modelling and analysing | construct and use representations, including tables, simple column graphs and visual or physical models, to organise data and information, show simple relationships and identify patternsAC9S4I04 | * using virtual or role-play food chain simulations to explore effects of changing numbers of producers or consumers in a habitat
* using maps to locate water sources in the local area, or constructing maps to show sites of water wastage in the school grounds
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| **Humanities and Social Sciences (HASS) –** **Year 4** | **Knowledge and understanding** Geography | sustainable use and management of renewable and non-renewable resources, including the custodial responsibility First Nations Australians have for Country/PlaceAC9HS4K06 | * exploring how some resources are used and managed in sustainable and non-sustainable ways; for example, auditing use of renewable and non-renewable resources in the classroom, investigating recycling and waste disposal of non-renewable resources in the school and by local government, reducing waste through “nude food” lunch boxes and using recycled toilet paper, examining how renewable resources such as timber are managed
* investigating how First Nations Australians adapted ways using knowledge and practices linked to the sustainable use of resources and environments (for example, rotational use and harvesting of resources; mutton-bird harvesting in Tasmania; the use of fire; the use of vegetation endemic in the local area for food, shelter, medicine, tools and weapons; and the collection of bush food from semi-arid rangelands), and how this knowledge can be taught through stories and songs, reflecting their inherent, custodial responsibilities
 |
| **Skills** Questioning and researching | develop questions to guide investigations about people, events, places and issuesAC9HS4S01 | * developing questions that address the disciplinary concepts; for example, “What was the cause…?”, “Why was this event significant?”, “How did daily life change?”, “What are the characteristics of this place?”, “How can we manage resources sustainably?”, “What rules are used by different groups I belong to?” and “What laws protect our local environment?”
 |
| locate, collect and record information and data from a range of sources, including annotated timelines and mapsAC9HS4S02 | * brainstorming ways that information might be collected for an inquiry, such as surveys, interviews and tallying, and choosing, with teacher guidance, the most effective sources of data; for example, the internet, thematic maps, photographs, satellite imagery, field data collection, interviewing members of local government
* using graphic organisers, timelines, maps, graphs or tables to display data and information (for example, a food web; consequence wheels for an issue; creating a timeline related to the First Fleet; mapping locations of different types of vegetation, the loss of native species, the movement of peoples over time, or social, cultural and religious groups in Australia’s society) and using digital applications as appropriate
 |
|  | **Skills** Interpreting, analysing and evaluating | interpret information and data displayed in different formatsAC9HS4S03 | * interpreting the data presented in picture, line, bar or column graphs to identify trends; for example, explaining survey results about types of waste produced in the school or how people participate in the community
* interpreting thematic maps and using online satellite images to describe the environmental characteristics of a continent or region, or to identify a particular characteristic, such as equatorial rainforests or clearance of natural vegetation for farming and settlement
 |
| analyse information and data, and identify perspectivesAC9HS4S04 | * analysing information collected from interviews with different people about the same issue; for example, developers, businesspeople and their employees, council members, local Elders and conservationists, regarding the management of resources
 |
| **Skills** Concluding and decision-making | draw conclusions based on analysis of informationAC9HS4S05 | * explaining how seeking resources is connected to trade, world exploration, colonisation, economic development and environmental change
* analysing sources to draw conclusions; for example, 'What are the relationships between plants and animals in an ecosystem?", 'What can local government do to improve services?' and 'How do students benefit from school rules?'
 |
| propose actions or responses to an issue or challenge that consider possible effects of actionsAC9HS4S06  | * participating in cooperative strategies that enable decision-making about roles and responsibilities in relation to an issue that may be of concern to the students (for example, waste management in their school or protecting a habitat for an endangered species) and identifying resources needed to support the actions and likely outcomes
* forecasting a probable future and a preferred future relating to an environmental, local government or cultural issue; for example, developing a future scenario of what oceans will be like if humans continue to allow waste plastic to enter waterways, and a preferred scenario of what oceans would be like if plastics were to be replaced by degradable materials
* reflecting on personal behaviours and identifying attitudes that may affect aspects of the environment at a local or global level; for example, pouring paints down the sink, using products sourced from cleared rainforests and proposing awareness-raising strategies to reduce impacts on the environment
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| **Skills** Communicating  | present descriptions and explanations, using ideas from sources and relevant subject-specific termsAC9HS4S07 | * describing the relative location of different features in a place by distance and compass direction; for example, the distance from their home to the local waste management site, the route of a navigator
* using accurate and subject-appropriate terms when speaking, writing and illustrating; for example, using historical terms such as “exploration”, “navigation”, “trade”, “penal”, “transportation”, “contact” and “colonisation”; using geographical terms such as “continents”, “countries”, “natural resources”, “vegetation”, “environments”, “ecosystems”, “sustainability”, “consumption”, “waste” and “management”; and using civic terms such as “local government”, “decision-making”, “services”, “roles”, “responsibilities”, “rules”, “laws” and “belonging”
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| Years 3 and 4 |
| Key aspect 4: Economy |
| Learning area/subject | Strand/sub-strand | Content descriptions | Content elaborations |
| **Design and Technologies** | **Knowledge and understanding** 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 needsAC9TDE4K01 | * examining products and environments to discover the factors that may have influenced the design and, choice of technologies used, for example discussing energy-efficient cooking with a wok, or sustainable wood products for home use including furniture made from plantation timbers, bamboo toothbrushes or coconut shell bowls
 |
| **Knowledge and understanding**Technologies context: Food and fibre production; Food specialisations | describe the ways of producing food and fibre AC9TDE4K03 | * researching food and fibre production techniques and technologies developed by First Nations Australians, such as burning, tilling, planting, transplanting, watering, irrigating, weeding, thinning, cropping, storing and trading food
* describing tools, equipment and procedures to improve plant and animal production, for example when growing vegetables in the school garden and producing environments such as a glasshouse (protected cropping) or animal housing including safe chicken shelters
* comparing farming methods for food in Australia and a country in Asia, for example the use of different types of plants and animals and how diverse technologies are used to produce them
* researching how animal fibres (for example wool, alpaca) and plant fibres (for example timber, cotton, bamboo) are produced in Australia, for example how production of plantation timbers may be different from bamboo production
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| **Digital Technologies** | **Processes and production skills**Evaluating | discuss how existing and student solutions satisfy the design criteria and user storiesAC9TDI4P05 | * describing the way familiar digital systems allow the user to perform tasks, for example discussing how a family member could place an order online for something they cannot buy locally
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| Years 3 and 4 |
| Key aspect 5: People |
| Learning area/subject | Strand/sub-strand | Content descriptions | Content elaborations |
| **Design and Technologies** | **Knowledge and understanding** 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 needsAC9TDE4K01 | * exploring how many First Nations Australians were and continue to be recognised for their specialist skills in designing and producing products made from local materials and providing related services, using sustainable practices to ensure future access to meet community needs, for example traditional adhesives
* exploring how design and technologies occupations in the local area (urban, suburban, regional or rural) meet community needs, for example bakers, builders, engineers, farmers, seafood industry workers, mechanics, radiographers, textile designers and others in science, technology, engineering and mathematics roles
* examining the suitability of a service or system and proposing improvements, for example a water-saving system for a bathroom at home or school, traffic management systems to reduce traffic jams around the school, remote and regional services including medical services
 |
| **Knowledge and understanding**Technologies context: Food and fibre production; Food specialisations | describe the ways of producing food and fibre AC9TDE4K03 | * researching food and fibre production techniques and technologies developed by First Nations Australians, such as burning, tilling, planting, transplanting, watering, irrigating, weeding, thinning, cropping, storing and trading food
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| **Digital Technologies** | **Knowledge and understanding**Data representation | recognise different types of data and explore how the same data can be represented differently depending on the purpose AC9TDI4K03 | * identifying rock paintings and other cultural expressions to understand that images are used to encode and represent ethnobotanical knowledge, for example the representation of plant use in the Kimberley cave paintings and ancient engravings including important data on medicinal and food plant classification and their usable parts
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| **Processes and production skills**Producing and implementing | implement simple algorithms as visual programs involving control structures and input AC9TDI4P04 | * implementing a program that demonstrates the strict routines and techniques followed by First Nations Australian ranger groups when caring for or handling specific native animals, for example using IF and THEN statements to create a training manual, such as: IF <insert animal name> is injured THEN the ranger will <insert action>
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| **Science – Year 3** | **Science understanding**Physical sciences | identify sources of heat energy and examine how temperature changes when heat energy is transferred from one object to anotherAC9S3U03 | * exploring how First Nations Australians developed clothing from animal skins such as possum furs and kangaroo skin cloaks that trap heat close to the body to stay warm
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| **Science as a human endeavour**Nature and development of science | examine how people use data to develop scientific explanationsAC9S3H01 | * exploring how farmers use soil tests to monitor and manage the health of farms
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| **Science as a human endeavour**Use and influence of science | consider how people use scientific explanations to meet a need or solve a problem AC9S3H02 | * recognising how First Nations Australians observe and describe developmental changes in plants and animals to make decisions about when to harvest certain resources
* exploring the history of manure and compost use in agriculture and how composting can help improve soil condition and plant growth
* investigating how understanding of life cycles of insect pests such as fruit flies led to effective control strategies
* investigating how engineers test the insulation properties of materials, and how this information is used to design food and beverage packaging, building insulation or clothing
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| **Science – Year 4** | **Science as a human endeavour**Use and influence of science | consider how people use scientific explanations to meet a need or solve a problemAC9S4H02 | * investigating how knowledge of the role of decomposers has helped people design industrial composting systems to manage plant and animal waste
* investigating how First Nations Australians of arid regions of Australia use scientific knowledge to manage precious water resources
* considering how knowledges of plant biology enable First Nations Australians to sustainably harvest and use plants to make tools and weapons, musical instruments, clothing, cosmetics and artworks
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| **Humanities and Social Sciences (HASS) –** **Year 4** | **Knowledge and understanding** Geography  | the importance of environments, including natural vegetation and water sources, to people and animals in Australia and on another continentAC9HS4K05 | * identifying the main types of vegetation, including forest, savannah, grassland, woodland and desert, and exploring natural vegetation in Australia and another continent such as Africa or South America
* exploring how vegetation has an important role in sustaining the environment by producing oxygen, protecting food-producing land from erosion, retaining rainfall, providing habitat for animals, sheltering crops and livestock, providing shade for people, cooling urban places, producing medicines, wood and fibre, and making places appear more attractive
* explaining how people’s connections with their environment can also be aesthetic, emotional and spiritual
* exploring strategies to protect particular environments that provide habitats for animals; for example, planting bird-attracting vegetation
* identifying the importance of water to the environment and to sustaining the lives of people and animals
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| sustainable use and management of renewable and non-renewable resources, including the custodial responsibility First Nations Australians have for Country/PlaceAC9HS4K06 | * exploring how some resources are used and managed in sustainable and non-sustainable ways; for example, auditing use of renewable and non-renewable resources in the classroom, investigating recycling and waste disposal of non-renewable resources in the school and by local government, reducing waste through “nude food” lunch boxes and using recycled toilet paper, examining how renewable resources such as timber are managed
* investigating how First Nations Australians adapted ways using knowledge and practices linked to the sustainable use of resources and environments (for example, rotational use and harvesting of resources; mutton-bird harvesting in Tasmania; the use of fire; the use of vegetation endemic in the local area for food, shelter, medicine, tools and weapons; and the collection of bush food from semi-arid rangelands), and how this knowledge can be taught through stories and songs, reflecting their inherent, custodial responsibilities
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| **Skills** Interpreting, analysing and evaluating | analyse information and data, and identify perspectivesAC9HS4S04 | * analysing information collected from interviews with different people about the same issue; for example, developers, businesspeople and their employees, council members, local Elders and conservationists, regarding the management of resources
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| **Skills** Concluding and decision-making | propose actions or responses to an issue or challenge that consider possible effects of actionsAC9HS4S06  | * participating in cooperative strategies that enable decision-making about roles and responsibilities in relation to an issue that may be of concern to the students (for example, waste management in their school or protecting a habitat for an endangered species) and identifying resources needed to support the actions and likely outcomes
* forecasting a probable future and a preferred future relating to an environmental, local government or cultural issue; for example, developing a future scenario of what oceans will be like if humans continue to allow waste plastic to enter waterways, and a preferred scenario of what oceans would be like if plastics were to be replaced by degradable materials
* reflecting on personal behaviours and identifying attitudes that may affect aspects of the environment at a local or global level; for example, pouring paints down the sink, using products sourced from cleared rainforests and proposing awareness-raising strategies to reduce impacts on the environment
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