NSW Science and Technology K-6 syllabus
2027 implementation

STAGE	Early Stage 1	Stage 1	Stage 2	Stage 3
SCIENCE FOCUS	**Observations and questions spark curiosity**	**Investigations of changes provide knowledge and understanding**	**Physical and living systems depend on energy**	**Knowledge of our world and beyond inspires sustainable solutions**
SCIENCE OUTCOMES	STE-SCI-01 identifies and describes characteristics of living things, properties of materials, and movement STE-PQU-01 poses questions based on observations to collect data	ST1-SCI-01 measures and describes changes in living things, materials, movement, Earth and the sky ST1-PQU-01 poses questions based on observations and information to investigate cause and effect ST1-DAT-01 collects, represents and uses data to identify patterns and relationships	ST2-SCI-01 uses information to investigate the solar system and the effects of energy on living, physical and geological systems ST2-PQU-01 poses questions to create fair tests that investigate the effects of energy on living things and physical systems ST2-DAT-01 uses and interprets data to describe patterns and relationships	ST3-SCI-01 uses evidence to explain how scientific knowledge can be used to develop sustainable practices ST3-PQU-01 poses questions to identify variables and conducts fair tests to gather data ST3-DAT-01 interprets data to support explanations and arguments
TECHNOLOGY FOCUS	***Observations and questions initiate design and digital solutions***	***Design and digital solutions are created through knowledge and understanding***	***Design processes and digital systems are used to create solutions***	***Design and digital technologies engineer sustainable solutions***
TECHNOLOGY OUTCOMES	*STE-DDT-01* *identifies and uses technologies to make products to address user needs or opportunities* *STE-PQU-01* *poses questions based on observations to collect data*	*ST1-DDT-01* *uses technologies and materials to design and make products to address user needs or opportunities* *ST1-PQU-01* *poses questions based on observations and information to investigate cause and effect*	*ST2-DDT-01* *uses a design process to create products to address user needs or opportunities* *ST2-DDT-02* *designs and uses algorithms, represents data and uses digital systems for a purpose*	*ST3-DDT-01* *uses design processes to create, evaluate and modify designed solutions* *ST3-DDT-02* *creates, evaluates and modifies algorithms to code or control digital devices and systems*
CREATING WRITTEN TEXTS IN SCIENCE AND TECHNOLOGY OUTCOMES	No Early Stage 1 outcomes	No Stage 1 outcomes	No Stage 2 outcomes	ST3-CWT-01 creates written texts to communicate understanding of scientific and technological concepts and processes

STAGE	Early Stage 1	Stage 1	Stage 2	Stage 3
SCIENCE FOCUS	**Observations and questions spark curiosity**	**Investigations of changes provide knowledge and understanding**	**Physical and living systems depend on energy**	**Knowledge of our world and beyond inspires sustainable solutions**
SCIENCE OUTCOMES	STE-SCI-01 identifies and describes characteristics of living things, properties of materials, and movement STE-PQU-01 poses questions based on observations to collect data	ST1-SCI-01 measures and describes changes in living things, materials, movement, Earth and the sky ST1-PQU-01 poses questions based on observations and information to investigate cause and effect ST1-DAT-01 collects, represents and uses data to identify patterns and relationships	ST2-SCI-01 uses information to investigate the solar system and the effects of energy on living, physical and geological systems ST2-PQU-01 poses questions to create fair tests that investigate the effects of energy on living things and physical systems ST2-DAT-01 uses and interprets data to describe patterns and relationships	ST3-SCI-01 uses evidence to explain how scientific knowledge can be used to develop sustainable practices ST3-PQU-01 poses questions to identify variables and conducts fair tests to gather data ST3-DAT-01 interprets data to support explanations and arguments
TECHNOLOGY FOCUS	***Observations and questions initiate design and digital solutions***	***Design and digital solutions are created through knowledge and understanding***	***Design processes and digital systems are used to create solutions***	***Design and digital technologies engineer sustainable solutions***
TECHNOLOGY OUTCOMES	*STE-DDT-01* *identifies and uses technologies to make products to address user needs or opportunities* *STE-PQU-01* *poses questions based on observations to collect data*	*ST1-DDT-01* *uses technologies and materials to design and make products to address user needs or opportunities* *ST1-PQU-01* *poses questions based on observations and information to investigate cause and effect*	*ST2-DDT-01* *uses a design process to create products to address user needs or opportunities* *ST2-DDT-02* *designs and uses algorithms, represents data and uses digital systems for a purpose*	*ST3-DDT-01* *uses design processes to create, evaluate and modify designed solutions* *ST3-DDT-02* *creates, evaluates and modifies algorithms to code or control digital devices and systems*
CREATING WRITTEN TEXTS IN SCIENCE AND TECHNOLOGY OUTCOMES	No Early Stage 1 outcomes	No Stage 1 outcomes	No Stage 2 outcomes	ST3-CWT-01 creates written texts to communicate understanding of scientific and technological concepts and processes

EARLY STAGE 1 OVERVIEW					
OUTCOMES	**STE-SCI-01** identifies and describes characteristics of living things, properties of materials, and movement **STE-PQU-01** poses questions based on observations to collect data				**STE-DDT-01** identifies and uses technologies to make products to address user needs or opportunities
CONTENT FOCUS	**Observations and questions spark curiosity**				**Observations and questions initiate design and digital solutions**
	Living things have characteristics that help them survive in their environment	**Objects are made of materials that have observable properties**	**Living things and objects move in different ways**	**Creating written sentences supports understanding of Science and Technology**	**Understanding user needs inspires design and digital solutions**
CONTENT DOT POINTS **See here for example activities**	1. Identify the sense organs and describe their functions 2. Identify and use tools to aid and extend sensory observations 3. Describe how living things get air, water and energy to survive in their environment 4. Recognise that plants produce their own food, and animals need to find their food 5. Examine flowers, fruit, leaves, roots and stems of plants and describe their purpose 6. Examine animal bodies, their body coverings, and how and what they eat 7. Observe and group animals based on their characteristics and justify the grouping 8. Describe ways Aboriginal and/or Torres Strait Islander Peoples use Knowledges of the characteristics of plants and animals to survive 9. Pose questions to compare the characteristics of living things and non-living things	1. Recognise that properties of materials can be observed using the senses 2. Observe and manipulate materials to describe their properties using Tier 2 vocabulary 3. Pose questions about materials and describe how they are used in everyday objects 4. Bend, twist, crush and stretch objects to show that the properties of materials remain the same 5. Explore how Aboriginal and/or Torres Strait Islander Peoples use natural materials for specific purposes based on their properties	1. Observe, describe and categorise the ways in which living things move 2. Identify and label the parts of the human body that are used for movement 3. Test how the movement of an object is affected by its shape 4. Experiment to observe how an object's movement is affected by its material 5. Identify objects made by Aboriginal and/or Torres Strait Islander Peoples and describe their movements	1. Select adjectives to add precision when describing the properties of materials 2. Use nouns, adjectives and verbs to label pictures to describe the characteristics or movement of living things 3. Use subject–verb–object structure to create simple sentences to describe how living things meet their needs	1. Distinguish between user needs and wants and describe how they can lead to design opportunities 2. Identify designed products and how they meet user needs 3. Design and build a simple product that addresses a user need or opportunity 4. Pose questions to identify the parts of plants and animals used for food and fibre and create a data display 5. Examine designed structures that animals build to help them survive in their environment 6. Identify and safely use digital devices and apps for a purpose 7. Follow a series of steps to record, save and retrieve data

EARLY STAGE 1 CHANGES

What is in the new syllabus…? https://curriculum.nsw.edu.au/learning-areas/science/science-and-technology-k-6-2024/overview

- WS focuses on posing questions
- Focus is on noticing (observing) and describing phenomena, using tech devices (magnifiers, plastic 'bug boxes') to assist with observations
- Inclusion of Digital Tech use especially for data capture (images) and data transfer (into document/digital book etc)
- Earth and Space has been removed so no link to animals and plants changing through seasons
- Forces are not addressed – they are a strong focus in Stage 1
- Focus on describing how living things (and parts of human bodies) cause movement, and how objects move depending on shape and material
- Plant and animal parts (e.g. sense organs) and how these assist survival
- How plants and animals get air, water and energy
- External features of plants and animals and how these serve to keep the organism alive
- Grouping of animals and plants (with justification)
- How First Nations Peoples use plants and animals to survive
- Which parts of plants can be used by humans (eaten or used to make products)
- Comparing living and non-living things
- Identifying how devices and objects are designed purposefully
- Describing the properties of materials and noting that when the material is deformed or broken, the material stays the same (e.g. crushed chalk is still chalk)
- Identifying a user need e.g. animal shelter in school grounds, book bag to transport books home to school, and then designing and producing a solution.

EARLY STAGE 1 DETAIL

OUTCOMES	**STE-SCI-01** identifies and describes characteristics of living things, properties of materials, and movement **STE-PQU-01** poses questions based on observations to collect data				**STE-DDT-01** identifies and uses technologies to make products to address user needs or opportunities
CONTENT FOCUS	**Observations and questions spark curiosity**				**Observations and questions initiate design and digital solutions**
	A. Living things have characteristics that help them survive in their environment	**B. Objects are made of materials that have observable properties**	**C. Living things and objects move in different ways**	**D. Creating written sentences supports understanding of Science and Technology**	**E. Understanding user needs inspires design and digital solutions**
CONTENT DOT POINTS **[examples]**	1. Identify the sense organs and describe their functions 2. Identify and use tools to aid and extend sensory observations [Bug jars or boxes for insects or earthworms; magnifying glass; digital photography; hearing aids.] 3. Describe how living things get air, water and energy to survive in their environment 4. Recognise that plants produce their own food, and animals need to find their food 5. Examine flowers, fruit, leaves, roots and stems of plants and describe their purpose [Roots take in water; stems carry water to the leaves which take in sunlight as energy.] 6. Examine animal bodies, their body coverings, and how and what they eat [Sulphur-crested cockatoo image with the following features labelled: a strong beak to break seeds, wings, feathers to help it fly, and claws to hold objects.]	1. Recognise that properties of materials can be observed using the senses [Colour, size, shape, texture, warmth, sound, scent.] 2. Observe and manipulate materials to describe their properties using Tier 2 vocabulary [Observe with a magnifying glass, rub together. Hard, flexible, smooth, transparent, warm, squeaky.] 3. Pose questions about materials and describe how they are used in everyday objects [Why do helmets need to be hard? Why are plates sometimes made of paper, plastic, bamboo, ceramics or food?] 4. Bend, twist, crush and stretch objects to show that the properties of materials remain the same [Crushed chalk, knitted wool, origami.]	1. Observe, describe and categorise the ways in which living things move [Crawling, flying, swimming.] 2. Identify and label the parts of the human body that are used for movement [Bones: elbow, knee, knuckles, spine. Muscles: calf, thigh.] 3. Test how the movement of an object is affected by its shape [Movement: bounce, roll, slide. Direction: straight line, zigzag, veering to one side. Objects: ball, box, cone, cylinder, egg.] 4. Experiment to observe how an object's movement is affected by its material [Cloth, metal, plastic, rubber, wood, wool.] 5. Identify objects made by Aboriginal and/or	1. Select adjectives to add precision when describing the properties of materials [Elastic, fragile, rigid, opaque.] 2. Use nouns, adjectives and verbs to label pictures to describe the characteristics or movement of living things 3. Use subject–verb–object structure to create simple sentences to describe how living things meet their needs	1. Distinguish between user needs and wants and describe how they can lead to design opportunities 2. Identify designed products and how they meet user needs [Packaging of food products, wheelchairs, motion sensor doors.] 3. Design and build a simple product that addresses a user need or opportunity [A bridge that supports the weight of a toy, a shelter for an animal, a bag for carrying stationery.] 4. Pose questions to identify the parts of plants and animals used for food and fibre and create a data display [Six-column data display with labels and examples: Root – carrot, Stem – celery, Leaf – lettuce, Flower – cauliflower, Fruit – apple, Seed – peas.] 5. Examine designed structures that animals build to help them survive in their environment [Ant nests, beehives, bowerbird nests, spider webs.] 6. Identify and safely use digital devices and apps for a purpose [Take a photograph, audio recording or videorecording of people or objects, with permission, to share with others.

	7. Observe and group animals based on their characteristics and justify the grouping 8. Describe ways Aboriginal and/or Torres Strait Islander Peoples use Knowledges of the characteristics of plants and animals to survive [A Banksia flower can be used as a source of food, the cone as a water purifier and as a torch.] 9. Pose questions to compare the characteristics of living things and non-living things [What makes a thing living? Living things have needs, reproduce and a life span.]	5. Explore how Aboriginal and/or Torres Strait Islander Peoples use natural materials for specific purposes based on their properties [Art: painting techniques, ochre, weaving. Tools: Grinding stones, boomerang.]	Torres Strait Islander Peoples and describe their movements [Boomerang, woomera, grinding stone, axe, digging stick, canoe.]		Use digital input devices such as a keyboard, microphone, mouse or stylus to label pictures or to operate a search engine to identify an animal or plant.] 7. Follow a series of steps to record, save and retrieve data [Take a photo on a device. Open it in an app. Label it and save it.]

STAGE 1 OVERVIEW									
OUTCOMES	**ST1-SCI-01** measures and describes changes in living things, materials, movement, Earth and the sky **ST1-PQU-01** poses questions based on observations and information to investigate cause and effect **ST1-DAT-01** collects, represents and uses data to identify patterns and relationships							**ST1-DDT-01** uses technologies and materials to design and make products to address user needs or opportunities	
CONTENT FOCUS	**Investigations of changes provide knowledge and understanding**							**Design and digital solutions are created through knowledge and understanding**	
	Living things change over time	**Light and sound interact with materials in different ways**	**The human body's sense organs detect its environment**	**Forces can change the way objects move**	**Planet Earth is our home**	**The sky is our window to the Universe**	**Creating written sentences supports understanding of Science and Technology**	**A design process is used to define user needs and create solutions**	**Digital systems use inputs and algorithms to produce an output**
CONTENT DOT POINTS [See here for example activities]	1. Recognise that data can be collected through observation, testing and research, and that it can be represented as descriptions, diagrams, graphs, images and tables 2. Collect data about the variety of living things in a local habitat, group them and justify the groupings 3. Describe the changes in a plant as it grows using data and scientific models 4. Describe the changes in an animal as it goes through its life cycle using data and scientific models 5. Describe how Aboriginal and/or Torres Strait Islander Peoples use Knowledges of the life cycles of livings things 6. Examine the evidence for extinct animals	1. Recognise that light and sound can travel through air, water and some solids and are affected by those materials 2. Pose questions, test and describe how light can be reflected, refracted, dispersed or absorbed by materials 3. Describe how translucent, transparent, opaque and reflective materials interact with light 4. Recognise that sound is created and carried by vibrations 5. Observe how Aboriginal and/or Torres Strait Islander Peoples use a range of materials and actions to create sound for specific purposes 6. Test how different materials and actions affect the volume and pitch of sound	1. Recognise that the human brain detects information about the surroundings using sense organs, and that it controls and coordinates body functions 2. Observe and describe the function and parts of the eye and the ear 3. Investigate how taste and smell provide information about the environment [Taste can indicate dangerous foods and provide comfort and enjoyment. Smell can indicate danger, help source food and help make inferences about the environment.] 4. Pose questions, test and describe textures to investigate the sense of touch [Rough, hairy, spongy, jagged, coarse, crumbly, sharp.]	1. Recognise that a force is a push or a pull that can make things either start moving, stop moving, change speed, direction or shape 2. Pose questions and test the effects of forces on an object's movement 3. Investigate how applied forces change the movement of traditional toys and tools used by Aboriginal and/or Torres Strait Islander Peoples 4. Test how frictional forces affect moving objects 5. Test how the force of magnetism affects objects	1. Observe and record daily weather to identify changes and patterns 2. Investigate how seasonal patterns influence the behaviour and appearance of living things 3. Describe the ways in which Aboriginal and/or Torres Strait Islander Peoples use seasonal indicators 4. Observe and identify rocks in natural formations and those used in built structures 5. Manipulate different rocks and describe their texture, colour and grain or crystal size	1. Describe the visible features of the sky at night and in the day 2. Recognise that the Sun provides Earth with light energy and the Moon reflects light energy from the Sun 3. Recognise that the Sun rises in the east and sets in the west 4. Model how the rotation of the Earth around its axis causes a repeating pattern of day and night 5. Record changes in shadow length at different times of the day to mark the passage of time 6. Observe the Moon over a lunar cycle and describe its change in appearance using Tier 2 and Tier 3 vocabulary 7. Describe Aboriginal and/or Torres Strait Islander Peoples' connections to Sky Country 8. Examine cultural representations of the Sun, Moon and stars	1. Use nouns, noun groups and verbs to create notes, annotations and labels to document observations 2. Use simple and compound sentences, flow charts and labelled diagrams to describe a process or function 3. Sequence simple and compound sentences, and use labelled diagrams and data to describe cause and effect	1. Recognise that a design process breaks large projects into manageable, logical steps 2. Pose questions and test how materials with different properties contribute to the effectiveness of a product 3. Apply one or more steps of a design process to make a product 4. Describe how food and fibre can be designed and produced to address user needs 5. Describe the ways in which Aboriginal and/or Torres Strait Islander Peoples design using natural materials for specific purposes 6. Describe how products, including digital systems, can affect people's lives	1. Describe how digital systems are used in everyday life and for learning 2. Identify digital systems that can be used to collect personal data and how to protect personal information 3. Create a sequential algorithm that controls a digital device 4. Use the basic features of common digital tools to capture, save and retrieve data to communicate and collaborate following agreed rules

STAGE 1 CHANGES

What is in the new syllabus…? https://curriculum.nsw.edu.au/learning-areas/science/science-and-technology-k-6-2024/overview

- Separation of WS steps into 2 outcomes
  - ST1-PQU-01: poses questions based on observations and information to investigate cause and effect
  - ST1-DAT-01: collects, represents and uses data to identify patterns and relationships
- Inclusion of human body senses
- Inclusion of investigations of light and sound interactions with materials (light was in Stage 2)
- Inclusion of magnetism in Stage 1 (was in Stage 2) and not referred to as non-contact force
- Inclusion of friction in Stage 1(was in Stage 2)
- Inclusion of identification of rocks and their properties
- Notion of light reflection i.e. We see the Moon because it is a light reflector
- Inclusion of day and night modelling in Stage 1 (was in Stage 2)
- Inclusion of naming lunar phases
- Inclusion of life cycles in Stage 1 (used to be in Stage 2)
- Inclusion of fossils
- Inclusion of digital tech use and coding to 'control a device'

STAGE 1 DETAIL

OUTCOMES	**ST1-SCI-01** measures and describes changes in living things, materials, movement, Earth and the sky **ST1-PQU-01** poses questions based on observations and information to investigate cause and effect **ST1-DAT-01** collects, represents and uses data to identify patterns and relationships							**ST1-DDT-01** uses technologies and materials to design and make products to address user needs or opportunities	
CONTENT FOCUS	**Investigations of changes provide knowledge and understanding**							**Design and digital solutions are created through knowledge and understanding**	
	A. Living things change over time	**B. Light and sound interact with materials in different ways**	**C. The human body's sense organs detect its environment**	**D. Forces can change the way objects move**	**E. Planet Earth is our home**	**F. The sky is our window to the Universe**	**G. Creating written sentences supports understanding of Science and Technology**	**H. A design process is used to define user needs and create solutions**	**I. Digital systems use inputs and algorithms to produce an output**
CONTENT DOT POINTS [examples]	10. Recognise that data can be collected through observation, testing and research, and that it can be represented as descriptions, diagrams, graphs, images and tables 11. Collect data about the variety of living things in a local habitat, group them and justify the groupings 12. Describe the changes in a plant as it grows using data and	7. Recognise that light and sound can travel through air, water and some solids and are affected by those materials 8. Pose questions, test and describe how light can be reflected, refracted, dispersed or absorbed by materials [A mirror reflects light. A pencil in a glass of water to see the effect of refraction. A prism disperses light, forming a rainbow. Cardboard absorbs light.]	5. Recognise that the human brain detects information about the surroundings using sense organs, and that it controls and coordinates body functions 6. Observe and describe the function and parts of the eye and the ear [Eye: iris, pupil, lens, eyelid, eyelashes, tears. Ear: external ear, ear lobe, eardrum.] 7. Investigate how taste and smell provide information	1. Recognise that a force is a push or a pull that can make things either start moving, stop moving, change speed, direction or shape 2. Pose questions and test the effects of forces on an object's movement [Playground equipment, toys, windows,	1. Observe and record daily weather to identify changes and patterns [Cloud cover, rainfall, temperature] 2. Investigate how seasonal patterns influence the behaviour and appearance of living things [Seasonal flowers, deciduous trees, hibernation, migration.]	4. Describe the visible features of the sky at night and in the day [Night: stars, Moon, Milky Way. Day: Sun, clouds, occasionally the Moon.] 5. Recognise that the Sun provides Earth with light energy and the Moon reflects light energy from the Sun 6. Recognise that the Sun rises in the east and sets in the west 7. Model how the rotation of the Earth around its axis causes a	4. Use nouns, noun groups and verbs to create notes, annotations and labels to document observations 5. Use simple and compound sentences, flow charts and labelled diagrams to describe a process or function [Use multimodal texts to describe the life cycle of a plant or animal, the effects of forces on an object's	8. Recognise that a design process breaks large projects into manageable, logical steps [Define, research, generate ideas, plan, make, test, evaluate. An iterative process.] 9. Pose questions and test how materials with different properties contribute to the effectiveness of a product [What are the best materials to use to make maracas? What would happen if the material from which an object was made was changed?]	1. Describe how digital systems are used in everyday life and for learning [Access to digital medical services for regional and remote communities, Aboriginal Language apps, assistive technologies] 2. Identify digital systems that can be used to collect personal data and how to protect personal information [Forms, cameras at the supermarket, CCTV, apps. Security of usernames and

	scientific models [Changes: seed, germination, roots grow down, stems grow up, leaves develop, plant gets larger, flowers may form, then fruit forms and ripens. Fruit contains seeds. Scientific models: flow charts, labelled pictures.] 13. Describe the changes in an animal as it goes through its life cycle using data and scientific models [From silkworm to silk moth. Scientific models: 3D models, algorithms, labelled pictures, flow charts.] 14. Describe how Aboriginal and/or Torres Strait Islander Peoples use Knowledges of the life cycles of livings things [Bogong moth, grass trees (Xanthorrhoea spp.)]	9. Describe how translucent, transparent, opaque and reflective materials interact with light [Cellophane, a window, a wall, a mirror.] 10. Recognise that sound is created and carried by vibrations 11. Observe how Aboriginal and/or Torres Strait Islander Peoples use a range of materials and actions to create sound for specific purposes [Emu caller is used for collecting emu eggs, percussion (e.g. clapsticks) and wind instruments are used in song and dance.] 12. Test how different materials and actions affect the volume and pitch of sound [Materials: plastic, metal, wood. Actions: blow, pluck, scrape, shake, strike.]	about the environment [Taste can indicate dangerous foods and provide comfort and enjoyment. Smell can indicate danger, help source food and help make inferences about the environment.] 8. Pose questions, test and describe textures to investigate the sense of touch [Rough, hairy, spongy, jagged, coarse, crumbly, sharp.]	doors, kitchen equipment.] 3. Investigate how applied forces change the movement of traditional toys and tools used by Aboriginal and/or Torres Strait Islander Peoples [Propeller toys, spinning tops.] 4. Test how frictional forces affect moving objects [Carpet, plastic, rubber, timber.] 5. Test how the force of magnetism affects objects [Attraction and repulsion between magnets. Test materials to determine whether	3. Describe the ways in which Aboriginal and/or Torres Strait Islander Peoples use seasonal indicators [Indications for times for planting, harvesting, breeding seasons, Cultural burning.] 4. Observe and identify rocks in natural formations and those used in built structures [Granite, marble, sandstone, slate. Beaches, buildings, statues, road cuttings.] 5. Manipulate different rocks and describe their texture, colour and grain or crystal size	repeating pattern of day and night 8. Record changes in shadow length at different times of the day to mark the passage of time [Minimal shadows at noon, long shadows in the early morning or late afternoon.] 9. Observe the Moon over a lunar cycle and describe its change in appearance using Tier 2 and Tier 3 vocabulary [Crescent, full, gibbous, half, new, waning, waxing.] 10. Describe Aboriginal and/or Torres Strait Islander Peoples' connections to Sky Country [Dreaming Stories of the Seven Sisters, Emu in the sky; navigation and wayfinding.] 11. Examine cultural representations of the Sun, Moon and stars [Flags, ancient Roman, Greek, Egyptian and Chinese stories; art and music.]	movement, the function and parts of the human eye.] 6. Sequence simple and compound sentences, and use labelled diagrams and data to describe cause and effect	10. Apply one or more steps of a design process to make a product 11. Describe how food and fibre can be designed and produced to address user needs [Olives for oil, cotton plant for fabric, sustainable timber for building.] 12. Describe the ways in which Aboriginal and/or Torres Strait Islander Peoples design using natural materials for specific purposes [Using kangaroo sinew as rope when making tools or plant fibres for sewing animal furs and weaving.] 13. Describe how products, including digital systems, can affect people's lives [Products: book, dishwasher, prosthetic. Digital systems: barcode scanner, audiobook, augmentative and alternative communication (AAC), contactless payments.]	passwords or passphrases.] 3. Create a sequential algorithm that controls a digital device 4. Use the basic features of common digital tools to capture, save and retrieve data to communicate and collaborate following agreed rules [Tools: image software, video recording. Rules: keeping passwords and personal information, including photos and videos, private. Assertively gain, give or deny consent to share information.]

	15. Examine the evidence for extinct animals [Fossils, models of dinosaurs. Australian megafauna: Thylacoleo, Diprotodon. Images of Thylacine.]			they are magnetic.]					

STAGE 2 OVERVIEW

OUTCOMES	**ST2-SCI-01** uses information to investigate the solar system and the effects of energy on living, physical and geological systems **ST2-PQU-01** poses questions to create fair tests that investigate the effects of energy on living things and physical systems **ST2-DAT-01** uses and interprets data to describe patterns and relationships							**ST2-DDT-01** uses a design process to create products to address user needs or opportunities **ST2-DDT-02** designs and uses algorithms, represents data and uses digital systems for a purpose	
CONTENT FOCUS	**Physical and living systems depend on energy**							**Design processes and digital systems are used to create solutions**	
	Living things depend on energy and materials to survive	**Energy is required to change the properties of matter**	**Body systems work together to enable movement**	**Heat energy can be transferred**	**Forces shape Earth's surface**	**The Sun is the centre of our solar system and provides our world with energy**	**Creating written explanations of physical and living systems supports understanding of Science and Technology**	**Design is a process of creating and innovating**	**Digital systems can be created and controlled**
CONTENT DOT POINTS [See here for examples]	1. Identify the systems of Earth that make up environments: air – atmosphere, land – lithosphere, water – hydrosphere, living things – biosphere 2. Describe how the needs of living things are provided by the atmosphere, hydrosphere and lithosphere 3. Describe the relationship between habitat, ecosystem and environment 4. Observe and describe living and non-living things in a habitat 5. Pose questions to conduct fair tests to determine the effects of soil, water and light energy on plants 6. Describe how Aboriginal and/or Torres Strait Islander Peoples' practices support habitats to survive 7. Describe the transfer of energy between plants and animals using food chains, Tier 2 and Tier 3 vocabulary 8. Describe ways in which plants and animals depend on each other for survival	1. Recognise that matter is anything that has mass, takes up space and consists of very small particles 2. Observe examples of matter that exist as a solid, which has a defined shape and volume; a liquid, which has a definite volume but not a definite shape; and a gas, which has neither a definite shape nor a definite volume 3. Observe and describe water changing from solid to liquid to gas and back again, using Tier 2 and Tier 3 vocabulary 4. Describe how adding and removing heat energy affects the movement and arrangement of particles when matter is changing state	1. Recognise that all animals are either invertebrates with no spine, or vertebrates with a spine 2. Compare ways invertebrates and vertebrates move on land, in water and in the sky 3. Recognise that the human muscular and skeletal systems work together to enable movement 4. Identify parts of the human skeleton that offer protection and support 5. Model how bones, muscles and joints work together to cause movement	1. Recognise that heat energy can be transferred from warmer to cooler objects by conduction, convection and radiation 2. Recognise that temperature is a measure of hotness or coldness, measured using a thermometer and often expressed in degrees Celsius 3. Pose questions and conduct fair tests to compare how different materials absorb or reflect heat energy 4. Describe how the properties of materials and transfer of heat energy impact everyday life [Clothing, insulation, shade.]	1. Investigate Aboriginal Dreaming Stories and Torres Strait Islander Legends about the formation of landscapes and landforms 2. Explain how the forces produced by wind, water and living things weather rocks 3. Research and describe the changes to the landscape caused by earthquakes and volcanoes 4. Research, describe and model the internal structure of Earth 5. Describe and model how forces produced by moving water cause erosion	1. Model Earth's revolution around the Sun and recognise that a complete revolution takes 365.25 days 2. Research how energy from the Sun is used 3. Describe features of our solar system using multimodal representations 4. Demonstrate that gravity is a force of attraction between objects and Earth 5. Recognise that the force of gravity keeps Earth, moons and planets in their positions in the solar system 6. Research cultural references to the solar system including Aboriginal and/or Torres Strait Islander Knowledges of the night sky	1. Use Tier 2 and Tier 3 vocabulary and noun groups to enhance the specificity of texts 2. Use notes, diagrams, flow charts and annotations to support understanding and explain processes 3. Use compound and complex sentences to sequence connected ideas into paragraphs when explaining cause and effect 4. Use temporal and causal connectives and labelled diagrams when explaining the process of conducting a fair test	1. Explore the design of a structure, product or place and identify how user needs are addressed 2. Generate, develop and communicate design ideas 3. Test construction methods and materials to build a designed model 4. Build, test and evaluate a designed model 5. Research processes used to provide food and clothing	1. Use core features of common digital tools to locate, select, store and retrieve relevant information 2. Use core features of common digital tools to share content, plan tasks and collaborate safely following an agreed code of conduct 3. Design algorithms that use branching and iteration to document and program a procedure 4. Explore how data can be represented by letters, numbers, symbols, images and sounds depending on the purpose 5. Select, enter and represent different types of data using digital tools

STAGE 2 CHANGES

What is in the new syllabus…? https://curriculum.nsw.edu.au/learning-areas/science/science-and-technology-k-6-2024/overview

- Specific labelling of Earth systems: air – atmosphere, land – lithosphere, water – hydrosphere, living things – biosphere
- Focus on ecosystems, habitat and environment
- Inclusion of food chains and specific terminology: Carnivore, consumer, decomposer, herbivore, omnivore, parasite, predator, prey, producer
- Inclusion of water cycle and associated terminology: Boiling, condensation, evaporation, freezing, melting.
- Inclusion of human muscular and skeletal systems and how work together
- Inclusion of rock weathering as a necessary precursor to erosion
- Inclusion of internal structure of Earth: Crust, mantle, outer and inner core; 2D diagrams, cutaway diagrams, 3D models.
- Inclusion of Earth's revolution round Sun.
- Solar system structure moved to Stage 2 (from Stage 3)
- Gravity's effect on objects on Earth but also: "Recognise that the force of gravity keeps Earth, moons and planets in their positions in the solar system"
- Explicit focus on design process and digital systems

STAGE 2 DETAIL

OUTCOMES	**ST2-SCI-01** uses information to investigate the solar system and the effects of energy on living, physical and geological systems **ST2-PQU-01** poses questions to create fair tests that investigate the effects of energy on living things and physical systems **ST2-DAT-01** uses and interprets data to describe patterns and relationships							**ST2-DDT-01** uses a design process to create products to address user needs or opportunities **ST2-DDT-02** designs and uses algorithms, represents data and uses digital systems for a purpose	
CONTENT FOCUS	**Physical and living systems depend on energy**							**Design processes and digital systems are used to create solutions**	
	Living things depend on energy and materials to survive	**Energy is required to change the properties of matter**	**Body systems work together to enable movement**	**Heat energy can be transferred**	**Forces shape Earth's surface**	**The Sun is the centre of our solar system and provides our world with energy**	**Creating written explanations of physical and living systems supports understanding of Science and Technology**	**Design is a process of creating and innovating**	**Digital systems can be created and controlled**
CONTENT DOT POINTS **[examples]**	1. Identify the systems of Earth that make up environments: air – atmosphere, land – lithosphere, water – hydrosphere, living things – biosphere 2. Describe how the needs of living things are provided by the atmosphere, hydrosphere and lithosphere [Atmosphere: air and gases – oxygen. Hydrosphere: water, aquatic habitats. Lithosphere:	1. Recognise that matter is anything that has mass, takes up space and consists of very small particles 2. Observe examples of matter that exist as a solid, which has a defined shape and volume; a liquid, which has a definite volume but not a definite shape; and a gas, which has neither a definite shape nor a definite volume [At room temperature, solids: wood, plastic, rocks; liquids: milk,	1. Recognise that all animals are either invertebrates with no spine, or vertebrates with a spine [Invertebrates with no spine or internal skeleton: earthworms, jellyfish, snails. Invertebrates with no spine and an external skeleton: bees, crabs, spiders. Vertebrates: birds, humans, sharks.] 2. Compare ways invertebrates and vertebrates move on land, in water and in the sky	1. Recognise that heat energy can be transferred from warmer to cooler objects by conduction, convection and radiation 2. Recognise that temperature is a measure of hotness or coldness, measured using a thermometer and often expressed in degrees Celsius	1. Investigate Aboriginal Dreaming Stories and Torres Strait Islander Legends about the formation of landscapes and landforms [Jenolan Caves, Nobby's Headland, Rainbow Serpent, Three Sisters (Gulu-mada).] 2. Explain how the forces	1. Model Earth's revolution around the Sun and recognise that a complete revolution takes 365.25 days 2. Research how energy from the Sun is used [Drying clothes, solar cells, salt farms, sundried fruit, pizza box solar oven.] 3. Describe features of our solar system using multimodal representations [Features: size and composition of planets, moons, asteroids;	1. Use Tier 2 and Tier 3 vocabulary and noun groups to enhance the specificity of texts [Vocabulary: asteroid, insulator, mantle. Noun groups: heat energy, light source, seed dispersal.] 2. Use notes, diagrams, flow charts and annotations to support understanding and explain processes 3. Use compound and complex sentences to sequence connected ideas into paragraphs when explaining cause and effect [Changes caused by	1. Explore the design of a structure, product or place and identify how user needs are addressed [Space station, search engine, learning area, accessible playground, sensory space.] 2. Generate, develop and communicate design ideas [Thumbnail sketches, models, annotated drawings, materials required. Represent algorithms as a list of steps or a diagram.] 3. Test construction methods and	1. Use core features of common digital tools to locate, select, store and retrieve relevant information [Refine search terms, bookmark relevant sources.] 2. Use core features of common digital tools to share content, plan tasks and collaborate safely following an agreed code of conduct [Assertively gain, give or deny consent to share

	nutrient-rich soil necessary for plant growth, terrestrial habitats.] 3. Describe the relationship between habitat, ecosystem and environment [The innermost circle is labelled Habitat. It is surrounded by a second circle labelled Ecosystem, and an outer circle labelled Environment.] 4. Observe and describe living and non-living things in a habitat [Living things: plants, animals, fungi, lichen. Non-living things: type of soil, water.] 5. Pose questions to conduct fair tests to determine the effects of soil, water and light energy on plants [Gravel, mud, sand, soil; fresh or salt water; amount, colour, direction of light.] 6. Describe how Aboriginal and/or Torres Strait Islander	honey, water; gases: air, helium, natural gas.] 3. Observe and describe water changing from solid to liquid to gas and back again, using Tier 2 and Tier 3 vocabulary [Boiling, condensation, evaporation, freezing, melting.] 4. Describe how adding and removing heat energy affects the movement and arrangement of particles when matter is changing state [Three cylinders represent a solid, a liquid and a gas. The solid cylinder contains small spheres packed together at the bottom of the cylinder in a defined shape. The cylinder for liquid contains small spheres in pairs that drift together at the bottom of the cylinder. The cylinder for gas contains small spheres that float randomly in pairs.]	3. Recognise that the human muscular and skeletal systems work together to enable movement 4. Identify parts of the human skeleton that offer protection and support [Protection: skull, ribcage. Support: spine, clavicle, pelvis.] 5. Model how bones, muscles and joints work together to cause movement [Hinge joint in knees and elbows; ball-and-socket joint in shoulders and hips. Specific names of bones and muscles are not required.]	3. Pose questions and conduct fair tests to compare how different materials absorb or reflect heat energy [Black materials vs white materials. Metals vs fabrics. Use a temperature sensor, probe, thermometer, ice.] 4. Describe how the properties of materials and transfer of heat energy impact everyday life [Clothing, insulation, shade.]	produced by wind, water and living things weather rocks [Wind and water carry particles that hit against rocks. Plant roots grow into crevices in rocks.] 3. Research and describe the changes to the landscape caused by earthquakes and volcanoes 4. Research, describe and model the internal structure of Earth [Crust, mantle, outer and inner core; 2D diagrams, cutaway diagrams, 3D models.] 5. Describe and model how forces produced by moving water cause	relative length of day and year on each planet.] 4. Demonstrate that gravity is a force of attraction between objects and Earth [Drop an object from a height.] 5. Recognise that the force of gravity keeps Earth, moons and planets in their positions in the solar system 6. Research cultural references to the solar system including Aboriginal and/or Torres Strait Islander Knowledges of the night sky [Roman and Greek names of planets and days of the week, music and art, ancient Aztec and Inca astronomical observatories, Dreaming Stories, Torres Strait Islander Legends.]	erosion, earthquakes or volcanoes and their effects on the landscape; interactions of Earth's systems.] 4. Use temporal and causal connectives and labelled diagrams when explaining the process of conducting a fair test [Temporal connectives: first, next, finally. Causal connectives: because, due to, as a result.]	materials to build a designed model 4. Build, test and evaluate a designed model 5. Research processes used to provide food and clothing [Technologies to support growth, harvest, preservation, transport and sale.]	information online, keep personal information safe.] 3. Design algorithms that use branching and iteration to document and program a procedure 4. Explore how data can be represented by letters, numbers, symbols, images and sounds depending on the purpose [Charts, graphs, Morse code, music notation, semaphore.] 5. Select, enter and represent different types of data using digital tools [Types of data: text, image, audio, video. Tools: image software, spreadsheets, word processors.]

	Peoples' practices support habitats to survive [Cultural burning.] 7. Describe the transfer of energy between plants and animals using food chains, Tier 2 and Tier 3 vocabulary [Tree sap → cicada → lizard → kookaburra. Carnivore, consumer, decomposer, herbivore, omnivore, parasite, predator, prey, producer.] 8. Describe ways in which plants and animals depend on each other for survival [Plants depend on animals: insect pollination of flowers, seed dispersal inside or outside animals. Animals depend on plants: food, clothing and shelter.]				erosion [The faster the water moves, the greater the force exerted, which can move heavier objects.]				

STAGE 3 OVERVIEW

OUTCOMES	**ST3-SCI-01** uses evidence to explain how scientific knowledge can be used to develop sustainable practices **ST3-PQU-01** poses questions to identify variables and conducts fair tests to gather data **ST3-DAT-01** interprets data to support explanations and arguments **ST3-CWT-01** creates written texts to communicate understanding of scientific and technological concepts and processes							**ST3-DDT-01** uses design processes to create, evaluate and modify designed solutions **ST3-DDT-02** creates, evaluates and modifies algorithms to code or control digital devices and systems	
CONTENT FOCUS	**Knowledge of our world and beyond inspires sustainable solutions**							**Design and digital technologies engineer sustainable solutions**	
	Living things may change over millions of years, in response to their environments	**A fixed amount of usable matter makes up all the material on Earth**	**Body systems coordinate for survival**	**Electrical energy can be transferred and transformed**	**Earth's climate is affected by natural and human activities**	**Our solar system is a part of one of billions of galaxies in the Universe**	**Creating written explanations of concepts and processes supports understanding of Science and Technology**	**Design processes explore opportunities and develop solutions**	**The future can be shaped by building and connecting digital systems**
CONTENT DOT POINTS [See here for examples]	1. Observe behavioural and structural adaptations of plants and animals, and suggest how these may help them survive in their environments 2. Examine and explain how the characteristics of flowers, fruit and seeds are adaptations for reproduction in plants 3. Interpret a food web that describes the flow of matter and energy between plants and animals in an ecosystem 4. Identify and describe how the loss or introduction of plants or animals affects an Australian ecosystem 5. Examine evidence that environments have changed over time and continue to change 6. Describe how Aboriginal and/or Torres Strait Islander Peoples' sustainable practices continue to protect the environment	1. Explain how recyclable, reusable, renewable, biodegradable and compostable materials enhance sustainability 2. Recognise that in a fair test, an independent variable is changed, a dependent variable is measured, and controlled variables remain the same 3. Pose questions to determine whether substances dissolve in water by identifying variables and conducting and evaluating fair tests 4. Investigate ways to collect and process waste to reduce pollution or increase the sustainable use of materials 5. Create and communicate a plan to implement a sustainable practice in a community that addresses an identified environmental concern	1. Identify the main organs and their functions in the human digestive, respiratory and circulatory systems 2. Recognise that the human digestive, respiratory and circulatory systems work together 3. Identify variables and conduct fair tests to describe ways the circulatory and respiratory systems respond to physical activity 4. Investigate how structural and behavioural adaptations in humans aid survival	1. Recognise that an electrical circuit transfers electrical energy from a source, through a pathway, to a device that transforms electrical energy into other forms of energy 2. Plan and construct simple electrical circuits to model the transfer and transformation of energy 3. Pose questions, identify variables and safely conduct fair tests to identify materials that act as electrical conductors or insulators 4. Explain how electrical insulators can ensure electrical safety in everyday life 5. Identify renewable and non-renewable energy sources 6. Research and present information describing the impact on resources and the environment of using a renewable or a non-renewable resource to generate electricity	1. Identify the technologies used to collect weather data and describe how they are used 2. Describe the differences between climate and weather 3. Research the effects of natural events on the atmosphere 4. Explain the effects of natural events and human activities on climate	1. Recognise stars, galaxies, nebulae, exoplanets and black holes as astronomical features that exist beyond our solar system 2. Research how living things can travel and survive in space 3. Examine the development of our knowledge through discoveries and technologies, and how these benefit humankind 4. Describe how Aboriginal and/or Torres Strait Islander Peoples' Knowledges of the positions of the Sun, Moon and stars are used for navigation and wayfinding	1. Use nominalisations to convey scientific and technological concepts and processes succinctly 2. Add authority to written texts by using data to support an evidence-based explanation or argument 3. Use compound and complex sentences and labelled diagrams to create a text that explains a process, concept or investigation 4. Use notetaking, journalling, annotations and labelled images to create a multimodal text that documents the design processes involved in developing a solution 5. Acknowledge sources of information used in own texts	1. Research Australian technologies and inventions that meet an identified need 2. Research how contemporary spaces are co-designed using Aboriginal and/or Torres Strait Islander Knowledge systems and Cultural Practices 3. Collect data about a user need to generate design criteria for sustainable solutions 4. Develop design ideas to build a prototype using design criteria 5. Test, evaluate and modify the prototype to meet the design criteria	1. Recognise that data are entered, processed and transmitted in digital systems [Entering data: keystrokes, light, motion, sound. Processing data: central processing unit 2. Explore how and why data can be represented as binary code and in other forms 3. Create, test and modify algorithms as visual programs that include branching and iteration 4. Select and use appropriate digital tools to share files online following an agreed code of conduct 5. Evaluate a digital system that accepts and displays information 6. Connect components in a digital system to collect data [7. Use collected data to create an algorithm to perform a function [

STAGE 3 CHANGES

What is in the new syllabus…? https://curriculum.nsw.edu.au/learning-areas/science/science-and-technology-k-6-2024/overview

Living World:

- Explicit focus on how the characteristics of flowers, fruit and seeds are adaptations for reproduction in plants
- Food webs and flow of matter and energy between plants and animals in an ecosystem
- How the loss or introduction of plants or animals affects an Australian ecosystem [Introduction: cane toad, prickly pear, rabbits, deer. Loss: coral animals, mangroves.]
- Examine evidence that environments have changed over time and continue to change [Fossil trees (*Glossopteris*) in Antarctica are evidence of changing climate. Cradle Mountain, Warrumbungles.]
- Human Body system focus – investigations on activity, heart and breathing rates

Material World

- Focus on fair testing around materials dissolving in water (good option to link to 'invisible pollution' in waterways)

Earth and Space

- Focus as described in Teaching Advice

STAGE 3 DETAIL

OUTCOMES	**ST3-SCI-01** uses evidence to explain how scientific knowledge can be used to develop sustainable practices **ST3-PQU-01** poses questions to identify variables and conducts fair tests to gather data **ST3-DAT-01** interprets data to support explanations and arguments **ST3-CWT-01** creates written texts to communicate understanding of scientific and technological concepts and processes							**ST3-DDT-01** uses design processes to create, evaluate and modify designed solutions **ST3-DDT-02** creates, evaluates and modifies algorithms to code or control digital devices and systems	
CONTENT	**Knowledge of our world and beyond inspires sustainable solutions**							**Design and digital technologies engineer sustainable solutions**	
	Living things may change over millions of years, in response to their environments	**A fixed amount of usable matter makes up all the material on Earth**	**Body systems coordinate for survival**	**Electrical energy can be transferred and transformed**	**Earth's climate is affected by natural and human activities**	**Our solar system is a part of one of billions of galaxies in the Universe**	**Creating written explanations of concepts and processes supports understanding of Science and Technology**	**Design processes explore opportunities and develop solutions**	**The future can be shaped by building and connecting digital systems**
CONTENT DOT POINTS **[examples]**	1. Observe behavioural and structural adaptations of plants and animals, and suggest how these may help them survive in their environments [Behavioural adaptations: flowers close at night, burrowing or nocturnal behaviour in animals. Structural adaptations: Banksias' hard seed pods need fire to germinate, a thorny devil's skin has ridges	1. Explain how recyclable, reusable, renewable, biodegradable and compostable materials enhance sustainability 2. Recognise that in a fair test, an independent variable is changed, a dependent variable is measured, and controlled variables remain the same 3. Pose questions to determine whether substances	1. Identify the main organs and their functions in the human digestive, respiratory and circulatory systems [Digestive: oesophagus, stomach, intestines break down and absorb nutrients. Respiratory: trachea, bronchi, lungs take in oxygen from the air. Circulatory: heart, arteries, veins pump blood around the body.]	1. Recognise that an electrical circuit transfers electrical energy from a source, through a pathway, to a device that transforms electrical energy into other forms of energy [Energy source: battery, mains socket. Energy pathway: wire, printed circuit. Device: light bulb, buzzer, fan.]	1. Identify the technologies used to collect weather data and describe how they are used [Satellites, weather stations.] 2. Describe the differences between climate and weather 3. Research the effects of natural events on the atmosphere [Bushfires, ocean currents,	1. Recognise stars, galaxies, nebulae, exoplanets and black holes as astronomical features that exist beyond our solar system 2. Research how living things can travel and survive in space [Rocket take-off and re-entry, sustained living in space, International Space Station.] 3. Examine the development of our knowledge through discoveries and technologies,	1. Use nominalisations to convey scientific and technological concepts and processes succinctly [Adaptation, innovation, insulation.] 2. Add authority to written texts by using data to support an evidence-based explanation or argument 3. Use compound and complex sentences and labelled diagrams to create a text that explains a process, concept or investigation [A	1. Research Australian technologies and inventions that meet an identified need [Mechanical sheep shears, cochlear implant, plastic skin, penicillin, wi-fi technology, polymer bank notes, permaculture.] 2. Research how contemporary spaces are co-designed using Aboriginal and/or Torres Strait Islander Knowledge systems and Cultural Practices [Bush food garden in a school,	1. Recognise that data are entered, processed and transmitted in digital systems [Entering data: keystrokes, light, motion, sound. Processing data: central processing unit (CPU), memory. Transmitting data: wires, wi-fi.] 2. Explore how and why data can be represented as binary code and in other forms [Bar code, QR code. Zeros and ones indicate on and off states.]

	to channel water to its mouth.] 2. Examine and explain how the characteristics of flowers, fruit and seeds are adaptations for reproduction in plants [Flowers: colour, scent and markings encourage pollination by birds or bees. Fruit: source of sugar encourages animals to eat and disperse seeds. Seeds: dispersal by wind, attachment to animals or being eaten by animals.] 3. Interpret a food web that describes the flow of matter and energy between plants and animals in an ecosystem 4. Identify and describe how the loss or introduction of plants or animals affects an Australian ecosystem [Introduction: cane toad, prickly pear, rabbits, deer. Loss: coral animals, mangroves.]	dissolve in water by identifying variables and conducting and evaluating fair tests [Independent variable: substance (food colouring, oil, salt, sand, soil, sugar). Dependent variable: time taken to dissolve. Controlled variables: amount of substance, amount of water, stirring, temperature.] 4. Investigate ways to collect and process waste to reduce pollution or increase the sustainable use of materials [Batteries, electronic waste, food organics and garden organics, paper, plastics. Removal of pollution in waterways, sustainable packaging.] 5. Create and communicate a plan to implement a sustainable practice in a community that addresses an identified	2. Recognise that the human digestive, respiratory and circulatory systems work together 3. Identify variables and conduct fair tests to describe ways the circulatory and respiratory systems respond to physical activity [Independent variable: physical activity. Dependent variable: pulse rate. Controlled variables: method and times of pulse taking, type of activity.] 4. Investigate how structural and behavioural adaptations in humans aid survival [Structural adaptations: teeth and a varied diet, opposable thumbs, bipedalism. Behavioural adaptations: long-term care and education of young.]	2. Plan and construct simple electrical circuits to model the transfer and transformation of energy [Use batteries, light bulbs, switches and insulated wires to set up a circuit. Diagrams, role-play, video.] 3. Pose questions, identify variables and safely conduct fair tests to identify materials that act as electrical conductors or insulators [Conductors such as metals; insulators such as rubber, wood.] 4. Explain how electrical insulators can ensure electrical safety in everyday life 5. Identify renewable and non-	volcanic eruptions.] 4. Explain the effects of natural events and human activities on climate	and how these benefit humankind [Compass, concrete, lenses, satellites, wheel.] 4. Describe how Aboriginal and/or Torres Strait Islander Peoples' Knowledges of the positions of the Sun, Moon and stars are used for navigation and wayfinding	causal explanation showing how the loss or introduction of a plant or animal has affected an Australian ecosystem; a plan for implementing a sustainable practice; a factual recount documenting the process of constructing and testing an electrical circuit.] 4. Use notetaking, journalling, annotations and labelled images to create a multimodal text that documents the design processes involved in developing a solution 5. Acknowledge sources of information used in own texts	yarning circle spaces in a school playground.] 3. Collect data about a user need to generate design criteria for sustainable solutions [Surveys. Availability of materials, cost, sustainability of materials.] 4. Develop design ideas to build a prototype using design criteria 5. Test, evaluate and modify the prototype to meet the design criteria	3. Create, test and modify algorithms as visual programs that include branching and iteration [Plugged: use a microprocessor, robot, screen-based product. Unplugged: use flow charts, pseudocode, diagrams. Physical coding: 'paper, scissors, rock' hand game; treasure map.] 4. Select and use appropriate digital tools to share files online following an agreed code of conduct [Tools: Email, online document collaboration service. Files: audio, image, video, word document. Assertively gain, give or deny consent to share information online.] 5. Evaluate a digital system that accepts and displays information [Interface of a game or app. Evaluate ease of use, aesthetics, accessibility, appropriateness

	5. Examine evidence that environments have changed over time and continue to change [Fossil trees (*Glossopteris*) in Antarctica are evidence of changing climate. Cradle Mountain, Warrumbungles.] 6. Describe how Aboriginal and/or Torres Strait Islander Peoples' sustainable practices continue to protect the environment [Sharing environmental knowledge about how best to care for Country and Place, Totemic systems.]	environmental concern [Management of a water environment, reduction of pollution.]		renewable energy sources [Renewable: hydropower, solar power, tidal power and wind power. Non-renewable: coal, nuclear power.] 6. Research and present information describing the impact on resources and the environment of using a renewable or a non-renewable resource to generate electricity					for intended audience.] 6. Connect components in a digital system to collect data [Plugged: collect environmental data by connecting sensors to microprocessors.] 7. Use collected data to create an algorithm to perform a function [Use data from moisture sensor to water plants: when soil moisture is below a nominated level, water plants; stop watering when soil moisture reaches a nominated level.]