

SCIENCE

CONSULTATION CURRICULUM

Scope and sequence F–6

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FOUNDATION TO YEAR 6

Science		Foundation	Year 1	Year 2
		Achievement standard		
		<p>By the end of Foundation students group plants and animals based on external features. They identify factors that affect the movement of objects. They describe the observable properties of materials that make up objects. They describe how scientists investigate the world around them.</p> <p>Students pose questions and state predictions. They engage in explorations safely. With guidance, they make and represent observations and identify patterns. They reflect on their explorations by comparing their observations with their predictions. They share observations and ideas with others.</p>	<p>By the end of Year 1 students describe where plants and animals live and how they meet their needs. They recognise patterns of change in their environment and describe how these affect their everyday life. They explain how to change the motion and shape of objects. They describe how scientists make predictions and they identify science in their daily life.</p> <p>Students pose questions and make predictions to explore observations. They follow safe procedures to make and record observations. They sort and order data and information using provided templates and with guidance, represent patterns. They compare observations with predictions and identify further questions. They use provided scaffolds to communicate observations, findings and ideas.</p>	<p>By the end of Year 2 students identify common characteristics of living things, including life cycles. They describe how sound energy can be observed and explain how to produce a variety of sounds. They describe ways materials can be physically changed without changing their composition. They explain why creativity is important in science and describe ways people use science in their daily lives.</p> <p>Students pose questions and make predictions to explore observed patterns or relationships. They suggest steps to be followed in an investigation, and independently follow safe procedures safely to make and record observations. They sort and order data and information using provided scaffolds and represent patterns in data. They compare their observations with those of others, consider the fairness of the investigation with guidance and identify further questions. They communicate observations, findings and ideas through multimodal texts.</p>
Strand	Sub-strand	Content description <i>Students learn to:</i>		
Science understanding	Biological sciences	explore external features of plants and animals and ways they can be grouped based on these features (AC9SFU01)	explore the basic needs of plants and animals, including air, water, food and shelter and how the place they live meets those needs (AC9S1U01)	explore the differences between living and non-living things and the life cycles of plants and animals (AC9S2U01)
	Earth and space sciences		explore daily and seasonal changes in the environment and how these changes affect everyday life (AC9S1U02)	
	Physical sciences	explore how objects move and how factors including their size, shape and material, affect their motion (AC9SFU02)	explore pushes and pulls in terms of strength and direction and the effect of these forces on objects' motion and shape (AC9S1U03)	explore how vibrating objects make sounds, how sound energy causes objects to vibrate, and how to produce a variety of sounds (AC9S2U02)
	Chemical sciences	explore how objects can be composed of different materials, and describe observable properties of those materials (AC9SFU03)		explore how everyday materials can be physically changed without changing their material composition, including by bending, twisting, stretching and being broken into smaller pieces (AC9S2U03)

Science as a human endeavour	Nature and development of science	explore how scientists use observation and questioning to learn about the natural world (AC9SFH01)	explore how scientists use patterns to make predictions and apply their understanding creatively to develop new ideas or propose solutions (AC9S2H01)
	Use and influence of science		explore how people use science in their daily lives (AC9S2H02)
Science inquiry	Questioning and predicting	pose questions and make predictions based on experiences (AC9SFI01)	pose questions and make predictions to explore observed simple patterns or relationships (AC9S2I01)
	Planning and conducting	engage in explorations safely and make observations using their senses (AC9SFI02)	suggest and follow safe procedures to investigate questions and test predictions (AC9S2I02)
			make and record observations, including informal measurements, using digital technologies as appropriate (AC9S2I03)
	Processing, modelling and analysing	represent observations in provided templates and identify patterns with guidance (AC9SFI03)	sort and order data and information and represent patterns, including with provided tables and visual or physical models (AC9S2I04)
	Evaluating	compare observations with predictions (AC9SFI04)	compare observations with predictions and others' observations, consider if investigations are fair and identify further questions (AC9S2I05)
	Communicating	share observations and ideas with others (AC9SFI05)	communicate observations, findings and ideas through multimodal texts (AC9S2I06)

Science		Year 3	Year 4	Year 5	Year 6
		Achievement standard			
		<p>By the end of Year 3 students identify key processes in the water cycle and describe how water is cycled through the environment. They identify sources of heat energy and predict temperature changes as a result of heat transfer. They classify solids, liquids and gases based on observable properties and describe how to cause a change of state. They explain why data and evidence are important in science inquiry and describe an everyday solution that reflects science knowledge.</p> <p>Students pose questions and make predictions to explore cause-and effect-relationships. They use scaffolds to plan safe investigations and fair tests. They use familiar classroom instruments to make measurements. They organise data and information using provided scaffolds to show relationships and patterns. They compare their findings with those of others, consider the fairness of the investigation, identify further questions and draw conclusions. They show awareness of purpose when communicating ideas and findings.</p>	<p>By the end of Year 4 students identify the roles of organisms in a habitat and construct food chains. They identify frictional, gravitational and magnetic forces and represent the effect of forces on interactions between objects. They describe key processes that change Earth's surface and identify factors that impact change. They relate the uses of materials to their physical properties. They explain the role of evidence in developing explanations and identify different ways scientific knowledge is shared. They describe a science-based design and the needs it meets.</p> <p>Students pose questions and make predictions to explore patterns and cause-and-effect relationships. They plan investigations using planning scaffolds, identify key elements of fair tests and describe how they conduct investigations safely. They use simple procedures to make accurate formal measurements. They organise data and information to show relationships and patterns. They compare their findings with those of others, analyse the fairness of the investigation, identify further questions for investigation and draw conclusions. They show awareness of audience and purpose when communicating ideas and findings.</p>	<p>By the end of Year 5 students explain how the form and behaviour of living things enables survival. They model the solar system and demonstrate how the relative positions of Earth and the sun result in observed phenomena on Earth. They identify sources of light and model the transfer of light to explain observed phenomena. They relate the particulate structure of solids, liquids and gases to their observable properties. They explain the role of collaboration in science inquiry and describe an example of scientific knowledge that has changed over time. They describe how science knowledge has helped people make decisions.</p> <p>Students plan safe investigations to identify patterns or relationships. They identify risks associated with investigations and identify key intercultural considerations when planning fieldwork. They identify variables to be changed and kept constant. They use equipment to collect data with appropriate precision. They organise data and information and describe patterns, trends and relationships. They compare their methods and findings with those of others, posing questions for further investigation and drawing reasonable conclusions. They use language features to reflect their purpose and audience when communicating their ideas and findings.</p>	<p>By the end of Year 6 students explain how the growth and survival of living things are impacted by changes in physical conditions. They represent changes in Earth materials as they move through the rock cycle and relate their properties to their uses. They represent the transfer and transformation of electrical energy in electrical circuits. They classify and compare reversible and irreversible changes to substances. They explain why science is often collaborative and describe how scientific knowledge has changed over time. They describe how individuals and communities use scientific knowledge.</p> <p>Students plan safe, repeatable investigations to identify patterns or test relationships. They describe risks associated with investigations and describe key intercultural considerations when planning fieldwork. They identify variables to be changed and kept constant. They use equipment to collect and record data with appropriate precision. They organise and process data and information to examine patterns, trends and relationships. They compare their own and others' methods and findings, considering possible sources of error, posing questions for further investigation and drawing reasonable conclusions. They select and use language features effectively for their purpose and audience when communicating their ideas and findings.</p>
Strand	Sub-strand	Content description <i>Students learn to:</i>			
Science understanding	Biological sciences		investigate the roles and interactions of consumers, producers and decomposers within a habitat and how food chains represent feeding relationships (AC9S4U01)	investigate how particular structural features and behaviours of living things enable their survival in specific habitats (AC9S5U01)	investigate the physical conditions of aquatic and terrestrial ecosystems and how the growth and survival of living things is affected by changing physical conditions (AC9S6U01)
	Earth and space sciences	investigate sources of water and key processes in the water cycle, including movement of water through the sky, landscape and ocean; precipitation; evaporation; and condensation (AC9S3U01)	investigate how physical weathering, erosion and deposition cause slow or rapid change to Earth's surface and the factors that can impact erosion in local environments (AC9S4U02)	investigate the relationship between the sun and planets in the solar system and how Earth's tilt, rotation on its axis and revolution around the sun cause cyclic observable phenomena, including variable day and night length (AC9S5U02)	investigate the key processes of the rock cycle, the timescales over which they occur, and how the characteristics of sedimentary, igneous and metamorphic rocks reflect their formation and influence their use (AC9S6U02)
	Physical sciences	investigate sources of heat energy and temperature changes when heat energy is transferred from one object to another (AC9S3U02)	investigate how forces can be exerted by one object on another and how frictional, gravitational and magnetic forces can affect the motion of objects (AC9S4U03)	investigate sources of light and how light travels in a straight path, interacts with objects to form shadows and can be reflected and refracted (AC9S5U03)	investigate the transfer and transformation of energy in electrical circuits, including the role of electric current, circuit components, insulators and conductors (AC9S6U03)

	Chemical sciences	investigate the observable properties of solids, liquids and gases and how adding or removing heat energy changes the state of water (AC9S3U03)	investigate the properties of materials including fibres, metals, ceramics, glass and plastics and how these properties influence their use (AC9S4U04)	investigate how the observable properties of solids, liquids and gases can be described by modelling the motion and arrangement of particles and how adding or removing heat energy affects particle movement (AC9S5U04)	investigate why dissolving, mixing and changes of state are classified as reversible changes and compare with irreversible changes, including burning, cooking and rusting, that produce new substances (AC9S6U04)
Science as a human endeavour	Nature and development of science	investigate how scientists use data and evidence to develop explanations, and how scientists share scientific knowledge (AC9S4H01)		investigate why advances in science are often the result of collaboration of many different scientists and describe how scientific knowledge has changed over time (AC9S6H01)	
	Use and influence of science	investigate how scientific knowledge helps people to meet a need or solve a problem (AC9S4H02)		investigate how scientific knowledge is used by individuals and communities to identify problems, consider responses and make decisions (AC9S6H02)	
Science inquiry	Questioning and predicting	pose questions and make predictions to explore observed patterns or relationships (AC9S4I01)		pose investigable questions and make predictions to identify patterns or test relationships (AC9S6I01)	
	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 (AC9S4I02)		plan and conduct repeatable investigations to answer questions, including, as appropriate, deciding the variables to be changed and measured in fair tests, describing potential risks, planning for the safe use of equipment and materials and identifying required permissions to conduct investigations on Country or Place (AC9S6I02)	
		follow procedures to make and record observations, including making formal measurements using familiar scaled instruments and using digital technologies as appropriate (AC9S4I03)		use equipment to observe, measure and record data with reasonable precision, using digital technologies as appropriate (AC9S6I03)	
	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 patterns (AC9S4I04)		construct and use appropriate representations, including tables, graphs and visual or physical models, to organise and process data and information and identify patterns, trends and relationships (AC9S6I04)	
	Evaluating	compare findings with those of others, identify questions for further investigation and draw conclusions (AC9S4I05)		compare methods and findings with those of others, including recognising possible sources of error, posing questions for further investigation and drawing reasonable conclusions (AC9S6I05)	
	Communicating	create multimodal texts to communicate findings and ideas for identified audiences, using digital technologies as appropriate (AC9S4I06)		create multimodal texts to communicate ideas and findings for specific purposes and audiences, including selection of language features, using digital technologies as appropriate (AC9S6I06)	