



SCIENCE – Scope and sequence P–6

	Pre-primary	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Science understanding							
Biological sciences	Living things have basic needs, including food and water	Living things have a variety of external features Living things live in different places where their needs are met	Living things grow, change and have offspring similar to themselves	Living things can be grouped on the basis of observable features and can be distinguished from non-living things	Living things have life cycles Living things depend on each other and the environment to survive	Living things have structural features and adaptations that help them to survive in their environment	The growth and survival of living things are affected by physical conditions of their environment
Chemical sciences	Objects are made of materials that have observable properties	Everyday materials can be physically changed in a variety of ways	Different materials can be combined for a particular purpose	A change of state between solid and liquid can be caused by adding or removing heat	Natural and processed materials have a range of physical properties that can influence their use	Solids, liquids and gases have different observable properties and behave in different ways	Changes to materials can be reversible or irreversible
Earth and space sciences	Daily and seasonal changes in our environment affect everyday life	Observable changes occur in the sky and landscape	Earth’s resources are used in a variety of ways	Earth’s rotation on its axis causes regular changes, including night and day	Earth’s surface changes over time as a result of natural processes and human activity	The Earth is part of a system of planets orbiting around a star (the sun)	Sudden geological changes and extreme weather events can affect Earth’s surface
Physical sciences	The way objects move depends on a variety of factors, including their size and shape	Light and sound are produced by a range of sources and can be sensed	A push or a pull affects how an object moves or changes shape	Heat can be produced in many ways and can move from one object to another	Forces can be exerted by one object on another through direct contact or from a distance	Light from a source forms shadows and can be absorbed, reflected and refracted	Electrical energy can be transferred and transformed in electrical circuits and can be generated from a range of sources

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	Pre-primary	Year 1-2	Year 3-4	Year 5-6
Science as a human endeavour				
Nature and development of science	Science involves observing, asking questions about, and describing changes in, objects and events	Science involves observing, asking questions about, and describing changes in, objects and events	Science involves making predictions and describing patterns and relationships	Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena and reflects historical and cultural contributions
Use and influence of science		People use science in their daily lives, including when caring for their environment and living things	Science knowledge helps people to understand the effect of their actions	Scientific knowledge is used to solve problems and inform personal and community decisions
Science inquiry skills				
Questioning and predicting	Pose and respond to questions about familiar objects and events	Pose and respond to questions, and make predictions about familiar objects and events	With guidance, identify questions in familiar contexts that can be investigated scientifically and make predictions based on prior knowledge	With guidance, pose clarifying questions and make predictions about scientific investigations
Planning and conducting	Participate in guided investigations and make observations using the senses	Participate in guided investigations to explore and answer questions Use informal measurements to collect and record observations, using digital technologies as appropriate	With guidance, plan and conduct scientific investigations to find answers to questions, considering the safe use of appropriate materials and equipment Consider the elements of fair tests and use formal measurements and digital technologies as appropriate, to make and record observations accurately	Identify, plan and apply the elements of scientific investigations to answer questions and solve problems using equipment and materials safely and identifying potential risks Decide variables to be changed and measured in fair tests, and observe measure and record data with accuracy using digital technologies as appropriate
Processing and analysing data and information	Engage in discussions about observations and represent ideas	Use a range of methods to sort information, including drawings and provided tables through discussion, compare observations with predictions	Use a range of methods including tables and simple column graphs to represent data and to identify patterns and trends Compare results with predictions, suggesting possible reasons for findings	Construct and use a range of representations, including tables and graphs, to represent and describe observations, patterns or relationships in data using digital technologies as appropriate Compare data with predictions and use as evidence in developing explanations
Evaluating		Compare observations with those of others	Reflect on investigations, including whether a test was fair or not	Reflect on and suggest improvements to scientific investigations
Communicating	Share observations and ideas	Represent and communicate observations and ideas in a variety of ways	Represent and communicate observations, ideas and findings using formal and informal representations	Communicate ideas, explanations and processes using scientific representations in a variety of ways, including multi-modal texts

SCIENCE – Scope and sequence 7–10

	Year 7	Year 8	Year 9	Year 10
Science understanding				
Biological sciences	<p>Classification helps organise the diverse group of organisms</p> <p>Interactions between organisms, can be described in terms of food chains and food webs; human activity can affect these interactions</p>	<p>Cells are the basic units of living things; they have specialised structures and functions</p> <p>Multi-cellular organisms contain systems of organs carrying out specialised functions that enable them to survive and reproduce</p>	<p>Multi-cellular organisms rely on coordinated and interdependent internal systems to respond to changes to their environment</p> <p>Ecosystems consist of communities of interdependent organisms and abiotic components of the environment; matter and energy flow through these systems</p>	<p>Transmission of heritable characteristics from one generation to the next involves DNA and genes</p> <p>The theory of evolution by natural selection explains the diversity of living things and is supported by a range of scientific evidence</p>
Chemical sciences	<p>Mixtures, including solutions, contain a combination of pure substances that can be separated using a range of techniques</p>	<p>Properties of the different states of matter can be explained in terms of the motion and arrangement of particles</p> <p>Differences between elements, compounds and mixtures can be described at a particle level</p> <p>Chemical change involves substances reacting to form new substances</p>	<p>All matter is made of atoms that are composed of protons, neutrons and electrons; natural radioactivity arises from the decay of nuclei in atoms</p> <p>Chemical reactions involve rearranging atoms to form new substances; during a chemical reaction mass is not created or destroyed</p> <p>Chemical reactions, including combustion and the reactions of acids, are important in both non-living and living systems and involve energy transfer</p>	<p>The atomic structure and properties of elements are used to organise them in the Periodic Table</p> <p>Different types of chemical reactions are used to produce a range of products and can occur at different rates</p>
Earth and space sciences	<p>Predictable phenomena on Earth, including seasons and eclipses, are caused by the relative positions of the sun, Earth and the moon</p> <p>Some of Earth’s resources are renewable but others are non-renewable</p> <p>Water is an important resource that cycles through the environment</p>	<p>Sedimentary, igneous and metamorphic rocks contain minerals and are formed by processes that occur within Earth over a variety of timescales</p>	<p>The theory of plate tectonics explains global patterns of geological activity and continental movement</p>	<p>The universe contains features including galaxies, stars and solar systems, and the Big Bang theory can be used to explain the origin of the universe</p> <p>Global systems, including the carbon cycle, rely on interactions involving the biosphere, lithosphere, hydrosphere and atmosphere</p>
Physical sciences	<p>Change to an object’s motion is caused by unbalanced forces, including Earth’s gravitational attraction, acting on the object</p>	<p>Energy appears in different forms, including movement (kinetic energy), heat and potential energy, and energy transformations and transfers cause change within systems</p>	<p>Energy transfer through different mediums can be explained using wave and particle models</p>	<p>Energy conservation in a system can be explained by describing energy transfers and transformations</p> <p>The motion of objects can be described and predicted using the laws of physics</p>

SCIENCE – Scope and sequence 7–10

	Year 7-8	Year 9-10
Science as a human endeavour		
Nature and development of science	<p>Scientific knowledge has changed peoples’ understanding of the world and is refined as new evidence becomes available</p> <p>Science knowledge can develop through collaboration across the disciplines of science and the contributions of people from a range of cultures</p>	<p>Scientific understanding, including models and theories, is contestable and is refined over time through a process of review by the scientific community</p> <p>Advances in scientific understanding often rely on technological advances and are often linked to scientific discoveries</p>
Use and influence of science	<p>Solutions to contemporary issues that are found using science and technology, may impact on other areas of society and may involve ethical considerations</p> <p>People use science understanding and skills in their occupations and these have influenced the development of practices in areas of human activity</p>	<p>People use scientific knowledge to evaluate whether they accept claims, explanations or predictions, and advances in science can affect people’s lives, including generating new career opportunities</p> <p>Values and needs of contemporary society can influence the focus of scientific research</p>
Science inquiry skills		
Questioning and predicting	Identify questions and problems that can be investigated scientifically and make predictions based on scientific knowledge	Formulate questions or hypotheses that can be investigated scientifically
Planning and conducting	<p>Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed</p> <p>Measure and control variables, select equipment appropriate to the task and collect data with accuracy</p>	<p>Plan, select and use appropriate investigation types, including field work and laboratory experimentation, to collect reliable data; assess risk and address ethical issues associated with these methods</p> <p>Select and use appropriate equipment, including digital technologies, to collect and record data systematically and accurately</p>
Processing and analysing data and information	<p>Construct and use a range of representations, including graphs, keys and models to represent and analyse patterns or relationships in data using digital technologies as appropriate</p> <p>Summarise data, from students’ own investigations and secondary sources, and use scientific understanding to identify relationships and draw conclusions based on evidence</p>	<p>Analyse patterns and trends in data, including describing relationships between variables and identifying inconsistencies</p> <p>Use knowledge of scientific concepts to draw conclusions that are consistent with evidence</p>
Evaluating	<p>Reflect on scientific investigations including evaluating the quality of the data collected, and identifying improvements</p> <p>Use scientific knowledge and findings from investigations to evaluate claims based on evidence</p>	<p>Evaluate conclusions, including identifying sources of uncertainty and possible alternative explanations, and describe specific ways to improve the quality of the data</p> <p>Critically analyse the validity of information in primary and secondary sources and evaluate the approaches used to solve problems</p>
Communicating	Communicate ideas, findings and evidence based solutions to problems using scientific language, and representations, using digital technologies as appropriate	Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language, conventions and representations