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| **Foundation** |
| **Achievement standard** |
| By the end of Foundation students group plants and animals based on external features. They identify factors that influence the movement of objects. They describe the observable properties of the materials that make up objects. They identify examples of people using observation and questioning to learn about the natural world.  Students pose questions and make predictions based on their experiences. They engage in investigations and make observations safely. With guidance, they represent observations and identify patterns. With guidance, they compare their observations with their predictions. They share questions, predictions, observations and ideas about their experiences with others. |

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| **Content descriptions** |
| **Strand: Science understanding** |
| **Sub-strand: Biological sciences** |
| observe external features of plants and animals and describe ways they can be grouped based on these features  AC9SFU01 |
| **Sub-strand: Physical sciences** |
| describe how objects move and how factors including their size, shape or material influence their movement  AC9SFU02 |
| **Sub-strand: Chemical sciences** |
| recognise that objects can be composed of different materials and describe the observable properties of those materials  AC9SFU03 |

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| **Strand: Science as a human endeavour** |
| **Sub-strand: Use and influence of science** |
| explore the ways people make and use observations and questions to learn about the natural world  AC9SFH01 |

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| **Strand: Science inquiry** |
| **Sub-strand: Questioning and predicting** |
| pose questions and make predictions based on experiences  AC9SFI01 |
| **Sub-strand: Planning and conducting** |
| engage in investigations safely and make observations using their senses  AC9SFI02 |
| **Sub-strand: Processing, modelling and analysing** |
| represent observations in provided templates and identify patterns with guidance  AC9SFI03 |
| **Sub-strand: Evaluating** |
| compare observations with predictions with guidance  AC9SFI04 |
| **Sub-strand: Communicating** |
| share questions, predictions, observations and ideas with others  AC9SFI05 |

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| **Year 1** | **Year 2** |
| **Achievement standard** | |
| By the end of Year 1 students identify how living things meet their needs in the places they live. They identify daily and seasonal changes and describe ways these changes affect their everyday life. They describe how different pushes and pulls change the motion and shape of objects. They describe situations where they use science in their daily lives and identify examples of people making scientific predictions.  Students pose questions to explore observations and make predictions based on experiences. They follow safe procedures to make and record observations. They use provided tables and organisers to sort and order data and information and, with guidance, represent patterns. With guidance, they compare observations with predictions and identify further questions. They use everyday vocabulary to communicate observations, findings and ideas. | By the end of Year 2 students identify celestial objects and describe patterns they observe in the sky. They demonstrate how different sounds can be produced and describe the effect of sound energy on objects. They identify ways to change materials without changing their material composition. They describe how people use science in their daily lives and how people use patterns to make scientific predictions.  Students pose questions to explore observed patterns or relationships and make predictions based on experience. They suggest steps to be followed in an investigation and follow safe procedures to make and record observations. They use provided tables and organisers to sort and order data and represent patterns in data. With guidance, they compare their observations with those of others, identify whether their investigation was fair and identify further questions. They use everyday and scientific vocabulary to communicate observations, findings and ideas. |

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| **Content descriptions** | |
| **Strand: Science understanding** | |
| **Sub-strand: Biological sciences** | |
| identify the basic needs of plants and animals, including air, water, food or shelter, and describe how the places they live meet those needs  AC9S1U01 |  |
| **Sub-strand: Earth and space sciences** | |
| describe daily and seasonal changes in the environment and explore how these changes affect everyday life  AC9S1U02 | recognise Earth is a planet in the solar system and identify patterns in the changing position of the sun, moon, planets and stars in the sky  AC9S2U01 |
| **Sub-strand: Physical sciences** | |
| describe pushes and pulls in terms of strength and direction and predict the effect of these forces on objects’ motion and shape  AC9S1U03 | explore different actions to make sounds and how to make a variety of sounds, and recognise that sound energy causes objects to vibrate  AC9S2U02 |
| **Sub-strand: Chemical sciences** | |
|  | recognise that materials can be changed physically without changing their material composition and explore the effect of different actions on materials including bending, twisting, stretching and breaking into smaller pieces  AC9S2U03 |

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| **Strand: Science as a human endeavour** |
| **Sub-strand: Use and influence of science** |
| describe how people use science in their daily lives, including using patterns to make scientific predictions  AC9S1H01 AC9S2H01 |

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| **Strand: Science inquiry** |
| **Sub-strand: Questioning and predicting** |
| pose questions to explore observed simple patterns and relationships and make predictions based on experiences  AC9S1I01 AC9S2I01 |
| **Sub-strand: Planning and conducting** |
| suggest and follow safe procedures to investigate questions and test predictions  AC9S1I02 AC9S2I02 |
| make and record observations, including informal measurements, using digital tools as appropriate  AC9S1I03 AC9S2I03 |
| **Sub-strand: Processing, modelling and analysing** |
| sort and order data and information and represent patterns, including with provided tables and visual or physical models  AC9S1I04 AC9S2I04 |
| **Sub-strand: Evaluating** |
| compare observations with predictions and others’ observations, consider if investigations are fair and identify further questions with guidance  AC9S1I05 AC9S2I05 |
| **Sub-strand: Communicating** |
| write and create texts to communicate observations, findings and ideas, using everyday and scientific vocabulary  AC9S1I06 AC9S2I06 |

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| **Year 3** | **Year 4** |
| **Achievement standard** | |
| By the end of Year 3 students classify and compare living and non-living things and different life cycles. They describe the observable properties of soils, rocks and minerals and describe their importance as resources. They identify sources of heat energy and examples of heat transfer and explain changes in the temperature of objects. They classify solids and liquids based on observable properties and describe how to cause a change of state. They describe how people use data to develop explanations. They identify solutions that use scientific explanations.  Students pose questions to explore patterns and relationships and make predictions based on observations. 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 and identify patterns and relationships. They compare their findings with those of others, explain how they kept their investigation fair, identify further questions and draw conclusions. They communicate ideas and findings for an identified purpose, including using scientific vocabulary when appropriate. | By the end of Year 4 students identify the roles of organisms in a habitat and construct food chains. They identify key processes in the water cycle and describe how water cycles through the environment. They identify forces acting on objects and describe their effect. They relate the uses of materials to their properties. They explain the role of data in science inquiry. They identify solutions based on scientific explanations and describe the needs these meet.  Students pose questions to identify patterns and relationships and make predictions based on observations. 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 construct representations to organise data and information and identify patterns and relationships. They compare their findings with those of others, assess the fairness of their investigation, identify further questions for investigation and draw conclusions. They communicate ideas and findings for an identified audience and purpose, including using scientific vocabulary when appropriate. |

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| **Content descriptions** | |
| **Strand: Science understanding** | |
| **Sub-strand: Biological sciences** | |
| compare characteristics of living and non-living things and examine the differences between the life cycles of plants and animals  AC9S3U01 | explain the roles and interactions of consumers, producers and decomposers within a habitat and how food chains represent feeding relationships  AC9S4U01 |
| **Sub-strand: Earth and space sciences** | |
| compare the observable properties of soils, rocks and minerals and investigate why they are important Earth resources  AC9S3U02 | identify sources of water and describe key processes in the water cycle, including movement of water through the sky, landscape and ocean; precipitation; evaporation; and condensation  AC9S4U02 |
| **Sub-strand: Physical sciences** | |
| identify sources of heat energy and examine how temperature changes when heat energy is transferred from one object to another  AC9S3U03 | identify how forces can be exerted by one object on another and investigate the effect of frictional, gravitational and magnetic forces on the motion of objects  AC9S4U03 |
| **Sub-strand: Chemical sciences** | |
| investigate the observable properties of solids and liquids and how adding or removing heat energy leads to a change of state  AC9S3U04 | examine the properties of natural and made materials including fibres, metals, glass and plastics and consider how these properties influence their use  AC9S4U04 |

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| **Strand: Science as a human endeavour** |
| **Sub-strand: Nature and development of science** |
| examine how people use data to develop scientific explanations  AC9S3H01 AC9S4H01 |
| **Sub-strand: Use and influence of science** |
| consider how people use scientific explanations to meet a need or solve a problem  AC9S3H02 AC9S4H02 |

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| **Strand: Science inquiry** |
| **Sub-strand: Questioning and predicting** |
| pose questions to explore observed patterns and relationships and make predictions based on observations  AC9S3I01 AC9S4I01 |
| **Sub-strand: Planning and conducting** |
| use provided scaffolds to plan and conduct investigations to answer questions or test predictions, including identifying the elements of fair tests, and considering the safe use of materials and equipment  AC9S3I02 AC9S4I02 |
| follow procedures to make and record observations, including making formal measurements using familiar scaled instruments and using digital tools as appropriate  AC9S3I03 AC9S4I03 |
| **Sub-strand: 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  AC9S3I04 AC9S4I04 |
| **Sub-strand: Evaluating** |
| compare findings with those of others, consider if investigations were fair, identify questions for further investigation and draw conclusions  AC9S3I05 AC9S4I05 |
| **Sub-strand: Communicating** |
| write and create texts to communicate findings and ideas for identified purposes and audiences, using scientific vocabulary and digital tools as appropriate  AC9S3I06 AC9S4I06 |

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| **Year 5** | **Year 6** |
| **Achievement standard** | |
| By the end of Year 5 students explain how the form and behaviour of living things enables survival. They describe key processes that change Earth’s surface. They identify sources of light and model the transfer of light to explain observed phenomena. They relate the particulate arrangement of solids, liquids and gases to their observable properties. They describe examples of collaboration leading to advances in science, and scientific knowledge that has changed over time. They identify examples where scientific knowledge informs the actions of individuals and communities.  Students plan safe investigations to identify patterns and relationships and make reasoned predictions. They identify risks associated with investigations and key intercultural considerations when planning field work. They identify variables to be changed and measured. They use equipment to generate data with appropriate precision. They construct representations to organise data and information and describe patterns, trends and relationships. They compare their methods and findings to those of others, identify possible sources of error in their investigation, pose questions for further investigation and draw reasoned conclusions. They use language features that reflect their purpose and audience when communicating their ideas and findings. | By the end of Year 6 students explain how changes in physical conditions affect living things. They model the relationship between the sun and planets of the solar system and explain how the relative positions of Earth and the sun relate to observed phenomena on Earth. They identify the role of circuit components in the transfer and transformation of electrical energy. They classify and compare reversible and irreversible changes to substances. They explain why science is often collaborative and describe different individuals’ contributions to scientific knowledge. They describe how individuals and communities use scientific knowledge.  Students plan safe, repeatable investigations to identify patterns and test relationships and make reasoned predictions. They describe risks associated with investigations and key intercultural considerations when planning field work. They identify variables to be changed, measured and controlled. They use equipment to generate and record data with appropriate precision. They construct representations to organise and process data and information and describe patterns, trends and relationships. They identify possible sources of error in their own and others’ methods and findings, pose questions for further investigation and select evidence to support reasoned conclusions. They select and use language features effectively for their purpose and audience when communicating their ideas and findings. |

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| **Content descriptions** | |
| **Strand: Science understanding** | |
| **Sub-strand: Biological sciences** | |
| examine how particular structural features and behaviours of living things enable their survival in specific habitats  AC9S5U01 | investigate the physical conditions of a habitat and analyse how the growth and survival of living things is affected by changing physical conditions  AC9S6U01 |
| **Sub-strand: Earth and space sciences** | |
| describe how weathering, erosion, transportation and deposition cause slow or rapid change to Earth’s surface  AC9S5U02 | describe the movement of Earth and other planets relative to the sun and model how Earth’s tilt, rotation on its axis and revolution around the sun relate to cyclic observable phenomena, including variable day and night length  AC9S6U02 |
| **Sub-strand: Physical sciences** | |
| identify sources of light, recognise that light travels in a straight path and describe how shadows are formed and light can be reflected and refracted  AC9S5U03 | investigate the transfer and transformation of energy in electrical circuits, including the role of circuit components, insulators and conductors  AC9S6U03 |
| **Sub-strand: Chemical sciences** | |
| explain observable properties of solids, liquids and gases by modelling the motion and arrangement of particles  AC9S5U04 | compare reversible changes, including dissolving and changes of state, and irreversible changes, including cooking and rusting that produce new substances  AC9S6U04 |

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| **Strand: Science as a human endeavour** |
| **Sub-strand: Nature and development of science** |
| examine why advances in science are often the result of collaboration or build on the work of others  AC9S5H01 AC9S6H01 |
| **Sub-strand: Use and influence of science** |
| investigate how scientific knowledge is used by individuals and communities to identify problems, consider responses and make decisions  AC9S5H02 AC9S6H02 |

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| **Strand: Science inquiry** |
| **Sub-strand: Questioning and predicting** |
| pose investigable questions to identify patterns and test relationships and make reasoned predictions  AC9S5I01 AC9S6I01 |
| **Sub-strand: Planning and conducting** |
| plan and conduct repeatable investigations to answer questions, including, as appropriate, deciding the variables to be changed, measured and controlled in fair tests; describing potential risks; planning for the safe use of equipment and materials; and identifying required permissions to conduct investigations on Country/Place  AC9S5I02 AC9S6I02 |
| use equipment to observe, measure and record data with reasonable precision, using digital tools as appropriate  AC9S5I03 AC9S6I03 |
| **Sub-strand: Processing, modelling and analysing** |
| construct and use appropriate representations, including tables, graphs and visual or physical models, to organise and process data and information and describe patterns, trends and relationships  AC9S5I04 AC9S6I04 |
| **Sub-strand: Evaluating** |
| compare methods and findings with those of others, recognise possible sources of error, pose questions for further investigation and select evidence to draw reasoned conclusions  AC9S5I05 AC9S6I05 |
| **Sub-strand: Communicating** |
| write and create texts to communicate ideas and findings for specific purposes and audiences, including selection of language features, using digital tools as appropriate  AC9S5I06 AC9S6I06 |

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| **Year 7** | **Year 8** |
| **Achievement standard** | |
| By the end of Year 7 students explain how biological diversity is ordered and organised. They represent flows of matter and energy in ecosystems and predict the effects of environmental changes. They model cycles in the Earth-sun-moon system and explain the effects of these cycles on Earth phenomena. They represent and explain the effects of forces acting on objects. They use particle theory to explain the physical properties of substances and develop processes that separate mixtures. Students identify the factors that can influence development of and lead to changes in scientific knowledge. They explain how scientific responses are developed and can impact society. They explain the role of science communication in shaping viewpoints, policies and regulations.  Students plan and conduct safe, reproducible investigations to test relationships and aspects of scientific models. They identify potential ethical issues and intercultural considerations required for field locations or use of secondary data. They use equipment to generate and record data with precision. They select and construct appropriate representations to organise data and information. They process data and information and analyse it to describe patterns, trends and relationships. They identify possible sources of error in methods and identify unanswered questions in conclusions and claims. They identify evidence to support their conclusions and construct arguments to support or dispute claims. They select and use language and text features appropriately for their purpose and audience when communicating their ideas and findings. | By the end of Year 8 students explain the role of specialised cell structures and organelles in cellular function and analyse the relationship between structure and function at organ and body system levels. They apply an understanding of the theory of plate tectonics to explain patterns of change in the geosphere. They explain how the properties of rocks relate to their formation and influence their use. They compare different forms of energy and represent transfer and transformation of energy in simple systems. They classify and represent different types of matter and distinguish between physical and chemical change. Students analyse how different factors influence development of and lead to changes in scientific knowledge. They analyse the key considerations that inform scientific responses and how these responses impact society. They analyse the importance of science communication in shaping viewpoints, policies and regulations.  Students plan and conduct safe, reproducible investigations to test relationships and explore models. They describe potential ethical issues and intercultural considerations needed for specific field locations or use of secondary data. They select and use equipment to generate and record data with precision. They select and construct appropriate representations to organise and process data and information. They analyse data and information to describe patterns, trends and relationships and identify anomalies. They identify assumptions and sources of error in methods and analyse conclusions and claims with reference to conflicting evidence and unanswered questions. They construct evidence-based arguments to support conclusions and evaluate claims. They select and use language and text features appropriately for their purpose when communicating their ideas, findings and arguments to specific audiences. |

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| **Content descriptions** | |
| **Strand: Science understanding** | |
| **Sub-strand: Biological sciences** | |
| investigate the role of classification in ordering and organising the diversity of life on Earth and use and develop classification tools including dichotomous keys  AC9S7U01 | recognise cells as the basic units of living things, compare plant and animal cells, and describe the functions of specialised cell structures and organelles  AC9S8U01 |
| use models, including food webs, to represent matter and energy flow in ecosystems and predict the impact of changing abiotic and biotic factors on populations  AC9S7U02 | analyse the relationship between structure and function of cells, tissues and organs in a plant and an animal organ system and explain how these systems enable survival of the individual  AC9S8U02 |
| **Sub-strand: Earth and space sciences** | |
| model cyclic changes in the relative positions of the Earth, sun and moon and explain how these cycles cause eclipses and influence predictable phenomena on Earth, including seasons and tides  AC9S7U03 | investigate tectonic activity including the formation of geological features at divergent, convergent and transform plate boundaries and describe the scientific evidence for the theory of plate tectonics  AC9S8U03 |
|  | describe the key processes of the rock cycle, including the timescales over which they occur, and examine how the properties of sedimentary, igneous and metamorphic rocks reflect their formation and influence their use  AC9S8U04 |
| **Sub-strand: Physical sciences** | |
| investigate and represent balanced and unbalanced forces, including gravitational force, acting on objects, and relate changes in an object’s motion to its mass and the magnitude and direction of forces acting on it  AC9S7U04 | classify different types of energy as kinetic or potential and investigate energy transfer and transformations in simple systems  AC9S8U05 |
| **Sub-strand: Chemical sciences** | |
| use particle theory to describe the arrangement of particles in a substance, including the motion of and attraction between particles, and relate this to the properties of the substance  AC9S7U05 | classify matter as elements, compounds or mixtures and compare different representations of these, including 2-dimensional and 3-dimensional models, symbols for elements and formulas for molecules and compounds  AC9S8U06 |
| use a particle model to describe differences between pure substances and mixtures and apply understanding of properties of substances to separate mixtures  AC9S7U06 | compare physical and chemical changes and identify indicators of energy change in chemical reactions  AC9S8U07 |

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| **Strand: Science as a human endeavour** |
| **Sub-strand: Nature and development of science** |
| explain how new evidence or different perspectives can lead to changes in scientific knowledge  AC9S7H01 AC9S8H01 |
| investigate how cultural perspectives and world views influence the development of scientific knowledge  AC9S7H02 AC9S8H02 |
| **Sub-strand: Use and influence of science** |
| examine how proposed scientific responses to contemporary issues may impact on society and explore ethical, environmental, social and economic considerations  AC9S7H03 AC9S8H03 |
| explore the role of science communication in informing individual viewpoints and community policies and regulations  AC9S7H04 AC9S8H04 |

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| **Strand: Science inquiry** |
| **Sub-strand: Questioning and predicting** |
| develop investigable questions, reasoned predictions and hypotheses to explore scientific models, identify patterns and test relationships  AC9S7I01 AC9S8I01 |
| **Sub-strand: Planning and conducting** |
| plan and conduct reproducible investigations to answer questions and test hypotheses, including identifying variables and assumptions and, as appropriate, recognising and managing risks, considering ethical issues and recognising key considerations regarding heritage sites and artefacts on Country/Place  AC9S7I02 AC9S8I02 |
| select and use equipment to generate and record data with precision, using digital tools as appropriate  AC9S7I03 AC9S8I03 |
| **Sub-strand: Processing, modelling and analysing** |
| select and construct appropriate representations, including tables, graphs, models and mathematical relationships, to organise and process data and information  AC9S7I04 AC9S8I04 |
| analyse data and information to describe patterns, trends and relationships and identify anomalies  AC9S7I05 AC9S8I05 |
| **Sub-strand: Evaluating** |
| analyse methods, conclusions and claims for assumptions, possible sources of error, conflicting evidence and unanswered questions  AC9S7I06 AC9S8I06 |
| construct evidence-based arguments to support conclusions or evaluate claims and consider any ethical issues and cultural protocols associated with using or citing secondary data or information  AC9S7I07 AC9S8I07 |

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| **Sub-strand: Communicating** |
| write and create texts to communicate ideas, findings and arguments for specific purposes and audiences, including selection of appropriate language and text features, using digital tools as appropriate  AC9S7I08 AC9S8I08 |

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| **Year 9** | **Year 10** |
| **Achievement standard** | |
| By the end of Year 9 students explain how body systems provide a coordinated response to stimuli. They describe how the processes of sexual and asexual reproduction enable survival of the species. They explain how interactions within and between Earth’s spheres affect the carbon cycle. They analyse energy conservation in simple systems and apply wave and particle models to describe energy transfer. They explain observable chemical processes in terms of changes in atomic structure, atomic rearrangement and mass. Students explain the role of publication and peer review in the development of scientific knowledge and explain the relationship between science, technologies and engineering. They analyse the different ways in which science and society are interconnected.  Students plan and conduct safe, reproducible investigations to test or identify relationships and models. They describe how they have addressed any ethical and intercultural considerations when generating or using primary and secondary data. They select and use equipment to generate and record replicable data with precision. They select and construct appropriate representations to organise, process and summarise data and information. They analyse and connect data and information to identify and explain patterns, trends, relationships and anomalies. They analyse the impact of assumptions and sources of error in methods and evaluate the validity of conclusions and claims. They construct logical arguments based on evidence to support conclusions and evaluate claims. They select and use content, language and text features effectively to achieve their purpose when communicating their ideas, findings and arguments to specific audiences. | By the end of Year 10 students explain the processes that underpin heredity and genetic diversity and describe the evidence supporting the theory of evolution by natural selection. They sequence key events in the origin and evolution of the universe and describe the supporting evidence for the big bang theory. They describe trends in patterns of global climate change and identify causal factors. They explain how Newton’s laws describe motion and apply them to predict motion of objects in a system. They explain patterns and trends in the periodic table and predict the products of reactions and the effect of changing reactant and reaction conditions. Students analyse the importance of publication and peer review in the development of scientific knowledge and analyse the relationship between science, technologies and engineering. They analyse the key factors that influence interactions between science and society.  Students plan and conduct safe, valid and reproducible investigations to test relationships or develop explanatory models. They explain how they have addressed any ethical and intercultural considerations when generating or using primary and secondary data. They select equipment and use it efficiently to generate and record appropriate sample sizes and replicable data with precision. They select and construct effective representations to organise, process and summarise data and information. They analyse and connect a variety of data and information to identify and explain patterns, trends, relationships and anomalies. They evaluate the validity and reproducibility of methods, and the validity of conclusions and claims. They construct logical arguments based on analysis of a variety of evidence to support conclusions and evaluate claims. They select and use content, language and text features effectively to achieve their purpose when communicating their ideas, findings and arguments to diverse audiences. |

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| **Content descriptions** | |
| **Strand: Science understanding** | |
| **Sub-strand: Biological sciences** | |
| compare the role of body systems in regulating and coordinating the body’s response to a stimulus, and describe the operation of a negative feedback mechanism  AC9S9U01 | explain the role of meiosis and mitosis and the function of chromosomes, DNA and genes in heredity and predict patterns of Mendelian inheritance  AC9S10U01 |
| describe the form and function of reproductive cells and organs in animals and plants, and analyse how the processes of sexual and asexual reproduction enable survival of the species  AC9S9U02 | use the theory of evolution by natural selection to explain past and present diversity and analyse the scientific evidence supporting the theory  AC9S10U02 |
| **Sub-strand: Earth and space sciences** | |
| represent the carbon cycle and examine how key processes including combustion, photosynthesis and respiration rely on interactions between Earth’s spheres (the geosphere, biosphere, hydrosphere and atmosphere)  AC9S9U03 | describe how the big bang theory models the origin and evolution of the universe and analyse the supporting evidence for the theory  AC9S10U03 |
|  | use models of energy flow between the geosphere, biosphere, hydrosphere and atmosphere to explain patterns of global climate change  AC9S10U04 |
| **Sub-strand: Physical sciences** | |
| use wave and particle models to describe energy transfer through different mediums and examine the usefulness of each model for explaining phenomena  AC9S9U04 | investigate Newton’s laws of motion and quantitatively analyse the relationship between force, mass and acceleration of objects  AC9S10U05 |
| apply the law of conservation of energy to analyse system efficiency in terms of energy inputs, outputs, transfers and transformations  AC9S9U05 |  |
| **Sub-strand: Chemical sciences** | |
| explain how the model of the atom changed following the discovery of electrons, protons and neutrons and describe how natural radioactive decay results in stable atoms  AC9S9U06 | explain how the structure and properties of atoms relate to the organisation of the elements in the periodic table  AC9S10U06 |
| model the rearrangement of atoms in chemical reactions using a range of representations, including word and simple balanced chemical equations, and use these to demonstrate the law of conservation of mass  AC9S9U07 | identify patterns in synthesis, decomposition and displacement reactions and investigate the factors that affect reaction rates  AC9S10U07 |

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| **Strand: Science as a human endeavour** |
| **Sub-strand: Nature and development of science** |
| explain how scientific knowledge is validated and refined, including the role of publication and peer review  AC9S9H01 AC9S10H01 |
| investigate how advances in technologies enable advances in science, and how science has contributed to developments in technologies and engineering  AC9S9H02 AC9S10H02 |
| **Sub-strand: Use and influence of science** |
| analyse the key factors that contribute to science knowledge and practices being adopted more broadly by society  AC9S9H03 AC9S10H03 |
| examine how the values and needs of society influence the focus of scientific research  AC9S9H04 AC9S10H04 |

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| **Strand: Science inquiry** |
| **Sub-strand: Questioning and predicting** |
| develop investigable questions, reasoned predictions and hypotheses to test relationships and develop explanatory models  AC9S9I01 AC9S10I01 |
| **Sub-strand: Planning and conducting** |
| plan and conduct valid, reproducible investigations to answer questions and test hypotheses, including identifying and controlling for possible sources of error and, as appropriate, developing and following risk assessments, considering ethical issues, and addressing key considerations regarding heritage sites and artefacts on Country/Place  AC9S9I02 AC9S10I02 |
| select and use equipment to generate and record data with precision to obtain useful sample sizes and replicable data, using digital tools as appropriate  AC9S9I03 AC9S10I03 |
| **Sub-strand: Processing, modelling and analysing** |
| select and construct appropriate representations, including tables, graphs, descriptive statistics, models and mathematical relationships, to organise and process data and information  AC9S9I04 AC9S10I04 |
| analyse and connect a variety of data and information to identify and explain patterns, trends, relationships and anomalies  AC9S9I05 AC9S10I05 |
| **Sub-strand: Evaluating** |
| assess the validity and reproducibility of methods and evaluate the validity of conclusions and claims, including by identifying assumptions, conflicting evidence and areas of uncertainty  AC9S9I06 AC9S10I06 |
| construct arguments based on analysis of a variety of evidence to support conclusions or evaluate claims, and consider any ethical issues and cultural protocols associated with accessing, using or citing secondary data or information  AC9S9I07 AC9S10I07 |

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| **Sub-strand: Communicating** |
| write and create texts to communicate ideas, findings and arguments effectively for identified purposes and audiences, including selection of appropriate content, language and text features, using digital tools as appropriate  AC9S9I08 AC9S10I08 |