

Level	Scientific Inquiry Skill					Scientific Understanding				Science as a Human Endeavour	
	Questioning and Predicting	Planning and Conducting	Processing and analysing data and information	Evaluating	Communicating	Chemical Sciences	Physical Sciences	Earth Sciences	Biological Sciences	Nature and Development of Science	Use and influence of Science
7	Plan and conduct safe, reproducible investigations to test relationships and aspects of scientific models.	Use equipment to generate and record data with precision. Identify potential ethical issues and intercultural considerations required for field locations or use of secondary data.	Process and analyse data and information to describe patterns, trends and relationships. Select and construct appropriate representations to organise data and information.	Identify possible sources of error in methods, identify unanswered questions in conclusions and claims. Identify evidence to support their conclusions and construct arguments to support or dispute claims.	Select and use language and text features appropriately for their purpose and audience when communicating their ideas and findings.	Use particle theory to explain the physical properties of substances and develop processes that separate mixtures.	Represent and explain the effects of forces acting on objects.	Model cycles in the Earth-sun-moon system and explain the effects of these cycles on Earth phenomena.	Explain how biological diversity is ordered and organised. Represent flows of matter and energy in ecosystems and predict the effects of environmental changes.	Identify the factors that can influence development of and lead to changes in scientific knowledge.	Explain how scientific responses are developed and can impact society. Explain the role of science communication in shaping viewpoints, policies and regulations.
8	Plan and conduct safe, reproducible investigations to test relationships and explore models.	Describe potential ethical issues and intercultural considerations needed for specific field locations or use of secondary data. Select and use equipment to generate and record data with precision	Select and construct appropriate representations to organise and process data and information. Analyse data and information to describe patterns, trends and relationships and identify anomalies.	Identify assumptions and sources of error in methods, analyse conclusions and claims with reference to conflicting evidence and unanswered questions. Construct evidence-based arguments to support conclusions and evaluate claims.	Select and use language and text features appropriately for their purpose when communicating their ideas, findings and arguments to specific audiences.	Classify and represent different types of matter and distinguish between physical and chemical change.	Compare different forms of energy and represent transfer and transformation of energy in simple systems.	Apply an understanding of the theory of plate tectonics to explain patterns of change in the geosphere. Explain how the properties of rocks relate to their formation and influence their use.	Explain the role of specialised cell structures and organelles in cellular function, analyse the relationship between structure and function at organ and body system levels.	Analyse how different factors influence development of and lead to changes in scientific knowledge.	Analyse the importance of science communication in shaping viewpoints, policies and regulations. Analyse the key considerations that inform scientific responses and how these responses impact society.
9	Plan and conduct safe, reproducible investigations to test or identify relationships and models.	Describe how they have addressed any ethical and intercultural considerations when generating or using primary and secondary data. Select and use equipment to generate and record replicable data with precision.	Select and construct appropriate representations to organise, process and summarise data and information. Analyse and connect data and information to identify and explain patterns, trends, relationships and anomalies.	Analyse the impact of assumptions and sources of error in methods and evaluate the validity of conclusions and claims. Construct logical arguments based on evidence to support conclusions and evaluate claims.	Select and use content, language and text features effectively to achieve their purpose when communicating their ideas, findings and arguments to specific audiences.	Explain observable chemical processes in terms of changes in atomic structure, atomic rearrangement and mass.	Analyse energy conservation in simple systems and apply wave and particle models to describe energy transfer.	Explain how interactions within and between Earth's spheres affect the carbon cycle.	Students explain how body systems provide a coordinated response to stimuli. Describe how the processes of sexual and asexual reproduction enable survival of the species.	Explain the role of publication and peer review in the development of scientific knowledge, explain the relationship between science, technologies and engineering.	Analyse the different ways in which science and society are interconnected.
10	Plan and conduct safe, valid and reproducible investigations to test relationships or develop explanatory models.	Explain how they have addressed any ethical and intercultural considerations when generating or using primary and secondary data. Select equipment and use it efficiently to generate and record appropriate sample sizes and replicable data with precision.	Select and construct effective representations to organise, process and summarise data and information. Analyse and connect a variety of data and information to identify and explain patterns, trends, relationships and anomalies.	Evaluate the validity and reproducibility of methods, and the validity of conclusions and claims. Construct logical arguments based on analysis of a variety of evidence to support conclusions and evaluate claims.	Select and use content, language and text features effectively to achieve their purpose when communicating their ideas, findings and arguments to diverse audiences.	Explain patterns and trends in the periodic table and predict the products of reactions and the effect of changing reactant and reaction conditions.	Explain how Newton's laws describe motion and apply them to predict motion of objects in a system.	Describe trends in patterns of global climate change and identify causal factors.	Explain the processes that underpin heredity and genetic diversity, describe the evidence supporting the theory of evolution by natural selection. Sequence key events in the origin and evolution of the universe and describe the supporting evidence for the big bang theory.	Analyse the importance of publications and peer review in the development of scientific knowledge, analyse the relationship between science, technologies and engineering.	Analyse the key factors that influence interactions between science and society.