Year 5 Science
Curriculum and assessment plan

Example

ACiQ | v9.0

Level description	Context and cohort considerations
In Year 5 students continue to explore the relationship between form and function by investigating how features of living things enable them to survive in their habitat. They identify stable and dynamic aspects of systems and appreciate that current systems, such as Earth's surface, have characteristics that have resulted from past changes. They recognise that models are useful for investigating relationships between system components and can be used to predict the effects of changes. They explore observable phenomena associated with light and analyse patterns to identify that these phenomena have sets of characteristic behaviours. They begin to explain how matter structures the world around them. They develop explanations for the patterns they observe and recognise the importance of reflecting on their methods to identify potential sources of error before drawing conclusions. Inquiry questions can help excite students' curiosity and challenge their thinking. Following are examples of inquiry questions that could be used to prompt discussion and exploration: • Why has the Australian coastline changed over time? • Is an empty glass really empty? • Why does my shadow change? • How has science shaped our community? • What if emus could fly?	The Year 5 cohort have two Science sessions per week with one of these scheduled in the outdoor classroom during Semester 1. The Term 1 Erosion mitigation unit requires students to engage in water play to investigate the process of erosion. If access to water for multiple experiments is an issue, the unit can be modified to explore wind erosion. Virtual field trips could be used to supplement class experiments. Developing social awareness is a focus in Years 5 and 6 with opportunities provided for students to identify the roles and responsibilities they have when working in groups for practical assessment. **Note**: Across the units, students will be explicitly taught to use safe scientific practices when engaging in hands-on investigations, even when this is not assessed.

Unit 1 — Erosion mitigation	Unit 2 — Key to survival	Unit 3 — States of matter	Unit 4 — Can you be invisible?
Duration: 10 weeks	Duration: 10 weeks	Duration: 10 weeks	Duration: 10 weeks
Some geological processes are slow, while other changes to the Earth's surface occur rapidly, such as those caused by significant weather events, e.g. flooding. In this unit, students build their understanding of the geological processes that change the Earth's surface, with a focus on erosion. They apply this understanding to develop a management plan that mitigates the effects of these processes. Working in a controlled environment and in groups, students model the process of erosion by pouring water into a cut soft drink bottle containing dirt or sand. They identify variables to be changed and measured and make reasoned predictions. Students then propose a solution to erosion in a local context based on their experimental findings. They use digital tools to collate data to support conclusions about the suitability of their proposal. As a result of their experiments and findings, students recognise the impact of science knowledge on the decisions of individuals and communities. They examine the use of models to explain and test phenomena and identify the strengths and limitations of the models they used to test their own erosion mitigation solution. Working in groups to consider solutions to community problems, students develop social awareness and explore ethical issues when making decisions.	Every organism has characteristics that support its survival in particular habitats. Some organisms though have adaptations that make them so successful in different habitats that they are considered pests. In this unit, students research structural and behavioural adaptations in a range of organisms in order to explain how the form and behaviour of living things enable survival. Students explore the role of botanists in identifying weeds and providing advice to eradicate them. They learn that botanists also develop tools to classify plants that can be used as potential sources of food or medicine. Students identify the key intercultural considerations botanists should observe as they conduct field research, e.g. obtaining permissions to conduct field work on Country/Place and recognising the intellectual property of First Nations Australians when using traditional plant knowledge. Students construct a visual model to explain the successful adaptations of a weed to demonstrate their understanding of the benefits of plant adaptations to their survival.	The properties of matter can be observed using familiar household materials and contexts. For instance, heat transfer is observable in kitchens in the everyday activities of preparing food and drinks. In this unit students investigate the relationship between the observable properties of solids, liquids and gases and the motion and arrangement of particles, including observations of evaporation and condensation. This builds on students' Year 3 understanding of how heat can change solids into liquids. Working in groups, students plan and conduct safe investigations to explore the observable changes arising from heat energy impacting the motion and arrangement of particles in solids, liquids and gases. They compare their results with others and identify possible errors in their experimental method. Once the investigation is complete, students use the results to individually show the relationship between the motion and arrangement of particles and the observable properties of solids, liquids and gases.	Light is generated both naturally and artificially. This unit provides students with an opportunity to explore the transfer of light through phenomena such as shadows, reflections and rainbows. While investigating light transfer, students also consider how light is generated, including with new technologies. Throughout this unit, students generate and consider questions derived from their study of light, including the inquiry question: Could the properties of light be applied through technology to make something invisible? Students construct representations to model light transfer and describe any patterns they see. They use these findings to understand and explain light transfer, and to predict patterns of light transfer. After the supervised assessment, students explore how collaboration between scientists has led to the development of new technologies such as cloaking devices for camouflage. Based on their understanding of the transfer of light, students conduct research and decide if light transfer technology has the potential to make you invisible.

	Unit 1 — Erosion mitigation		Unit 2 — Key to survival		Unit 3 — States of matter		Unit 4 — Can you be invisible?	
	Assessment 1 — Experimental investigation	**Timing**	**Assessment 2 — Investigation**	**Timing**	**Assessment 3 — Experimental investigation**	**Timing**	**Assessment 4 — Supervised assessment**	**Timing**
Assessment	**Description:** Students model erosion, and using collected data, test their selected mitigation technique in a container of dirt or sand. They write parts of a scientific report — in their introduction students describe key processes that change Earth's surface; in their conclusion, they identify examples of where scientific knowledge informs the actions of individuals and communities. **Technique:** Experimental investigation **Mode:** Practical and written **Conditions:** • group work • individual response • written response 200–300 words	Weeks 5–9	**Description:** Students construct a visual model to explain the adaptation/s of a weed. They identify the key features, including behaviours, of the plant that enable survival. Students identify the key intercultural considerations botanists should observe when conducting field work. **Technique:** Investigation **Mode:** Multimodal visual model with written response **Conditions:** • written response 200–300 words, including annotations • visual model presented on 1 A4 page (or digital equivalent), with annotations	Week 9	**Description:** Students design and conduct an experiment or experiments manipulating variables to observe evaporation and condensation. They use their observations to explore the relationship between particulate arrangement in solids, liquids and gases and their observable properties. **Technique:** Experimental investigation **Mode:** Practical and written **Conditions** • group work • individual response • written response 200–300 words	Week 5–9	**Description:** Students respond to questions derived from their study of light. They construct representations to explain the properties of light and describe examples of collaboration between scientists. **Technique**: Supervised assessment **Mode**: Written **Conditions**: • 50 minutes • supervised	Week 9
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 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 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 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.	
Moderation	**Calibration:** Refer to QCAA moderation advice on the QCAA website under the Assessment tab in the learning area.		**Consensus:** Refer to QCAA moderation advice on the QCAA website under the Assessment tab in the learning area.		**Consensus:** Refer to QCAA moderation advice on the QCAA website under the Assessment tab in the learning area.		**Expert:** Refer to QCAA moderation advice on the QCAA website under the Assessment tab in the learning area.	

Content descriptions	Units				Content descriptions	Units				Content descriptions	Units			
Science understanding	**1**	**2**	**3**	**4**	**Science as a human endeavour**	**1**	**2**	**3**	**4**	**Science inquiry**	**1**	**2**	**3**	**4**
Biological sciences examine how particular structural features and behaviours of living things enable their survival in specific habitats AC9S5U01	☐	☑	☐	☐	**Nature and development of science** examine why advances in science are often the result of collaboration or build on the work of others AC9S5H01	☐	☐	☐	☑	**Questioning and predicting** pose investigable questions to identify patterns and test relationships and make reasoned predictions AC9S5I01	☑	☐	☑	☑
Earth and space sciences describe how weathering, erosion, transportation and deposition cause slow or rapid change to Earth's surface AC9S5U02	☑	☐	☐	☐	**Use and influence of science** investigate how scientific knowledge is used by individuals and communities to identify problems, consider responses and make decisions AC9S5H02	☑	☐	☐	☐	**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	☑	☑	☑	☐
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	☐	☐	☐	☑						use equipment to observe, measure and record data with reasonable precision, using digital tools as appropriate AC9S5I03	☐	☐	☑	☐
Chemical sciences explain observable properties of solids, liquids and gases by modelling the motion and arrangement of particles AC9S5U04	☐	☐	☑	☐						**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	☑	☑	☑	☑
										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	☑	☐	☑	☐
										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	☑	☑	☐	☐

General capabilities	Units			
	1	2	3	4
Critical and creative thinking	☐	☑	☑	☑
Digital literacy	☑	☐	☐	☑
Ethical understanding	☑	☐	☐	☐
Intercultural understanding	☐	☐	☐	☐
Literacy	☐	☑	☐	☐
Numeracy	☐	☐	☑	☐
Personal and social capability	☑	☐	☐	☐

Cross-curriculum priorities	Units			
	1	2	3	4
Aboriginal and Torres Strait Islander histories and cultures	☐	☐	☐	☐
Asia and Australia's engagement with Asia	☐	☐	☐	☐
Sustainability	☑	☐	☐	☐