



## Year 8 Science

### Achievement

Year 8 Science provides students with a broad understanding of scientific principles across Chemistry, Physics, Biology, and Earth and Space Sciences. The course builds on prior knowledge from Year 7 and continues developing inquiry skills, critical thinking, and the application of scientific knowledge to real-world contexts. Students will engage in hands-on investigations, collaborative projects, and digital learning activities to explore key concepts and develop scientific literacy.

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.

### Assessment Criteria

An overall level of achievement in this subject is determined by the teacher's on-balance judgment of the evidence presented in students' summative assessment across the following:

- **Science Understanding:** Biological Sciences, Chemical Sciences, Earth and Space Sciences, Physical Sciences.
- **Science as a human endeavour** - Nature and development of science, Use and influence of science.
- **Science Inquiry Skills:** Questioning and predicting, Planning and conducting, Processing, modelling and analysing, Evaluating, Communicating.

### Delivery (mode, time requirements, lessons)

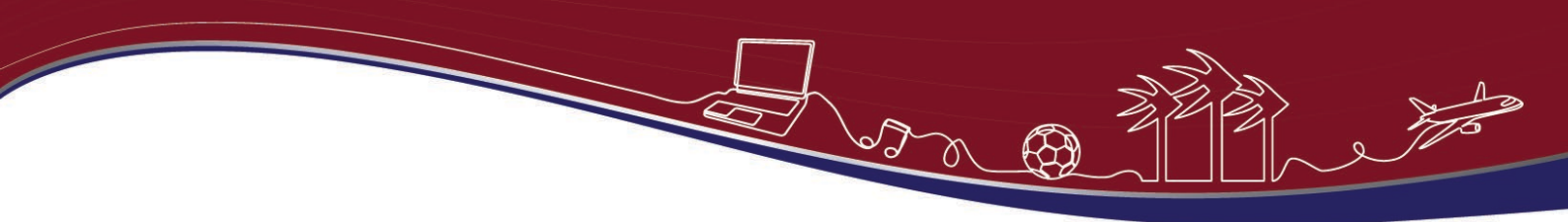
Students have access to scheduled lessons each week. Lessons are delivered via Microsoft Teams and teleconferencing. Students are also expected to undertake independent study to complete tasks and assessment in accordance with the Work Rate Calendar. Course materials can be accessed in QLearn.

### Student Requirements

Computer, internet access, email, printer, scanner, headset with microphone, stationery, resource list and SRS list.

## Year 8 Science

Units and Learning Experiences, Summative Assessment, Criteria Assessed, Approximate timing/due date of summative assessment		
Semester 1	Term 1	<p><b>Unit 1 Chemistry: Making changes</b> Students will:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Investigate the <b>properties of elements and compounds</b>, including metals and non-metals.</li> <li><input type="checkbox"/> Explore <b>physical and chemical changes</b>, including how substances combine and react to form new substances and the heat absorbed and released during chemical reactions (exothermic and endothermic reactions).</li> <li><input type="checkbox"/> Understand the <b>particle model of matter</b> and how it explains the behaviour of solids, liquids, and gases.</li> <li><input type="checkbox"/> Examine the role of chemical change in <b>everyday life</b> (e.g. cooking, rusting, combustion).</li> </ul> <p><b>Key Concepts:</b></p> <ul style="list-style-type: none"> <li>• Atomic structure and the periodic table</li> <li>• Indicators of chemical change</li> <li>• Conservation of mass in reactions</li> </ul>
		<p><b>Summative assessment, criteria assessed, approximate timing/due date:</b></p> <ul style="list-style-type: none"> <li>• Assignment/Project: Apply knowledge of reversible and irreversible changes of materials to investigate a claim (Chemical sciences, Planning and conducting, Evaluating, Communicating) Week 9</li> </ul>
Semester 1	Term 2	<p><b>Unit 2 Earth and space sciences: Earth Systems</b> Students will:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Examine the <b>structure and dynamic nature of the Earth</b>, including the rock cycle and plate tectonics.</li> <li><input type="checkbox"/> Understand <b>geological processes</b> such as erosion, weathering, and volcanic activity.</li> <li><input type="checkbox"/> Explore <b>natural disasters</b> and how humans monitor and respond to them.</li> <li><input type="checkbox"/> Investigate the <b>formation of rocks and minerals</b>, and the human use of geological resources.</li> </ul> <p><b>Key Concepts:</b></p> <ul style="list-style-type: none"> <li>• Layers of the Earth</li> <li>• Rock types: igneous, sedimentary, metamorphic</li> <li>• Tectonic activity and its impact</li> </ul>
		<p><b>Summative assessment, criteria assessed, approximate timing/due date:</b> Exam: Explain how natural events cause rapid changes to the Earth's surface, identify contributions to the development of science by people from a range of cultures, and identify where research can improve data (Earth and space sciences, Nature and development of science, Communicating). Week 5. Assignment/Project: Apply knowledge of plate tectonics and plate boundaries, forces involved with plate tectonics activities such as folding and faulting and human response to tectonic events to investigate a claim (Chemical sciences, Planning and conducting, Evaluating, Communicating). Week 9</p>
Semester 2	Term 3	<p><b>Unit 3 Physics: Energy and Motion</b> Students will:</p> <ul style="list-style-type: none"> <li>• Investigate different forms of <b>energy transfer</b> (heat, light, sound, kinetic).</li> <li>• Explore how <b>forces affect motion</b>, including balanced and unbalanced forces.</li> <li>• Examine the <b>laws of reflection and refraction</b>.</li> <li>• Apply understanding of <b>energy efficiency</b> and sustainable use in daily life.</li> </ul> <p><b>Key Concepts:</b></p> <ul style="list-style-type: none"> <li>• Newton's laws of motion (introductory level)</li> <li>• Energy transformations</li> <li>• Force diagrams and motion graphs</li> </ul>



	<p><b>Summative assessment, criteria assessed, approximate timing/due date:</b>          Assignment/project: Students are required to create their own Rube Goldberg machine and identify the requirements for the transfer of energy, and describe energy transformations involved with the operation of the their inventions in achieving desired goals. (Physical sciences, Use and influence of science, Communicating) Week 7.</p> <p><b>Start Unit 4 Biology Life on Earth in week 8 and complete in term 4</b></p>
<b>Term 4</b>	<p><b>Unit 4 Biology: Life on Earth</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Learn about <b>cells as the building blocks of life</b>, including cell structure and function.</li> <li><input type="checkbox"/> Investigate how <b>organ systems</b> work together to sustain life in multicellular organisms.</li> <li><input type="checkbox"/> Understand the processes of <b>growth, repair, and reproduction</b> in living things.</li> <li><input type="checkbox"/> Explore <b>microorganisms</b>, their roles in health, disease, and the environment.</li> </ul> <p><b>Key Concepts:</b></p> <ul style="list-style-type: none"> <li>• Microscopes and cell types</li> <li>• Digestive, circulatory, and respiratory systems</li> <li>• Pathogens and the immune response</li> </ul>
	<p><b>Summative assessment, criteria assessed, approximate timing/due date:</b></p> <ul style="list-style-type: none"> <li>• There will be a formative task based on cell functions and structures and the interactions between body systems (Biological sciences, Questioning and predicting, Planning and conducting, Processing and analysing data and information, Communicating) Week 8</li> </ul>

**Disclaimer** All of the above information is accurate at the time of development.