

# Australian Curriculum: Science — Year 8

## Year level plan-2023

CURRICULUM	SEMESTER 1		SEMESTER 2	
	Term 1	Term 2	Term 3	Term 4
Unit name	Matter and Chemical Change	Earth Processes – Rocks & Mining	Energy – Forms and Function	Cells and Reproduction
Unit description	<p>In this unit students will explore the different states of matter and their properties. They will be introduced to elements including their symbolic representation and the basic structure and development of periodic table of elements. Students will investigate how and why matter changes states and apply the phase change model to a given scenario. They will be introduced to the particle model of matter and the differences between elements, compounds and mixtures then apply understanding of those concepts to explain physical changes. Students will relate the properties of matter to their use in everyday applications.</p> <p>Students will plan and conduct fair tests, record observations and collect, represent and analyse qualitative and quantitative data. Students will reflect on the methods used to test properties and evaluate the quality of the data collected. They will use their data to draw evidence-based conclusions.</p>	<p>In this unit students will explore different types of rocks and the minerals of which they are composed. They compare the different processes and timescales involved in their formation as part of the rock cycle. Students construct and interpret models and representations to aid in the analyses of patterns and relationships in data. They will investigate properties of rocks and analyse data to identify patterns and relationships. Students will identify rock specimens and model processes of rock formation.</p> <p>Students will explore materials that are sourced from minerals and rocks found in the Earth's crust. They will consider the science knowledge and occupations involved in locating, extracting and processing mined minerals as well as the rehabilitation of mining sites. Students will consider how people connect understanding from across the disciplines of science in their occupations and collaborate with other scientists to improve the mining process. Students summarise information from secondary sources to draw conclusions about the mining process of a particular mineral.</p>	<p>In this unit students will classify and investigate forms of energy. They will investigate different forms of potential energy, make predictions and conduct fair and safe experimental tasks. Students will process and analyse experimental data and information and evaluate the experimental method used. They will use models and representations to examine kinetic energy and its relationship with potential energy and heat. Students will communicate how energy is transferred and transformed within and through systems. They will recognise that energy can be transformed into usable and unusable forms and consider how this can impact on the efficiency of a system. Students will discuss the use and influence of science on the utilisation of energy sources and the efficiency of these sources</p> <p>Students will examine Australia's energy production and use of renewable and non-renewable energy resources. They will explore the benefits and disadvantages of the different energy forms in producing electrical energy. Students will examine the impact of renewable technology in the Australian context and consider how scientific knowledge can help make decisions about renewable resource use across the country.</p>	<p>In this unit students will identify cells as the basic units of living things and their specialised structures. They will use microscopes to draw scientific specimen diagrams. Students will compare similarities and differences between plant and animal cell structure and understand the advantages and disadvantages of cell specialisation. They will examine the relationship between the structure and function of specialised plant and animal cells. Students will analyse the development of the cell theory as a result of historical scientific work. They will apply their knowledge to explain specialisation of a chosen plant and animal cell.</p> <p>Students will explore sexual and asexual reproduction as a means of organisms to reproduce and survive. They will identify and label human and plant male and female reproductive organs and explain the function of each part of the system. The basic structure of the human reproductive system will be compared with that of flowering plants and the role of the menstrual system will be explained. Student will examine the use of assisted reproductive technologies (ART) and the impact these have on the livestock industry with special consideration to the ethical issues and guidelines involved.</p>

ASSESSMENT		SEMESTER 1			SEMESTER 2		
		Term 1		Term 2	Term 3	Term 4	
		Chemical Change- AT1	Materials- AT2	Mining- AT3	Energy- AT4	Cells- AT5	Reproduction- AT6
Range and balance of summative assessment conventions	Technique	Examination	Experimental Investigation	Investigation	Examination	Investigation	Examination
	Text type	Short answer	Scientific report	Short answer & analysis	Short answer & explanation	Scientific report	Short answer & analysis
	Mode	Written	Written & Practical Demonstration	Written	Written	Written Report	Written
	Conditions	- 60min +10min perusal - Short response - Exam conditions	- Class time – 3wks - Individual - 400-600 words	- Class time: 30 mins per <b>Part A - E</b> - Open book conditions	- 60min +10min perusal - Short response - Exam conditions	- Class time – 3wks - Individual - 400-600 words	- 60min +10min perusal - Short response - Exam conditions
<b>Aspects of the achievement standard</b>							
compare physical and chemical changes and use the particle model to explain and predict the properties and behaviours of substances	✓	✓					
identify different forms of energy and describe how energy transfers and transformations cause change in simple systems				✓			
compare processes of rock formation, including the timescales involved.			✓				
analyse the relationship between structure and function at cell, organ and body system levels					✓	✓	
explain how evidence has led to an improved understanding of a scientific idea		✓	✓	✓	✓	✓	✓
describe situations in which scientists collaborated to generate solutions to contemporary problems			✓	✓	✓		
reflect on implications of these solutions for different groups in society.			✓	✓			✓
examine the different science knowledge used in occupations			✓	✓			
identify and construct questions and problems that they can investigate scientifically		✓		✓			
consider safety and ethics when planning investigations, including designing field or experimental methods		✓					
identify variables to be changed, measured and controlled	✓	✓		✓			

construct representations of their data to reveal and analyse patterns and trends, and use these when justifying their conclusions	✓	✓		✓		
explain how modifications to methods could improve the quality of their data		✓		✓		
apply their own scientific knowledge and investigation findings to evaluate claims made by others		✓				
They use appropriate language and representations to communicate science ideas, methods and findings in a range of text types.	✓	✓	✓	✓	✓	✓

Term 1 Term 2 Term 3 Term 4



indicates opportunities that summative assessments provide for students to demonstrate evidence against aspects of the achievement standard