



Lesson Plans

Year 8 Science

Chapter 8 Rocks

Some general points about the following lesson plans:

- ★ The lesson plans outline only one way of sequencing the learning material in this chapter of the textbook.
- ★ The content and sequence will obviously vary from class to class (The following guide is ambitious in many instances).
- ★ All activities and investigations in each chapter have been deliberately designed to support the National Curriculum content whilst keeping in mind the development and reinforcement of skills required in the study of science in Year 11/12.
- ★ The length of lessons vary from school to school and even within schools. The following guide is based on 35/40 min lessons because it was reasoned that adjustment to 60/75/90 mins lessons would be easier than reducing lesson plans.
- ★ Students may be challenged further by completing each chapter Task, Competition Questions, Challenges, and by finding and entering any of the many competitions, challenges, projects etc that may be found on the Internet. Such students may benefit by doing an Internet search early in the year and planning entries before they close.

Assessment

A Task
Inquiry Report
End of Unit Test

Content Description (4 weeks)

Chapter 8

Sedimentary, igneous and metamorphic rocks contain minerals and are formed by processes that occur within Earth over a variety of timescales (ACSSU153)

- ★ represent the stages in the formation of igneous, metamorphic and sedimentary rocks, including indications of timescales involved
- ★ identify a range of common rock types use a key based on observable physical and chemical properties
- ★ consider the role of forces and energy in the formation of different types of rocks and minerals

Content strands

The Australian Curriculum: Science has three interrelated strands: Science Understanding, Science as a Human Endeavour and Science Inquiry Skills.

Science as a Human Endeavour

Scientific knowledge changes as new evidence becomes available, and some scientific discoveries have significantly changed people's understanding of the world (ACSHE134)

- investigating developments in the understanding of cells and how this knowledge has impacted on areas such as health and medicine
- discovering how people's understanding of the nature of matter has changed over time as evidence for particle theory has become available through developments in technology
- considering how the idea of elements has developed over time as knowledge of the nature of matter has improved
- investigating the development of the microscope and the impact it has had on the understanding of cell functions and division

Science knowledge can develop through collaboration and connecting ideas across the disciplines of science (ACSHE226)

- investigating how knowledge of the location and extraction of mineral resources relies on expertise from across the disciplines of science
- considering how advances in technology, combined with scientific understanding of the functioning of body systems, has enabled medical science to replace or repair organs
- researching the use of reproductive technologies and how developments in this field rely on scientific knowledge from different areas of science

Use and influence of science

Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations (ACSHE135)

- investigating requirements and the design of systems for collecting and recycling household waste
- investigating strategies implemented to maintain part of the local environment, such as bushland, a beach, a lake, a desert or a shoreline
- investigating how energy efficiency can reduce energy consumption
- investigating the development of vehicles over time, including the application of science to contemporary designs of solar-powered vehicles
- discussing ethical issues that arise from organ transplantation

Science understanding influences the development of practices in areas of human activity such as industry, agriculture and marine and terrestrial resource management (ACSHE136)

- describing how technologies have been applied to modern farming techniques to improve yields and sustainability
- investigating how Aboriginal people recognise relationships in ecosystems by burning to promote new growth, attract animals and afford easier hunting and food gathering
- describing the impact of plant cloning techniques (asexual production) in agriculture such as horticulture, fruit production and vineyards
- investigating the role of science in the development of technology important to the economies and communities of the Asia-Pacific regions, for example car manufacture, earthquake prediction and electronic optics

People use understanding and skills from across the disciplines of science in their occupations (ACSHE227)

- recognising the role of knowledge of the environment and ecosystems in a number of occupations
- considering how engineers improve energy efficiency of a range of processes
- recognising the role of knowledge of cells and cell divisions in the area of disease treatment and control
- investigating how scientists have created new materials such as synthetic fibres, heat-resistant plastics and pharmaceuticals

Science Inquiry Skills

Science inquiry involves identifying and posing questions; planning, conducting and reflecting on investigations; processing, analysing and interpreting evidence; and communicating findings. This strand is concerned with evaluating claims, investigating ideas, solving problems, drawing valid conclusions and developing evidence-based arguments.

Chapter 8 Rocks (4 weeks)

Lesson	Method	Resources
1	<ul style="list-style-type: none"> <input type="checkbox"/> General (covering book, ruling pages, paste study guide etc.) <input type="checkbox"/> Purpose of chapter <input type="checkbox"/> Introduce/discuss: Rocks p169 <input type="checkbox"/> Discuss: Why are fossils of sea animals found at the top of mountains p169 <input type="checkbox"/> Discuss: Deeper the layer, the older the rock? p169 <input type="checkbox"/> HW: Collect samples of rocks near your home 	
2	<ul style="list-style-type: none"> <input type="checkbox"/> Discuss: Rocks p170 <input type="checkbox"/> Write definitions and examples of rocks, igneous rocks, sedimentary rocks, metamorphic rocks <input type="checkbox"/> Attempt to memorise definitions of igneous, sedimentary, metamorphic <input type="checkbox"/> Internet: Online videos of 'types of rock' <input type="checkbox"/> HW: Revise igneous, sedimentary, metamorphic rocks 	Internet
3	<ul style="list-style-type: none"> <input type="checkbox"/> Test: Definitions of igneous, sedimentary, metamorphic rock <input type="checkbox"/> Discuss: Rock cycle p171 <input type="checkbox"/> Activity: Draw and label rock cycle p171 <input type="checkbox"/> Attempt to memorise rock cycle diagram <input type="checkbox"/> Internet: Online videos of 'rock cycle' <input type="checkbox"/> HW: Revise rock cycle 	Internet
4	<ul style="list-style-type: none"> <input type="checkbox"/> Test: Definitions of igneous, sedimentary, metamorphic rock, rock cycle <input type="checkbox"/> Discuss: Age of rocks p171 <input type="checkbox"/> Exercises p171 <input type="checkbox"/> HW: Complete exercises as necessary 	
5	<ul style="list-style-type: none"> <input type="checkbox"/> Test: Definitions of igneous, sedimentary, metamorphic rock, rock cycle <input type="checkbox"/> Discuss: Igneous rocks p172 <input type="checkbox"/> Write definitions of extrusive, intrusive, plutonic igneous rocks with examples <input type="checkbox"/> Internet: Online videos on growing crystals p173 <input type="checkbox"/> Activity: Start growing copper sulphate crystals and salt crystals p173 <input type="checkbox"/> HW: Revise igneous rocks 	Internet
6	<ul style="list-style-type: none"> <input type="checkbox"/> Test: Igneous rocks - extrusive, intrusive, plutonic <input type="checkbox"/> Internet: Online videos on igneous rocks & identifying igneous rocks p173 <input type="checkbox"/> Activity: Identifying igneous rocks p173 <input type="checkbox"/> Challenge: 10 rock jokes p173 <input type="checkbox"/> HW: Complete 10 rock jokes 	Variety of igneous rocks Internet
7	<ul style="list-style-type: none"> <input type="checkbox"/> Test: Igneous rocks - extrusive, intrusive, plutonic <input type="checkbox"/> Activity: Design a rock key p173 <input type="checkbox"/> Exercise p173 <input type="checkbox"/> HW: Complete exercise as necessary 	
8	<ul style="list-style-type: none"> <input type="checkbox"/> Discuss: Sedimentary rocks p174 <input type="checkbox"/> Internet: Online videos of sedimentary rocks p174 <input type="checkbox"/> Activity: Make sandstone p175 <input type="checkbox"/> Activity: Sedimentary rock formation p175 <input type="checkbox"/> HW: Challenge - Is concrete a sedimentary rock p175 	Sand, epsom salts, paper cup Jar, lid, pebbles, sand, soil, water

Chapter 8 Rocks (4 weeks)

Lesson	Method	Resources
9	<ul style="list-style-type: none"> <input type="checkbox"/> Test: Sedimentary rocks <input type="checkbox"/> Internet: Online videos identifying sedimentary rocks <input type="checkbox"/> Activity: Identifying sedimentary rocks p175 <input type="checkbox"/> Exercise p175 <input type="checkbox"/> HW: Complete exercise as necessary, revise igneous, sedimentary rocks 	Internet Variety of sedimentary rocks
10	<ul style="list-style-type: none"> <input type="checkbox"/> Test: Igneous and sedimentary rocks <input type="checkbox"/> Discuss: Metamorphic rocks p176 <input type="checkbox"/> Internet: Online videos on metamorphic rocks p176 <input type="checkbox"/> Activity: Simulate heat on rock p177 <input type="checkbox"/> Activity: Simulate pressure on rock p177 <input type="checkbox"/> HW: Revise Metamorphic rocks 	Internet Materials for activities p177
11	<ul style="list-style-type: none"> <input type="checkbox"/> Test: Igneous, sedimentary, and metamorphic rocks <input type="checkbox"/> Internet: Online videos on identifying metamorphic rocks <input type="checkbox"/> Activity: Identify metamorphic rocks p177 <input type="checkbox"/> Exercise p177 <input type="checkbox"/> HW: Complete exercise as necessary 	Internet Variety of metamorphic rocks
12	<ul style="list-style-type: none"> <input type="checkbox"/> Test: Igneous, sedimentary, and metamorphic rocks <input type="checkbox"/> Discuss: Geological timescales p178 <input type="checkbox"/> Write the four eons and the three eras of the phanerozoic eon p178 <input type="checkbox"/> Discuss: Australian geology p179 <input type="checkbox"/> Exercise p179 <input type="checkbox"/> HW: Complete exercise as necessary 	
13	<ul style="list-style-type: none"> <input type="checkbox"/> Test: The four eons and the three eras of the phanerozoic eon <input type="checkbox"/> Discuss: Relative age dating p180 <input type="checkbox"/> Activity: Work through the age dating examples p180 <input type="checkbox"/> Exercise p181 <input type="checkbox"/> HW: Complete exercise as necessary 	
14	<ul style="list-style-type: none"> <input type="checkbox"/> Test: Igneous, sedimentary, and metamorphic rocks, geological timescales <input type="checkbox"/> Construct a 'Word bank' for the chapter <input type="checkbox"/> HW: Revision 	

Chapter 8 Rocks (4 weeks)

Lesson	Method	Resources
15	Science inquiry <input type="checkbox"/> Group selection of an inquiry question from p183 <input type="checkbox"/> Group conduction of an investigation to answer the question.	
16	<input type="checkbox"/> Continuation of investigation <input type="checkbox"/> Write report (samples on p21 and p25) <input type="checkbox"/> HW: Complete report as required	
17	Chapter Review and Task <input type="checkbox"/> Exercise p184 and p185 <input type="checkbox"/> Puzzles p187 <input type="checkbox"/> Begin work on 'A Task' p169 <input type="checkbox"/> HW: Complete exercises & work on task as required	
18	Chapter Review and Task <input type="checkbox"/> Exercise p186 and p188 <input type="checkbox"/> Continue work on 'A Task' p169 <input type="checkbox"/> HW: Complete exercises & work on task as required	
19	Chapter Review and Task <input type="checkbox"/> Competition questions p189 <input type="checkbox"/> Harder test questions p190 <input type="checkbox"/> Preparation for test <input type="checkbox"/> Continue work on 'A Task' p169 <input type="checkbox"/> HW: Complete exercises & work on task as required	
20	<input type="checkbox"/> End of chapter/unit test	