



Lesson Plans

Year 7 Science

Chapter 10 Sun, Earth, Moon

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 10

Predictable phenomena on Earth, including seasons and eclipses, are caused by the relative positions of the sun, Earth and the moon (ACSSU115).

- ★ Investigate natural phenomena such as lunar and solar eclipses, seasons and phases of the moon.
- ★ Compare times for the rotation of Earth, the sun and moon, and compare the times for the orbits of Earth and the moon.
- ★ Model the relative movements of the Earth, sun and moon and how natural phenomena such as solar and lunar eclipses and phases of the moon occur.
- ★ Explain why different regions of the Earth experience different seasonal conditions.

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 (ACSHE119)

- investigating how advances in telescopes and space probes have provided new evidence about space
- researching different ideas used in the development of models of the solar system developed by scientists such as Copernicus, Khayyám and Galileo
- researching developments in the understanding of astronomy, such as the predictions of eclipses and the calculation of the length of the solar year by Al-Battani in the tenth century

Science knowledge can develop through collaboration and connecting ideas across the disciplines of science (ACSHE223)

- considering how water use and management relies on knowledge from different areas of science, and involves the application of technology
- identifying the contributions of Australian scientists to the study of human impact on environments and to local environmental management projects
- investigating how land management practices of Aboriginal and Torres Strait Islander peoples can help inform sustainable management of the environment
- studying transnational collaborative research in the Antarctic
- recognising that traditional and Western scientific knowledge can be used in combination to care for Country and Place

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 (ACSHE120)

- relating regulations about wearing seatbelts or safety helmets to knowledge of forces and motion
- considering issues relating to the use and management of water within a community
- considering decisions made in relation to the recycling of greywater and blackwater
- considering how human activity in the community can have positive and negative effects on the sustainability of ecosystems
- investigating ways to control the spread of the cane toad

Science understanding influences the development of practices in areas of human activity such as industry, agriculture and marine and terrestrial resource management (ACSHE121)

- investigating everyday applications of physical separation techniques such as filtering, sorting waste materials, reducing pollution, extracting products from plants, separating blood products and cleaning up oil spills
- investigating how advances in science and technology have been applied to the treatment of water in industrial and household systems
- investigating how Aboriginal and Torres Strait Islander knowledge is being used to inform scientific decisions, for example care of waterways
- researching the different scientific responses to the rabbit plagues in Australian agricultural areas

People use understanding and skills from across the disciplines of science in their occupations (ACSHE224)

- recognising that water management plays a role in areas such as farming, land management and gardening
- investigating how separation techniques are used in the food and wine industries
- considering how seasonal changes affect people in a variety of activities such as farming
- considering how sports scientists apply knowledge of forces in order to improve performance

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 10 Sun, Earth, Moon (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: Sun, Earth, moon p215 <input type="checkbox"/> Discuss: Copernicus' view of the Earth, sun, moon p215 <input type="checkbox"/> Discuss: Task p215. - if sun was a basketball, what would be used to represent the earth and the moon? <input type="checkbox"/> HW: Thoughts about task p215 	String, pins, pencil
2	<ul style="list-style-type: none"> <input type="checkbox"/> Discuss: Pythagoras' thoughts of Earth, sun, moon p216 <input type="checkbox"/> Discuss: Aristotle's thoughts of Earth, sun, moon p216 <input type="checkbox"/> Activity: 5 reasons to support a round Earth vs a flat Earth p216 <input type="checkbox"/> Internet: Online videos on Apollo simulations p216 <input type="checkbox"/> HW: Revise reasons supporting a spherical Earth 	Internet
3	<ul style="list-style-type: none"> <input type="checkbox"/> Test: Reasons supporting a spherical Earth <input type="checkbox"/> Discuss: Aristarchus' thoughts of Earth, sun, moon p217 <input type="checkbox"/> Discuss: Hipparchus' thoughts of Earth, sun, moon p217 <input type="checkbox"/> Discuss: Current theory of Earth, sun, moon p217 <input type="checkbox"/> Exercise p216 <input type="checkbox"/> HW: Complete exercise as necessary, revise current theory Earth, sun, moon 	Internet
4	<ul style="list-style-type: none"> <input type="checkbox"/> Test: Current theory of Earth, sun, moon <input type="checkbox"/> Discuss: The sun p218 <input type="checkbox"/> Discuss: Solar energy p218 <input type="checkbox"/> Activity: Life cycle of a star poster p218 <input type="checkbox"/> HW: Complete poster as necessary, revise sun and solar energy 	Internet
5	<ul style="list-style-type: none"> <input type="checkbox"/> Test: The sun and solar energy <input type="checkbox"/> Discuss: Sunspots p219 <input type="checkbox"/> Discuss: Solar flares p219 <input type="checkbox"/> Activity: Plot annual sunspot activity p219 (Is there a 11-year cycle?) <input type="checkbox"/> Internet: View photos of the sun, sunspots, and solar flares p219 <input type="checkbox"/> Exercise p219 <input type="checkbox"/> HW: Complete exercise as necessary and revise the sun 	Internet Equipment to make graph

Chapter 10 Sun, Earth, Moon (4 weeks)

Lesson	Method	Resources
6	Test: The sun <input type="checkbox"/> Discuss: The Earth p220 <input type="checkbox"/> Activity: Stick sundial p220 <input type="checkbox"/> Activity: Sundial template p221 <input type="checkbox"/> Activity: Complete sundial as required	Internet Stick Sundial tem- plate
7	<input type="checkbox"/> Test: Sun, Earth <input type="checkbox"/> Discuss: Earth's axis p221 <input type="checkbox"/> Discuss: The year p221 <input type="checkbox"/> Activity: A model of sunlight on Earth p221 <input type="checkbox"/> Exercise p221 <input type="checkbox"/> HW: Complete exercise as required, revise sun, Earth	Ball, skewer, torch/lamp
8	<input type="checkbox"/> Test: Sun, Earth <input type="checkbox"/> Discuss: The seasons p222 <input type="checkbox"/> Activity: Plot length of day p223 <input type="checkbox"/> HW: Complete plot as necessary, revise sun, Earth, seasons	Internet Length of day data
9	<input type="checkbox"/> Test: Sun, Earth, seasons <input type="checkbox"/> Discuss: Hemispheres p223 <input type="checkbox"/> Internet: Try some 'interactive seasons' <input type="checkbox"/> Exercise p223 <input type="checkbox"/> HW: Complete exercises & sun, Earth, seasons	Internet
10	<input type="checkbox"/> Test: Sun, Earth, seasons <input type="checkbox"/> Discuss: The moon p224 <input type="checkbox"/> Internet: What are maria? p224 <input type="checkbox"/> Activity: Making moon craters p225 <input type="checkbox"/> Activity: Model the orbit of the moon around the Earth p225 <input type="checkbox"/> Continue work on 'A Task' p201 <input type="checkbox"/> HW: Revise sun, Earth, seasons, moon	Internet Equipment for moon craters
11	<input type="checkbox"/> Test: Sun, Earth, seasons, moon <input type="checkbox"/> Discuss: Moon phases p226 <input type="checkbox"/> Activity: Memorise the phases of the moon <input type="checkbox"/> Activity: Model the phases of the moon p227 <input type="checkbox"/> Internet: 'Interactive moon phases' p227 <input type="checkbox"/> HW: Revise moon phases	Internet Equipment to model moon phases
12	<input type="checkbox"/> Test: Sun, Earth, seasons, moon, moon phases <input type="checkbox"/> Discuss: Moon facts p227 <input type="checkbox"/> Internet: Moon webquest p227 <input type="checkbox"/> Exercise p227 <input type="checkbox"/> HW: Complete exercise as necessary, revise Sun, Earth, seasons, moon, moon phases	Internet
13	<input type="checkbox"/> Test: Sun, Earth, seasons, moon, moon phases <input type="checkbox"/> Discuss: Solar eclipse p228 <input type="checkbox"/> Activity: Model a solar eclipse p228 <input type="checkbox"/> Internet: Online videos of solar eclipse p228 <input type="checkbox"/> Exercise p228 <input type="checkbox"/> HW: Complete exercise as necessary, revise solar eclipse	Internet Ball, spotlight

Chapter 10 Sun, Earth, Moon (4 weeks)

Lesson	Method	Resources
14	<input type="checkbox"/> Test: Sun, Earth, seasons, moon, moon phases, solar eclipse <input type="checkbox"/> Discuss: Lunar eclipse p229 <input type="checkbox"/> Activity: Model a lunar eclipse p229 <input type="checkbox"/> Internet: Online videos of solar eclipse p228 <input type="checkbox"/> Exercise p229 <input type="checkbox"/> HW: Complete exercise as necessary, revise lunar eclipse	
15	Chapter Review and Task <input type="checkbox"/> Exercise p230 <input type="checkbox"/> Puzzles p233 <input type="checkbox"/> Begin work on 'A Task' p215 <input type="checkbox"/> HW: Complete exercises & work on task as required	
16	Chapter Review and Task <input type="checkbox"/> Exercise p231 <input type="checkbox"/> Activity: Trick p233 <input type="checkbox"/> Continue work on 'A Task' p215 <input type="checkbox"/> HW: Complete exercises & work on task as required	
17	Chapter Review and Task <input type="checkbox"/> Exercise p232 and 234 <input type="checkbox"/> Continue work on 'A Task' p215 <input type="checkbox"/> HW: Complete exercises & work on task as required	
18	Chapter Review and Task <input type="checkbox"/> Competition questions p235 <input type="checkbox"/> Harder test questions p236 <input type="checkbox"/> Preparation for test <input type="checkbox"/> Continue work on 'A Task' p215 <input type="checkbox"/> HW: Complete exercises & work on task as required	
19	<input type="checkbox"/> Revise for end of chapter/unit test	
20	<input type="checkbox"/> End of chapter/unit test	