



Lesson Plans

Year 8 Science

Chapter 3

Multi-cellular Organisms

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 3

Multi-cellular organisms contain systems of organs that carry out specialised functions that enable them to survive and reproduce (ACSSU150)

- ★ identify the organs and overall function of a system of a multicellular organism in supporting the life processes
- ★ describe the structure of each organ in a system and relating its function to the overall function of the system
- ★ examine the specialised cells and tissues involved in structure and function of particular organs
- ★ compare similar systems in different organisms such as digestive systems in herbivores and carnivores, respiratory systems in fish and mammals

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 3 Multi-cellular Organisms (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 Multi-cellular Organisms p59 <input type="checkbox"/> Revision of cells p61 <input type="checkbox"/> Exercise: P61 <input type="checkbox"/> HW: Complete exercise 	
2	<ul style="list-style-type: none"> <input type="checkbox"/> Comparing single celled organisms with multi-celled organisms p62 <input type="checkbox"/> Internet: View pond organisms to distinguish single from multi-celled organisms <input type="checkbox"/> Activity: Use a microscope to find single and multicelled organisms in pond water p62 <input type="checkbox"/> HW: Advantages of multi-celled organisms over single-celled organisms p62 	Internet Microscope
3	<ul style="list-style-type: none"> <input type="checkbox"/> Discuss 'Tissues' p63 <input type="checkbox"/> Internet: Watch videos on xylem and phloem tissue <input type="checkbox"/> Exercise p63 <input type="checkbox"/> HW: Complete exercise as necessary 	Internet
4	<ul style="list-style-type: none"> <input type="checkbox"/> Activity: Xylem and phloem cells p63 <input type="checkbox"/> HW: Complete exercise 	Microscope, stains, etc
5	<ul style="list-style-type: none"> <input type="checkbox"/> Discuss 'Organs' p64 <input type="checkbox"/> Internet: Watch videos on 'the stomach' and 'the leaf' <input type="checkbox"/> Sketch and describe the stomach p64 <input type="checkbox"/> HW: Revise the stomach 	Internet
6	<ul style="list-style-type: none"> <input type="checkbox"/> Discuss 'Organ systems' p65 <input type="checkbox"/> Internet: Watch videos on 'body organ systems' <input type="checkbox"/> Try to memorise the names of 10 human body organ systems <input type="checkbox"/> Exercise: p65 <input type="checkbox"/> HW: Complete exercise as necessary 	Internet
7	<ul style="list-style-type: none"> <input type="checkbox"/> Discuss 'The digestive system' <input type="checkbox"/> Internet: Watch videos on 'the digestive system'. <input type="checkbox"/> Try to memorise 4 organs/functions of the digestive system <input type="checkbox"/> Internet: Put together the parts of the digestive system or use a model if available <input type="checkbox"/> HW: Revise organs/functions of the digestive system 	Internet
8	<ul style="list-style-type: none"> <input type="checkbox"/> Test: Organs/functions of the digestive system <input type="checkbox"/> Discuss: Differences and similarities of carnivore and herbivore digestive systems p66 <input type="checkbox"/> Activity: Food digestion in the mouth p67 <input type="checkbox"/> Exercise p67 <input type="checkbox"/> HW: Complete exercise as necessary 	plain biscuit/ cracker

Chapter 3 Multi-cellular Organisms (4 weeks)

Lesson	Method	Resources
9	<ul style="list-style-type: none"> <input type="checkbox"/> Discuss 'The respiratory system' <input type="checkbox"/> Internet: Watch videos on 'the respiratory system'. <input type="checkbox"/> Try to memorise 4 organs/functions of the respiratory system <input type="checkbox"/> Internet: Put together the parts of the respiratory system or use a model if available <input type="checkbox"/> HW: Revise organs/functions of the respiratory system 	Internet
10	<ul style="list-style-type: none"> <input type="checkbox"/> Test: Organs/functions of the respiratory system <input type="checkbox"/> Discuss: Differences and similarities of the respiratory systems of birds and insects p68 <input type="checkbox"/> Activity: Breathing rates p69 <input type="checkbox"/> Exercise p69 <input type="checkbox"/> HW: Complete exercise as necessary and/or make a spirometer 	Stopwatch
11	<ul style="list-style-type: none"> <input type="checkbox"/> Discuss 'The circulatory system' <input type="checkbox"/> Internet: Watch videos on 'the circulatory system'. <input type="checkbox"/> Try to memorise 3 organs/functions of the circulatory system <input type="checkbox"/> Internet: Put together/build the parts of the circulatory system <input type="checkbox"/> HW: Revise organs/functions of the circulatory system 	Internet
12	<ul style="list-style-type: none"> <input type="checkbox"/> Test: Organs/functions of the circulatory system <input type="checkbox"/> Discuss: Differences and similarities of the circulatory systems of fish and amphibians p70 <input type="checkbox"/> Activity: Heart rates p71 <input type="checkbox"/> Exercise p71 <input type="checkbox"/> HW: Complete exercise as necessary 	Stopwatch
13	<ul style="list-style-type: none"> <input type="checkbox"/> Discuss 'The urinary system' <input type="checkbox"/> Internet: Watch videos on 'the urinary system'. <input type="checkbox"/> Try to memorise 4 organs/functions of the urinary system <input type="checkbox"/> Internet: Put together/build the parts of the urinary system <input type="checkbox"/> HW: Revise organs/functions of the urinary system 	Internet
14	<ul style="list-style-type: none"> <input type="checkbox"/> Test: Organs/functions of the urinary system <input type="checkbox"/> Discuss: Differences and similarities of the urinary systems of spiders and horses p72 <input type="checkbox"/> Activity: Our kidneys p73 <input type="checkbox"/> Exercise p73 <input type="checkbox"/> HW: Complete exercise as necessary 	Posters, Internet, pens etc
15	<ul style="list-style-type: none"> <input type="checkbox"/> Discuss 'The skeletal system' <input type="checkbox"/> Activity: Try to memorise the names of 20 bones of our body p74 <input type="checkbox"/> Internet: Play some games naming the bones of our body. <input type="checkbox"/> Debate topics: p75 <input type="checkbox"/> HW: Practice pointing to 20 bones in your body and naming them. 	Internet

Chapter 3 Multi-cellular Organisms (4 weeks)

Lesson	Method	Resources
16	<input type="checkbox"/> Test for 20 bones in our body <input type="checkbox"/> Complete the Word Bank p75 Science inquiry <input type="checkbox"/> Group selection of an inquiry question from p79 <input type="checkbox"/> Group conduction of an investigation to answer the question.	
17	<input type="checkbox"/> Continuation of investigation <input type="checkbox"/> Write report (samples on p21 and p25) <input type="checkbox"/> HW: Complete report as required	
18	Chapter Review and Task <input type="checkbox"/> Exercises p80 and p81 <input type="checkbox"/> Begin work on 'A Task' p59 <input type="checkbox"/> HW: Complete exercises & work on task as required	
19	Chapter Review and Task <input type="checkbox"/> Exercises p82 and p84 <input type="checkbox"/> Continue work on 'A Task' p59 <input type="checkbox"/> HW: Complete exercises & work on task as required	
20	Chapter Review and Task <input type="checkbox"/> Competition questions p85 <input type="checkbox"/> Harder test questions p86 <input type="checkbox"/> Preparation for test <input type="checkbox"/> Continue work on 'A Task' p59 <input type="checkbox"/> HW: Complete exercises & work on task as required	
21	<input type="checkbox"/> End of chapter/unit test	