



Semester 1 Course Overview

Faculty:	Science
Subject:	Core Science
Year level:	9

Course Outline

The Australian Curriculum: Science has three interrelated strands: *Science Understanding*, *Science as a Human Endeavour* and *Science Inquiry Skills*. Together, the three strands of the science curriculum provide students with understanding, knowledge and skills through which they can develop a scientific view of the world. Students are challenged to explore science, its concepts, nature and uses through clearly described inquiry processes.

Term 1	Term 2
Students explain chemical processes and natural radioactivity in terms of atoms and energy transfers and describe examples of important chemical reactions. They describe social and technological factors that have influenced scientific developments and predict how future applications of science and technology may affect people's lives. Students design questions that can be investigated using a range of inquiry skills. They design methods that include the control and accurate measurement of variables and systematic collection of data and describe how they considered ethics and safety. They analyse trends in data, identify relationships between variables and reveal inconsistencies in results. They analyse their methods and the quality of their data, and explain specific actions to improve the quality of their evidence. They evaluate others' methods and explanations from a scientific perspective and use appropriate language and representations when communicating their findings and ideas to specific audiences.	Students explore genetics and heredity. Students analyse different patterns of inheritance for autosomal and sex-linked crosses and use Punnett squares to predict genotypes and phenotypes of offspring from different genetic crosses. They consider how genetic diseases are inherited and analyse a multi-generational pedigree to describe patterns of inheritance. Students explore how genetic research is applied to areas such as genetic testing and consider the impacts of these on society and individuals, including ethical considerations. Students will develop an understanding of how the diversity of life on Earth can be explained by the theory of evolution by natural selection. Students will review models and mechanisms that have been developed and refined over time by a range of scientists to explain evolution and evaluate the evidence that supports these. Students will critically analyse the validity of evidence found in secondary sources and communicate their understanding of the theories and processes of evolution using scientific language, conventions and representations. Students will explore how Earth is composed of four interacting and dynamic 'spheres', within which the global systems and cycles operate. These are the lithosphere, hydrosphere, atmosphere and biosphere. Students will consider how matter cycles within and between these spheres, such as in the carbon cycle and the water cycle, and use scientific knowledge to evaluate how humans have influenced flow between these systems. Students will explore approaches used to minimise carbon emissions and methods of sequestering carbon. They will also consider how ethical decision making in relation to global systems could improve the state of the planet
Assessment	
Task 1 – Data test/Exam – Students will complete a supervised assessment under timed conditions. Data tests allow students to demonstrate understanding and knowledge of Science Inquiry Skills.	Task 2 – Research Investigation - Students will research, analyse and interpret secondary evidence from scientific texts to answer the research topic. Task 3 – Exam - Students complete a 70 min supervised.

Literacy requirements:

This unit provides opportunities for students to engage in the Australian Curriculum Content and build upon the literacy skills of:

- using technical and specific terms for concepts and features of the world,
- presenting scientific information in the form of diagrams, flow charts, tables and graphs,
- comprehending and composing texts, including those that provide information, describe events and phenomena, recount experiments, present and evaluate data, give explanations and present opinions or claims.

Numeracy requirements:

This unit provides opportunities for students to engage in the Australian Curriculum Content and build upon the numeracy skills of:

- collecting, representing and interpreting data from investigations.
- Use of formal units to provide accurate results in measuring and testing across a range of science topics.