Highfields State Secondary College

Semester 2 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 3	**Term 4**
Biology	Earth and Space
Students explore the concepts of change within an ecosystem. They understand that all life is connected through ecosystems. They analyse how biological systems function and maintain balance. They explore how different ecosystems respond to external changes and examine the impacts on populations, the interrelationships occurring within and the flow of matter and energy through an ecosystem. Students formulate questions and conduct research to investigate how an ecosystem responded to an extreme event. Students identify human body systems and the ways in which they work together in balance to support life. They outline how the functions of the systems are coordinated to provide the essential requirements for life. Students analyse and predict the effects of the environment on body systems, and discuss how the body responds to changes in the environment and to diseases. Students consider current and future developments in vaccine technology and reflect on how the needs of society influence the focus of scientific research.	Students 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 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 explore approaches used to minimise carbon emissions and methods of sequestering carbon. They also consider how ethical decision making in relation to global systems could improve the state of the planet. Students understand that the universe is made up of a variety of features, including galaxies, stars and solar systems, and the Big Bang theory can be used to explain the origin of the universe. They outline the Big Bang theory and review evidence supporting the theory. Students identify the limitations of the Big Bang theory and recognise that theories are revised and scientific ideas change over time, as new evidence is gathered. They examine different types of star life cycles and investigate the contributions that technology has made to increased knowledge of stars over time. They examine information related to theories about the origin and fate of the universe.
Assessment	
Research Investigation - Students will research, analyse and interpret secondary evidence from scientific texts to answer the research topic. **Data test** - Students will complete a supervised assessment under timed conditions. Data tests allow students to demonstrate understanding and knowledge of Science Inquiry Skills.	**Exam** - Students will complete a supervised assessment under timed conditions. Science exams allow students to demonstrate understanding and knowledge of key concepts.

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.