

SCIENCE

CORE SUBJECT: Across two semesters

WHY STUDY SCIENCE?

Science provides an opportunity for students to answer questions about how our physical, chemical and biological world, and how it functions. In today's technologically advanced society, students are able to access the most up to date facts and evidence, to contest and refine their knowledge, to use inquiry skills and answer many of these scientifically orientated questions.

Science allows individuals and groups to be active citizens in their personal, social and economic lives. Students are able to develop and acquire knowledge, understanding and inquiry skills to question the direction which science takes in society, the contributions of historical and cultural contributions, current practices, contemporary issues and how many career choices involve science.

COURSE AIMS:

In particular, students at the College in Science develop:

- a solid foundation of the nature of the biological, chemical, physical and earth sciences.
- inquiry skills through questioning, hypothesizing, planning, conducting experiments and investigations (based on ethical principles), collecting and analyzing data, evaluating results and drawing critical evidence-based conclusions.
- an appreciation and understanding of social, cultural and historical factors as they consider the interactions between Science and current social practices.
- 21 century skills including: Literacy, Numeracy and ICT skills, critical and creative thinking skills, and cooperative skills.
- life skills and a futures perspective as they engage in a range of Science activities as informed and active citizens in society.

COURSE ORGANISATION:

The study of Science in Year 9 is a two year semester program. *Using Australian Curriculum Science* units are organized into four sub strands of Science Understanding.

Chemical Sciences: Students study the ideas that scientists have about the structure of materials. They investigate properties of materials, the patterns of interaction between materials, and the effect of changes on the usefulness of materials.

Physical Sciences: Students explore the effects of forces in their lives, the methods of harnessing energy, the way energy is used, and the social and environmental consequences of energy use.

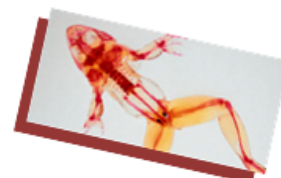
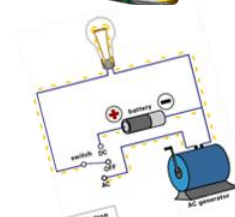
Biological Science: Students explore the great diversity of structure and lifestyle of living things and how living things interact with each other and with the world in which they live.

Earth and Space Sciences: Students explore ideas about the dynamic nature of the Earth, solar system and universe.

Human Endeavour and Science Inquiry Skill strands are embedded into all Science units offered.

Science as a Human Endeavour: This strand focuses on the nature and influence of society.

Science Inquiry Skills: This strand focuses on the skills essential for working scientifically and includes: questioning and predicting, planning and conducting, processing and analyzing data and information, evaluating and communicating.

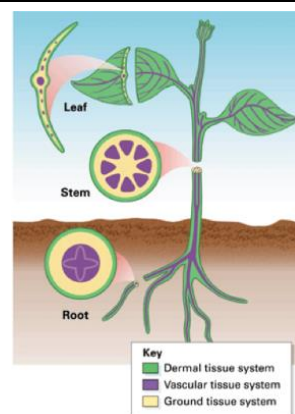


Year 9 Units

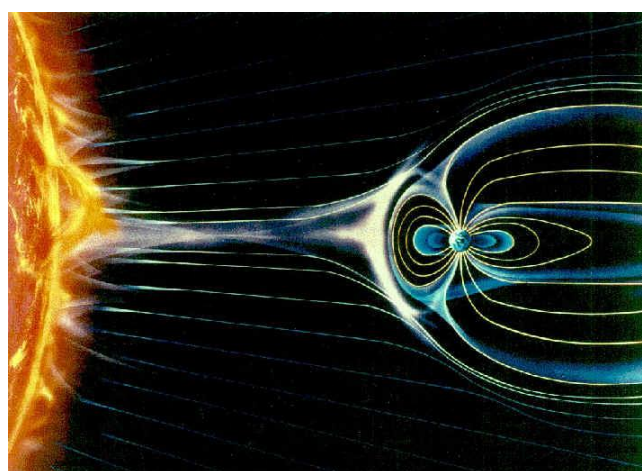
Semester 1 – SC660 The Chemistry of Life

Students will build on foundational knowledge about human body systems to compare and analyse transportation systems of animals and plants. They will also examine responses to stimulus from the nervous system, hormones and plant tropisms. Students will describe important chemical processes in living organisms including respiration and Photosynthesis. Students will elaborate on the Chemical Science understanding through analysing the periodic table to understand the bonding properties of elements and compounds in a variety of different chemical reactions.

Inquiry skills: Students will investigate and examine plant tropisms and collect data to compare responses to stimuli from hormones and nerves. They will collate data, analyse and compare the transportation system in plants and animals, identifying the relationships between organs in these two different body systems.



Semester 2- SC663 The Universe and Phenomena within



Students will explore the Universe we live in. They will investigate the field of astronomy to establish current knowledge and understanding about our Earth and its position in the Universe. Students will investigate the sun and how the sun radiates thermal heat and light energy as waves. They will explore how telescopes work and use them to understand and have knowledge about events that occur in our night skies. Students will apply their knowledge of celestial bodies such as stars to consider how light is transferred and is interpreted through our eyes

Inquiry skills: Students will collect and analyse data about the sun and its cyclic patterns. They will also design a question and method (including variables and accurate measurement) to investigate the effects of radiation from our sun. This process will involve analysing accuracy of day using technologically and evaluation of their collated results. Students will also evaluate theories associated with the origin of our universe we live in.

Assessment

Semester 1: Students will complete a research report associated with the endocrine and nervous systems (Biology). They will complete an exam on chemical bonding (Chemistry).

Semester 2: Students will complete a collection of work (Space Sciences) with five inquiry based topics: origin theory evaluation, star lifecycle and sun analysis. They will also write a scientific report on radiation (Physics) and complete an exam on light.