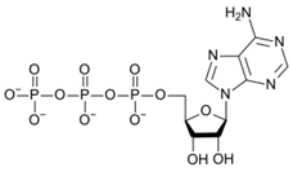
Senior Chemistry



Overview

An understanding of chemistry is relevant to a range of careers, including those in forensic science, environmental science, engineering, medicine, pharmacy and sports science. Additionally, chemistry knowledge is valuable in occupations that rely on an understanding of materials and their interactions, such as art, winemaking, agriculture and food technology. Some students will use this course as a foundation to pursue further studies in chemistry, and all students will become more informed citizens, able to use chemical knowledge to inform evidence-based decision making, and engage critically with contemporary scientific issues.

Chemistry is the study of matter and its transformations. Students who complete the chemistry course improve their scientific literacy and numeracy and develop critical and creative thinking skills. Students should study chemistry to enhance their understanding of the universe and as a stepping stone to further study. Chemistry will immerse students in both the practical and the conceptual aspects of the discipline.

The study of Chemistry requires an amount of maths and students who have performed well in junior school mathematics and sciences, and who can think logically do well in this subject. Students who have studied Science Investigations or the Archimedes Project in year 10 will be well prepared for Senior Chemistry.

Chemistry is an essential pre-requisite for many tertiary science courses as well as engineering. It is also recommended for many others.

Topics studied

Elements, Ions and the Periodic table	This introductory unit lays the foundations for senior chemistry by introducing students to chemical concepts such as atoms, bonding, the mole concept and chemical equations.
Water	This is a contextualised unit focusing on water as a universal solvent. Laboratory skills will be developed through an experimental investigation into ionic solutions and through an investigation of the chemistry of wine making.
Redox Reactions	Students will be introduced to the structure of metals, oxidation and reduction and its basic application to corrosion. This unit is a foundation for the metals context studied in Year 12.
The Atmosphere	This is a contextualised unit focusing on the atmosphere and the gases which comprise it. Laboratory skills will be developed through an experimental investigation into gas laws.
Introduction to Organic Chemistry	Students will be introduced to organic chemistry with concepts including functional groups, molecular structures and nomenclature. This unit is a foundation for the fuels and forensics contexts studied in Year 12.
Metals	This is a contextualised unit focusing on the properties and uses of metals and electrochemistry. Laboratory skills will be developed through an experimental investigation into the use of metals.
Fuels	This is a contextualised unit focusing on fuels, organic chemistry and thermodynamics. Laboratory skills will be developed the production of ethanol and biodiesel as alternatives for conventional fuels.
Forensics	This is a contextualised unit focusing on the identification of organic compounds. Students will study various techniques used to identify forensic evidence including IR, UV & Vis spectroscopy, mass spectrometry and chromatography.
Designing a Cold Pack	This is a practical unit where students design an experiment and prepare a report that answers a research question regarding the best design for a chemical cold pack.

Study Pathways