



Highfields State
Secondary College

Semester 2 Course Overview

Faculty: Science
Subject: Chemistry
Year level: 11

Course Outline

Chemistry is a General subject suited to students who are interested in pathways beyond school that lead to tertiary studies, vocational education or work. A course of study in Chemistry can establish a basis for further education and employment in the fields of forensic science, environmental science, engineering, medicine, pharmacy and sports science.

By the conclusion of the course of study, students will:

- describe and explain scientific concepts, theories, models and systems and their limitations
- apply understanding of scientific concepts, theories, models and systems within their limitations
- analyse evidence
- interpret evidence
- investigate phenomena
- evaluate processes, claims and conclusions
- communicate understandings, findings, arguments and conclusions

Semester 2

Unit 2: Molecular interactions and reactions	Unit 3: Equilibrium, acids and redox reactions
<p>In Unit 2, students develop their understanding of the physical and chemical properties of materials including gases, water, aqueous solutions, acids and bases. Students explore the characteristic properties of water that make it essential for physical, chemical and biological processes on Earth, including the properties of aqueous solutions. They investigate and explain the solubility of substances in water, and compare and analyse a range of solutions. They learn how rates of reaction can be measured and altered to meet particular needs, and use models of energy transfer and the structure of matter to explain and predict changes to rates of reaction. Students gain an understanding of how to control the rates of chemical reactions, including through the use of a range of catalysts. Students conduct investigations of chemical reactions, including the prediction and identification of products, and the measurement of the rate of reaction. They investigate the behaviour of gases, and use the kinetic theory to predict the effects of changing temperature, volume and pressure in gaseous systems.</p>	<p>In Unit 3, students explore the reversibility of reactions in a variety of chemical systems at different scales; acid-base equilibrium systems and their applications; the principles of oxidation and reduction reactions; and the production of electricity from electrochemical cells. Processes that are reversible will respond to a range of factors and can achieve a state of dynamic equilibrium, while contemporary models can be used to explain the nature of acids and bases, and their properties and uses.</p> <p>Students conduct investigations on electrochemical cells and volumetric analysis applications. They examine qualitative and quantitative data about acids, equilibrium and redox to analyse trends and draw conclusions.</p> <p>They participate in experiments and investigations related to the principles of dynamic chemical equilibrium and how these can be applied to chemical processes and systems; electrochemical cells, the choice of materials used and the voltage produced by these cells; pH scale and the extent of dissociation of acids and bases; and the concentrations of ions in an aqueous solution. Collaborative experimental work allows students to progressively develop their science inquiry skills, while gaining an enhanced appreciation of the importance of equilibrium and redox in the real world.</p>
<p>Assessment – Semester 1 and 2 Exam, 2 x 90 minutes plus 10 minutes perusal</p>	<p>Assessment – IA1 Data test (60 minutes plus 10 minutes perusal)</p>