

Recommendation

A High Achievement (B) in Year 10 Science, Maths and English.

Rationale

Chemistry is the study of materials and their properties and structure.

Students study atomic theory, chemical bonding, and the structure and properties of elements and compounds. They explore intermolecular forces, gases, aqueous solutions, acidity and rates of reaction. They study equilibrium processes and redox reactions. They explore organic chemistry, synthesis and design to examine the characteristic chemical properties and chemical reactions displayed by different classes of organic compounds.

Students develop their appreciation of chemistry and its usefulness; understanding of chemical theories, models and chemical systems; expertise in conducting scientific investigations. They critically evaluate and debate scientific arguments and claims in order to solve problems and generate informed, responsible and ethical conclusions, and communicate chemical understanding and findings through the use of appropriate representations, language and nomenclature.

Students learn and apply aspects of the knowledge and skills of the discipline (thinking, experimentation, problem-solving and research skills), understand how it works and how it may impact society.

Pathways

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.

Objectives

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.

Delivery (mode, time requirements, lessons)

Students are expected to undertake independent study to complete tasks and assessment in accordance with the Work Rate Calendar. Students also have access to scheduled lessons and a one-hour tutorial each week. Lessons are delivered via Blackboard Collaborate and teleconferencing.

Student requirements

Computer, access to email, printer, scanner, telephone or headset with microphone, digital camera, exercise book, stationery and the chemistry kit.

Structure

Unit 1	Unit 2	Unit 3	Unit 4
Chemical fundamentals — structure, properties and reactions <ul style="list-style-type: none"> • Topic 1: Properties and structure of atoms • Topic 2: Properties and structure of materials • Topic 3: Chemical reactions —reactants, products and energy change 	Molecular interactions and reactions <ul style="list-style-type: none"> • Topic 1: Intermolecular forces and gases • Topic 2: Aqueous solutions and acidity • Topic 3: Rates of chemical reactions 	Equilibrium, acids and redox reactions <ul style="list-style-type: none"> • Topic 1: Chemical equilibrium systems • Topic 2: Oxidation and reduction 	Structure, synthesis and design <ul style="list-style-type: none"> • Topic 1: Properties and structure of organic materials • Topic 2: Chemical synthesis and design

Assessment

Formative assessment

Unit 1		Unit 2	
Formative internal assessment 1 (IA1): Data test	10%	Formative internal assessment 3 (IA3): Student experiment	20%
Formative internal assessment 2 (IA2): Research investigation	20%		
Formative external assessment (EA): 50% Examination			

Summative assessment

Unit 3		Unit 4	
Summative internal assessment 1 (IA1): Data test	10%	Summative internal assessment 3 (IA3): Research investigation	20%
Summative internal assessment 2 (IA2): Student experiment	20%		
Summative external assessment (EA): 50% Examination			

In Units 3 and 4 students complete four summative assessments. The results from each of the assessments are added together to provide a subject score out of 100. Students will also receive an overall subject result (A–E).

Disclaimer All of the above information is accurate at the time of publication.