

Chemistry S2/3 Elective Course

Course Content

This is a two year course which will be taught through a themed approach. The transferable skills you learn in Chemistry are highly valued by almost every profession.

The Chemistry of Fireworks - Everybody loves to see fireworks explode but people rarely think of the chemistry behind them. This unit explores atomic structure and the elements of the Periodic Table, to explain the vivid colours seen when a firework explodes.

Lessons cover:

- Elements & the periodic table
- Elements & compounds



- Making 'bat poo' fireworks
- The 60 second fuse challenge

The Chemistry of Forensics - You may have seen the TV shows CSI and Raising the Dead, but how do real crime scene investigators and forensic departments work? In this unit you will use your chemistry knowledge to solve a major crime.

Lessons cover:

- Investigating a robbery!
- Fingerprints and shoe prints



- Chemical & soil analysis
- Chromatography & DNA analysis

Chemical Energy - This unit covers chemical energy and how it can be used in everyday situations. You will design and test a method to cool an explosive liquid.

Lessons cover:

- Exothermic and endothermic reactions
- Catalysts



- Investigating factors which affect the speed of reactions
- Keep Your Cool Challenge

To Infinity and Beyond - Fossil fuels and metals are running out and alternative sources are required to meet society's needs. Researching new scientific developments and novel materials will help you predict future applications and their impact on society.

Lessons cover:

- Fossil fuels
- Plastics
- Environmental chemistry
- Making batteries
- Reactivity of metals
- Novel materials and their impact

A Chemical Balancing Act - You will learn how atoms join together to make molecules. Using your knowledge of atomic structure you will be able to write chemical formulae and use these to write balanced chemical equations.

Lessons cover:

- Making models of molecules
- Writing formulae and equations

Feed the World - The world's population is growing at an alarming rate and Chemistry is needed to provide plant nutrients in order to feed the world. Practical activities on fertilisers and separating mixtures in food will be related to aspects of healthy eating.

Lessons cover:

- Photosynthesis
- The carbon cycle
- The nitrogen cycle



- Designing a fertilizer
- The effects of fertilisers on plant growth and the environment

Bathroom Business - Your bathroom cabinet contains an assortment of products made by chemists. You will be part of a team responsible for making, packaging and costing your own consumer products. You will pitch for funding in the 'Dragon's Den'.

Lessons cover:

- Oil extraction using steam distillation
- Making shampoo, lip balm, moisturiser, bath bombs



- Solubility experiments
- Marketing the products
- Giving a sales pitch to the 'Dragon's Den'

The Attraction of Opposites - Different substances can have very different chemical and physical properties. You will learn about the forces which hold particles together and you will begin to appreciate how the properties of substances depend on these forces.

Lessons cover:

- The properties of substances
- Conductivity and electrolysis
- Theories to explain the bonding in substances

Teaching Methods - what will I do?

A **Curriculum for Excellence** approach will permeate all topics, giving you opportunities to learn by discovery, take ownership of tasks, make decisions for yourself and relate chemistry to your everyday living. You will also acquire transferable thinking skills which should help you cope well in the senior school, and take responsibility for your own learning.

Homework Policy

Homework exercises should be completed regularly, and will include knowledge, understanding and problem solving tasks. There may be opportunities to complete small projects at home and you will have the chance to present your findings to your peers.

Assessment

- Qwizdom multiple choice tests, answered using hand held sensors
- Written assessments, covering recall of facts and problem solving skills
- The design of posters, leaflets and class presentations
- Self evaluation and peer assessment will be utilised

Progression in the Senior School

The S2/3 Chemistry Course will help you progress into the Chemistry Course at National 4 & 5 Levels. From there you can proceed to Higher Chemistry. The S2/3 Chemistry course will also be useful for progression into Physics, Biology or Science at National 4 or 5.