St Mary Redcliffe and Temple School

Chemistry

Chemistry

Exam Board: OCR

Specification no: H033 (AS) / H433 (A Level)

This is a two year linear A level course - The AS content forms the first half of the A level content and can be assessed at the end of Year 12 to provide an AS Level qualification if the student is dropping the subject and believes they can get a strong grade. Otherwise the two years of content are assessed at the end of Year 13 to give the A level grade.

Chemistry includes a practical assessment that reflects key practical skills gained throughout the course. This is pass/fail and is recorded on the final certificate, but does not contribute to the final grade. This is evidenced by student record and teacher assessment over the 2 year course.

Course delivery:

A Level Chemistry B (Salters) uses a context led approach, conveying the excitement of contemporary chemistry. The combination of academic challenge, relevant context and practical focus makes the prospect of studying A level Chemistry B highly appealing.

You will learn about chemistry in a range of different contexts and the impact it has on industry and many aspects of everyday life. Ideas are often introduced in a spiral way with topics introduced in an early part of the course and reinforced later. In this way, chemistry is built up gradually by visiting and revisiting concepts within different areas of study. By setting the context and learning concepts within each area of study you will learn to investigate and solve problems in a range of different contexts. There is a student textbook which covers both AS and A level that contains all the relevant storylines, concepts and provides summary questions and answers.

Course Content:

The Elements of Life: The elements and compounds in the universe, in the human body and in salt deposits.

Some of the chemical ideas included in this module are: atomic structure, chemical equations and the mole, titrations, the periodic table, Group 2 chemistry, bonding and the shapes of molecules.

Developing Fuels: What fuels consist of, how energy involved in their combustion is measured and the contributions that chemists make to the development of better fuels.

Some of the chemical ideas included in this module are: thermochemistry, catalysis, alkanes, alkenes, addition polymers, isomerism and dealing with polluting gases.

Elements from the Sea: The extraction of halogens from minerals in the sea, together with a study of the properties and uses of these elements and their compounds.
Some of the chemical ideas included in this module are: halogen chemistry, redox chemistry and equilibrium

The Ozone Story: Important processes occurring in the ozone layer of the atmosphere.
Some of the chemical ideas included in this module are: rates of reaction, radical reactions, intermolecular bonding, haloalkanes and the ozone layer.

What's in a medicine? Medicines such as aspirin, leading to more functional group chemistry and methods of analysis.
Some of the chemical ideas included in this module are: chemistry of the –OH group, carboxylic acids and esters, and analytical techniques (TLC, MS and IR)

The chemical industry: How chemists use industrial processes to benefit mankind.
Some of the chemical ideas included in this module are: equilibrium, kinetics, nitrogen chemistry, consideration of the costs and effects of chemical processes.

Polymers and life: Condensation polymers, proteins and enzymes. DNA and its use in synthesising proteins.
Some of the chemical ideas included in this module are: enzyme catalysis, amino acid and protein chemistry, proton and carbon-13 NMR and the structure and function of DNA and RNA.

Oceans: The role of the oceans in dissolving substances and maintaining pH.
Some of the chemical ideas included in this module are: enthalpy changes, entropy, acid–base equilibria, pH, and the 'greenhouse effect'.

Developing metals: The reactions and properties of the transition metals.
Some of the chemical ideas included in this module are: redox titrations, cells and electrode potentials, rusting, d-block chemistry and colorimetry.

Colour by design: Dyes and the use of chemistry to provide colour to order.
Some of the chemical ideas included in this module are: origins of colour in organic compounds, dyes, aromatic compounds, carbonyl compounds, and organic synthesis.

Entry Requirements:
65 in two science subjects including 6 in Chemistry if done separately + 6 in Maths

Skills and personal qualities required/developed by the course:
Students will need to have an enquiring mind and an enthusiasm for science as well as being comfortable with some mathematics. They will develop practical skills and the ability to link abstract ideas to visible observations. They will develop independent learning which will prepare them for further study. They will practise communication skills through discussion and presentations.

Resources: Students have on-line access to Kerboodle which provides amongst other aspects a digital text book and copies of activities undertaken. All students have a hard copy of the A level text book.

Support: Chemistry provide twilight sessions to Year12 students each week for 1 hr to help both support as well as offering opportunities to stretch and challenge students.

Recommended:

Students should purchase a dedicated revision guide for the Chemistry B (Salters) AS and/or A level.

The RSC magazine, “Chemistry Review” is a quarterly publication targeted at A level students and subscription is recommended.

For further information:
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