Chemistry

STUDY LEVEL
A level

CONTACT DETAILS
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Chemistry is the study of substances. Everything around you involves chemistry and chemists help unlock some of the biggest challenges faced by the world today from the fight against cancer to tackling environmental issues.

What will I study?

The course involves laboratory practical investigations, analysis and group-work to develop your understanding. At first you will build on topics covered in GCSE including materials (structure, bonding, electron configurations), a unit covering organic chemistry (alkanes and alcohols) and physical chemistry (rates of reaction and energy changes) as well as modern analytical methods, mass spectrometry and infrared spectroscopy. Later you will study further organic chemistry and analytical techniques, including nuclear magnetic resonance.

There is also more physical and inorganic chemistry, including rates, equilibrium, entropy, electrode potentials, energy for the future, and environmental issues.

Co-curricular activities?

Each year we enter a team in the Royal Society of Chemistry Schools Analyst practical competition. There is also an opportunity to enter the Cambridge Chemistry Challenge and the national Chemistry Olympiad.

Where might it lead?

A qualification in chemistry is highly valued and leads to a wide variety of careers including in the chemical industry, public services, teaching, technical writing and patent law. Chemistry is also an essential subject for those wishing to study medicine, veterinary science, pharmacy and dentistry.

Course Breakdown

Course Summary

- Exam board: OCR specification A

Paper	Content	Marks	Duration	Weighting
Paper 1	Periodic table, elements and physical	100	2 hours 15 minutes	37%
Paper 2	Chemistry	100	2 hours 15 minutes	37%
Paper 3	Unified Chemistry	70	1 hours 30 minutes	26%

Summary of Content

The course is divided into 6 modules

Module 1 – Development of practical skills in chemistry

Practical skills assessed in a written examination

Module 2 – Foundations in chemistry

Atoms, compounds, molecules and equations; Amount of substance; Acid–base and redox reactions; Electrons, bonding and structure.

Module 3 – Periodic table and energy

The periodic table and periodicity; Group 2 and the halogens; Qualitative analysis; Enthalpy changes; Reaction rates and equilibrium (qualitative).

Module 4 – Core organic chemistry

Basic concepts; Hydrocarbons; Alcohols and haloalkanes; Organic synthesis; Analytical techniques (IR and MS).

Module 5 – Physical chemistry and transition elements

Reaction rates and equilibrium (quantitative); pH and buffers; Enthalpy, entropy and free energy; Redox and electrode potentials; Transition elements.

Module 6 – Organic chemistry and analysis

Aromatic compounds; Carbonyl compounds; Carboxylic acids and esters; Nitrogen compounds; Polymers; Organic synthesis; Chromatography and spectroscopy (NMR).

Suggested Preparation for September

The A level course requires you to have the basic chemistry knowledge and skills learnt in your GCSE course. It is a good idea to read over your GCSE notes or to use a revision guide to go over some of the key ideas before you start. Use the links to revision presentations on the topics below and work through the tasks on each to confirm your understanding:

- Atomic structure
- Formulae and calculations
- Structure and bonding

Reading about chemistry and developing an interest in the wider subject is all part of becoming an advanced level student. The Royal Society of Chemistry has a special student organisation called ChemNet.
It publishes interesting articles in The Mole, a magazine for chemistry students like you.