AS and A Level Chemistry

ABOUT THE COURSE

Chemistry occupies a central position among Science subjects. On the one hand it is linked with Physics through Physical Chemistry and on the other with Biology through Organic Chemistry. Chemistry A Level is a challenging course.

Students are encouraged to be critical in their approach and to apply intriguing ideas in a variety of areas taken from the three branches of Chemistry: Physical, Inorganic and Organic.All work is directly related to a range of contexts in the real world, from environmental concerns to nanochemistry.

AIMS

- To develop a knowledge and understanding of the concepts of Chemistry and the skills needed to use them in new and changing situations
- To sustain and develop your enjoyment of, and interest in, Chemistry
- To develop an understanding of the link between theory and experiment
- To be aware of how advances in Information Technology and instrumentation can be used in Chemistry
- To recognise the value of Chemistry to society and how it may be used responsibly

POSSIBLE DEGREE OPTIONS

- Chemistry
- Biology
- Pre-clinical medicine
- Mathematics
- Pharmacology.

POSSIBLE CAREER OPTIONS

Studying an A-level Chemistry related degree at university gives you all sorts of exciting career options, including:

- Analytical chemist
- Chemical engineer
- Clinical biochemist
- Pharmacologist
- Doctor/ veterinary surgeon/dentist
- Research scientist (physical sciences)
- Toxicologist
- Chartered certified accountant
- Environmental consultant
- Higher education lecturer
- Patent attorney
- Science writer
- Secondary school teacher.

Why Choose A-Level Chemistry?

A-level Chemistry attempts to answer the big question 'what is the world made of' and it's the search for this answer that makes this subject so fascinating.

From investigating how one substance can be changed drastically into another, to researching a new wonder drug to save millions of lives, the opportunities that chemistry provides are endless.

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AS and A Level Chemistry

TOPICS COVERED

AS Chemistry lasts one year, with exams at the end.
A-level Chemistry lasts two years, with exams at the end of the second year.
The table below shows what you'll learn in each year.

AS AND FIRST YEAR OF A-LEVEL

Physical chemistry Including atomic structure, amount of substance, bonding, energetics, kinetics, chemical equilibria and Le Chatelier's principle

Inorganic chemistry Including periodicity, Group 2 the alkaline earth metals, Group 7(17) the halogens

Organic chemistry Including introduction to organic chemistry, alkanes, halogenoalkanes, alkenes, alcohols, organic analysis

SECOND YEAR OF A-LEVEL
Physical chemistry Including thermodynamics, rate equations, the equilibrium constant Kp, electrode potentials and electrochemical cells

Inorganic chemistry Including properties of Period 3 elements and their oxides, transition metals, reactions of ions in aqueous solution

Organic chemistry Including optical isomerism, aldehydes and ketones, carboxylic acids and derivatives, aromatic chemistry, amines, polymers, amino acids, proteins and DNA, organic synthesis, NMR spectroscopy, chromatography

PRACTICALS

Chemistry, like all sciences, is a practical subject.
Throughout the course you will carry out practical activities including:

- measuring energy changes in chemical reactions
- tests for identifying different types of compound
- different methods for measuring rates of reaction
- studying electrochemical cells
- preparation of organic solids and liquids
- an advanced form of chromatography for more accurate results.

EXAMINATIONS

There is no coursework on this course. However, performance during practicals will be assessed. The AS has two exams at the end of the year. Both are 1 hour 30 minutes long. There are three exams at the end of the two years for A-level, all of which are two hours long. At least 15% of the marks for A-level Chemistry are based on what you learned in your practicals.

DESIRABLE REQUIREMENTS

- An enjoyment of, and an interest in, Chemistry
- A minimum of Grade B in each of Science and Additional Science at GCSE or Grade B in Chemistry, plus a Grade B or higher in GCSE Mathematics
- A need for a qualification in Chemistry for your future course or career
- A readiness to accept a challenge.

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