

Exam board / website: AQA Chemistry (7405)

<http://www.aqa.org.uk/subjects/science/as-and-a-level/>



Hillcrest Sixth Form

THE OAKS
Sixth Form College

Chemistry



What does studying Chemistry involve?

The aims of the course are to develop scientific enquiry and expertise in the field of Chemistry. You will study, in detail, the Chemistry required to be able to explain ideas such as why ice is less dense than water to why some chemicals are reactive whilst others are not. There is a great deal of practical work and calculations so having an eye for detail is of benefit as is mathematical ability.

What skills will I develop?

Key Skills are integral to the study of A level Chemistry and may be assessed through the course. The following key skills can be developed through the Chemistry course:

- Communication
- Problem Solving
- Data Analysis and Mathematical Manipulations

What subjects compliment Chemistry?

Most students studying Chemistry also study the other sciences as these tend to open many doors to other careers in scientific research. Chemistry and mathematics complement each other well and studying A-level mathematics will massively benefit candidates on the (many) calculation questions.

Where will the subject take me?

Those studying A Level Chemistry tend to go on to study in Science related fields such as, Medicine, Dentistry, Optometry, Chemical Engineering and Pharmacy. Many, seemingly unrelated, courses are also available to competent chemists as the analytical skills are easily transferrable to a number of different study areas.

Entry requirements:

Students are required to have gained a GCSE Science (Additional or Chemistry) grade between an A*-B in order to study GCE Chemistry. A grade 7, or higher in mathematics is highly desirable.

Course content:

3.1 Physical chemistry:

Atomic structure	Amount of substance
Bonding	Energetics
Kinetics	Chemical equilibria, Le Chatelier's principle and Kc
Redox equations	Thermodynamics
Rate equations	Equilibrium constant Kp for homogeneous systems
Acids and bases	Electrode potentials and electrochemical cells

3.2 Inorganic chemistry:

Periodicity	Group 2, the alkaline earth metals
Group 7(17), the halogens	Properties of Period 3 elements and their oxides
Transition metals	Reactions of ions in aqueous solution

3.2 Organic chemistry:

Introduction to organic chemistry	Alkanes
Halogenoalkanes	Alkenes
Alcohols	Organic analysis
Optical isomerism	Aldehydes and ketones
Carboxylic acids and derivatives	Aromatic chemistry
Amines	Polymers
Amino acids, proteins and DNA	Organic synthesis
Chromatography	Nuclear magnetic resonance spectroscopy

Assessment:

Paper 1: 2 Hours - 105 marks; 35% of A-level

Inorganic & relevant physical chemistry topics and related practical skills.

Paper 2: 2 Hours – 105 marks; 35% of A-level

Organic & relevant physical chemistry topics and related practical skills.

Paper 3: 2 Hours – 90 marks; 30% of A-level

Practical techniques and data analysis, multiple choice section covering all units.

Suggested reading material:

Ben Goldacre – Bad Science

John Elmsley – Nature's Building Blocks: An A-Z Guide to the elements