

# CHEMISTRY

## Exam board: AQA



### Aims of the Course

#### Aims of this A Level Course

- Make decisions about the way chemistry affects everyday life by applying concepts into contemporary areas of chemistry including climate change, green chemistry and pharmaceuticals
- Develop a range of generic skills requested by employers and universities such as problem-solving, oral and written communication, handling data and ICT.
- Build up a range of practical skills that require creativity and accuracy as well as developing a firm understanding of Health and Safety issues.
- Work effectively as part of a group developing team participation and leadership skills.
- Take responsibility for selecting appropriate qualitative and quantitative methods, recording your observations accurately and precisely as well as critically analysing and evaluating the methodology, results and impact of your own and others' experimental and investigative activities.

### Types of Learning Experiences:

Students will study two modules in Year 12 and complete core practicals to develop laboratory skills. A similar structure also applies in Year 13 with laboratory skills assessed in a third exam paper. Lessons will vary in format from lecture style to research, independent learning, practical and investigative work. Students are expected to keep a coherent folder of notes, exercises and practical write-ups throughout the course. Background reading should be done on a regular basis as well as keeping up to date with current trends by watching relevant TV programmes and reading science magazines

#### **Link Subjects:**

Chemistry may be taken with any combination of subjects, but is particularly complemented by subjects such as Biology, Physics, Mathematics or Geography.

#### **Progress to HE**

An A level in Chemistry is essential for courses such as Medicine, Veterinary Science, Pharmacy, Dentistry and Chemical Engineering.

#### **Careers**

Whilst many job opportunities specifically using chemistry require higher qualifications, most laboratory based jobs benefit from a chemistry qualification, for instance dental assistant or veterinary assistant. Many employers view success at GCE Chemistry as a clear indication of sound academic ability.

#### **Common Practical Assessment Criteria (CPAC)**

Teachers will assess students using Common Practical Assessment Criteria (CPAC) issued jointly by the awarding organisations. These define the minimum standard required for the achievement of a **pass**. **The 5 criteria are:**

1. Follows written instructions.
2. Applies investigative approaches and methods when using instruments and equipment.
3. Safely uses a range of practical equipment and materials
4. Makes and records observations.
5. Researches, references and reports.

### Entry requirements:

**A minimum of 5 grades** 9-4 at GCSE including English and Maths. GCSE English at a grade 5 or above is preferred.



# CHEMISTRY



## Practical Skills

Teachers will also assess students in their practical skills when using apparatus and laboratory techniques. This is monitored on an ongoing basis allowing pupils to develop at different rates.

## PASS GRADE

A student's ability to complete practical tasks to a high level of competency will be assessed through monitoring of CPAC and practical skills during all laboratory work including the 12 Core practicals.

The teacher will endorse this by awarding a PASS grade which sits alongside their A-level grade. This grade is an entry requirement for many universities offering Chemistry

Assessment is linear with 3 exam papers at the end of year 13.

Paper 1: Inorganic and Physical chemistry	Paper 2: Organic and Physical chemistry	Paper 3: Practical skills, data handling and synopsis
<b>Content</b> <ul style="list-style-type: none"><li>Inorganic chemistry</li><li>Relevant practical skills</li><li>Relevant physical chemistry topics eg:<ul style="list-style-type: none"><li>Atomic structure</li><li>Amount of substance</li><li>Bonding</li><li>Energetics</li><li>Equilibria</li><li>Acids and bases</li><li>Redox</li></ul></li></ul>	<b>Content</b> <ul style="list-style-type: none"><li>Organic chemistry</li><li>Relevant practical skills</li><li>Relevant physical chemistry topics eg:<ul style="list-style-type: none"><li>Amount of substance</li><li>Bonding</li><li>Energetics</li><li>Equilibria</li><li>Kinetics</li></ul></li></ul>	<b>Content</b> <ul style="list-style-type: none"><li>All content</li><li>All practical skills</li></ul>
<b>Question type and marks</b> <ul style="list-style-type: none"><li>105 marks, with a mixture of short and long answer questions</li></ul>	<b>Question type and marks</b> <ul style="list-style-type: none"><li>105 marks, with a mixture of short and long answer questions</li></ul>	<b>Question type and marks</b> <ul style="list-style-type: none"><li>40 marks of questions on practical techniques and data analysis</li><li>20 marks of questions testing across the specification</li><li>30 marks of multiple choice questions</li></ul>

Core practicals ensure that students have completed the minimum 12 required practicals which will be assessed in paper 3

Required activity	apparatus and technique reference
1 Make up a volumetric solution and carry out a simple acid-base titration	a, d, e, k
2 Measurement of an enthalpy change	a, d, k
3 Investigation of how the rate of a reaction changes with temperature	a, b, k
4 Carry out simple test-tube reactions to identify cations and anions in aqueous solution	b, d, k
5 Distillation of a product from a reaction	b, d, k
6 Tests for alcohol, aldehyde, alkene and carboxylic acid	b, c, d, k
7 Measuring the rate of a reaction: <ul style="list-style-type: none"><li>by an initial rate method</li><li>by a continuous monitoring method</li></ul>	a, k, l a, k, l
8 Measuring the EMF of an electrochemical cell	j, k
9 Investigate how pH changes when a weak acid reacts with a strong base and when a strong acid reacts with a weak base	a, c, d, f, k