

# Chemistry at KS5

## Overview

Chemistry at A level is an information-rich course designed to develop theoretical and practical scientific skills, knowledge and understanding. It offers exciting insights into the contemporary world of science.

Chemistry is a multidisciplinary subject that is made up of many different and interdependent fields.

Students study chemistry in a range of different contexts, including aspects of industrial and everyday life, which requires them to investigate and solve problems.

## A Level Chemistry

Students will sit two AS examinations at the end of year 12 (OCR HO32) and three A2 examinations at the end of year 13 (OCR H432).

### Year 12

#### 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)

During the year the students will cover six required practicals.

## **Year 13**

### **Module 1 – Development of practical skills in chemistry**

- Practical skills assessed in a written examination
- Practical skills assessed in the practical endorsement

### **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)

During the year the students will cover six required practicals.