

CHEMISTRY KS5

CURRICULUM ROADMAP

Atomic Structure Covers the fundamental structure of the atom, subatomic particles, isotopes, mass spectrometry, and electron arrangement.

Amount of Substance Teaches mole calculations, reacting masses, gas volumes, concentration, and percentage yield—essential for quantitative chemistry.

Periodicity Covers trends in atomic structure, melting points, and reactivity across Period 3 of the periodic table.

Group 2 – The Alkaline Earth Metals
Examines the properties, trends, and reactions of Group 2 elements, including their uses in neutralisation and agriculture.

The Halogens Focuses on the properties and trends of halogens and their compounds, including displacement reactions and reactions with silver nitrate.

Redox Explores oxidation, reduction, electron transfer, and how to assign oxidation states and balance redox equations.

Energetics Focuses on enthalpy changes, calorimetry, Hess's Law, and energy cycles in chemical reactions.

Kinetics Examines the factors affecting reaction rates, collision theory, and how catalysts work.

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Equilibria Introduces dynamic equilibrium, Le Chatelier's Principle, and calculations involving the equilibrium constant (K_c).

GCSE Bridging

A short review of key GCSE chemistry concepts to support the transition to A-level study.

Bonding Explores ionic, covalent, and metallic bonding, along with structure, polarity, and intermolecular forces

Introduction to Organic Chemistry

Covers fundamental skills including nomenclature, formulae, isomerism, and reaction mechanisms.

Alkanes Focuses on the structure, properties, and reactions of alkanes, including combustion and free-radical substitution.

Haloalkanes

Covers nucleophilic substitution reactions and the use of haloalkanes in organic synthesis.

Alkenes Explores the structure and reactions of alkenes, including addition reactions and polymerisation.

Alcohols Examines the production, reactions, and oxidation of alcohols, including fermentation and hydration.

Organic Analysis

Introduces analytical techniques such as test-tube reactions for functional groups, infrared (IR) spectroscopy, and mass spectrometry.

Nuclear Magnetic Resonance (NMR) Spectroscopy

Introduces proton and carbon-13 NMR as advanced methods to deduce the structure of organic compounds.

Working Scientifically

Students will develop essential scientific enquiry skills, including planning investigations, collecting and analysing data, and drawing evidence-based conclusions, with a focus on accuracy, reliability, and fair testing.