

Chemistry KS5 Curriculum Overview

Links to KS4		Students will all have studied either combined science or separate sciences at GCSE. The A level Chemistry course builds and expands upon this foundation of knowledge.					
Intent	Statement of Intent	Develop essential knowledge and understanding of different areas of the subject and how they relate to each other. Develop and demonstrate a deep appreciation of the skills, knowledge and understanding of scientific methods. Develop competence and confidence in a variety of practical, mathematical and problem solving skills. Develop their interest in and enthusiasm for the subject, including developing an interest in further study and careers associated with the subject. Understand how society makes decisions about scientific issues and how the sciences contribute to the success of the economy and society (as exemplified in 'How Science Works' (HSW)).					
	Timeline	Term 1 - 7 Weeks	Term 2 - 7 Weeks	Term 3 - 6 Weeks	Term 4 - 6 Weeks	Term 5 - 6 Weeks	Term 6 - 7 Weeks
Implementation (Year 12)	Year 12 Overview	<p>Module 1.1: Practical skills in Chemistry. How to plan, implement, analyse science and evaluate practical work in chemistry.</p> <p>Module 2.1: Foundations in chemistry. Atomic structure, quantitative chemistry, acids and redox reactions.</p> <p>Module 2.2: Electrons, bonding and structure. Atomic orbitals, electronic configuration, ionic and covalent bonding and intermolecular forces.</p> <p>Module 3.1: The Periodic table. Groups and their properties, periodicity and qualitative analysis of ions.</p> <p>Module 3.2: Physical chemistry. Enthalpy changes, rates of reaction, reversible reactions and equilibria.</p> <p>Module 4.1: Basic concepts and hydrocarbons. Nomenclature, formula representation, functional groups and isomerism.</p> <p>Module 4.2: Alcohols, haloalkanes and analysis. Alcohols, haloalkanes, organic synthesis techniques and analytical techniques.</p>					
	SOW	End of Unit Assessments		Module Booklets		Practical Assessments	
	Assessment Type & Unit Focus	Each module will have an end of module test. This will be a set of exam questions covering the content in that unit. They could also include questions that require knowledge from prior content.		Each module has an associated booklet to be completed in parallel to the teaching. It covers key words and definitions, a PLC and exam question practice.		Throughout the two year course students will complete a minimum of 12 assessed practicals to allow them to demonstrate consistent aptitude with a number of key skills. This will lead to a separate practical endorsement qualification.	
Implementation (Year 13)	Year 13 Overview	<p>Module 5.1: Rates, equilibria and pH. Orders of reaction, rate equations, equilibria, acids, bases and buffer solutions.</p> <p>Module 5.2: Energy. Lattice enthalpy, Born-Haber cycles, entropy, Gibbs' free energy, redox and electrode potentials.</p> <p>Module 5.3: Transition elements. Properties of transition elements, ligands and complex ions and qualitative analysis of ions.</p> <p>Module 6.1: Aromatic compounds. Properties of benzene and its reactions, reactions of carboxylic acids and esters.</p> <p>Module 6.2: Nitrogen compounds, polymers and synthesis. Amines, amino acids, chirality, polymers and organic synthesis.</p> <p>Module 6.3: Analysis. Types of chromatography, testing for functional groups, proton and carbon NMR.</p>					
	SOW	End of Unit Assessments		Module Booklets		Practical Assessments	
	Assessment Type & Unit Focus	Each module will have an end of module test. This will be a set of exam questions covering the content in that unit. They could also include questions that require knowledge from prior content.		Each module has an associated booklet to be completed in parallel to the teaching. It covers key words and definitions, a PLC and exam question practice.		Throughout the two year course students will complete a minimum of 12 assessed practicals to allow them to demonstrate consistent aptitude with a number of key skills. This will lead to a separate practical endorsement qualification.	
	Topic Texts	Chemistry Review Journals - <i>Hodder Education</i> Four editions per academic year which cover a wide variety of topics and research. They are designed to accompany the A level specification and examiners may refer to articles in exam questions.					
Impact	Year 12 Review Points	RP1: T1, Wk3		RP2 (PPE1): T3, Wk2			RP3 (PPE2): T6, Wk4
	Year 13 Review Points		RP1 (PPE1): T2, Wk1		RP2: T4, Wk1	RP3 (PPE2): T5, Wk1	
	How It Is Used / Skills Set Developed / Outcomes	Research skills, independent skills, practical skills, analysis skills, problem solving skills, teamwork skills.					
	Links to Higher Education	Studying A level Chemistry will enable higher education opportunities including: Chemistry, Chemical Engineering, Dentistry, Biomedical Sciences, Medicine, Teaching, Veterinary Science and more.					
	Careers in the Curriculum	Studying a Chemistry related degree at university will enable career opportunities including: Veterinary Science, Dentistry, Medicine, Research Chemist, Chemical Engineer, Academia, Toxicologist, Food Technologist, Pharmacology, Banking, Accountancy and more.					