

Key Stage 5 (12)	
Course title: Chemistry B (salters) A-Level	
Exam board: OCR	
Specification code: H433	
Autumn 1 (September – October) to Autumn 2 (October – December)	<p>Teacher 1 Elements of Life (EL)</p> <p>The chemical ideas in this module are:</p> <ul style="list-style-type: none"> • atomic structure, atomic spectra and electron configurations • fusion reactions • mass spectroscopy and isotopes • the periodic table and Group 2 chemistry • bonding and the shapes of molecules • chemical equations and amount of substance (moles) • ions: formulae, charge density, tests • titrations and titration calculations. <p>This topic is an introduction to some of the inorganic chemistry topic areas and physical chemistry areas to be built on later. It allows for the development of fundamental practical skills such as titration. It also introduces and extends mathematical skills needed across both sides of the course.</p>
	<p>Teacher 2 Developing Fuels (DF)</p> <p>The chemical ideas in this module are:</p> <ul style="list-style-type: none"> • thermochemistry • organic chemistry: names and combustion of alkanes, alkenes, alcohols • heterogeneous catalysis • reactions of alkenes • addition polymers • electrophilic addition • gas volume calculations • shapes of organic molecules, σ- and π-bonds • structural and <i>E/Z</i> isomers • dealing with polluting gases. <p>This topic introduces key thermodynamic chemistry concepts such as enthalpy changes of combustion, and the practical skills that are used building upon GCSE skills. It also interleaves with both Combined science and Triple science knowledge of carbon-based molecules. Introduced is the idea of errors and the calculation of them.</p>

<p>Spring 1 (January – February) to Spring 2 (February – March)</p>	<p>Teacher 1 Finish and review of (EL) and then Elements from the Sea (ES)</p> <p>This topic is started towards the end of January. The chemical ideas in this teaching module in term 2 are:</p> <ul style="list-style-type: none"> • halogen chemistry • redox chemistry and electrolysis. <p>In the context of ionic compounds from the sea: This topic builds on GCSE ideas of REDOX and extends it with oxidation numbers; builds and extends understanding of electrolysis; builds upon understanding of equilibria.</p>
	<p>Teacher 2 Ozone (OZ)</p> <p>The chemical ideas in this module are:</p> <ul style="list-style-type: none"> • composition by volume of gases • the electromagnetic spectrum and the interaction of radiation with matter • rates of reaction • radical reactions • intermolecular bonding • haloalkanes • nucleophilic substitution reactions • the sustainability of the ozone layer.
	<p>In the context of photochemical reactions: This topic builds on work in EL on relationship between energy and frequency of absorbed light and how this can lead to bond breaking. Knowledge on reaction kinetics from GCSE extended into relationship to energy (M-B distribution); extending understanding of the relationship between boiling temps of simple covalent to specific IMF linking to ES topic; extension of carbon chemistry knowledge.</p>
<p>Summer 1 (April – June) to Summer 2 (June – July)</p>	<p>Teacher 1 Continue with Elements from the Sea (ES)</p> <p>The chemical ideas left to teach in this module are:</p> <ul style="list-style-type: none"> • equilibrium • atom economy. <p>In the context of ionic compounds from the sea: This topic builds on GCSE understanding of equilibria.</p>
	<p>Teacher 2 What's in a Medicine (WM)</p> <p>The chemical ideas in this module are:</p> <ul style="list-style-type: none"> • the chemistry of the –OH group, phenols and alcohols • carboxylic acids and esters • mass spectroscopy and IR spectroscopy • organic synthesis, preparative techniques and thin layer chromatography • green chemistry. <p>This topic allows this introduction of more complex functional groups such as alcohols, carboxylic acids, phenols and esters and their interrelationships. We introduce the ideas of spectroscopy which are extended in year 13.</p>

Teacher 1 Chemical Industry (CI)

This A2 topic are started in June and reviewed in September.

This topic builds upon shapes of molecules (EL) and oxidation state (ES); reviews equilibria (ES) and then moves into quantitative rate calculation from qualitative rate (OZ).

Teacher 2 Polymers of Life

This A2 topic are started in June and reviewed in September.

On the basis of a foundation knowledge built in earlier topics (DF OZ and WM), we move into some biochemistry to teach further condensation reactions, linking to IMFs topic (OZ) for RNA base pairing, amine and amide chemistry, extend understanding of isomers into optical isomerism. Link to the study of IR spectroscopy, we conclude the topic with full spectroscopic analysis of materials.