

# Long Term Plan: Chemistry Year 12 (Teacher One)

Half term	Unit title	Key knowledge/ Content to learn and retain	Essential skills to acquire (subject & generic)	Link to subject ethos and driver (rename)	Anticipated misconceptions	Links to previous KS	Opportunity for stretch for high prior attainers	SMSC & British Values	Cultural Capital	Career Link
One	Physical Chemistry - Chemical Reactions	<p>Electron configuration and ionisation energies</p> <p>Mass spectroscopy and ToF calculations</p> <p>Calculation of: Empirical Formula %Yield Atom Economy</p> <p>The Ideal Gas Equation</p> <p>Titration and titration calculations</p>	<p>Level three technical and practical skills, including use of advanced glassware to carry out synthesis and purification</p> <p>Accurate measurement of substances using a variety of equipment including titration</p> <p>Safe handling of corrosive and toxic chemicals</p>		...	<p>The year 12 course builds directly on from the work done at GCSE.</p> <p>In this unit students will extend their GCSE quantitative chemistry skills, by practicing more complex calculations and adding in ideal gas and mass spec equations</p>	<p>Multi Step calculation problems.</p> <p>Unit conversions within calculations</p>	<p>The importance of working safely and respecting each other in the lab</p> <p>The importance of disposing of chemical waste in an environmentally friendly and sustainable way.</p>	<p>The ubiquity of chemistry allows examples to be placed in a wide variety of familiar and unfamiliar contexts.</p>	<p>As the central science, chemistry opens doors to a wide range of STEM field careers.</p>

			<p>Presenting and interpreting data in graphical and tabular form</p> <p>Extended writing, including producing formal lab write ups with references and citations</p> <p>Following written methods</p> <p>Mathematical skills, including changing the subject of an equation, multi step problem solving, percentages, graph drawing, drawing tangents to a curve, ratios, using standard form, fractions and working with powers.</p>							
Two	Physical Chemistry - Chemical	Maxwell Boltzman distributions	Level three technical and practical skills,			The year 12 course builds directly on from	Multi Step calculation problems.	The importance of working safely and	The ubiquity of chemistry allows examples	As the central science, chemistry

	Reactions	<p>and collision theory</p> <p>Rate of reaction and factors affecting rate of reaction</p> <p>Catalysts</p> <p>Dynamic Equilibrium and Le Chatelier's Principle</p> <p>Oxidation states and redox reactions</p>	<p>including use of advanced glassware to carry out synthesis and purification</p> <p>Accurate measurement of substances using a variety of equipment including titration</p> <p>Safe handling of corrosive and toxic chemicals</p> <p>Presenting and interpreting data in graphical and tabular form</p> <p>Extended writing, including producing formal lab write ups with references and citations</p> <p>Following written methods</p>			<p>the work done at GCSE.</p> <p>In this unit students will extend their GCSE work on rate of reaction by first revising collision theory, before applying it Maxwell Boltzmann</p> <p>Students will also extend what they have previously learned about redox reactions to consider the concept of oxidation states</p>	<p>Unit conversions within calculations</p> <p>Compounds containing H, O and Cl in unorthodox oxidation states</p>	<p>respecting each other in the lab</p> <p>The importance of disposing of chemical waste in an environmentally friendly and sustainable way.</p>	<p>to be placed in a wide variety of familiar and unfamiliar contexts.</p>	<p>opens doors to a wide range of STEM field careers.</p>
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			Mathematical skills, including changing the subject of an equation, multi step problem solving, percentages, graph drawing, drawing tangents to a curve, ratios, using standard form, fractions and working with powers.							
Three	Inorganic Chemistry	The structure of the periodic table  Periodicity in periods 2 and 3  Group 2 elements, including trends and uses	Level three technical and practical skills, including use of advanced glassware to carry out synthesis and purification  Accurate measurement of substances using a variety of equipment including titration  Safe handling of corrosive and toxic chemicals				Multi Step calculation problems.  Unit conversions within calculations	The importance of working safely and respecting each other in the lab  The importance of disposing of chemical waste in an environmentally friendly and sustainable way.	The ubiquity of chemistry allows examples to be placed in a wide variety of familiar and unfamiliar contexts.	As the central science, chemistry opens doors to a wide range of STEM field careers.

			<p>Presenting and interpreting data in graphical and tabular form</p> <p>Extended writing, including producing formal lab write ups with references and citations</p> <p>Following written methods</p> <p>Mathematical skills, including changing the subject of an equation, multi step problem solving, percentages, graph drawing, drawing tangents to a curve, ratios, using standard form, fractions and working with powers.</p>							
Four	Inorganic Chemistry	Group 7 elements,	Level three technical and				Multi Step calculation	The importance of working	The ubiquity of chemistry	As the central science,

		<p>including trends and uses</p> <p>Testing for ions using test tube reactions</p>	<p>practical skills, including use of advanced glassware to carry out synthesis and purification</p> <p>Accurate measurement of substances using a variety of equipment including titration</p> <p>Safe handling of corrosive and toxic chemicals</p> <p>Presenting and interpreting data in graphical and tabular form</p> <p>Extended writing, including producing formal lab write ups with references and citations</p> <p>Following written methods</p>				<p>problems.</p> <p>Unit conversions within calculations</p> <p>Multi step identification problems</p>	<p>safely and respecting each other in the lab</p> <p>The importance of disposing of chemical waste in an environmentally friendly and sustainable way.</p>	<p>allows examples to be placed in a wide variety of familiar and unfamiliar contexts.</p>	<p>chemistry opens doors to a wide range of STEM field careers.</p>
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			<p>Mathematical skills, including changing the subject of an equation, multi step problem solving, percentages, graph drawing, drawing tangents to a curve, ratios, using standard form, fractions and working with powers.</p>							
Five	Revision of content covered in preparation for AS Exams									
Six	Revision of content covered, and sitting of AS Exams									