



Topic	Key Knowledge <i>What will all students KNOW by the end of the topic?</i>	Key Skills <i>What key skills will be learnt/developed by the end of the topic? What will all students be able to DO by the end of the topic?</i>	Assessment Opportunities <i>What are the key pieces of assessment? How will students be assessed?</i>
Chemical changes (including recap of bonding)	<ul style="list-style-type: none"> -How metals react with oxygen, water and acids - The order of metals, including carbon and hydrogen, in the reactivity series - What oxidation and reduction are in terms of electrons, oxygen and hydrogen - How metals are extracted from their ores using carbon reduction - The pH scale and the use of a variety of indicators - The link between pH, $[H^+]$ and orders of magnitude - Neutralisation of acids and salt production - The general equation for neutralisation - The difference between strong and weak acids - How covalent compounds form - Properties of covalent compounds - Properties of metals and alloys and metallic bonding - How ionic compounds form - Properties of ionic compounds - The process of electrolysis including all key terms - How the electrolysis of molten ionic compounds yields products - How electrolysis can be used to extract more reactive metals - How the electrolysis of aqueous solutions yields products 	<ul style="list-style-type: none"> -Mixing reagents to explore chemical changes and products -Applying the reactivity of metals including carbon and hydrogen to displacement reactions -Elucidating chemical formulae -Writing and balancing general and ionic equations Writing and balancing ionic half equations -Identifying species that have been oxidised or reduced -Predicting products from given reactants -Competence of carrying out a multistep procedure, preparation of a pure, dry sample of a soluble salt -Using the pH scale to identify acidic or alkaline solutions -Measuring the pH of different acids and bases at different concentrations -Making orders of magnitude calculations -Using the words, weak, strong, dilute and concentrated and neutral when applied to acids and their reactions -Drawing and interpreting dot-cross diagrams for covalent compounds -Explaining how different substances conduct electricity -Explaining the properties of alloys -Determining numbers of sub-atomic particles Drawing dot-cross diagrams -Calculating charges on ions -Determining formulae of ionic compounds -Setting up a simple electrochemical cell -Applying redox to write and balance half equations -Evaluating the processes involved in extracting metals from the ground and then by electrolysis 	Homework Starter tasks Regular PPQ practice Assessment 1 Assessment 2

Curriculum Map: Year 10 Subject: Combined Trilogy Science (chemistry) Exam Board: AQA

<p>Completion of chemical analysis (following on from Year 9)</p>	<p>-The difference between pure substances and mixtures and formulations -Physical separation processes including: Filtration, crystallisation, simple and fractional distillation and chromatography -The gases:</p> <ul style="list-style-type: none"> • Hydrogen • Oxygen • Carbon dioxide and • Chlorine <p>can be identified by simple laboratory tests and the positive test results for these gases</p>	<p>-Fluency in the use of IUPAC nomenclature regarding representations of apparatus -Construction and use of word and symbol equations. -Be able to explain how chromatography separates mixtures. -Interpretation of chromatograms -Describing how to carry out tests for gases -Application of key mathematical skills: Calculating R_f values or distances moved by a solvent or a substance during chromatography. -Practical skills and development and apparatus use: Setting up running paper chromatography (Req Prac 6).</p>	<p>Chromatography required practical Homework Starter tasks Regular PPQ practice</p> <p>Assessment 2</p>
<p>Atomic structure and periodic table review</p>	<p>-Recap: a simple model of the atom -The development of the periodic table -The structure of the modern periodic table -The chemistry of the elements of:</p> <ul style="list-style-type: none"> • Group 1 • Group 7 • Group 0 	<p>-Fluency in the use of IUPAC nomenclature regarding element symbols and electronic structures. -Construction and use of word and symbol equations. -Explaining how new evidence can lead to changes in accepted models. -Application of key mathematical skills: Processing data to reveal patterns within elemental properties and interpreting data and graphs of elemental data.</p>	<p>Homework Starter tasks Regular PPQ practice Mock</p>
<p>Energy changes</p>	<p>- Energy is conserved during chemical reactions - What exothermic and endothermic reactions are including everyday examples of them - How reaction profiles are used to represent chemical reactions - What activation energy is - Energy is needed to break chemical bonds - Energy is released when new bonds are formed</p>	<p>-Writing, balancing and interpreting chemical equations -Measuring temperature changes of simple chemical reactions and classifying them as exo or endothermic -Investigating the variables that affect temperature changes -Drawing and interpreting reaction profiles for exothermic and endothermic reactions -Calculating the overall energy change in reactions from supplied data</p>	<p>Homework Starter tasks Regular PPQ practice</p>
<p>Quantitative Chemistry</p>	<p>- Consolidation of writing and balancing equations - Be familiar with specific key terms e.g. relative atomic mass/formula mass, mole, limiting reactant - The conservation of mass law - Avogadro's number - Amounts of substance can be measured in moles - How conservation of mass can be understood using</p>	<p>-Investigating mass changes using various apparatus -Writing, balancing and interpreting chemical equations - Using formula mass to calculate moles and vice versa -Recognising and using expressions in standard form Using ratios, fractions and percentages -Changing the subject of a variety of equations</p>	<p>Homework Starter tasks Regular PPQ practice</p>

Curriculum Map: Year 10 Subject: Combined Trilogy Science (chemistry) Exam Board: AQA

	<p>formula masses and moles in balanced equations</p> <ul style="list-style-type: none">- How to calculate % of an element in a compound- How to calculate reacting masses in balanced equations-What limiting reactants are and their effect on reacting mass calculations- How concentration of solutions is measured in chemistry - Be familiar with specific key terms e.g. relative atomic mass/formula mass, mole, limiting reactant, yield, concentration-The uncertainty associated with any measurements taken	<ul style="list-style-type: none">-Converting units-Using appropriate numbers of significant figures-Writing, balancing and interpreting chemical equations-Using formula mass to calculate moles and vice versa-Recognising and using expressions in standard form Using ratios, fractions and percentages-Changing the subject of a variety of equationsConverting units-Using appropriate numbers of significant figures-Identifying anomalous results and making estimations of uncertainty-Calculating the mean of a data set and using the range as a measure of uncertainty	
--	---	---	--