

Chemistry KS4 Curriculum Map



Year 10 Chemistry

	Autumn 1 C3 Chemical Reactions - (Triple and Combined) Introducing Chemical Reactions	Autumn 2 C3 Chemical Reactions (Triple and Combined) Energetics	Spring 1 C3 Chemical Reactions (Triple and Combined) Electrolysis	Spring 2 C3 Chemical reactions (Triple and Combined) Types of Chemical Reaction	Summer 1 C4 Predicting and Identifying Reactions and Products (Triple and Combined)	Summer 2 C4 Continued (Combined Students) C6 Organic Chemistry (Triple students)
Content: What will students know	<p>Students will build upon their knowledge and understanding of elements and compounds. They should also be familiar with representing chemical reactions using formulae and equations. Students will also learn about conservation of mass, changes of state and chemical reactions.</p> <p>Students then move onto using ideas about the mole and</p>	<p>Students learn that chemical reactions are accompanied by an energy change. Students will learn how to identify exothermic and endothermic reactions. Students will learn how to construct energy profile diagrams. A simple model involving the breaking and making of chemical bonds can be used to interpret and calculate the energy change (H Tier only).</p>	<p>Students will study the decomposition of a liquid during the conduction of electricity is a chemical reaction called electrolysis. This section explores the electrolysis of various molten ionic liquids and aqueous ionic solutions.</p>	<p>Students should be familiar with combustion, thermal decomposition, oxidation and displacement reactions from Year 8 and 9. They will look at these reactions in greater depth. They will be familiar with defining acids and alkalis in terms of neutralisation reactions but will now look at acids in terms of concentration of hydrogen ions. . Students will have met reactions of acids</p>	<p>Students are learning to link the position of an element in the Periodic Table and its atomic structure to its chemical reactions in this topic.</p> <p>Group 1, 7, 8 and the transition metal elements and their physical and chemical reactions are studied in some detail including displacement</p>	<p>Combined Students continue with C4 Identifying Reactions and Products.</p> <p>Triple Students study C6 Organic Chemistry where students learn about the structure and selected reactions for alkanes, alkenes, alcohols, carboxylic acids, manufacture of polymers and the fractional</p>

Chemistry KS4 Curriculum Map



	the amount of any substance.			with alkalis to produce a salt and water and reactions of acids with metals to produce a salt and hydrogen previously but were not required to construct balanced symbol equations. The pH scale is studied in more detail, again in terms of hydrogen ion concentration. Students complete titrations as part of their practical component of the course.	reactions. Triple students also study ion identification and instrumental analysis.	distillation of crude oil and cracking.
Skills: What will students be able to do	Apply the mole concept to a range of concepts and different calculations. Relate the mass of a substance to the number of particles it contains. Balance equations and construct word equations.	Students will be able to explain the differences between an endothermic and exothermic reaction.	Identify products at each electrode for molten and aqueous ionic compounds. Construct half equations.	Explaining the differences between strong and weak acids and relate the pH scale to hydrogen ion concentration. Construct symbol and word equations for reactions that make salts.	Applying the metal reactivity series and the order of reactivity of the halogens in displacement reactions. Writing half equations.	Triple students should be able to draw the displayed formula of the first four molecules of alkanes, alkenes, alcohols and carboxylic acids.

Chemistry KS4 Curriculum Map



<p>Other: Literacy/ Numeracy/ Ethos</p>	<p>Literacy: Students will learn definitions for a multitude of different scientific vocabulary such as moles, equations, conservation.</p> <p>Numerical: Balancing equations and applying molar equations and rearrange formulae.</p> <p>Construct word and symbol equations</p>	<p>Literacy: Students will learn definitions for a multitude of different scientific vocabulary such as exothermic and endothermic.</p> <p>Numerical: Calculate energy changes using bond enthalpies.</p> <p>Practical skills: Measuring temperature changes during chemical reactions.</p>	<p>Literacy: Students will learn definitions for a multitude of different scientific vocabulary such as anode, cathode, electrode, electrolyte etc</p> <p>Practical skills: Correctly constructing electrolytic cells to observe different chemical reactions.</p>	<p>Literacy: Students will learn definitions for a multitude of different scientific vocabulary such as neutralisation, reduction and oxidation.</p> <p>Numeracy: Students will need to understand the mathematical relationship between H^+ concentration and pH for simple dilutions.</p> <p>Practical skills: Students will learn how to complete a titration (the associated calculations are done in Year 11 by Triple students).</p> <p>Construct word and symbol equations that involve making salts.</p>	<p>Literacy: Students will learn definitions for a multitude of different scientific vocabulary such as the halogens, noble gases, displacement etc.</p> <p>Practical skills: Students will learn how to interpret displacement reactions.</p> <p>Triple students also learn how to interpret flame tests.</p>	<p>Literacy: Students will learn definitions for a multitude of different scientific vocabulary such as hydrocarbon, saturated, addition polymerisation etc.</p> <p>Practicals skills: Students learn how to identify different gases and Triple students make nylon when they study polymerisation.</p>
<p>Assessment:</p>	<p>At the end of the topic will include formative assessment to address misconceptions.</p>	<p>At the end of the topic will include formative assessment to address misconceptions.</p>	<p>At the end of the topic will include formative assessment to address misconceptions.</p>	<p>At the end of the topic will include formative assessment to address misconceptions.</p>	<p>At the end of the topic will include formative assessment to address misconceptions.</p>	<p>At the end of the topic will include formative assessment to address misconceptions.</p>

Chemistry KS4 Curriculum Map



Year 11 Chemistry

	Autumn 1 C5 Monitoring Chemical Reactions - (Triple and Combined)	Autumn 2 C5 Chemical Reactions (Triple and Combined)	Spring 1 C6 Improving Processes and Products (Triple and Combined)	Spring 2 C6 Improving Processes and Products (Triple and Combined)	Summer 1 C6 Improving Processes and Products (Triple and Combined)
Content: What will students know	<p>Triple</p> <p>This topic tackles the relationship of moles to the concentration of a solution and the volume of a gas. It also tackles the calculation of the mass of a substance in terms of its molarity. The topic then moves on to look at using equations to make predictions</p>	<p>Triple</p> <p>Students will study how different factors affect the rate of a chemical reaction. There will be quite a number of practical activities to support their understanding of this topic.</p> <p>They then move onto Equilibria. Students will learn about reversible reactions and dynamic equilibria and how Le Chatalier's Principle is applied to changing reaction conditions.</p> <p>Combined students</p>	<p>Triple</p> <p>This section also explores the extraction of raw materials and their use in making new products. Students learn about the extraction of metals from their ores, life cycle assessments, recycling, rusting and corrosion and physical properties of ceramics, polymers and composites as well as fuel cells.</p> <p>Combined Students follow a similar curriculum to Triple students but also learn about crude oil,</p>	<p>Triple</p> <p>This section starts with the history of the atmosphere and moves on to how human activity could be affecting its composition.</p> <p>Combined continue with earlier sections of C6.</p>	<p>Triple and Combined should begin revising in the Summer Term.</p>

Chemistry KS4 Curriculum Map



	<p>about yield by calculations and to calculate atom economy.</p> <p>Combined In C5 students will study how different factors affect the rate of a chemical reaction. There will be quite a number of practical activities to support their understanding of this topic.</p>	<p>continue with rates and then move onto equilibria (as outlined above).</p>	<p>fractional distillation and cracking.</p>		
<p>Skills: What will students be able to do</p>	<p>Triple Students will be able to perform a titration and calculate the unknown concentration from the results. Combined students will be able to perform various experimental</p>	<p>Triple students will be able to perform various experimental techniques on monitoring rates of reactions and explain changing conditions in reversible reactions and how this affects the yield and rate. Combined students will have very similar learning outcomes to Triple.</p>	<p>Students should be able to explain and use the reactivity series of metals to predict chemical reactions. They should also be able to complete a life cycle assessment for any given product.</p>	<p>Students should be able to analyse data on such issues as global warming and the evolution of the atmosphere.</p>	<p>Students will be reminded/ given numerous revision strategies to support their examination preparation.</p>

Chemistry KS4 Curriculum Map



	techniques on monitoring rates of reactions.				
Other: Literacy/ Numeracy/ Ethos	Literacy: Students will learn definitions for a multitude of different scientific vocabulary such as moles, titrations, equations and mass conservation.	Literacy: Students will learn definitions for a multitude of different scientific vocabulary such as dynamic equilibrium, closed system etc.. Numerical: Calculation of rates of reactions.	Literacy: Students will learn definitions for a multitude of different scientific vocabulary such as ceramic, polymer, fuel cell etc	Literacy: Students will learn definitions for a multitude of different scientific vocabulary such as	Literacy: Students will be revising definitions for a multitude of different scientific vocabulary. They will also be given structured lessons on tackling six mark questions. This work will have begun in Year 10.
Assessment:	At the end of the topic there will be a summative assessment and there will also be formative assessments to address misconceptions	At the end of the topic there will be a summative assessment and there will also be formative assessments to address misconceptions.	At the end of the topic there will be a summative assessment and there will also be formative assessments to address misconceptions.	At the end of the topic there will be a summative assessment and there will also be formative assessments to address misconceptions.	At the end of the topic there will be a summative assessment and there will also be formative assessments to address misconceptions.