



# Year 10 Chemistry Curriculum Summary

**YEAR GROUP: 10 FMS****SUBJECT: Chemistry**

When?	Knowledge	Understanding	Assessment
<b>Rates of Reaction</b>	<b>Be able to:</b> <ul style="list-style-type: none"><li>• Be able to define and calculate the rate of reaction.</li><li>• Be able to state and explain theory behind the factors that affect the rate of reaction.</li><li>• Be able to carry out practical investigations to show how the factors affect the rate of a reaction.</li></ul>	Students will carry out a range of practical experiments during these topics.  <b># Rates of Reaction key vocabulary:</b> activation energy catalyst climate change collision theory precise / precision	# Rates of Reaction Test
<b>Energy Changes</b>	<b>Be able to:</b> <ul style="list-style-type: none"><li>• Be able to describe and explain exothermic and endothermic processes.</li><li>• Be able to draw energy profile diagrams for exothermic and endothermic processes, including activation energy.</li><li>• Be able to calculate bond enthalpies for different reactions.</li></ul>	Students will carry out a range of practical experiments during these topics.  <b>Energy Changes key vocabulary:</b> activation energy bond energy endothermic exothermic	Energy Changes Test
<b>Organic Chemistry</b>	<b>Be able to:</b> <ul style="list-style-type: none"><li>• Describe how crude oil is</li></ul>	Students will carry out a range of practical experiments during these topics.	Organic Chemistry test



	<p>separated and processed using fractional distillation and cracking.</p> <ul style="list-style-type: none"><li>• Describe the process of combustion as well as the products and their affects on the environment.</li><li>• Describe the properties of fractions and their general formula (Alkanes and Alkenes).</li></ul>	<p><b>Organic Chemistry key vocabulary:</b> alkane alkene cracking distillation double bond flammable fraction fractional distillation general formula hydrocarbon mixture oxidised saturated hydrocarbon thermal decomposition unsaturated hydrocarbon viscosity</p>	
<b>Chemical changes</b>	<p><b>Be able to:</b></p> <ul style="list-style-type: none"><li>• Use the reactivity series to describe the reactivity of metals with water and acids.</li><li>• Describe and explain the method for making salts from different substances.</li><li>• Describe how metals are extracted from their ores based on their reactivity.</li></ul>	<p>Students will carry out a range of practical experiments during these topics.</p> <p><b>Chemical changes key vocabulary:</b> acid alkali base displacement reaction electrolysis half equation ionic equation metal ore neutral neutralisation ore</p>	Chemical changes Test



		oxidation/oxidised reactivity series reduction / reduced strong acids weak acids	
<b>Electrolysis</b>	<b>Be able to:</b> <ul style="list-style-type: none"><li>Describe how electrolysis works in molten and aqueous conditions.</li><li>Predict the products at the anode and cathode</li><li>Write half equations for oxidation and reduction</li></ul>	Students will carry out a range of practical experiments during these topics.  <b>Electrolysis key vocabulary:</b> anode brine cathode electrolyte half equation inert	Electrolysis Test
<b>Quantitative Chemistry</b>	<b>Be able to:</b> <ul style="list-style-type: none"><li>Describe and explain the conservation of mass and the loss of mass for experiments using gases.</li><li>Calculate <math>M_r</math>, % composition, uncertainty and moles.</li><li>Use the mole equation to calculate reacting masses, concentration of solutions and balancing equations.</li></ul>	Students will carry out a range of practical experiments during these topics.  <b>Quantitative Chemistry key vocabulary:</b> Avogadro constant limiting reactant mole relative atomic mass $A_r$ relative formula mass $M_r$	Quantitative Chemistry Test
<b>Batteries and fuel cells</b>	<b>Be able to:</b> <ul style="list-style-type: none"><li>explain how voltage can be produced by metals in an electrolyte.</li><li>Describe how a fuel cell</li></ul>	Students will carry out a range of practical experiments during these topics.  <b>Batteries and fuel cells key</b>	



	<p>works and be able to write half equations.</p> <ul style="list-style-type: none"><li>• Evaluate the use of hydrogen fuel cells compared to rechargeable cells and batteries.</li></ul>	<p><b>vocabulary:</b> Fuel cell Battery Half equation</p>	
<b>Chemistry of the Atmosphere</b>	<p><b>Be able to:</b></p> <ul style="list-style-type: none"><li>• Describe and compare the composition of the early and current atmosphere.</li><li>• Describe and explain the effects of climate change</li><li>• Describe different pollutants affects.</li></ul>	<p>Students will carry out a range of practical experiments during these topics.</p> <p><b>Chemistry of the Atmosphere key vocabulary:</b> atmosphere carbon capture and storage carbon footprint global dimming incomplete combustion nitrogen oxides particulate</p>	Chemistry of the Atmosphere Test
<b>Further Organic Chemistry</b>	<p><b>Be able to:</b></p> <ul style="list-style-type: none"><li>• describe the properties and reactions of alkenes, alcohols and carboxylic acids.</li><li>• explain the reactions used to form addition and condensation polymers and their properties.</li><li>• describe different natural polymers</li></ul>	<p>Students will carry out a range of practical experiments during these topics.</p> <p><b>Further Organic Chemistry key vocabulary:</b> Fermentation functional group homologous series homologous series DNA (deoxyribonucleic acid) Monomers</p>	Further Organic Chemistry Test



	<b>including proteins and DNA</b>	Nucleotides Polymer	
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