





The curriculum for this stage of students' education has been designed to ensure students understand how scientific methods and theories develop over time. Building on work done in Year 9 Chemistry, they will use representational, spatial, descriptive, computational and mathematical models to solve problems, make predictions and to develop scientific explanations and understanding. Students will appreciate the power and limitations of science and be able to consider ethical issues which may arise. They will be able to explain the technological applications of science; evaluate associated personal, social, economic and environmental implications; and make decisions based on the evaluation of evidence and arguments. Students will evaluate risks both in practical science and the wider societal context, while recognising the importance of peer review of results and of communicating results to a range of audiences.

<p>HALF TERM 1: <u>BONDING, STRUCTRE AND PROPERTIES</u></p> <p>STUDENTS MUST KNOW: Bonding in Covalent molecules, Properties of Simple Covalent compounds, Drawing Dot-cross diagrams of Covalent molecules, Properties, structure and uses of Giant covalent molecules, Comparing Simple and Giant Covalent molecules, Metallic Bonding.</p> <p>HOW THIS WILL BE ASSESSED: A Progress Test halfway through the topic to address misconceptions, followed by an assessment completed at the end of each topic.</p>	<p>HALF TERM 2: QUANTITATIVE CHEMISTRY</p> <p>STUDENTS MUST KNOW: Conservation of mass, calculating RAM and RFM, mass changes, uncertainties in measurements, Writing and balancing symbol equations, moles, predicting masses made in reactions, using moles to balance equations limiting reactants and concentration.</p> <p>HOW THIS WILL BE ASSESSED: A Progress Test halfway through the topic to address misconceptions, followed by an assessment completed at the end of each topic.</p>	<p>HALF TERM 3: CHEMICAL CHANGES</p> <p>STUDENTS MUST KNOW: pH and Neutralisation, Strong and Weak acids, Making Salts from Metals, Metal oxides, Metal Hydroxides, and Carbonates, Making and separating soluble and insoluble salts, The Reactivity Series. Metal reactions and extraction. Redox reactions, Electrolysis, Writing Half-equations, Predicting the products of electrolysis (CuSO_4 and NaCl).</p> <p>RP8- Making a soluble salt from insoluble oxide or carbonate RP9 – Electrolysis of an aqueous solution</p> <p>HOW THIS WILL BE ASSESSED: A Progress Test halfway through the topic to address misconceptions, followed by an assessment completed at the end of each topic.</p>
<p>HALF TERM 4: CHEMICAL CHANGES</p> <p>STUDENTS MUST KNOW:</p> <ul style="list-style-type: none"> pH and Neutralisation, Strong and Weak acids, Making Salts from Metals, Metal oxides, Metal Hydroxides, and Carbonates, Making and separating soluble and insoluble salts, The Reactivity Series. Metal reactions and extraction. Redox reactions, Electrolysis, Writing Half-equations, Predicting the products of electrolysis (CuSO_4 and NaCl). <p>RP8- Making a soluble salt from insoluble oxide or carbonate RP9 – Electrolysis of an aqueous solution</p> <p>HOW THIS WILL BE ASSESSED:</p>	<p>HALF TERM 5: ENERGY CHANGES AND RATES OF CHANGE</p> <p>STUDENTS MUST KNOW: Monitoring Chemical Reactions, Exothermic and Endothermic reactions, Calculating Bond energies, Collision theory, Factors affecting the Rate of a Chemical reactions (Temperature, Concentration, Surface area, Catalysts), Rate graphs, Reversible Reactions and Le Chateliers Principle.</p> <p>RP 11 – Effect of concentration on the rate of reaction</p> <p>HOW THIS WILL BE ASSESSED:</p>	<p>HALF TERM 6: ENERGY CHANGES AND RATES OF CHANGE</p> <p>STUDENTS MUST KNOW: Monitoring Chemical Reactions, Exothermic and Endothermic reactions, Calculating Bond energies, Collision theory, Factors affecting the Rate of a Chemical reactions (Temperature, Concentration, Surface area, Catalysts), Rate graphs, Reversible Reactions and Le Chateliers Principle.</p> <p>RP 11 – Effect of concentration on the rate of reaction</p> <p>HOW THIS WILL BE ASSESSED:</p>



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Embedding this knowledge can be supported at home by completion of homework, reviewing topics found on BBC Bitesize (AQA Chemistry), GCSE pod and reading scientific articles in newspapers, magazines, scientific journals and periodicals. **Books of interest:** The Science of Everyday Life: Why Teapots Dribble, Toast Burns and Light Bulbs Shine (Hardback) Marty Jopson ISBN-10: 1782434186. Further enrichment activities could include trips to the Big Bang Science Fair, Science Live or the Thinktank.