


Year 8: Chemistry	Curriculum Intent: Students will build upon the core subject knowledge and procedural knowledge in the four key areas; Particles, Periodic Table, Chemical Reactions and Earth and Environmental Science. The models and explanations become more complex, and the students begin to learn more about the structure of matter and sub-atomic particles. Application of the core knowledge of the scientific method is expanded into areas such as rates of reaction and separating mixtures. Key questions will continue to be the central focus to lessons, and retrieval of the knowledge from earlier topics will be crucial part of this.			
	<p style="text-align: center;">Topic 1 Particles</p>	<p style="text-align: center;">Topic 2 Periodic table</p>	<p style="text-align: center;">Topic 3 Chemical reactions</p>	<p style="text-align: center;">Topic 4 Earth and environmental science</p>
<p style="text-align: center;">Key ideas</p>	<ul style="list-style-type: none"> • Chem and physical changes • Separating techniques- filtration, crystallisation, distillation and chromatography • Counting atoms • Word equations 	<ul style="list-style-type: none"> • Metal properties • Covalent/ionic • Diamond and graphite • PNE, isotopes Electronic configuration • Mendeleev 	<ul style="list-style-type: none"> • reactivity of metals • displacement • word equations • comparison of endo/exo reactions • introduction to rates 	<ul style="list-style-type: none"> • choosing materials • recycling materials • potable water
<p style="text-align: center;">Sequence of Learning - Key Questions</p>	<ol style="list-style-type: none"> 1. identifying differences between chem and phy changes in terms formation of new substances and reversible (not) 2. choosing appropriate separation technique based on physical state/type of mixture/solubility of a substance. 3. Practical techniques, assemble equipment for filtration, crystallisation 	<ol style="list-style-type: none"> 1. Testing materials for conductivity, solubility, effect of heating, density etc.. to classify materials as metals/covalent/ionic/polymers 2. Comparing and contrasting properties of diamond and graphite- linking them with their uses 3. Data analysis activities- using a given data to choose best material for making a product 4. Recap PNE and idea of isotopes and electron configurations 5. Linking electron configuration with the position of an element in periodic table 	<ol style="list-style-type: none"> 1. Reactivity series and idea of displacement reactions 2. Word equations and predicting displacement reactions 3. Types of reactions- endo and exothermic reactions – practical task measuring temp change, uses of endo and exo reactions 4. Rates of reaction- an investigation project- prediction/hypothesis, planning, implementation, data 	<ol style="list-style-type: none"> 1. Link back to testing materials to choose appropriate material for making a named product 2. Purpose and Methods of recycling for glass/metals/plastic etc. 3. Life cycle assessment of material – cost of raw material, energy used during manufacturing and use and finally disposal- biodegradable/landfill/incineration etc.

	<p>(obtaining pure salt from rock salt) distillation (ink water/salt water) and chromatography (flet tips and other pens).</p> <p>4. Link back to chemical changes and write word equations</p> <p>5. Identifying the type and number of atoms and elements in formulae</p>	<p>6. Development of periodic table</p> <p>7. Comparing and contrasting Mendeleev's and modern periodic table.</p>	<p>collection, draw tables, graphs and making conclusion followed by evaluative skills.</p>	<p>4. Making water fit for drinking purpose</p>
<p>Vocabulary</p>	<p>Chemical change Physical change Filtration Chromatography Distillation Soluble Insoluble Solution Crystallisation Formula</p>	<p>Density Conductivity Solubility Polymer Ionic Covalent Isotope Proton Neutron Electron Electron Configuration</p>	<p>Displacement Reactivity Endothermic Exothermic Hypothesis</p>	<p>Recycling Life-cycle assessment Biodegradable Landfill Incineration Materials Potable</p>
<p>Practical Skills</p>	<p>Assembling equipment for: filtration, crystallisation, simple distillation. Simple paper chromatography</p>	<p>Testing materials for conductivity, solubility, effect of heating, density, electrical conductivity.</p>	<p>Measuring temperature in exo/endo thermic reactions Making observations – metal displacement reactions Rates of reaction investigation – gas collection method</p>	<p>Purification of water</p>

<p>Assessment (Related to mastery grids)</p>	<p>Identify changes as physical or chemical Describe the method for separating sand, salt and water mixture.</p>	<p>Magnesium/Aluminium fact file</p> <ul style="list-style-type: none">- Properties- Position in modern periodic table – electron configuration. How would this be different in Mendeleev's day?- Uses – link to properties.	<p>Rates project – Mg + HCl</p>	<p>Life-cycle assessment – comparison of glass/plastic milk bottle, paper/ceramic cup, cotton/polyester clothing etc.</p>
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