



# CURRICULUM PLAN

CHEMISTRY

BRAMHALL HIGH SCHOOL

## **Curriculum Intent**

It is our intention as Science Department to provide all children, regardless of their prior learning, background, or special needs, with a broad and balanced science curriculum. We aim to promote positive attitudes to science as an interesting and enjoyable subject. To develop pupils' awareness of how science impacts on their everyday life.

Pupils are encouraged to develop their practical skills, to work collaboratively and to query and evaluate scientific evidence.

We aim to cultivate an environment conducive to learning. We encourage and value our pupils' opinions, ideas, and contributions. Similarly, we expect pupils to strive for excellence and respect the contributions of other adults and their peers. Our intention is for pupils to enjoy their learning, to be resilient, make progress and achieve at an appropriate level.

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## YEAR 7

Term	Programme of Learning	Links to the National Curriculum / Specification / Additional	Assessments	What extra learning opportunities are planned?	Disciplinary Literacy
Term 1a	<b>7E Mixtures and separation</b> - Mixture - Solutions - Evaporation	Pure and impure substances Experimental skills & investigations Scientific attitudes	CPR - Chromatography write up	Survival tips -make a solar still. Writing article for a book. crime scene - chromatography.	<b>Tier 1:</b> Gas, liquid, solid, material, melt, solidify, freeze, physical <b>Tier 2:</b> property, condense, evaporate, temperature, volume. <b>Tier 3:</b> Bunsen burner, state, *diffusion matter, thermometer, *particle.
Term 1b	<b>7E Mixtures and separation</b> - Chromatography - Distillation  <b>7F Acids and alkalis</b> - Indicators	Pure and impure substances Chemical reactions Experimental skills and investigations Scientific attitudes Analysis and evaluation	7E End of unit test CPR - Neutralisation write up	As above Use of hazard symbols and link to dangers of acids and forensic work when looking at the effect of acid on human body when looking at the acid bath murderer	<b>Tier 1:</b> Funnel, *mixture, physical condensation, evaporation. <b>Tier 2:</b> Dissolve, evaporate, pure, property. <b>Tier 3:</b> Filtrate, filtration, solute insoluble, residue, saturated solution, *soluble, solvent.

<b>Term 2a</b>	<b>7F Acids and alkalis</b> <ul style="list-style-type: none"> <li>- Acidity and alkalinity</li> <li>- Neutralisation</li> <li>- Neutralisation in daily life</li> </ul>	Chemical reactions Experimental skills and investigations Scientific attitudes Analysis and evaluation	7F End of unit test	To develop fair testing and the check medicines against uses. Environmental aspects of the dangers of acid rain.	<b>Tier 1:</b> Acid. <b>Tier 2:</b> Alkali. <b>Tier 3:</b> Corrosive, *indicator, litmus, measuring cylinder, *neutral, pH paper, universal indicator.
<b>Term 2b</b>	<b>7G The particle model</b> <ul style="list-style-type: none"> <li>- Particles</li> <li>- Brownian motion</li> <li>- Diffusion</li> <li>- Air pressure</li> </ul>	The particulate nature of matter Scientific attitudes	CPR - Particles and their arrangement 7G The Particle Model test	Dangers of chemicals in the home and issues of getting rid of waste/recycling. Links to drama and modelling of concepts. Acting like particles in S,L,G.	<b>Tier 1:</b> Air, percentage. <b>Tier 2:</b> Formula, gas syringe, oxygen. <b>Tier 3:</b> Argon, atmosphere, carbon dioxide, *molecule, nitrogen, unreactive.

<p><b>Term 3a</b></p>	<p><b>7H atoms, elements and compounds</b></p> <ul style="list-style-type: none"> <li>- The air we breathe</li> <li>- Metals</li> <li>- Non-metals</li> </ul>	<p>Atoms, elements and compounds            Scientific attitudes            Experimental skills and investigations            Analysis and evaluation</p>	<p>CPR - Atoms, elements and compounds            End of year 7 examination</p>	<p>Sorting data and different types of variable (Continuous/Discontinuous) graphs Skills- the correct type</p> <p>Understanding the world around us and the need to look after natural resources.</p>	<p><b>Tier 1:</b> Air, percentage.  <b>Tier 2:</b> *Formula, oxygen.  <b>Tier 3:</b> Argon, atmosphere, carbon dioxide, molecule, nitrogen, unreactive.</p>
<p><b>Term 3b</b></p>	<p><b>7H atoms, elements and compounds</b></p> <ul style="list-style-type: none"> <li>- Metals and non-metals</li> <li>- Making compounds</li> <li>- Chemical reactions</li> </ul>	<p>Atoms, elements and compounds            Scientific attitudes            Experimental skills and investigations            Analysis and evaluation</p>	<p>7H End of unit test</p>	<p>Difference between facts and opinions and development of literacy to show these 2 key words.</p>	<p><b>Tier 1:</b> *atoms, particles, elements and compounds.  <b>Tier 2:</b> word equations, reactants, products,  <b>Tier 3:</b> Thermal decomposition.</p>

## YEAR 8

Term	Programme of Learning	Links to the National Curriculum / Specification / Additional	Assessments	What extra learning opportunities are planned?	Disciplinary Literacy
<b>Term 1a</b>	<b>8E Combustions</b> <ul style="list-style-type: none"> <li>- Burning fuels</li> <li>- Oxidation</li> <li>- Fire safety</li> <li>- Air pollution</li> </ul>	Chemical reactions Experimental skills and investigations Analysis and evaluation	CPR - Combustion practical write up	Working safely in the lab & observing findings. Home safely fire hazards and extinguishers Linking to global warming and how to reduce the amount of greenhouse gases. Literacy causes and effects of global warming.	<b>Tier 1:</b> Chemical reaction, product. <b>Tier 2:</b> *Combustion, *Fuel, flammable, reactant. <b>Tier 3:</b> Oxidation, fire triangle, word equation.
<b>Term 1b</b>	<b>8E Combustions</b> <ul style="list-style-type: none"> <li>- Global warming</li> </ul> <b>8F The periodic table</b> <ul style="list-style-type: none"> <li>- Daltons atomic model</li> <li>- Chemical properties</li> <li>- Mendeleev's table</li> </ul>	The Periodic Table Scientific attitudes Experimental skills and investigations	8E End of unit test CPR - Periodic table questions	Understanding of developing theories based on evidence and develop practical skills.	<b>Tier 1:</b> *Atom, compound, *element. <b>Tier 2:</b> Brittle, malleable, metal, mixture, periodic table, molecule, non-metal. <b>Tier 3:</b> Molecular formula.

<b>Term 2a</b>	<b>8F The periodic table</b> - Chemical trends  <b>8G Metals and their uses</b> - Metal properties - Corrosion	Identifying metals from non-metals and knowing their properties and uses. Investigation corrosion.	8F End of unit test	Links to real world in terms of uses of metals. Use of Literacy when describing materials. Cross curricular opportunity to explain the uses of metals in art.	<b>Tier 1:</b> Atom, compound, element. <b>Tier 2:</b> Brittle, malleable, *metal, mixture, *periodic table, molecule, non-metal, lattice. <b>Tier 3:</b> Molecular formula.
<b>Term 2b</b>	<b>8G Metals and their uses</b> - Metals and water - Metals and acids - Pure metals and alloys	Reaction of metals with water, acids. Structure of metals and alloys.	8G End of unit test	Links to real world in terms of uses of metals and how alloys change properties of original metals. Use of Literacy when describing materials. Cross curricular opportunity to explain the uses of metals in art.	<b>Tier 1:</b> Atom, compound, element. <b>Tier 2:</b> Brittle, malleable, metal, *mixture, periodic table, molecule, *non-metal, lattice. <b>Tier 3:</b> Molecular formula.

<b>Term 3a</b>	<b>8H Rocks</b> <ul style="list-style-type: none"> <li>- Rocks and their uses</li> <li>- Igneous rocks</li> <li>- Metamorphic</li> </ul>	Earth and atmosphere Experimental skills and investigations Analysis and evaluation	CPR Rocks	Assessing sources and literacy page from the online textbook. Understanding theories in geology.	<b>Tier 2</b> Igneous, metamorphic, sedimentary, *weathering, *erosion, atmosphere
<b>Term 3b</b>	<b>8H Rocks</b> <ul style="list-style-type: none"> <li>- Weathering and erosion</li> <li>- Sedimentary rocks</li> </ul>	Earth and atmosphere Experimental skills and investigations Analysis and evaluation	8H End of unit test Year 8 Examination	Assessing sources and literacy page from the online textbook. Understanding theories in geology.	<b>Tier 2:</b> *Igneous, *metamorphic, *sedimentary, weathering, erosion, atmosphere



## YEAR 9

Term	Programme of Learning	Links to the National Curriculum / Specification / Additional	Assessments	What extra learning opportunities are planned?	Disciplinary Literacy
<b>Term 1a</b>	<b>9E Making Materials</b> <ul style="list-style-type: none"> <li>- Ceramics</li> <li>- Polymers</li> <li>- Composite materials</li> <li>- Problems with materials</li> <li>- Recycling</li> </ul>	Materials The Periodic Table Scientific attitudes Experimental skills and investigations Analysis and evaluation, Measurement	CPR - Metals and their uses assessment	Materials of the future.  Potential to cover peer review & working scientifically.  Impact of materials on the environment as well as the social and moral decisions we need to make in our lives.	<b>Tier 1:</b> *polymer, simple molecule, bond. <b>Tier 2:</b> Conductivity, lattice. <b>Tier 3:</b> *Monomer, polymerisation, composite
<b>Term 1b</b>	<b>9F Reactivity</b> <ul style="list-style-type: none"> <li>- Explosions</li> <li>- Reactivity</li> <li>- Energy and reactions</li> <li>- Displacement</li> </ul>	Scientific attitudes Experimental skills and investigations Analysis and evaluation	CPR - Making materials & reactivity tests	Potential to complete literacy tasks on active and passive voices from online textbook.  Alfred Nobel. Understand how his life changes (SMSC).	<b>Tier 1:</b> Burn, Oxygen, fuel, energy. <b>Tier 2:</b> Combustion, reactivity <b>Tier 3:</b> Oxidation, reduction, displacement, *exothermic, *endothermic

<b>Term 2a</b>	<b>CC3/4 Atomic Structure &amp; The Periodic Table</b>  - Structure of an Atom - Atomic mass - The periodic table	Atomic structure and the Periodic Table Structure, The development of scientific thinking Vocabulary Units Symbols and nomenclature	CPR - Atomic structure Q CPR – Isotopes Calculations Year 9 Chemistry Examination	Possible link to drama/modelling to act as the particles.	<b>Tier 1:</b> Mass number, atomic number, *electron, proton, neutron <b>Tier 2:</b> Shell, period, *group.
<b>Term 2b</b>	<b>CC4 The Periodic Table</b>  - Atomic number - History of the periodic table - Electron configuration	Mendeleev's arrangement of the elements.  Structure of the atom.  Identification of elements as metals or non-metals.	End of unit test	Based on the number of electrons on the outer shell what different types of bonding could be formed.	<b>Tier 1:</b> Proton, electron, *neutron, <b>Tier 2:</b> Mass, shell, atomic number, atomic mass <b>Tier 3:</b> Phase, distil, condensation, purity, filtration,

<b>Term 3a</b>	<b>CC1/2 States of Matter &amp; Methods of Separating and Purifying Substances</b>  - States of Matter - Mixtures - Filtration & crystallisation	States of matter.  Techniques in chemistry	CPR - Solids, Liquid & gases Q CPR - Practical write up (separation)	Understanding of use of forensics via separation techniques.	<b>Tier 1:</b> Solid, liquid, gas, <b>Tier 2:</b> Freezing, melting, melting, pure, mixture, filtration, evaporation, <b>Tier 3:</b> *sublimation, *condensation, crystallisation.
<b>Term 3b</b>	<b>CC1/2 States of Matter &amp; Methods of Separating and Purifying Substances</b>  - Chromatography - Distillation - Drinking water	Techniques in chemistry.	CPR - Sep. Inks core practical Q/write up  End of unit test	Understanding of use of forensics via separation techniques. Knowledge of the scale and size of water purification.	<b>Tier 1:</b> Waste and ground water, <b>Tier 2:</b> Sedimentation, *filtration and chlorination.