




**'An ambitious curriculum that meets the needs of all'**  
**Medium Term Planning - Topic: Elements**

<b>Curriculum Intent</b>	
<b>Skills/National Curriculum Links</b>	<p>In addition to working further on objectives from Year __, pupils will be taught, following National Curriculum guidelines, the following this topic:</p> <p>Atoms, elements and compounds</p> <ul style="list-style-type: none"> <li>• a simple (Dalton) atomic model</li> <li>• differences between atoms, elements and compounds</li> <li>• chemical symbols and formulae for elements and compounds</li> <li>• properties of polymers</li> </ul>
<b>Spiritual, moral, social, and cultural development</b>	<p><b>SMSC:</b> This unit of work provides several opportunities for students to work together practically in groups, which encourages them to share views and opinions and take instructions from others. Group work opportunities encourage teamwork and respect for others. In practical lessons students follow laboratory rules for the safety of all. Scientific development comes from all across the world, from people of all backgrounds and cultures. Some of science's most important discoveries have come from other parts of the world and it's important for students to understand this as many believe that progress comes largely from the UK or America. It is also important to understand how the different cultures around the world can have different impacts on the planet and what impact more economically developed countries have on poorer areas.</p> <p><b>PSHE/British Values:</b> The historical development of the periodic table and models of atomic structure provide good examples of how scientific ideas and that explanations develop over time as new evidence emerges. Students will complete teamwork, leadership and put science into everyday situations. They will show mutual respect during classwork.</p> <p><b>Skills Builder:</b> Listening (Receiving, retaining and processing info), Speaking (The oral transmission of info and ideas), Problem solving (Find a solution to a situation or challenge), Creativity (imagination and generation of new ideas), Staying positive (The ability to use tactics and strategies to overcome setbacks), aiming high (Set clear and tangible goals), Leadership and teamwork</p>
<b>Numeracy</b>	Understanding of the subscript numbers in formulae, understanding of ratio.
<b>Literacy</b>	<p><b>Vocabulary Tier 2:</b> recall, observation, naturally occurring, substance, represent, properties, giant, determine relative proportions, identical, flexible, durable, suitable, synthetic, artificial, disposable, justify.</p> <p><b>Vocabulary Tier 3:</b> element, chemical symbol, atom, compound, molecule, chemical formula, hydroxide, nitrate, sulfate, carbonate, polymer, natural polymer, synthetic polymer.</p> <p><b>Reading:</b> Following a written method and read risk assessments. Students may be directed to the textbook; this could be in lesson or at home on Kerboodle.</p> <p><b>Writing:</b> Describing and explaining scientific phenomenon, free response writing for describing precautions taken. Use of word mat to promote sentence formation. Converting diagrams into text.</p> <p><b>Oracy:</b> Inclusion of BEST resources which are research evidence on common misunderstandings in science, effective diagnostic questioning and formative assessment, constructivist approaches to building understanding, and effective sequencing of key concepts that promote metacognitive talk and dialogue.</p>
<b>Becoming future ready</b>	<p><b>Careers/Employability:</b></p> <p>Scientist</p> <p>Chemist</p> <p>Drug development</p> <p>Teacher</p> <p>Post-doctoral researcher</p>
<b>Adaptation</b>	Throughout this topic, quality first teaching will provide differentiation:

<b>QFT/SEND Provision</b>	<p><b>By product:</b> Linear assessments and differentiated practical work.</p> <p><b>By resource:</b> Lessons are differentiated per class and students, worksheets are coloured blue if support and assessments are linear.</p> <p><b>By Intervention:</b> by providing different levels of supervision and support</p> <p><b>By Progressive Questioning:</b> exploring pupils' understanding through interactive dialogue.</p> <p><b>By Grouping:</b> according to prior attainment, gender, social preference, preferred learning style.</p> <p><b>By Task:</b> Pupils should be involved in the identification of targets which are meaningful to them and in the selection of an appropriate task from the given range.</p> <p><b>By Offering Optional Activities:</b> In class or as homework, to extend learning.</p> <p>This QFT/SEND provision will be explicit within the lesson-by-lesson schemes of work.</p>
<b>Implementation Curriculum Delivery</b>	<p>To be able to:</p> <p>Securing Mastery Goals</p> <ul style="list-style-type: none"> <li>- 3.5.4 The symbols of hydrogen, oxygen, nitrogen, carbon, iron, zinc, copper, sulfur, aluminium, iodine, bromine, chlorine, sodium, potassium, and magnesium.</li> </ul>
<b>Learning Outcomes (Core Knowledge)</b>	<p>Enquiry processes</p> <ul style="list-style-type: none"> <li>- 2.5 Use scientific vocabulary accurately, showing that you know its meaning, and use appropriate units and correct chemical nomenclature.</li> </ul> <p>Securing Mastery Goals</p> <ul style="list-style-type: none"> <li>- 3.5.4 Represent atoms, molecules, elements, mixtures, and compounds using particle diagrams.</li> </ul> <p>Enquiry processes</p> <ul style="list-style-type: none"> <li>- 2.3 Make a conclusion and explain it.</li> <li>- 2.6 Decide if a diagram might help the explanation.</li> </ul> <p>Securing Mastery Goals</p> <ul style="list-style-type: none"> <li>- 3.5.4 Most substances are not pure elements, but compounds or mixtures containing atoms of different elements. They have different properties to the elements they contain.</li> <li>- 3.5.4 Represent atoms, molecules, elements, mixtures, and compounds using particle diagrams.</li> </ul> <p>Exceeding Mastery Goals</p> <ul style="list-style-type: none"> <li>- 3.5.4 Use particle diagrams to predict physical properties of elements and compounds.</li> <li>- 3.5.4 Compare and contrast the properties of elements and compounds and give a reason for their differences.</li> </ul> <p>Enquiry processes</p> <ul style="list-style-type: none"> <li>- 2.3 Make a conclusion and explain it.</li> <li>- 2.4 Design a table for the data being gathered.</li> </ul> <p>Enquiry processes activity</p> <ul style="list-style-type: none"> <li>- 3.5.4 Compare the properties of elements with the properties of a compound formed from them.</li> </ul> <p>Securing Mastery Goals</p> <ul style="list-style-type: none"> <li>- 3.5.4 Use particle diagrams to classify a substance as an element, mixture, or compound and as molecules or atoms.</li> <li>- 3.5.4 Name simple compounds using these rules: change non-metal to -ide; mono, di, tri prefixes; and symbols of hydroxide, nitrate, sulfate, and carbonate.</li> <li>- 3.5.4 Name compounds using their chemical formulae.</li> <li>- 3.5.4 Given chemical formulae, name the elements present and their relative proportions.</li> <li>- 3.5.4 Represent atoms, molecules elements, compounds, and mixtures using particle diagrams.</li> </ul> <p>Exceeding Mastery Goals</p> <ul style="list-style-type: none"> <li>- 3.5.4 Deduce a pattern in the formula of similar compounds and use it to suggest formulae for unfamiliar ones.</li> </ul> <p>Enquiry processes</p> <ul style="list-style-type: none"> <li>- 2.5 Use scientific vocabulary accurately, showing that you know its meaning, and use appropriate units and correct chemical nomenclature.</li> <li>- 2.5 Add a diagram if it helps to make the meaning clearer.</li> </ul> <p>Securing Mastery Goals</p> <ul style="list-style-type: none"> <li>- 3.5.4 Represent atoms, molecules, elements, mixtures, and compounds using particle diagrams.</li> <li>- 3.5.4 Use particle diagrams to predict physical properties of elements and compounds.</li> </ul> <p>Enquiry processes</p> <ul style="list-style-type: none"> <li>- 2.1 Identify patterns in data.</li> </ul>
<b>Current learning to be developed in the future within:</b>	<p>Red denotes interleaving; aspects of knowledge covered previously.</p> <p>At GCSE you will learn the periodic table provides chemists with a structured organisation of the known chemical elements from which they can make sense of their physical and chemical properties. The arrangement of elements in the modern periodic table can be explained in terms of atomic structure which provides evidence for the model of a nuclear atom with electrons in energy levels.</p>

		
Assessment	Refer to assessment maps for formative and summative assessment opportunities.	
Impact	Attainment and Progress – Refer to assessment results / data review documentation.	