



## Medium Term Planning - Topic: Types of reactions

Curriculum Intent	
Skills/National Curriculum Links	<p>In addition to working further on objectives from Year __, pupils will be taught, following National Curriculum guidelines, the following this topic:</p> <p>Chemical reactions</p> <ul style="list-style-type: none"> <li>chemical reactions as the rearrangement of atoms</li> <li>representing chemical reactions using formulae and using equations</li> <li>combustion, thermal decomposition, oxidation and displacement reactions</li> <li>conservation of mass changes of state and chemical reactions.</li> </ul>
Spiritual, moral, social, and cultural development	<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.</p> <p><b>PSHE/British Values:</b> Chemical reactions are useful in everyday use such as hand warmers, ice packs for sports injury. 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>
Numeracy	<p>Conservation of mass calculations. Balanced equations with the same number of atoms of each type on each side.</p>
Literacy	<p><b>Vocabulary Tier 2:</b> transfer, represent, rearranged, predict,</p> <p><b>Vocabulary Tier 3:</b> chemical reaction, reactants, products, conserved, fuel, combustion, fossil fuel, non-renewable, renewable, decomposition, thermal decomposition, conservation of mass, physical change, balanced symbol equation.</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>
Becoming future ready	<p><b>Careers/Employability:</b></p> <p>Physiotherapist</p> <p>Sports coach</p> <p>Firefighter</p> <p>Pathologist</p>
Adaptation	<p>Throughout this topic, quality first teaching will provide differentiation:</p>
QFT/SEND Provision	<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. 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>- 3.6.4 Chemical reactions can be described by a model in which atoms and molecules in reactants rearrange to make the products and the total number of atoms is conserved.</li> <li>- 3.6.4 Write word equations from information about chemical reactions.</li> <li>- 3.6.4 Use particle diagrams to show what happens in a reaction.</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> <li>- 2.13 Identify risks and hazards.</li> <li>- 2.13 Identify control measures.</li> </ul> <p>Securing Mastery Goals</p> <ul style="list-style-type: none"> <li>- 3.6.4 Combustion is a reaction with oxygen in which energy is transferred to the surroundings as heat and light.</li> <li>- 3.6.4 Chemical changes can be described by a model in which atoms and molecules in reactants rearrange to make the products and the total number of atoms is conserved.</li> <li>- 3.6.4 Write word equations from information about chemical reactions.</li> <li>- 3.6.4 Predict the products of the combustion or thermal decomposition of a given reactant and show the reaction as a word equation.</li> </ul> <p>Exceeding Mastery Goals</p> <ul style="list-style-type: none"> <li>- 3.6.4 Compare the pros and cons of fuels in terms of their products of combustion.</li> <li>- 3.6.4 Devise a general rule for how a set of compounds reacts with oxygen or thermally decomposes.</li> </ul> <p>Enquiry processes</p> <ul style="list-style-type: none"> <li>- 2.1 Identify patterns in data.</li> <li>- 2.4 Design a table for the data being gathered.</li> </ul> <p>Securing Mastery Goals</p> <ul style="list-style-type: none"> <li>- 3.6.4 Thermal decomposition is a reaction in which a single reactant is broken down into simpler products by heating.</li> <li>- 3.6.4 Chemical changes can be described by a model in which atoms and molecules in reactants rearrange to make the products and the total number of atoms is conserved.</li> <li>- 3.6.4 Write word equations from information about chemical reactions.</li> <li>- 3.6.4 Explain why a reaction is an example of combustion or thermal decomposition.</li> <li>- 3.6.4 Use particle diagrams to show what happens in a reaction.</li> <li>- 3.6.4 Predict the products of the combustion or thermal decomposition of a given reactant and show the reaction as a word equation.</li> </ul> <p>Exceeding Mastery Goals</p> <ul style="list-style-type: none"> <li>- 3.6.4 Devise a general rule for how a set of compounds reacts with oxygen or thermally decomposes.</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 Suggest a scientific idea that might explain the observation.</li> <li>- 2.12 Make an experimental prediction.</li> </ul> <p>Securing Mastery Goals</p> <ul style="list-style-type: none"> <li>- 3.6.4 Explain observations about mass in a chemical or physical change.</li> </ul> <p>Exceeding Mastery Goals</p> <ul style="list-style-type: none"> <li>- 3.6.4 Use known masses of reactants or products to calculate unknown masses of the remaining reactant or product.</li> <li>- 3.6.4 Use the mass of reactant in an equation to determine the mass of product, for example, magnesium and oxygen.</li> <li>- 3.6.4 Balance a symbol equation.</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 Suggest a scientific idea that might explain the observation.</li> </ul> <p>Enquiry processes activity</p> <ul style="list-style-type: none"> <li>- 3.5.4 Investigate changes in mass for chemical and physical processes.</li> </ul> <p>Red denotes interleaving; aspects of knowledge covered previously.</p>
<b>Learning Outcomes (Core Knowledge)</b>	

<b>Current learning to be developed in the future within:</b>	At GCSE you learn in more detail about exothermic and endothermic reactions, including profiles and how to calculate changes in energy.
<b>Assessment</b>	Refer to assessment maps for formative and summative assessment opportunities.
<b>Impact</b>	Attainment and Progress – Refer to assessment results / data review documentation.

