

		End of term Summative Assessment		End of term Summative Assessment		End of term Summative Assessment
Why this? Why now?	Atoms, Elements and Compounds is taught at this point as pupils now understand that all substances are made from particles. This will now be developed further to relate to the atom as well as making prior links with concepts from Metals and Non-metals and the basic structure of the periodic table. Further links are made back to the Earths Structure module, where pupils were introduced to the notion of properties of compounds. Pupils have previously studied word equations in the topic Acids and	Pupils have met several concepts underpinning the big picture of this Periodic Table topic of learning. For example, atoms and elements from the previous module, Pure and Impure Substances at the beginning of year 7 and Metals and Non-metals from later in year 7. Conclusions can be drawn, while opening new areas of learning in year 9, where pupils will investigate how the Periodic Table was developed.	This topic builds on knowledge from the Year 7 overarching modules from Chemical Reactions in terms of Acids and Alkalis. It further practices chemical equations and from Metals and Non-metals where the reactions of metals with acids was studied. This will now develop the rearrangement of atoms linking it to the conservation of mass, while also being an introduction to studying reactions and changes in energy in the following topic of Chemical Energy.	This topic is taught later in year 8 as concepts within are becoming increasingly more complex to include energy level diagrams, of which an understanding of energy from the year 7 Physics topic of Energy is drawn i.e. Energy as a quantity that can be quantified and calculated where they will link this to endothermic and exothermic reactions by making calculations is needed. It introduces the definition of a catalyst and how a catalytic converter works which will then be linked to the later topic of Climate when will	By this point, pupils will know from the Periodic Table earlier in the year that carbon is a non-metal element and from the Atoms, Elements and Compounds topic that it is also a constituent of the compound carbon dioxide. In year 7 Interdependence module pupils studied food chains and this is a precursor for the understanding of the carbon cycle. Earlier in year 8 from the biology topic of Cellular Respiration pupils will know that carbon dioxide is produced in respiration, and from the topic Photosynthesis that	The final topic is taught at this point as it has prior links to year 7 Metals and Non-metals such as properties of metals also to Earth's Structure in year 7, where pupils met the concept of recycling rocks. This was the starting point for discovering where these metals originate from i.e. in the Earths crust. As pupils now comprehend chemical reactions, they can now apply this to understand how metal extraction depends on chemical reactions. Further to this they will make links back to the previous topic

	<p>Alkalis, Metals and Non-metals, which will now increase in complexity as they are introduced to chemical formulae to represent elements, compounds and molecules. This will be carried across to the biology topic Cellular Respiration which is taught later in year 8 so pupils can build on the word equation and can subsequently challenge their knowledge to use chemical formulae to show the relevant equations, rather than just using word equations.</p>			<p>see how this equipment can be used to reduce the impact humans have on the environment.</p>	<p>it is a reactant for the process of photosynthesis. This module will draw on these cross curricular key themes so that the processes behind the recycling of carbon can be studied. It also incorporates knowledge of radiation from the earlier topic in Year 8, Heating and Cooling in Physics.</p>	<p>of Climate to explain that the recycling of metals is more advantageous to the environment in terms of reducing carbon footprint.</p>
<p>Skills & Characteristics</p>	<p>Listening Pupils will have opportunities to develop their listening skills throughout the academic year, specifically when being given instructions for investigative work for e.g. displacement reactions. They will also listen to each other throughout group work and opportunities for presenting their work.</p>					

	<p>Problem Solving Pupils will use problem solving skills when evaluating the results from investigative processes. They will work collaboratively to explain the results of their practical experiments using scientific reasoning.</p> <p>Aiming High All pupils will set clear, tangible goals and which can especially be met during investigative work when following methods and use of level ladders in tasks.</p> <p>Teamwork: Pupils will be required to work in a group whilst carrying out practical work or problem-solving activities showing that these skills are necessary in the world of work irrespective of career choice.</p>					
Aspirations & Careers	<p>The science involved in this area correlates with:-</p> <ul style="list-style-type: none"> * Chemical engineer * Energy manager * Production manager 	<p>The science involved in this area correlates with:-</p> <ul style="list-style-type: none"> * Furniture designer * Chemical metallurgist * Chemist 	<p>The science involved in this area correlates with:-</p> <ul style="list-style-type: none"> * Chemical technician * Teacher of chemistry * Forensic scientist 	<p>The science involved in this area correlates with:-</p> <ul style="list-style-type: none"> * Product design * Chemical engineer * Research scientist 	<p>The science involved in this area correlates with:-</p> <ul style="list-style-type: none"> * Gardener * Farmer * Environmental scientist 	<p>The science involved in this area correlates with:-</p> <ul style="list-style-type: none"> * Recycling operative * Chartered engineer * Mining

Year Group	Basic (Lower Ability End Points)	Clear (Middle Ability End Points)	Detailed (Higher Ability End Points)
8	<p>Pupils use knowledge and understanding of elements, their properties to identify where metals and non-metals would be found on the Periodic Table. Pupils can use basic scientific terminology correctly. They can identify and state the physical properties of group 1 elements and group 7 elements. Pupils can state why other metals would be better suited to make water pipes, rather than group 1 metals. They can classify endothermic and exothermic reactions based on the change in temperature and recognise the purpose of a variety of scientific and</p>	<p>Pupils use knowledge and understanding of elements, their properties to describe where metals and non-metals would be found on the Periodic Table. Pupils can use a range of scientific terminology correctly. They can describe the physical properties of group 1 elements and group 7 elements and describe patterns of reactivity and other properties of elements within these groups. Pupils can write simple word equations to describe why group 1 elements are unsuitable to make water pipes or other everyday objects from. They can classify and make predictions of endothermic and exothermic reactions based on their use and recognise the purpose of a variety</p>	<p>Pupils use knowledge and understanding of elements, their properties to describe where metals and non-metals would be found on the Periodic Table based on their properties such melting and boiling points. Pupils can use a wide range of scientific terminology. They can explain how reactivity of group 7 elements are linked to displacement reactions of group 7 and make predictions based on trends within the group. Pupils can write word equations to represent chemical reactions of group 1 and group 7 elements and represent them using chemical formula. Pupils can explain how conservation of mass can be demonstrated using formulae. They can</p>

<p>technological developments in their everyday lives, based on these reactions for e.g. sports injury packs. They use simple scientific ideas with evidence they have collected to give explanations of cause and effect, for example an burning a fossil fuel produces carbon dioxide which is linked to an increase in global temperatures.</p> <p>Working Scientifically Pupils respond to suggestions and put forward their own ideas about how to investigate an idea or find answers to questions. They recognise why it is important to collect data to investigate ideas and answer questions, and use texts to find information. They begin to recognise risks with help. They make relevant observations and measure quantities, such as length or mass, selecting and using a range of simple equipment. They carry out fair tests with some help, recognising and explaining what makes them fair. They record findings in a variety of ways, including tables or charts. They give explanations for observations and for patterns in measurements they have made and recorded. They communicate in a scientific way what they have found out and suggest improvements in their work.</p>	<p>of scientific and technological developments in their everyday lives, based on these reactions for e.g. sports injury packs. They use scientific ideas with evidence they have collected to give explanations of cause and effect, for example an burning a fossil fuel produces carbon dioxide. They can link this to patterns in data showing increasing carbon dioxide levels increases global temperatures leading to climate change.</p> <p>Working Scientifically Pupils decide on an appropriate approach, including using a fair test to answer a question, and select suitable equipment and information from that provided. They select and use methods that are adequate for the task. Following instructions, they take action to control obvious risks to themselves. They make a series of observations and measurements and vary one factor while keeping others the same. They record their observations, comparisons and measurements using tables and bar charts and begin to plot points to form simple graphs. They interpret data containing positive and negative numbers. They begin to relate their conclusions to patterns in data, including graphs, and to scientific knowledge and understanding. They communicate their conclusions using appropriate scientific language. They suggest improvements in their work, giving reasons.</p>	<p>also classify and make predictions of endothermic and exothermic reactions based on their use and recognise the purpose of a variety of scientific and technological developments in their everyday lives, based on these reactions for e.g. sports injury packs, linking this to energy level diagrams. They use scientific ideas with evidence they have collected to give explanations of cause and effect, for example an burning a fossil fuel produces carbon dioxide. They can link this to patterns in data showing increasing carbon dioxide levels increases global temperatures and evaluate the claim that human activity is causing climate change.</p> <p>Working Scientifically Pupils decide appropriate approaches to a range of tasks, including selecting sources of information and apparatus. They select and use methods to obtain data systematically. They recognise hazard symbols and make, and act on, simple suggestions to control obvious risks to themselves and others. They use line graphs to present data, interpret numerical data and draw conclusions from them. They analyse findings to draw scientific conclusions that are consistent with the evidence. They communicate these using scientific and mathematical conventions and terminology. They evaluate their working methods to make practical suggestions for improvements.</p>
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