



Subject: Year 8 Metals and non-metals

Overarching Topic: Metals and non-metals			
<p>Why is this topic being studied at this time?</p> <p>How does it fit into the wider subject curriculum?</p>	<ul style="list-style-type: none"> What is integral to both fireworks and the transmission of impulses long your nerves? Sodium! It's all in the electrons! The knowledge of metals and non-metals and their chemical structure is important because it contains the key idea behind choosing the correct metal or non-metal or their compounds for different applications. This topic explores the properties of metals and non-metals. It describes how symbols and formulas can be used to represent metals and their compounds. The knowledge of metals and non-metals also helps to identify evidence to indicate whether a chemical reaction has taken place; identify patterns, name a variety of salts and describe the uses of some of those. The topic of Metals and non-metals is an extension of the previous Particle Theory/Periodic Table/Elements topics of year 7 and is revisited in KS4 and KS5 in more depth, where the focus is more on the types of bonding and electron interactions. 		
	Critical	Core	Pinnacle
<p>The Big Questions (What questions will students be able to answer upon mastery of the topic?)</p>	<p>What happens when a metal or non-metal reacts with oxygen? Are the compounds formed acids or bases?</p> <p>How are metals arranged in orders of reactivity based on how readily they react with other substances?</p> <p>What metals react with acids to produce salt and hydrogen?</p>	<p>What is an oxidation, displacement and metal-acid reaction? Can I use word equations to show these reactions?</p> <p>What would an unknown element from its physical and chemical properties?</p> <p>Where would an unfamiliar metal into the reactivity series based on information about its reactions?</p>	<p>If you were building a space rocket, where would you have to use metals and non-metals, explain why?</p> <p>When an Ancient Viking Shipwreck is brought to the surface, why does the Gold jewellery still look new but the swords and shields are flakey with holes in.</p> <p>How would you design a jacket that protects a motorcycle rider from a fall?</p>
<p>The Key Skills/ Techniques</p>	<p>The sophistication and application of skills will become more advanced as students' progress through the critical, core and pinnacle knowledge.</p>		
	<p>Skill/Technique</p>	<p>How will this skill be developed?</p>	
	<p>1. Graphing & Drawing</p>	<p>Draw graphs with suitable scales, axes and units. Correct line of best fit. Appreciation of anomalies and processed data. Scientific drawing of cells, concepts and scientific equipment.</p>	
	<p>2. Variables</p>	<p>Identify independent, dependent and control variables and devise experiments to include these to ensure valid results. Appreciation of uncertainty.</p>	
	<p>3. Data Analysis</p>	<p>Describe, explain and predict trends. Graph and table data interpretation. Identify links and patters within and between topics. Statistical analysis of data to include mode/median/mean/range determination. Drawing justified conclusions from presented data.</p>	
<p>4. Application</p>	<p>Apply known and taught theory in unfamiliar contexts. Making links to taught theory and extracting key ideas. Communicating using correct scientific terminology.</p>		

	5. Working Scientifically	Identify hazards and planning to limit risk. Describe how to improve accuracy/precision/repeatability/reproducibility/validity. Evaluate reliability of methods and investigations, taking in to account data analysis.
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