Ravens Wood School

KS3 Curriculum Plan

Subject: Year 8 Metals and non-metals

Overarching Topic: Metals and non-metals			
Why is this topic being studied at this time? How does it fit into the wider subject curriculum?	• 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**
The Big Questions (What questions will students be able to answer upon mastery of the topic?)	What happens when a metal or non-metal reacts with oxygen? Are the compounds formed acids or bases? How are metals arranged in orders of reactivity based on how readily they react with other substances? What metals react with acids to produce salt and hydrogen?	What is an oxidation, displacement and metal-acid reaction? Can I use word equations to show these reactions? What would an unknown element from its physical and chemical properties? Where would an unfamiliar metal into the reactivity series based on information about its reactions?	If you were building a space rocket, where would you have to use metals and non-metals, explain why? 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. How would you design a jacket that protects a motorcycle rider from a fall?
The Key Skills/ Techniques	**The sophistication and application of skills will become more advanced as students' progress through the critical, core and pinnacle knowledge.**		
	Skill/Technique	**How will this skill be developed?**	
	1. Graphing & Drawing	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.	
	2. Variables	Identify independent, dependent and control variables and devise experiments to include these to ensure valid results. Appreciation of uncertainty.	
	3. Data Analysis	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.	
	4. Application	Apply known and taught theory in unfamiliar contexts. Making links to taught theory and extracting key ideas. Communicating using correct scientific terminology.	

	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.