Ravens Wood School

KS3 Curriculum Plan

Subject: Year 7 Particle Theory

Overarching Topic: Particle Theory			
Why is this topic being studied at this time? How does it fit into the wider subject curriculum?	• Why can you smell the bacon cooking for breakfast while you lie in bed? Why can you hear through a wall? Why do liquids fill their container? Particle theory is a fundamental concept containing the key components to understanding matter. • Particle theory defines all matter as made up of tiny particles and states that one substance is made of the same particles. As *kinetic theory*, it describes the amount of energy by the motion of the particles. The more energy contained, the faster the particles move. It also states that there are attractive forces between particles called *intermolecular attractions*. The closer the particles, the stronger the attractions. It is studied right at the beginning of KS3 to introduce concepts that will be revisited and built on throughout KS3, KS4 and KS5. As one of the fundamental principles of Science, Particle and Kinetic theory fits into all aspects of future KS3 and KS4 content.		
	Critical	**Core**	**Pinnacle**
The Big Questions (What questions will students be able to answer upon mastery of the topic?)	Can I draw particle diagrams of a solid, liquid and gas? What are the properties of solids, liquids and gases in terms of movement and arrangement of particles? What are the three states of matter? Can I describe the change of state in terms of particles gaining or losing energy?	How do you explain unfamiliar observations about gas pressure in terms of particles? Can I explain the properties of solids, liquids and gases based on the arrangement and movement of their particles? What changes in states can you describe in terms of changes to the energy of the particles? Can you draw before and after diagrams of particles to explain observations about changes of state, gas pressure and diffusion?	What state is sand, justify your decision. Why does wood burn when heated but not melt? How would the heating curve of an impure substance differ and why? How can a 15litre SCUBA Diving tank contain 1200 litre of air? How can we use pressure to lift a monster truck with a really small force?
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.	