Ravens Wood School

KS3 Curriculum Plan

Subject: Year 8 Pressure

KS2 Prior Learning			
Forces and Magnets - compare how things move on different surfaces, notice that some forces need contact between 2 objects, but magnetic forces can act at a distance, observe how magnets attract or repel each other and attract some materials and not others, compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials, describe magnets as having 2 poles, predict whether 2 magnets will attract or repel each other, depending on which poles are facing, explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object, identify the effects of air resistance, water resistance and friction, that act between moving surfaces, recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect			
Overarching Topic: Pressure			
Why is this topic being studied at this time? How does it fit into the wider subject curriculum?	• Pressure plays a number of important roles in daily life, among them its function in the operation of pumps and hydraulic presses. The maintenance of ordinary air pressure is essential to human health and well-being: the body is perfectly suited to the ordinary pressure of the atmosphere, and if that pressure is altered significantly, a person may experience harmful or even fatal side-effects. • In this unit pupils will summarise key ideas about pressure; use the relationship between force, area and pressure between solids and within liquids and gases. This is an extension of the forces topic, also in year 9, and will lead into the idea of hydraulics in the Key Stage 4 curriculum.		
	Essential	**Core**	**Ambitious**
The Big Questions (What questions will students be able to answer upon mastery of the topic?)	Can you identify if an object sinks or floats? What does elastic mean? What is a fluid and how can they be drawn? What forces act on objects that are specific to fluids? What is pressure? How does pressure effect the arrangement of particles in a gas? How is pressure calculated?	Can you use diagrams to explain observations of fluids in terms of unequal pressure? Can I calculate pressure using the equation Pressure = Force/Area Why do objects either sink or float depending upon their weight and the up thrust acting on them? Can you explain observations where the effects of forces are different because of differences in the area over which they apply?	Why does a balloon burst if you blow it up to much? How are deep sea animals adapted for the high pressures? How do these creatures survive bone-crushing pressures? How to battle bends? What could happen to a diver who returned to the surface too quickly? How will we find the pressure exerted through one high heel? Can you build an unsinkable ship? What Are Hydraulic Systems And Why Are They Useful?
The Key Skills/ Techniques	**The sophistication and application of skills will become more advanced as students' progress through the essential, core and ambitious 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.