Ravens Wood School

KS3 Curriculum Plan

Subject: Year 8 Forces

Overarching Topic: Forces			
Why is this topic being studied at this time? How does it fit into the wider subject curriculum?	• Forces are all around us and affect everything we do, as such studying Forces in science is an underpinning principle in Physics. • In this unit pupils consolidate and build on their concept of force and its measurement they should be able to identify the origin of friction, air resistance, upthrust and weight and describe situations in which these forces act. It is essential that they be able to distinguish between mass and weight. This unit uses ideas developed in the key stage 2 programme of study. It builds on ideas introduced in unit 4E 'Friction' and unit 6E 'Balanced and unbalanced forces' in the key stage 2 scheme of work. It will lead into the forces topic in year 10.		
	Critical	**Core**	**Pinnacle**
The Big Questions (What questions will students be able to answer upon mastery of the topic?)	How do you represent a force in a diagram? What are the different types of forces? Can you draw a force diagram for a problem involving gravity? What is meant by 'unbalanced forces'?	Can you explain unfamiliar observations where weight changes? How does gravity vary for different masses and distances? Can you use a formula to compare your weight on Earth with your weight on different planets? Can you explain whether an object in an unfamiliar situation is in equilibrium? Can you describe factors which affect the size of frictional and drag forces? How do materials behave as they are stretched or squashed? What happens to the length of a spring when the force on it changes?	What are the implications of forces on baking cookies in space? What other challenges does space travel pose? Will a biro work in space? What are the resultant forces in tractor towing races? Let's revisit the first pinnacle – imagine friction didn't exist. How would this affect your bakery in space? Can a penny dropped off the top of a building kill someone? What height fall can you survive? Using Hooke's Law, what observations of bungee jumping are you likely to make and why?
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.