



Subject: Year 8 Work

Overarching Topic: Work			
<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 have nutcrackers, mops, scissors, shovels and arms got in common? Levers, which have been described since 260 B.C., are the most common simple machines, which help man to perform heavy tasks easily. Levers occur both within nature and are useful in industry, this topic is relevant to all students now and will continue to be throughout their progression in school and in their future life. In this unit pupils will learn to describe the operation of levers, including examples from the human body, which depend on the turning effect of a force. This will be their first opportunity to learn about the principle of moments. Work on muscles as levers relates to unit 9B 'Fit and healthy'. This unit lays the foundation for further quantitative work on forces in key stage 4. 		
	Critical	Core	Pinnacle
<p>The Big Questions (What questions will students be able to answer upon mastery of the topic?)</p>	<p>When is work done and energy transferred? How do force and distance affect the work? How do levers and pulleys reduce the work done? What is a lever?</p>	<p>What are the different types of lever? How can a lever help you lift a car? How can comparisons be made about the work needed to move objects different distances? What equation can be used to compare energy transferred for objects moving horizontally?</p>	<p>What are the advantages of different levers in terms of the forces need and distance moved? Where can levers be used in everyday life? How do levers make our life easier? Which levers occur in the body and what are their uses?</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>		
	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.		