



‘An ambitious curriculum that meets the needs of all’
Medium Term Planning - Topic: Pressure

Curriculum Intent	
Skills/National Curriculum Links	<p>In addition to working further on objectives from Year __, pupils will be taught, following National Curriculum guidelines, the following this topic:</p> <ul style="list-style-type: none"> - atmospheric pressure, decreases with increase of height as weight of air above - decreases with height pressure in liquids, increasing with depth; upthrust effects, floating and sinking - pressure measured by ratio of force over area – acting normal to any surface
Spiritual, moral, social, and cultural development	<p>SMSC: Safe working and using the forces model. The importance of energy in real life. Students will reflect on their experiences and apply their understanding to a range of issues. Students will be encouraged to be reflective about their own beliefs and those of others and compare different people’s faiths, feelings and values in order to develop their own perspective on life. Students will explore how Science influences the next stage of their education and/or employment.</p> <p>PSHE/British Values: learn about everyday stores of energy and apply this to calorie intake and generating electricity</p> <p>Skills Builder: Listening (Receiving, retaining and processing info), Speaking (The oral transmission of info and ideas), Problem solving (Find a solution to a situation or challenge), Creativity (imagination and generation of new ideas), Staying positive (The ability to use tactics and strategies to overcome setbacks), aiming high (Set clear and tangible goals), Leadership and teamwork</p>
Numeracy	drawing and interpreting graphs, using a formula.
Literacy	<p>Vocabulary Tier 2: describe, relationship, exert, calculate, observation, altitude, depth,</p> <p>Vocabulary Tier 3: Pressure, force, area, fluid, atmospheric pressure, density, hydraulic machine, stress,</p> <p>Reading Following a written method and read risk assessments. Students may be directed to the textbook; this could be in lesson or at home on Kerboodle.</p> <p>Writing: Describing and explaining scientific phenomenon, free response writing for describing precautions taken, use of word mat to promote sentence formation.</p> <p>Oracy: inclusion of BEST resources which are research evidence on common misunderstandings in science, effective diagnostic questioning and formative assessment, constructivist approaches to building understanding, and effective sequencing of key concepts that promote metacognitive talk and dialogue.</p>
Becoming future ready	<p>Careers/Employability:</p> <ul style="list-style-type: none"> - Engineer - Mechanic - Pilot - Diver - Marine Biologist
Adaptation	Throughout this topic, quality first teaching will provide differentiation:

QFT/SEND Provision	<p>By product:</p> <p>By resource:</p> <p>By Intervention: by providing different levels of supervision and support</p> <p>By Progressive Questioning: exploring pupils' understanding through interactive dialogue.</p> <p>By Grouping: according to prior attainment, gender, social preference, preferred learning style.</p> <p>By Task: Pupils should be involved in the identification of targets which are meaningful to them and in the selection of an appropriate task from the given range.</p> <p>By Offering Optional Activities: In class or as homework, to extend learning.</p> <p>This QFT/SEND provision will be explicit within the lesson-by-lesson schemes of work.</p>	
Implementation Curriculum Delivery	To be able to:	
Learning Outcomes (Core Knowledge)	<p><i>Know</i></p> <ul style="list-style-type: none"> -Recall the units of pressure <p><i>Apply</i></p> <ul style="list-style-type: none"> -Understand what is meant by pressure <p><i>Extend</i></p> <ul style="list-style-type: none"> -Describe the relationship between force, area and pressure 	
	<p><i>Know</i></p> <ul style="list-style-type: none"> - Describe the motion of particles in a fluid. - Calculate fluid pressure with support. - State the cause of atmospheric pressure. <p><i>Apply</i></p> <ul style="list-style-type: none"> - Explain why fluids exert a pressure. - Calculate fluid pressure. - Describe how atmospheric pressure changes with height. <p><i>Extend</i></p> <ul style="list-style-type: none"> - Explain a range of observations in terms of fluid pressure. - Calculate fluid pressure in a range of situations. - Predict the changes to the effects of atmospheric pressure at different altitudes or temperatures. 	
	<p><i>Know</i></p> <ul style="list-style-type: none"> - State simply what happens to pressure with depth. - Describe characteristics of some objects that float and some that sink. - Write down the equation for calculating fluid pressure. <p><i>Apply</i></p> <ul style="list-style-type: none"> - Describe how liquid pressure changes with depth. - Explain why some things float and some things sink, using force diagrams. - Use the equation for calculating fluid pressure. <p><i>Extend</i></p> <ul style="list-style-type: none"> - Explain why liquid pressure changes with depth. - Explain why an object will float or sink in terms of forces or density. - Use the equation for calculating fluid pressure to explain how hydraulic machines work. 	
	<p><i>Know</i></p> <ul style="list-style-type: none"> - State the equation of stress. - Use ideas of stress to describe familiar situations qualitatively. - Predict qualitatively the effect of changing area and/or force on stress. <p><i>Apply</i></p> <ul style="list-style-type: none"> - Calculate stress. - Apply ideas of stress to different situations. - Predict quantitatively the effect of changing area and/or force on stress. <p><i>Extend</i></p> <ul style="list-style-type: none"> - Calculate stress in multistep problems. - Compare stress in different situations, explaining the differences in pressure using scientific knowledge. - Predict quantitatively the effect of changing area and/or force on stress in a range of situations. 	
Current learning to be developed in the future within:	<p>Before: At KS2 you should understand what a force is and compare how things move on different surfaces → notice that some forces need contact between two objects, but magnetic forces can act at a distance</p>	<p>Future: At GCSE you will learn a force is a push or pull that acts on an object due to the interaction with another object. All forces between objects are either:</p> <ul style="list-style-type: none"> •• contact forces – the objects are physically touching •• non-contact forces – the objects are physically separated.

Assessment	Refer to assessment maps for formative and summative assessment opportunities.
Impact	Attainment and Progress – Refer to assessment results / data review documentation.

