

Science Overview - Physics

Year 7

	Term 1	Term 2	Term 3
Topic	<ul style="list-style-type: none"> <li>· Measuring density</li> </ul>	<ul style="list-style-type: none"> <li>· Different forces</li> <li>· Floating and stretching</li> <li>· Pressure</li> <li>· Current electricity (1) Series and parallel</li> <li>· Current electricity (2) Voltage and resistance</li> </ul>	<ul style="list-style-type: none"> <li>· Energy Stores and Transfers</li> <li>· Understanding Waves</li> </ul>
Key concept	<b>Matter and materials</b>	<b>Forces and Fields</b>	<b>Energy</b>
Learning Objectives	<ul style="list-style-type: none"> <li>· Describe the relationship between density, mass, and volume.</li> <li>· State the need to carry out measurements accurately and safely.</li> <li>· Use the SI units for length, mass, volume, and density.</li> </ul>	<p>State that forces are pushes and pull and can be measured in newtons (N). Describe that the forces acting on an object can be balanced or unbalanced.</p> <ul style="list-style-type: none"> <li>· State that the forces on a floating object are balanced.</li> <li>· State that mass and weight are not the same.</li> <li>· Describe that the size and direction of forces can be shown using arrows.</li> <li>· Explain that friction forces affect movement.</li> <li>· Describe how forces can be applied to compress, stretch, and deform materials.</li> <li>· Use the relationship between pressure, force, and area.</li> <li>· Use the SI units for pressure, mass, force, weight, and area.</li> <li>· Describe that pressure in a fluid depends on the depth of the fluid.</li> <li>· State that objects in fluids are under pressure from upthrust as well as weight.</li> </ul>	<p>Give examples of different energy stores. Understand that energy is conserved but can be transferred between energy stores. Understand that fuels store chemical energy which is transferred as heat during combustion.</p> <ul style="list-style-type: none"> <li>· State that fossil fuels are non-renewable and that the energy they store came originally from the sun.</li> <li>· Name examples of renewable and non-renewable fuels and energy resources.</li> <li>· Describe that waves transfer energy without the transfer of matter.</li> <li>· Describe the difference between transverse and longitudinal waves.</li> <li>· State that sound waves are longitudinal and light waves and waves on water are transverse.</li> <li>· State that all waves can be reflected.</li> <li>· Define the term superposition.</li> </ul>

		<ul style="list-style-type: none"> <li>· Use circuit symbols for a cell, battery, lamp, switch, ammeter, voltmeter, and switch.</li> <li>· Describe current and how it can be measured.</li> <li>· State that a battery or power supply provides the energy and electrical force to make current flow.</li> <li>· State that current depends upon the voltage of the cells or battery and the resistance of the components in the circuit.</li> <li>· State that voltage can be measured using a voltmeter placed in parallel across a component.</li> <li>· Describe dangers of using electricity and some of the safety features of domestic electricity use.</li> </ul>	
Scaffolding SEND	glossaries, targeted questions, knowledge organisers, recall quizzes	glossaries, targeted questions, knowledge organisers, recall quizzes	glossaries, targeted questions, knowledge organisers, recall quizzes
Key Vocabulary	mass, length, volume, density	mass, length, force, area, pressure, current, circuit, lamp, charge, switch, cells, series, parallel, conductor, insulator, model, ammeter, ampere, voltmeter, voltage, resistance, resistor	mass, volume, temperature, wave, slinky, energy, light, sound, wavelength, crest, trough, amplitude, parallel, perpendicular, transverse, longitudinal, reflection superposition, ripple tank
Formative Assessment	Rewind grids	Rewind grids	Rewind grids
Summative Assessment	End of topic test	End of topic test	End of topic test
Careers	aeronautical engineer, forensic scientist, geoscientist, lab technician, volcanologist	aeronautical engineer, forensic scientist, kinesiologist, robotist, sports scientist, lab technician, telecoms technician	botanist, conservationist, dietician, marine biologist, sports scientist, optician, telecoms technician
Links	To build on classifying materials.	To build on gases and particles.	To prepare forces, energy, power, and efficiency.

	To prepare for states of matter, gases and particles, and forces and their effects.	To prepare for forces and their effects.	To prepare for light and sound, refraction, diffraction, and the EM spectrum. In addition, simple circuits, series and parallel.
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