



Subject: Year 7 Sound

Overarching Topic: Sound			
<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"> Sound is important because it can tell us about character, place, and time. It's important because it informs us and moves us in ways visuals can't, and because certain combinations of sound and visuals can evoke what neither can do alone. Understanding how sound travels, why some sounds are louder than others, how different kinds of instruments produce sound, and learning why it is important to protect our ears are just a few of the reasons why studying this topic is important. In addition, our knowledge of sound waves has resulted in medical advances, such as ultrasound machines that are used to monitor pregnancies and check for heart irregularities. Ultrasound also has been used to determine how animals such as dolphins and bats communicate. This unit uses ideas developed in key stage 2. It builds on unit 5F 'Changing sounds' in the key stage 2 scheme of work. This unit could be linked with unit 7 'Measuring physical data' in the ICT scheme of work, which suggests and investigation of an aspect of sound. The wave nature of sound is further developed 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>What is sound? How does the density of the medium effect the speed sound travels? What is amplitude, wavelength, pitch and frequency? Does sound travel through a vacuum? What is the speed of sound?</p>	<p>Can I explain observations where sound is reflected, transmitted or absorbed by different media? How does sound travels, using the idea of a longitudinal wave? Can I work out the amplitude and frequency of a wave from a diagram or oscilloscope picture? How do sound waves change with volume or pitch? How does the ear work and what are the effects of listening to loud sounds?</p>	<p>What are the effects of particular ear problems on a person's hearing? Can I evaluate the data behind a claim for a sound creation or blocking device, using the properties of sound waves? Can I compare the waveforms a musical instrument makes when playing different pitches or volumes? How does ultrasound work? Can I suggest reasons why sound waves can agitate a liquid for cleaning objects, or massage muscles for physiotherapy? Listening to our favourite music, program, game or friends joke is so important to us. How do we hear noise? How might our hearing go wrong and what could be done to fix it?</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.		