

Year 4 – (Energy) sound



Working Scientifically	Sticky Knowledge	Linked Texts	Key Scientists
Recall and use specific scientific vocabulary accurately (year group key vocabulary) - Ask relevant questions and use different types of scientific enquiries to answer them, include making their own questions - Set up simple practical enquiries, comparative and fair tests, aiming to do so independently with their own decisions. - Make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers - Gather, record, classify and present data in a variety of ways to help in answering questions - Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables - Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions - Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions - Use straightforward scientific evidence to answer questions or to support their findings.	Sound travels from its source in all directions and we hear it when it travels to our ears. Sound travel can be blocked. Sound spreads out as it travels. Changing the shape, size and material of an object will change the sound it produces. Sound is produced when an object vibrates. Sound moves through all materials by making them vibrate. Changing the way an object vibrates changes it's sound. Bigger vibrations produce louder sounds and smaller vibrations produce quieter sounds. Faster vibrations (higher frequencies) produce higher pitched sounds	Horrid Henry Rocks (Francesca Simon) Moonbird (Joyce Dunbar) The Pied Piper of Hamelin (Natalia Vasquez)	Aristotle (Sound Waves) Gailileo Galilei (Frequency and Pitch of Sound Waves) Alexander Graham Bell (Invented the Telephone)
Key Question(s):	Key Question(s):	WS vocabulary	
Can you explain how sound is made (including details about vibrations)? How does sound travel to the ear? Can you give five examples of sound sources? What is the pitch of a sound? Can you explain how vibrations link to the volume of sound? What happens to a sound as you get further away from a source? Can you describe the sort of objects that would make sounds with a higher pitch?	How can you change the volume of a sound? How does the size of an ear trumpet affect the volume of sound detected? How does the type of material affect how well it blocks a sound? How does thickness of material affect how well it blocks a sound? Which materials vibrate better and produce louder sounds? Can we identify any patterns? Which materials make the best string telephone components? (tin cans, paper cups, plastic cups, wire, cable, string, plastic or elastic - predict and test) How does length of the tube (when making a straw oboe) affect the pitch and volume? Can you predict the relative pitch of tuning forks from the patterns of ripples they make in the water?	Investigation, enquiry, prediction, variable, dependent variable, independent variable, constant, patterns, equipment, apparatus, method, results, conclusion, graph, patterns, distance, data, theory, fair test, reasoning	

Teaching suggestions in Enquiry types

<u>Comparative tests</u>	<u>Identify & Classify</u>	<u>Observation over time</u>	<u>Pattern Seeking</u>	<u>Research</u>	<u>BIG Question – Problem solving</u>
How does the volume of a drum change as you move further away from it? How does the length of a guitar string/tuning fork affect the pitch of the sound? Are two ears better than one? 	Which material is best to use for muffling sound in ear defenders? 	When is our classroom the quietest? 	Is there a link between how loud it is in school and the time of day? If there is a pattern, is it the same in every area of the school? 	Do all animals have the same hearing range? 	How can we make different sounds? (Also use EXPLORIFY) <u>Assessment Opportunity</u> 