Science Project Overview Year 4 Sound			
Subject Knowledge (PoS)	Working Scientifically (PoS+Overview)	Working Scientifically Methods	
Substantive knowledge	Disciplinary knowledge	Using different types of scientific	
 Sounds are made when objects vibrate. 	During years 3 and 4, pupils should be taught to use the following practical scientific	enquiry to answer their own	
 The vibration makes the air around the object 	methods, processes and skills through the teaching of the programme of study content:	questions, including:	
vibrate and the air vibrations enter your air.	 ask their own questions about what they observe 	 observing changes over time, 	
 The source of sound vibrates this results in 	 Make some decisions about which types of scientific enquiry are likely to be the best 	 noticing patterns, 	
sound vibrations travelling through the air	ways of answering them, including: observing changes over time, noticing patterns,	 grouping and classifying 	
eardrum.	grouping and classifying things, carrying out simple comparative and fair tests and	things,	
 Smaller, shorter, thinner, tighter and denser 	finding things out using secondary sources.	 carrying out simple 	
objects make more high pitched sounds	 asking relevant questions and using different types of scientific enquiries to answer 	comparative and fair tests	
 Low pitched sounds are made by slow 	them	 and finding things out using 	
vibrations.	 setting up simple practical enquiries, comparative and fair tests 	secondary sources	
 Larger, longer, thicker, looser and less-dense 	 making systematic and careful observations and, where appropriate, taking accurate 		
objects make more low-pitched sounds.	measurements using standard units, using a range of equipment, including		
 Large sound waves equal loud sound. 	thermometers and data loggers		
 Small sound waves equal quiet sound. 	 gathering, recording, classifying and presenting data in a variety of ways to help in 		
$\land \land \land \uparrow \land \land$	answering questions		
	 recording findings using simple scientific language, drawings, labelled diagrams, keys, 		
	bar charts, and tables		
\vee \vee \vee \vee	 reporting on findings from enquiries, including oral and written explanations, displays 		
A loud sound – large amplitude A soft (quiet) sound – small amplitude	or presentations of results and conclusions		
	 using results to draw simple conclusions, make predictions for new values, suggest 		
 Sounds get fainter as the distance from the 	improvements and raise further questions		
sound source increases	 Identifying differences, similarities or changes related to simple scientific ideas and processes 		
sound source meredses.	processes		
	findings		
	 draw simple conclusions and use some scientific language first to talk about and later 		
	to write about what they have found out		
	to write about what they have found out.		

Previous learning:	Preparing for:	Bespoke to our school:		
		Children are taught tier 2 and 3		
 Identify, name, draw and label the basic parts of the human body and say which part of the body is 	 Waves on water as undulations which travel through water with transverse motion; these waves can be reflected, and add or cancel – superposition. (KS3) 	senses. Children are given lots of		
associated with each sense (Y1 - Animals	Frequencies of sound waves, measured in Hertz (Hz): echoes, reflection and absorption	activities to learn about sound in		
including humans)	of sound. (KS3)	practical ways to support their		
	 Sound needs a medium to travel, the speed of sound in air, in water, in solids. (KS3) 	understanding and this helps in		
	 Sound produced by vibrations of objects, in loud speakers, detected by their effects on microphone diaphragm and the ear drum; sound waves are longitudinal. (KS3) 	their retrieval of language.		
	 Auditory range of humans and animals. (KS3) 			
	 Pressure waves transferring energy; use for cleaning and physiotherapy by ultra-sound. (KS3) 			
	 Waves transferring information for conversion to electrical signals by microphone. (KS3) 			
Vocabulary:				
Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation				
Misconceptions:				
 pitch and volume are frequently confused, as both can be described as high or low 				
• sound is only heard by the listener				
• sound only travels in one direction from the source				
 sound can't travel through solids and liquids 				
 high sounds are load and low sounds are quiet. 				
English Links:				
Texts: Polar bear, polar bear, what do you hear?,				
Information text – linked to sound experiments				
Maths links:				
Statistics:				
Use bar charts and time graphs to present discrete/continuous data				
Use bar charts, pictograms, tables and other graphs to solve comparison, sum and difference problems				
Measurements:				
Solve problems using a different range of measures- use dataloggers sound(dB)				
ramous sciencisis to possibly study: Alexander Graham Bell, Invented the telephone				

Ernst Mach (1838-1916). Described how shock waves are formed. Heinrich Hertz (1857-94). The unit of frequency used for all kinds of waves and vibrations is named after him. One Hertz is equal to one vibration per second.

Explorify links:

Sound of silence

Rice and rhythm

What's that sound?

Protect your ears

Lyre liar

Possible careers/jobs:

Audiologist (studies sound and its properties) Sound engineer (deals with sound for broadcasts or musical performances)