


Year	4	Topic	Sound
	<ul style="list-style-type: none"> • Identify how sounds are made, associating some of them with something vibrating. • Recognise that vibrations from sounds travel through a medium to the ear. • Find patterns between the pitch of a sound and features of the object that produced it. • Find patterns between the volume of a sound and the strength of the vibrations that produced it. • Recognise that sounds get fainter as the distance from the sound source increases. 		
Prior learning		Future learning	
<ul style="list-style-type: none"> • Explore how things work. (Nursery – Sound) • Describe what they see, hear and feel whilst outside. (Reception – Sound) Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Animals, including humans) 		<ul style="list-style-type: none"> • Waves on water as undulations which travel through water with transverse motion; these waves can be reflected, and add or cancel – superposition. (KS3) • Frequencies of sound waves, measured in Hertz (Hz); echoes, reflection and absorption of sound. (KS3) • Sound needs a medium to travel, the speed of sound in air, in water, in solids. (KS3) • 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) • 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) 	

WHAT PUPILS NEED TO KNOW OR DO TO BE SECURE

Show understanding of a concept using scientific vocabulary correctly

Key learning

Possible evidence

A sound produces vibrations which travel through a medium from the source to our ears. Different mediums such as solids, liquids and gases can carry sound, but sound cannot travel through a vacuum (an area empty of matter). The vibrations cause parts of our body inside our ears to vibrate, allowing us to hear (sense) the sound.

The loudness (volume) of the sound depends on the strength (size) of vibrations which decreases as they travel through the medium. Therefore, sounds decrease in volume as you move away from the source. A sound insulator is a material which blocks sound effectively.

Pitch is the highness or lowness of a sound and is affected by features of objects producing the sounds. For example, smaller objects usually produce higher pitched sounds.

Key vocabulary

Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation

- Can name sound sources and state that sounds are produced by the vibration of the object
- Can state that sounds travel through different mediums such as air, water, metal
- Can give examples to demonstrate how the pitch of a sound are linked to the features of the object that produced it
- Can give examples of how to change the volume of a sound e.g. increase the size of vibrations by hitting or blowing harder
- Can give examples to demonstrate that sounds get fainter as the distance from the sound source increases

Common misconceptions

Pitch and volume are frequently confused, as both can be described as high or low.

Some children may think:

- 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 loud and low sounds are quiet.

Apply knowledge in familiar related contexts, including a range of enquiries

Activities

- Classify sound sources.
- Explore making sounds with a range of objects, such as musical instruments and other household objects.
- Explore how string telephones or ear gongs work.
- Explore altering the pitch or volume of objects, such as the length of a guitar string, amount of water in bottles, size of tuning forks.
- Measure sounds over different distances.
- Measure sounds through different insulation materials.

Possible evidence

- Can explain what happens when you strike a drum or pluck a string and use a diagram to show how sounds travel from an object to the ear
 - Can demonstrate how to increase or decrease pitch and volume using musical instruments or other objects
 - Can use data to identify patterns in pitch and volume
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- Can explain how loudness can be reduced by moving further from the sound source or by using a sound insulating medium