Sound

Year 4

Key vocabulary	
vibration	A movement backwards and forwards.
sound wave	Vibrations travelling from a sound source.
volume	The loudness of a sound.
pitch	How low or high a sound is.
frequency	How fast the vibrations are.
eardrum	A part of the ear (a thin, tough layer of tissue) that is stretched out like a drum skin. Sound waves make the eardrum vibrate.
absorb sound	To take in sound energy. Absorbent materials have the effect of muffling sound.
soundproof	To prevent sound from passing.

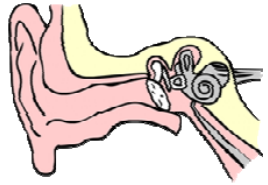
Sound is a type of energy. Sounds are created when something vibrates.

How do we hear?

An object starts to **vibrate** (move very quickly back and forth). This is called a **sound source**. An example of a sound source is a plucked guitar string.

The vibrating object causes the **particles in the air** around it to vibrate too.

The vibrating air particles bump into other air particles further away, causing them to vibrate too. This is called a **sound wave**. It gradually moves away from the **source**.

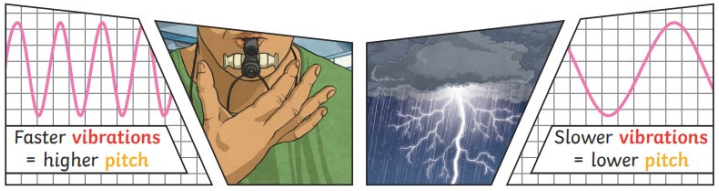


The sound wave reaches the **ear**. The wave travels deep inside the ear, where it is turned into an **electrical signal** that the brain understands as **sound**.

Pitch

Pitch is the highness or lowness of sounds.

Pitch is caused by the **frequency of vibrations** (how fast the vibrations are).



Humans can hear a large range of pitches. However, some sounds are too high or low-pitched for us to hear.

If you throw a stone in a pond, it will produce ripples. As the ripples spread out across the pond, they become smaller. When sound vibrations spread out over a distance, the sound becomes quieter, just like ripples in a pond.

Volume

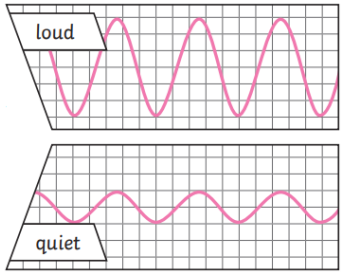
Volume is the loudness of a sound.

The volume of a sound depends on the amount of energy that the vibrations contain. Vibrations with lots of energy create large soundwaves.

When these arrive at your ear, they push harder on your eardrums.

Therefore, it sounds louder.

This is why when we hit a drum hard (with more energy), it is louder than when we hit it softly.



Knowledge objective	Self-assessment (✓)
I can identify how sounds are made, associating some of them with something vibrating.	
I can recognise that vibrations from sounds travel through a medium to the ear.	
I can find patterns between the pitch of a sound and features of the object that produced it.	
I can find patterns between the volume of a sound and the strength of the vibrations that produced it.	
I can recognise that sounds get fainter as the distance from the sound source increases.	