

Year 4 Sound

Key Enquiry Questions	Key Facts
<ul style="list-style-type: none"> What is a sound and how is a sound made? How do sounds travel and how do we hear sounds? How do sounds change? How do we measure sound? 	<ul style="list-style-type: none"> A sound is a thing that can be heard. The object that makes the sound is called the source. When objects vibrate, a sound is made. The vibration makes the air around the object vibrate and the air vibrations enter your ear. These are called sound waves. If an object is making a sound, a part of it is vibrating, even if you cannot see the vibrations. Sound waves travel through a medium (such as air, water, glass, stone and brick). For example, if somebody is playing music in the room next door, the sound can travel through the bricks in the wall. When an object vibrates, the air around it vibrates too. The vibrating air can also be known as sound waves. The sound waves travel to the ear and make the eardrums vibrate. Messages are sent to the brain which recognises the vibrations as sounds. Sounds can change in pitch. The pitch of a sound is how high or low it is. A squeak of a mouse has a high pitch. A roar of a lion has a low pitch. Sound can also change in volume. The volume of a sound is how loud or quiet it is. When a sound is created by a little amount of energy, a weak sound wave is created which doesn't travel far. This makes a quiet sound. A small tap of a hammer is used with small amounts of energy and so creates a quiet noise. A vibration with lots of energy makes a powerful sound wave and therefore a loud sound. A powerful, smashing tap of a hammer is used with lots of energy and so creates a loud noise. Amplitude measures how strong a sound wave is. Decibels measure how loud a sound is. Frequency measures the number of times per second that the sound wave cycles.

Key Vocabulary	
absorb	Items that absorb sound don't reflect the vibrations. Soft items such as carpet and curtains will help to absorb sound and make a room quieter.
amplitude	A measure of the strength of a sound wave.
decibel	A measure of how loud a sound is.
electricity	A form of energy that can be carried by wires and is used for heating and lighting, and to provide power for devices.
energy	The power from sources such as electricity that makes machines work or provides heat.
faint	Very quiet, hardly able to hear.
frequency	A measure of how many times per second the sound wave cycles.
insulate	Protect something by using material that prevents the loss of heat or intrusion of sound.
loud	Producing or capable of producing much noise.
medium	Something that makes possible the transfer of energy from one location to another.
pitch	How high or low a sound is.
power	Power is energy, especially electricity, that is obtained in large quantities from a fuel source and used to operate lights, heating and machinery.
sound waves	Invisible waves that travel through air, water and solid objects as vibrations.
source	Where something comes from.
transmit	To pass from one place or person to another.
travel	How something moves around.
vibrations	Invisible waves that move quickly.
volume	How loud or quiet a sound is.

Sound waves

Pitch:

- High pitch sounds are created by short sound waves.
- Low pitched sounds are created by long sound waves.

Volume:

- The closer you are to the **source** of the sound, the **louder** the sound will be.
- The further away you are from the **source** of the sound, the **quieter** the sound will be.

Investigate (suggestions)

- Fill identical jars with different volumes of water. Which one creates the highest pitch?
- Which material would make the best sound defender? How can you investigate this?
- Make musical instruments using different length strings. How do their pitches differ? Eg. How does the pitch on an elastic band change as you stretch it?
- https://www.youtube.com/watch?v=VE520z_uGcU create this simple wave machine to demonstrate how sound waves move.