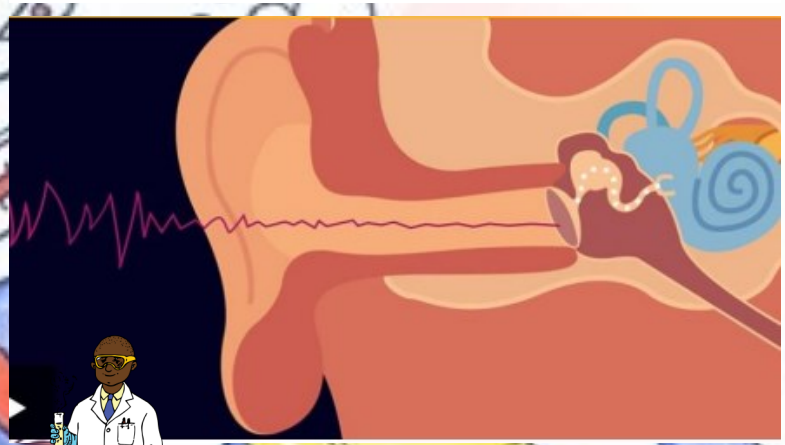
Science

Topic: What is sound?	Year 4	Strand: Sound

How do we hear sounds?

Sound waves can travel through solids (such as metal, stone and wood), liquids (such as water) and gases (such as air).

Sounds are made when objects vibrate. When an object vibrates, the air around it vibrates too. This 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.



What should I already know?

Hearing is one of my 5 senses.

Sounds can be combined using musical instruments

Key Knowledge

All objects have a name like 'a door'. Material is the Sound is a type of energy. Sounds are made when objects vibrate. The vibration makes the air around the object vibrate and the air vibrations enter your ear. You hear them as sounds.

You cannot always see the vibrations, but if something is making a sound, some part of it is always vibrating.

Key Vocabulary	
Vibration	A movement backwards and forwards
Sound wave	Vibrations travelling from a sound source
Source	The beginning; where something comes from
Volume	The loudness of a sound
Amplitude	The size of a vibration. A larger amplitude, a louder sound
Pitch	How high or low a sound is
Ear	An organ used for hearing
Soundproof	To prevent sound from passing
Absorb sound	To take in sound energy. Absorbent materials have the effect of muffling sound
Eardrum	A part of the ear which is a thick, tough layer of tissue that is stretched out like a drum skin. Sound waves make the eardrum vibrate

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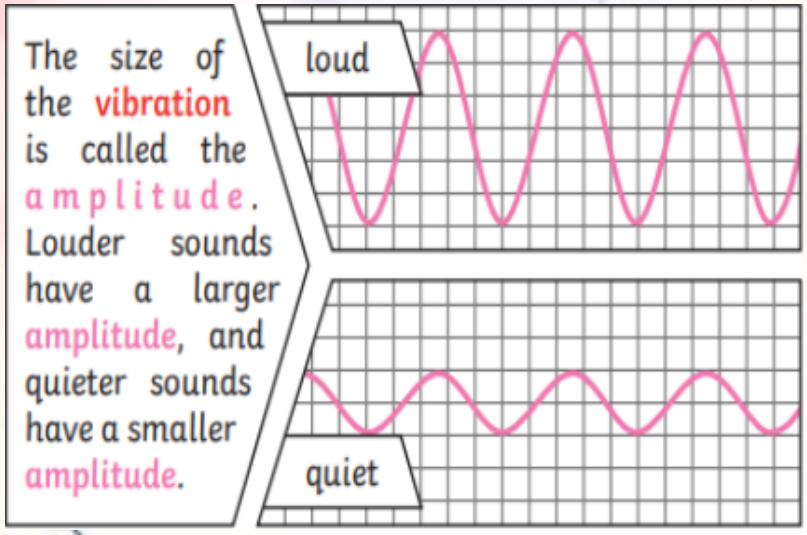
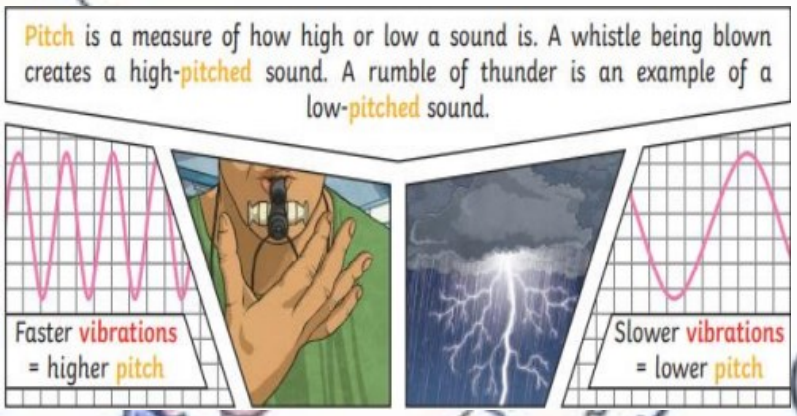
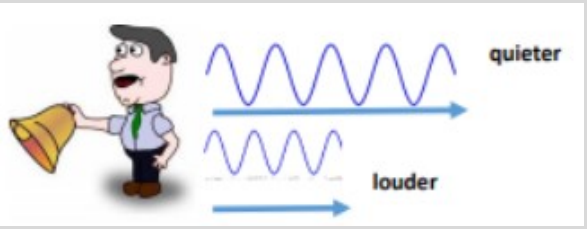




How do sounds change?

Pitch: The pitch of a sound is how high or low it is. A squeak of mouse has a high pitch. A roar of a lion has a low pitch.

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. 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.



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.

How musical instruments make different sound ?

Instruments with strings

A cello has different thicknesses of strings.

When the strings vibrate the thick strings vibrate more slowly than thin ones. Thick strings give a low pitch, thin strings give a high pitch. The tightness or tension of a string is also important. The tighter the string, the higher the pitch. The less tight a string, the lower the pitch.

Xylophone

A xylophone has different lengths of wooden bars. Striking the bars of the xylophone with a stick produces a vibration. This vibration's sound is determined by the length of the bar. The longer the bar the lower the pitch. The shorter the bar the higher the pitch.

Skills I will develop.

- *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*