



What should I already know?

- Hearing is one of my 5 senses
- Sounds can be combined using musical instruments

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

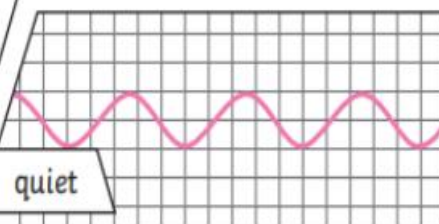
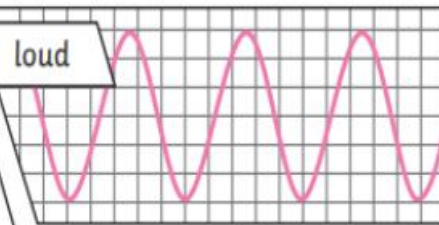
Key Knowledge

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.

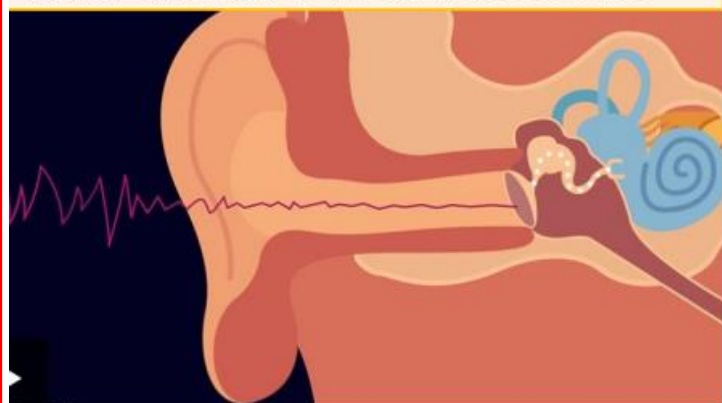


The size of the **vibration** is called the **amplitude**. Louder sounds have a larger **amplitude**, and quieter sounds have a smaller **amplitude**.



Key Vocab

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





Pitch is a measure of how high or low a sound is. A whistle being blown creates a high-pitched sound. A rumble of thunder is an example of a low-pitched sound.



How do sounds travel?

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.



Some materials are good at preventing vibrations from sound **sources** reaching the ear. These can be used to **soundproof (absorb the sound)** effectively.

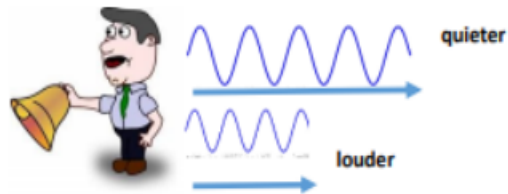
How do sounds change?

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.

