CALVERLEY PARKSIDE

Ready Respectful Responsible

Year 4 – Science – Sound

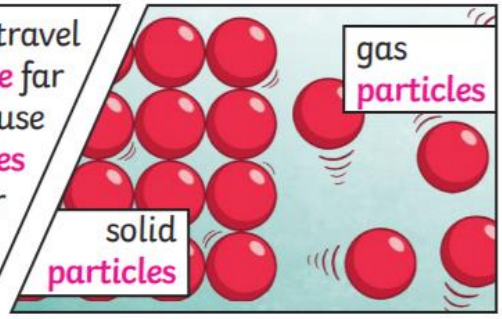
Sound is a type of energy. Sounds are created by **vibrations**. The louder the sound, the bigger the **vibration**.

Key Questions:

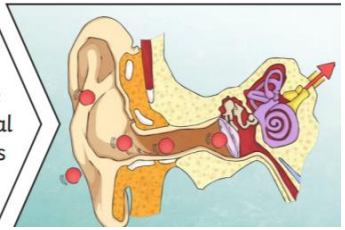
- What is sound?
- How does sound travel?
- How is sound made?
- How do we hear things?
- How fast does sound travel?

Key Word	Definition
vibration	A movement back and forth to create a sound.
speed of sound	The distance travelled per unit volume by a sound wave.
soundproof	Something such a material that prevents the passage of sound through it.
sound wave	A form that sound takes as it moves through air, water etc. Recorded on a graph.
frequency	The number of cycles per second that a sound oscillates, recorded in Hertz (hz).
decibel	A unit measurement given to the loudness or intensity of a sound.
eardrum	The part of the ear that vibrates when receiving sounds.
pitch	The quality related who whether sounds are 'high' or 'low.'

Sound energy can travel from **particle** to **particle** far easier in a solid because the **vibrating particles** are closer together than in other states of matter.

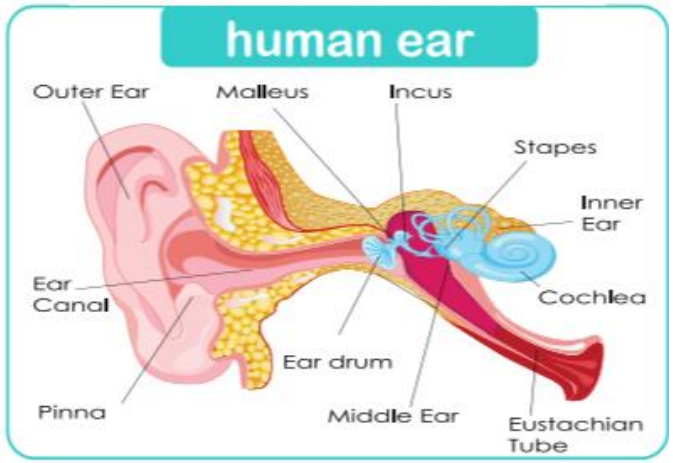


Inside your ear, the **vibrations** hit the **eardrum** and are then passed to the middle and then the inner ear. They are then changed into electrical signals and sent to your brain. Your brain tells you that you are hearing a sound.

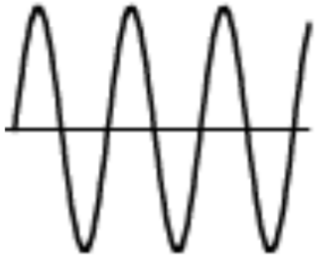


Pitch is a measure of how high or low a sound is. A whistle being blown creates a high-pitched sound. A rumble of thunder is an example of a low-pitched sound.

Sound can travel through solids, liquids and gases. Sound travels as a **wave**, **vibrating** the **particles** in the medium it is travelling in. Sound cannot travel through a vacuum.

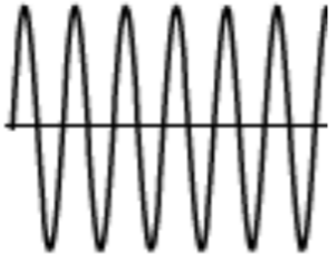


low pitch sound



- The sound waves are wider apart.
- Has a lower frequency in hertz (Hz)
- The sound wave moves slower.
- On a musical instrument, a thicker string will produce a lower sound.

high pitch sound



- The sound waves are closer together.
- Has a higher frequency in hertz (Hz)
- The sound wave moves quicker.
- On a musical instrument, a thinner string will produce a higher sound.

Protecting your ears

- If a sound reaches 85 decibels (dB) or stronger, it can permanently damage your hearing.
- Your ear drum can get perforated, or burst, if you don't protect your ears.
- Ear defenders are used by workmen and those who work in noisy environments to protect their ears from the sound.