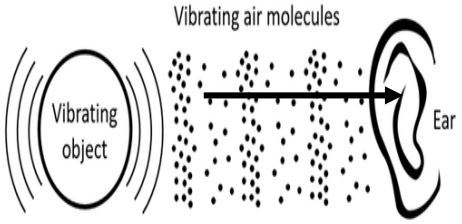
Year 4: Science Knowledge Organiser – Sound (Physics)

Sticky Knowledge

- ✓ Sound travels in waves in all directions away from a source.
- ✓ Sound can travel through different materials, but travels at different speeds in solids, liquids and gases.
- ✓ An echo is a reflected sound wave.

Learning Components

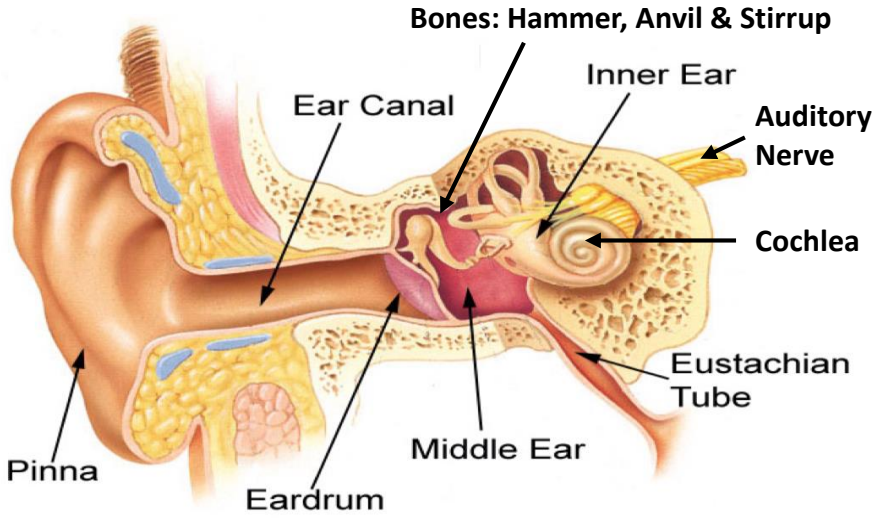
- ➢ I know what sounds are made by vibrations and travel in waves.
- ➢ I can explain how the ear works.
- ➢ I know how to change the pitch of sounds, with short vibrations creating high pitches and long vibrations creating low pitches.
- ➢ I know that volume is how loud/quiet a sound is linked to the size of the vibrations.
- ➢ I can explain how different instruments make sounds by identifying their vibrating parts.
- ➢ I know that the volume of sounds becomes quieter as it travels away from the source.



Big Idea

Sound is created from a source and travels outwards in the form of a sound wave in all directions. Sound waves are caused by vibrating molecules in either solids, liquids or gases. Bigger sound waves create louder sounds and longer wave lengths create lower frequencies (pitches).

The Ear:



- ✓ Sound waves are collected by the outer ear (pinna) and travel down the ear canal.
- ✓ The sound waves make the ear drum vibrate, which in turn make the anvil, hammer and stirrup bones vibrate.
- ✓ The vibrating bones cause vibrations in the cochlea, which sends electrical messages to the brain via the auditory nerve, which then makes sense of the sound.

Vocabulary

Sound: Noise created from the vibrations of mediums such as air and water.

Source: The place where the sound wave is first created.

Vibration: Vibrations backwards and forwards movements caused when a medium such as air wobbles in the form of sound waves.

Pitch (High/Low): A high sound has a high pitch and a low sound has a low pitch. A tight drum skin gives a higher pitched sound than a loose drum skin.

Volume: How loud or quiet something is.

Ear: An organ of the body designed to detect sound waves.

Sound Wave: The continuous vibrations of a medium moving away from the source.

Frequency: Frequency is measured as the number of wave cycles that occur in one second. More waves means a higher frequency. This is linked to pitch.

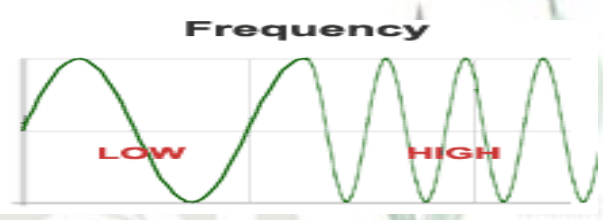
Sound

Source

Pitch (High / Low)

Whistle
High pitch sound

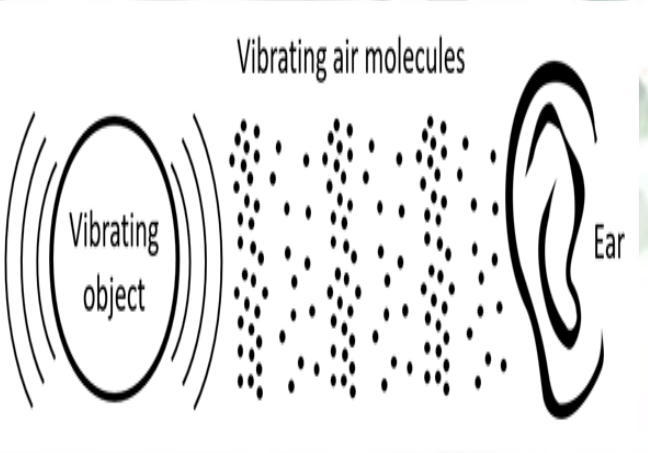
Drum
Low pitch sound



Volume

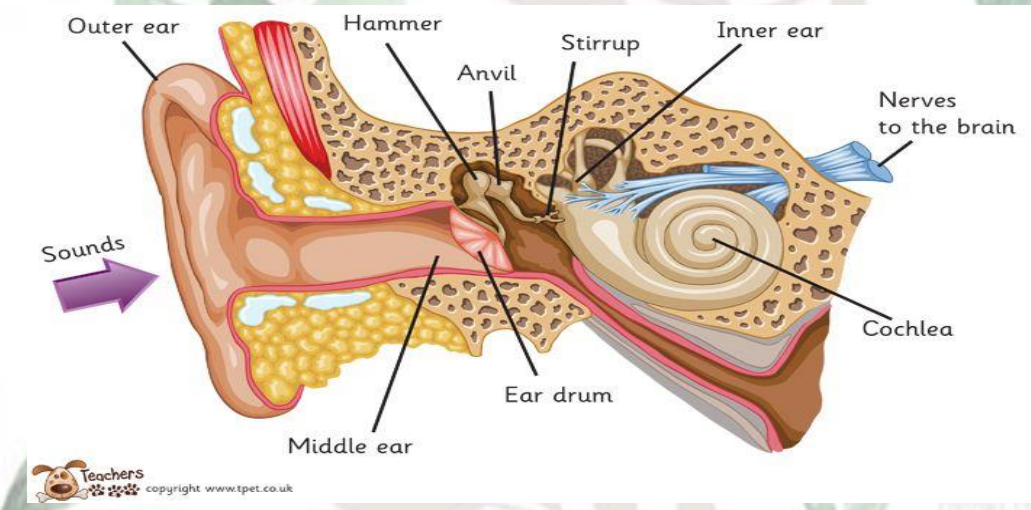
Faint

Vibrate / Vibration

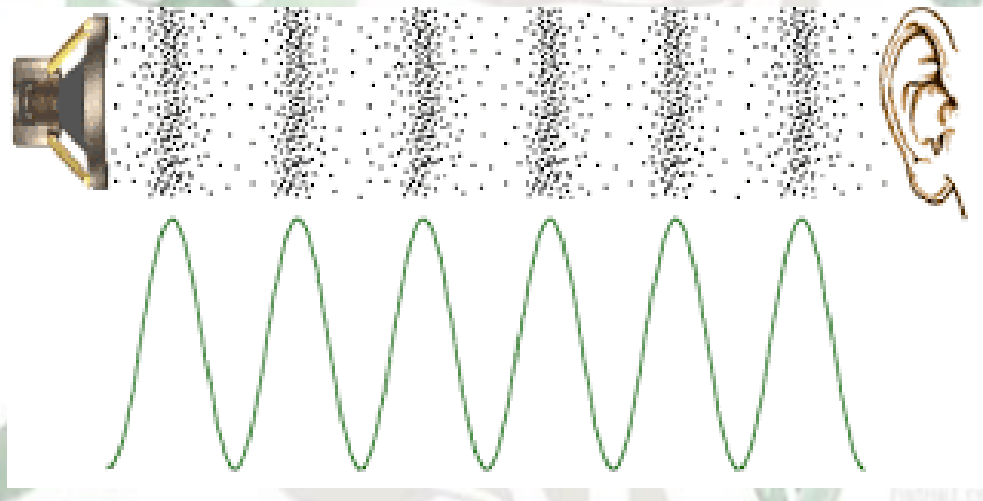


Insulation

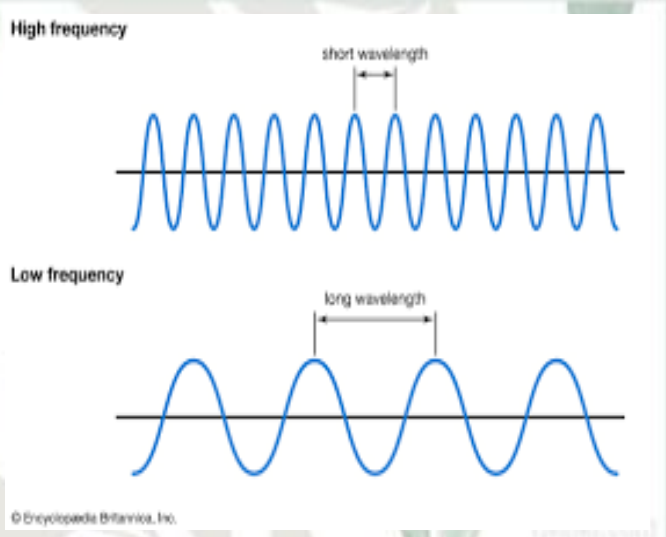
Ear



Sound Wave



Frequency



Loud