

Year 4 – Science – Spring 1- Sound

Key statements:

Sounds are made through vibrations.

Molecules vibrate and form a sound wave.

If the sound wave reaches our ears and our brain then we hear the sound.

Fun facts:

The loudest natural sound on earth is caused by an erupting volcano

Dogs are capable of hearing sounds at a much higher frequency than humans can

Sound cannot travel through space since there are no molecules to travel through

HOW IS SOUND MADE?

Vibrations - Sounds are made when something vibrates. By placing rice on a drum, you can see the vibrations when you hit the drum, as well as hearing the sound.

HOW DO WE HEAR SOUND?

- **Sound can travel through solids, liquids and gases.**
- Like light, sound travels through the air in waves.
- Sound is made by air molecules vibrating.
- When vibrations are made (e.g. when you clap your hands) the air around the object vibrates. This is the air molecules vibrating.
- The vibrations pass on from air particle to air particle until the ones near your ear vibrate.
- When air molecules inside the ear vibrate, they shake tiny hairs on the insides of the ears. The hairs are connected to nerves under the skin. These nerves send messages to your brain to tell you that you heard a noise.
- Sound travels much slower than light, whether in air or in water. You often hear things after you see them, for example you see the lightning before you hear the thunder.

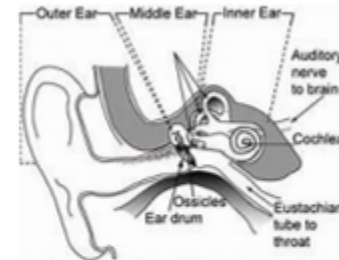


Figure 1: The Outer, Middle, and Inner Ear

Smaller/fast vibrations eg a triangle make a high pitch and larger/slower vibrations make a lower pitch e.g tambourine.

Key words: vibrations, pitch, volume, anvil, stirrup, hammer, ear drum, sound proofing, sound wave, vacuum.

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.

