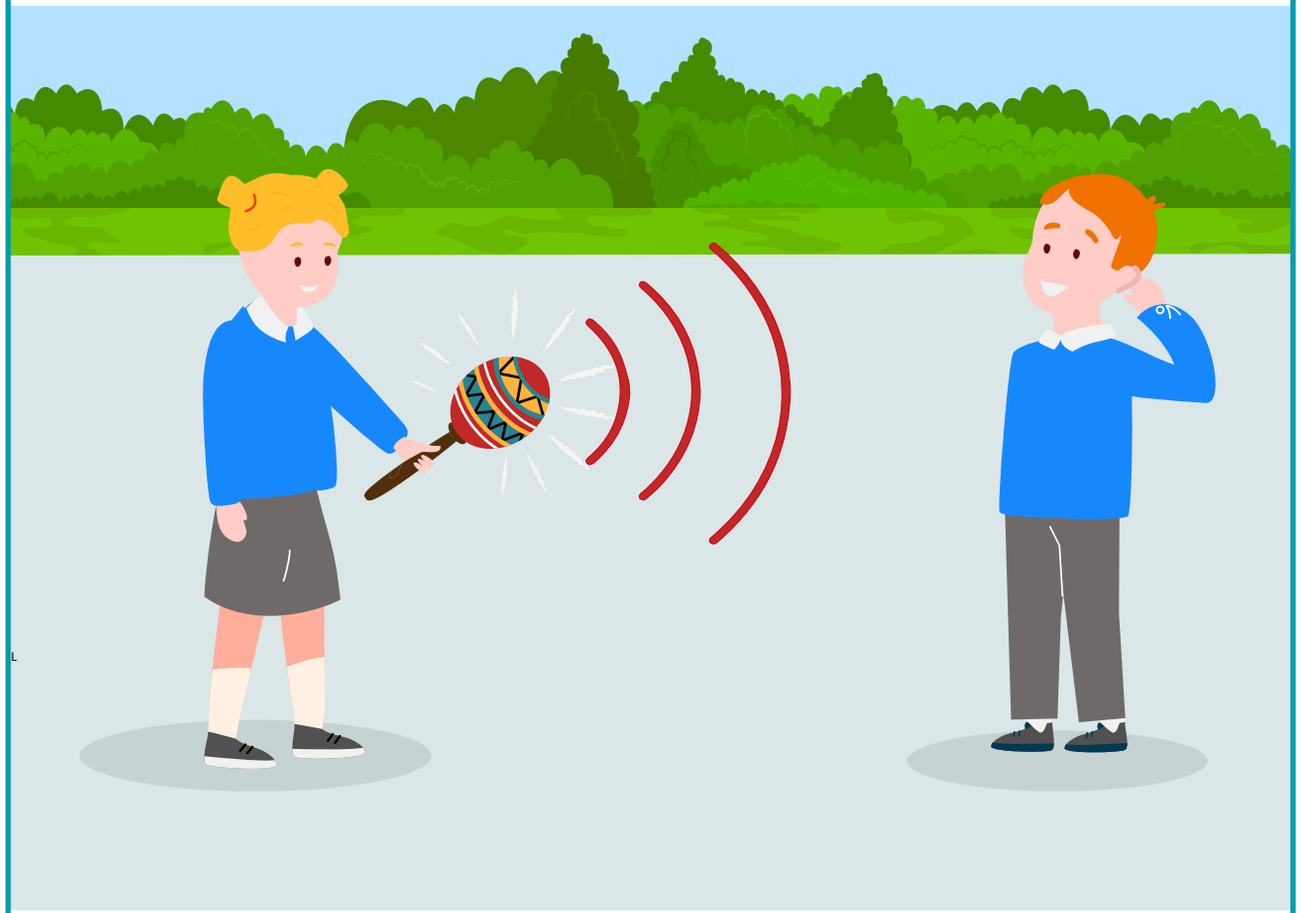
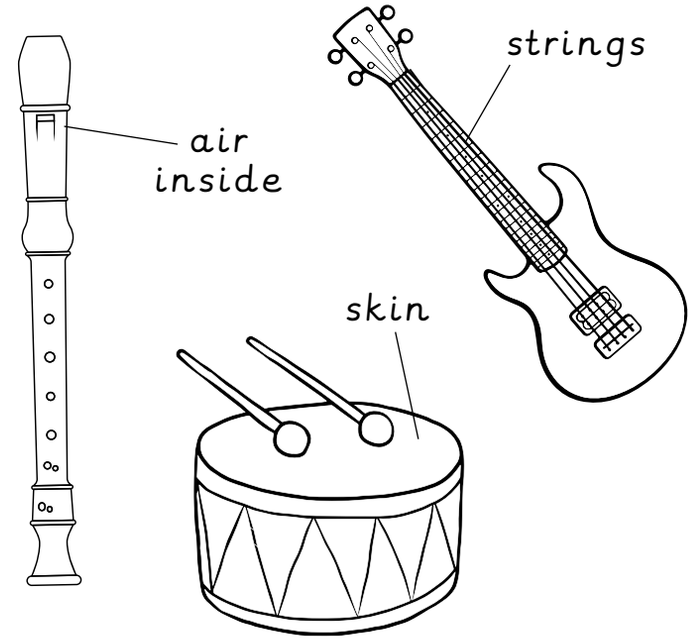
Sound is made by **vibrations**. When something vibrates, it moves the air around it, creating a **sound wave**. Sound waves can travel through different mediums (solids, liquids and gases) to our **ears**, allowing us to hear sounds.



Sound waves travel fastest and farthest through solids, then liquids and slowest through gases.

Different **musical instruments** make vibrations in different ways:

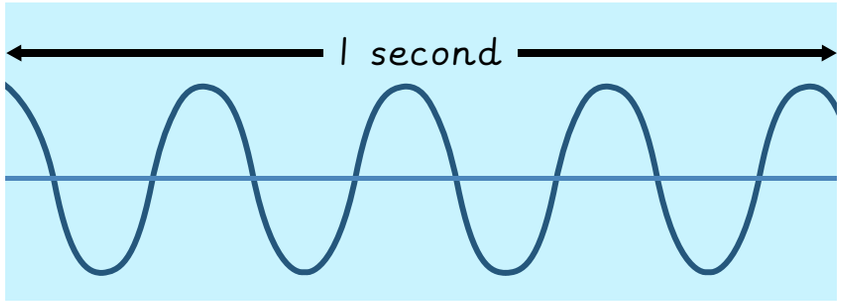


The volume of an instrument can be changed, for example by plucking, blowing or hitting harder.

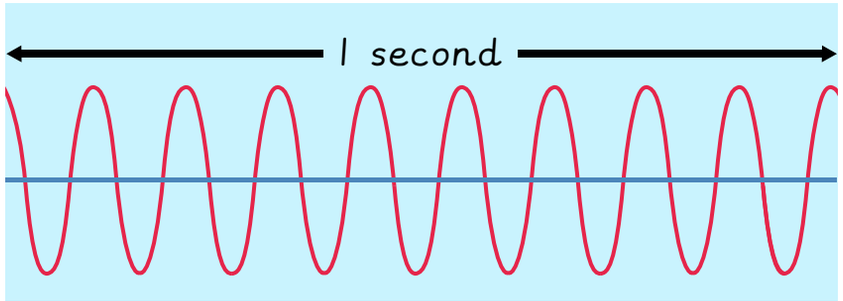
The pitch of some instruments can be changed, for example by pressing a different key or plucking a different string.

Science - Sound and vibrations

slower waves = lower pitch sound



faster waves = higher pitch sound



The **pitch** of a sound depends on the speed of the vibrations.

Pitch can be measured in **hertz (Hz)**. High pitch sounds can be dangerous to the ear and cause hearing loss.

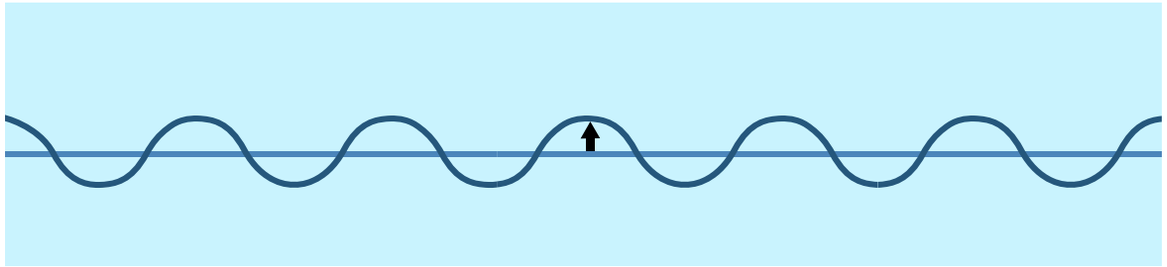
Materials that do not let sounds pass through quickly are called **insulators** and can be used to muffle loud sounds.

The **volume** of a sound depends on the strength of the vibrations.

The volume of a sound decreases as the **distance** from the source increases.

Volume can be measured in **decibels (dB)** using a decibel meter. Sounds above 80 dB can be dangerous to the ear and cause hearing loss. **Ear protectors** can be worn to muffle loud sounds.

weaker vibrations = smaller waves = quieter sounds



stronger vibrations = bigger waves = louder sounds