Year 4 – Sound

The softer the material, the more sound will be absorbed by it.

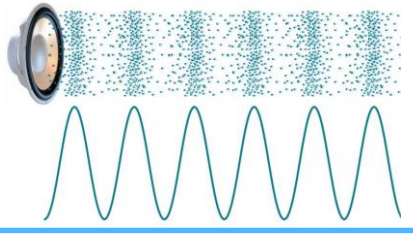
Sound energy can travel from particle or particle more easily in solids because the vibrating particles are closer together.

Echoes are caused when sound waves bounce off surfaces

Making or hearing sound

A sound happens when something **vibrates**. E.g. a drill hitting the ground or, less obviously, air **vibrating** in a bottle to produce noise.

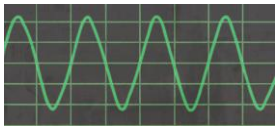
Sounds can travel through **solids, liquids and gases**. Sounds travels as a wave, vibrating the particles of the medium it is in.

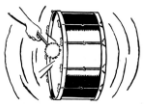


Sound cannot travel through a vacuum because there are no particles to transit the vibrations.

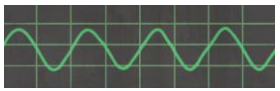
Changing volume

The **more energy** a vibration has, the **louder** the sound.



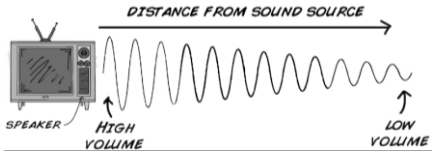


Large energy = loud sound



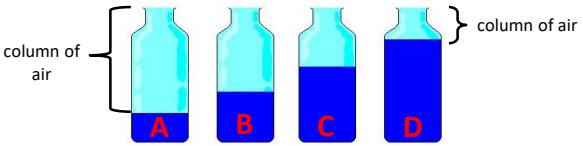
Little energy = quiet or soft sound

The **further away** from the source, the **quieter** the sound.



Changing pitch

The **shorter** the vibrating object, the higher the pitch.



Bottle D will give the **highest note** because the vibrating column of air is the **shortest**.

high pitch

low pitch

The double base has **longer strings** than the violin so it produces **lower notes** than the violin.

The **larger** the vibrating object, the lower the pitch.

ROCKET WORDS – learn these words and their definitions

Key Word	Definition
vibrate	to move continuously and quickly forwards and backwards
volume	how loud or quiet a sound is
pitch	how high or low a sound is
sound waves	invisible waves that travel through air, water and objects as vibrations
transmit	to cause (light, heat, sound etc) to pass
decibel	the unit for measuring the loudness of sounds
sound insulation	the ability of building elements or structures to reduce sound transmission

How we hear

Vibrating air hits our ear drums and makes them vibrate. This is how we hear sound. The vibrations are picked up by our brains which decides what the sound is.

Ear defenders can be worn to protect the ears from loud sounds that could damage the eardrum.

They contain foam to absorb sound waves