



## Year 4 - Sound

## Physics

### Key vocabulary

amplitude	A measure of the strength of a sound wave. This is the size of the vibration.
energy	Sound energy is the type of energy that we can hear.
frequency	How many vibrations are made in one second.
insulation	A material that is used to block out sounds.
medium	A material that allows the transfer of energy from one place to another, e.g solids, liquids and gases.
pitch	How high or low a sound is. It depends on the frequency of the sound.
sound source	Where the sound comes from. The sound source is what produces the vibrations.
vibration	Something moving backwards and forwards very quickly.
volume	How loud or quiet a sound is. It depends on the amplitude of the sound wave.
wave	An invisible wave which moves through different mediums.

### How are sounds made and how do they travel?

When an object vibrates, a sound is made.

The vibration makes the air around the object vibrate and the air vibrations enter your ear. These are called sound waves.



If an object is making a sound, part of it is vibrating, even if you cannot see the vibrations yourself.

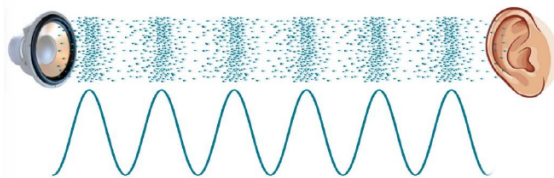
Sound waves travel through a medium (such as air, water, glass, stone and brick)



### How do we hear?

The sound waves travel to the ear and make the ear-drums vibrate.

Messages are sent to the brain which recognises the vibrations as sounds.



### Volume

The volume of a sound is how loud or quiet it is. Quieter sounds have a smaller amplitude because there is less energy and therefore smaller vibrations. Louder sounds have a bigger amplitude and more energy.

The closer we are to a sound source, the louder it will be.



A train arriving at a station sounds loud

The further away from a sound source, the fainter it will be.



A train in the distance sounds quieter

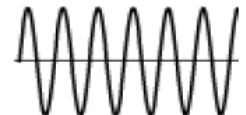
### Pitch

The pitch of a sound is how high or low it is.

A squeak of a mouse has a high pitch.  
A roar of a lion has a low pitch.



Lower Pitch



Higher Pitch

A high pitch sound is made because it has a high frequency which means that the sound source vibrates many times per second.

