

Science Focus:

Sound

Year 4

Term: 2

Sound

What is a sound? A noise that can be heard by someone.

How is a sound made? A sound happens when something vibrates.

This can be obvious:
Like when a drill is hitting the ground repeatedly which causes a loud noise



This can be less obvious:
Here the air in the bottle vibrates to produce the noise



Objects can affect other objects at a distance

Sound comes from things that vibrate and can be detected at a distance from the source because the air or other material around is made to vibrate.

Diagrams and Symbols

The pitch of a sound

Higher pitch

Lower

The shorter the object the higher the pitch

The shorter the vibrating column of air, the higher the pitch so bottle B will give a higher pitch Sound.



A

Lowest pitched



B

Highest pitched

So how do we hear sounds?

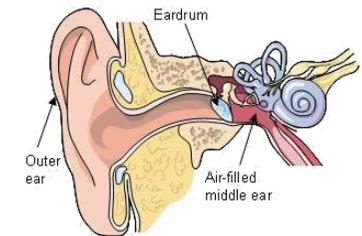
How do sounds travel?

Sounds can travel in two ways:

- Through the air - like from a TV speaker across the room to your ears.
- Through an object/material - like stone, brick, water and glass. If someone moves furniture upstairs, the sound can travel through the floor to you.

How do we hear these vibrations?

- The vibrating air hits our ear drums and makes them vibrate.



- The vibration is picked up by our brains and converted to sounds we recognise.

Changing sounds

Volume

- The closer we are to the sound source, the louder the sound will appear to us.
- The further away we are from the sound source, the quieter the sound will appear.

- The more energy in the initial vibration, the louder the sound will be. For example, if you tap a hammer on a desk the sound will be quiet, but if you smash a hammer on a desk it would be much louder.

Pitch

The pitch is how high or low a sound is.

- The shorter the vibrating object, the higher the pitch of the sound.
- The longer the vibrating object, the lower the pitch of the sound.

With string instruments, the tighter the string, the higher the pitch of the sound.

What? (Key Vocabulary)

Spelling	Definition/Sentence
Vibrates	Move continuously very quickly
Obvious	Clear and easily seen or understood
Material	What something is made from
Recognise	To know what something is
Initial	Happening at the beginning

Working as a Scientist

- Use violins in school to experiment with pitch
- Use one object (such as a saucepan) and try and create a scale of sounds by manipulating it
- Experiment with a tin can telephone