

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?

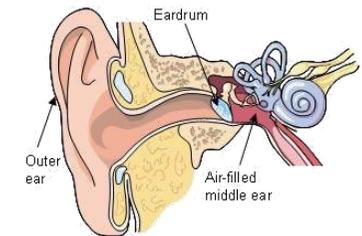
How do sounds travel?

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