



# Welton Primary School—Science Knowledge Organiser



Year: 4

Sound

Physics

## What should I already know?

- I can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.

## Vocabulary

|            |                                    |
|------------|------------------------------------|
| sound      | A thing that can be heard.         |
| source     | The object that makes the sound.   |
| travel     | How something moves                |
| loud       | Having a large amount of           |
| vibrate    | To move back and forth very        |
| vibration  | Invisible waves that move quickly. |
| pitch      | How high or low a sound is.        |
| volume     | How loud or quiet a sound is.      |
| faint      | Weak or slight.                    |
| insulation | A material used to insulate.       |



Low Pitch Sounds

## How Sounds are Made

Sounds are made when objects vibrate - shake back and forth.

This creates soundwaves, which travel to the ears of the listener.

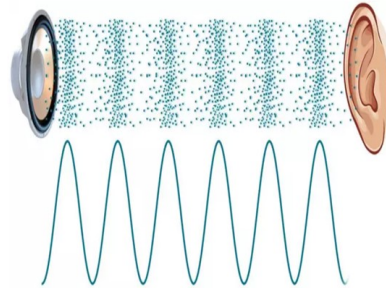
When a bell is struck, the metal of the bell vibrates. These vibrations create waves in the air called sound waves.

When they reach our ears, they make our eardrums vibrate, and we hear the sound of the bell ringing.

Weak vibrations make a gentle soundwave which do not travel as far as strong vibrations. This is why sounds have different volumes.

Different materials carry sounds in different ways. Solids will transfer sounds more easily than liquids and gases because their particles are closer together!

Sound cannot travel in a vacuum—this is why there is no sound in space.



## Volume

Volume is the loudness of a sound.

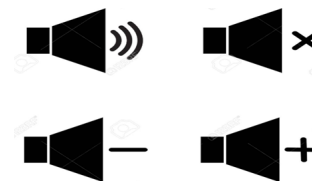
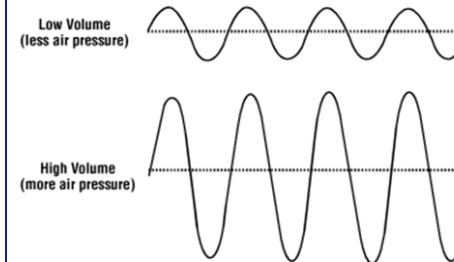
The volume of a sound depends on the amount of energy that the vibrations contain.

Vibrations with lots of energy create large soundwaves.

When these large soundwaves arrive at your ears, they push harder on your eardrums.

This is why when we strike a drum harder (with more energy), it is louder than when we strike it more softly.

Our ears can detect a wide range of loud and quiet sounds, from rumbling jet engines to leaves rustling.



## Pitch

Pitch is the highness or lowness of a sound.

Pitch is caused by the frequency of vibrations - how many times vibrations go back and forth per second.

The higher the rate of vibrations, the higher the pitch. These have tight, short frequency waves.

Lower pitch sounds have a lower rate of vibrations. They are more loose, spaced out waves.

Humans can hear a large range of pitches from high-pitch sounds, e.g. a mouse squeak, to low-pitch sounds, e.g. the rumble of an earthquake.

However, some sounds are too high or low-pitched for us to hear.



Lower Pitch

Higher Pitch



Low Pitch Sound



High Pitch Sound

High Pitch Sounds

Lion's Roar

Tuba

Bass Guitar

Thunder

Child's voice

Whistle

Shriek

Mouse Squeak