

## Year 4 Science Knowledge Organiser – Sound

Sound is a type of energy. The object that makes the sound is called the source. Sounds are created by vibrations. The bigger the vibration the louder the sound.

### How is sound made?

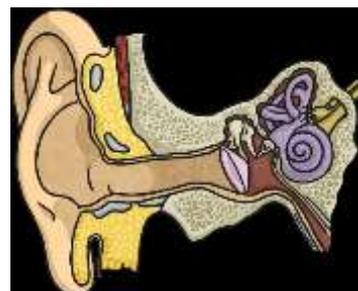
- When objects vibrate, a sound is made.
- The vibration makes the air around the object vibrate and the air vibrations travel to your ear. These are called sound waves.
- If an object is making a sound, a part of it is vibrating, even if you cannot see the vibrations.

### How do sounds travel?

- Sound waves travel through a medium (such as air, water, glass, stone, and bricks).
- For example, if somebody is playing music in the room next door, the sound can travel through the bricks in the wall.

### How do we hear sounds?

- When an object vibrates, the air around it vibrates too. This vibrating air can also be known as sound waves.
- The sound waves travel to the ear and make the eardrums vibrate.
- Electrical signals are sent to the brain which recognises the vibrations as sound.

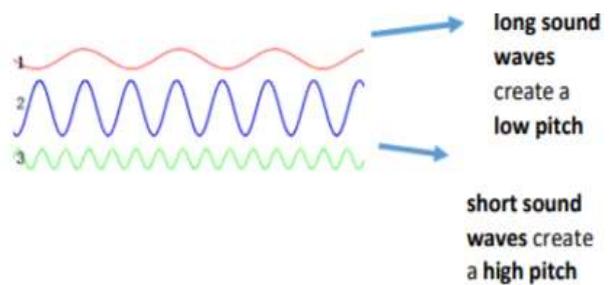


<b>Key Vocabulary</b>	
<b>Sound</b>	Sound is made up of vibrations, or sound waves that we can hear.
<b>Sound wave</b>	Vibrations travelling from a sound source.
<b>Source</b>	An object that is creating a sound.
<b>Vibration</b>	A quick movement back and forth.
<b>Pitch</b>	A measure of how high or low a sound is.
<b>Volume</b>	The loudness of a sound.
<b>Insulation</b>	Materials that absorb sound, restricting vibrations from passing through.
<b>Decibel</b>	The loudness of sound is measured in units called decibels.
<b>Amplitude</b>	The size of a vibration. The larger the vibration the louder the sound.
<b>Particles</b>	Solids, liquids and gases are made of particles. They are so small that we are unable to see them.
<b>Transmit</b>	To pass from one place or person to another.

## How do sounds change?

### 1. Pitch

Pitch is a measure of how high or low a sound is. High pitch sounds are created by a short sound wave. Low pitch sounds are created by long sound waves.



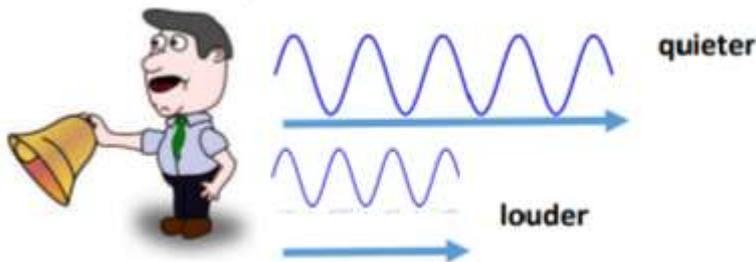
- A squeak of a mouse has a high pitch.
- A roar of a lion has a low pitch.



### 2. Volume

The volume of a sound is how loud or quiet it is.

- When a sound is created by a little amount of energy, a weak sound wave is created which doesn't travel far. This makes a quiet sound.
- A vibration with lots of energy makes a powerful sound wave and therefore a loud sound.
- The closer you are to the source of the sound, the louder the sound will be.
- The further away from the source you are, the quieter the sound will be.



## How do we measure sound?

- Amplitude measures how strong a sound wave is. Louder sounds have a larger amplitude and quieter sounds have a smaller amplitude.
- Decibels measure how loud a sound is.
- Frequency measures the number of times per second that the sound wave cycles.

