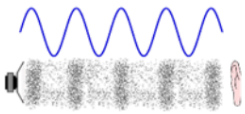
Caroline Haslett Primary School - Science Topic: Sound Year 4

What should I already know?
• Hearing is one of my five senses. • Sounds can be combined using musical instruments. • What the word **vibration** means.

What will I know by the end of the unit?	
What is a sound?	A thing that can be heard. The object that makes the sound is called the **source**.
How is a sound made?	• When objects **vibrate**, 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, 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 brick). • 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**. • Messages are sent to the brain which recognises the **vibrations** as sounds. 

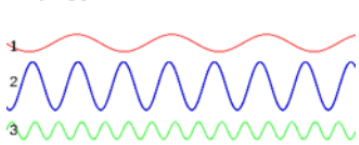
How do sounds change?	**Pitch:**
	• The **pitch** of a sound is how **high** or **low** it is.
	  • A squeak of mouse has a **high pitch**.
	  • A roar of a lion has a **low pitch**.
	Volume:
	• The **volume** of a sound is how **loud** or **quiet** it is.
	• When a sound is created by a little amount of **energy,** a weak **sound wave** is created which doesn't **travel** far. This makes a **quiet** sound.
	  • A small tap of a hammer is used with small amounts of **energy** and so creates a **quiet** noise.
	• A **vibration** with lots of **energy** makes a powerful **sound wave** and therefore a **loud** sound.
	  • A powerful, smashing tap of a hammer is used with lots of **energy** and so creates a **loud** noise.

How do we measure sound?	• **Amplitude** measures how strong a **sound wave** is. • **Decibels** measure how **loud** a sound is. • **Frequency** measures the number of times per second that the **sound wave** cycles.

Diagrams

Pitch:

- **High pitch** sounds are created by short **sound waves**.
- **Low pitched** sounds are created by long **sound waves**.

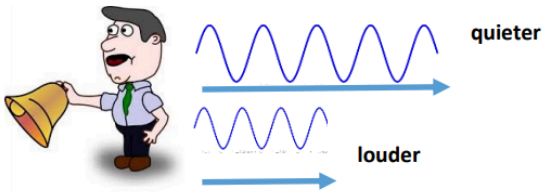


long sound waves create a **low pitch**

short sound waves create a **high pitch**

Volume:

- The closer you are to the **source** of the sound, the **louder** the sound will be.
- The further away you are from the **source** of the sound, the **quieter** the sound will be.



Vocabulary	
amplitude	a measure of the strength of a **sound wave**
decibel	a measure of how loud a sound is
electricity	a form of **energy** that can be carried by wires and in used for heating and lighting, and to provide power for devices
energy	the **power** from **sources** such as **electricity** that makes machines work or provides heat
frequency	a measure of how many times per second the **sound wave** cycles
medium	something that makes possible the transfer of **energy** from one location to another
pitch	how **high** or **low** a sound is
power	**Power** is energy, especially electricity, that is obtained in large quantities from a fuel **source** and used to operate lights, heating, and machinery
sound waves	invisible waves that travel through air, water, and solid objects as **vibrations**
source	where something comes from
transmit	to pass from one place or person to another
travel	how something moves around
vibrations	invisible waves that move quickly
volume	how **loud** or **quiet** a sound is

Investigate!
• Fill identical jars with different volumes of water. Which one creates the highest pitch? • Which material would make the best sound defender? How can you investigate this? • Make musical instruments using different length strings. How do their pitches differ?