

St Clement's Catholic Primary School - Science

Topic: Sound


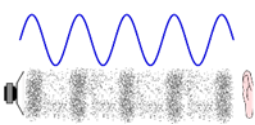
Year: 4

Strand: Physics

What should I already know?

- Hearing is one of my five senses.
- Sounds can be combined using musical instruments.
- What the word **vibration** means.

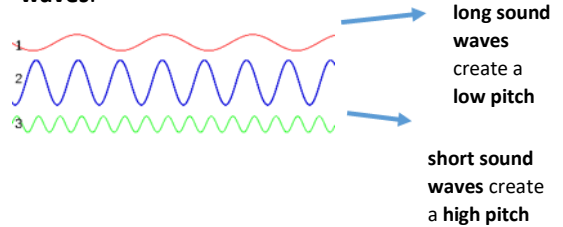
What will I know by the end of the unit?

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?	<ul style="list-style-type: none"> • 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?	<ul style="list-style-type: none"> • 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?	<ul style="list-style-type: none"> • 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?	<p>Pitch:</p> <ul style="list-style-type: none"> • The pitch of a sound is how high or low it is. <ul style="list-style-type: none"> • A squeak of mouse has a high pitch. • A roar of a lion has a low pitch. <p>Volume:</p> <ul style="list-style-type: none"> • 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. <ul style="list-style-type: none"> • 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. <ul style="list-style-type: none"> • A powerful, smashing tap of a hammer is used with lots of energy and so creates a loud noise.
How do we measure sound?	<ul style="list-style-type: none"> • 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

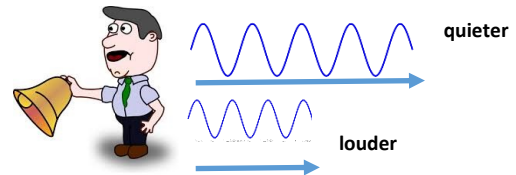
Pitch:

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



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?