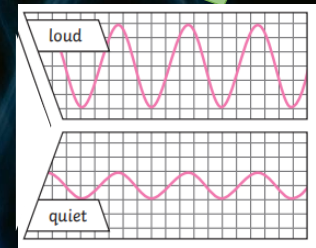




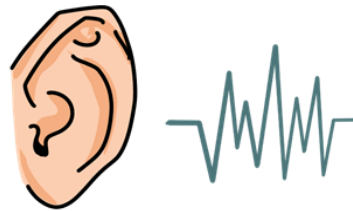
# Y4 Science Sound

Sound can travel through solids, liquids and gases.

**Key Knowledge:** Sound is a type of energy. Sounds are created by vibrations. The louder the sound, the bigger the vibration.



Sounds are made when objects vibrate. The **vibration** makes the air around vibrate, and the air vibrations enter your **ear**. You hear the **vibrations** as **sounds**. You cannot always see the vibrations, but if something is making a **sound**, a part of it is vibrating. The **vibrations** travel in all directions and they don't travel in **straight lines**.

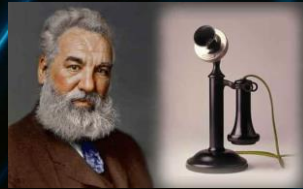


Sound travels as a wave, making the particles in the medium vibrate. It cannot travel in a vacuum.

## Key Vocabulary

<b>ear</b>	An organ used for hearing.
<b>particles</b>	Solids, liquids and gases are made of <b>particles</b> . They are so small we are unable to see them.
<b>distance</b>	A measurement of length between two points.
<b>soundproof</b>	To prevent sound from passing through.
<b>absorb sound</b>	To take in sound energy. Absorbent materials have the effect of muffling sound.
<b>vacuum</b>	A space where there is nothing. There are no <b>particles</b> in a vacuum.
<b>eardrum</b>	A part of the <b>ear</b> which is a thin, tough layer of tissue that is stretched out like a drum skin. It separates the outer <b>ear</b> from the middle and inner <b>ear</b> . <b>Sound waves</b> make the <b>eardrum vibrate</b> .

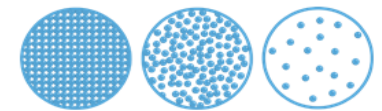
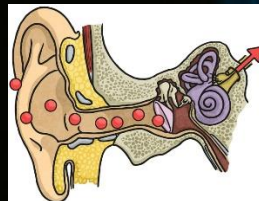
Alexander Graham Bell invented the telephone.



**Pitch** is a measure of how high or low a sound is. A whistle being blown creates a **high-pitched** sound. A rumble of thunder is an example of a **low-pitched** sound.



Inside your ear, the vibrations of sound hit your eardrum and are then passed to the middle, then inner ear. They change to electrical signals and are sent to the brain. Your brain tells you that you are hearing a sound.



solid liquid gas

The vibrations caused by the sound can travel through the air (**gas**) but can also travel through **liquids** and **solids**.

You change the pitch of instruments in different ways.



Year 4

# Electricity

## Components (Parts) Vocabulary

**cell:** Normally, we would call this a battery but scientifically, this is a cell. Two or more cells joined together form a battery.



**bulb:** Lights up in a complete **circuit**.



**buzzer:** Makes a noise in a complete **circuit**.



**wires:** Used to connect the different components in the **circuit** together.



**motor:** Produces movement in a complete **circuit**.



**switch:** Used to turn other components in the **circuit** on or off.



## Appliances

Many everyday **appliances** rely on **electricity** for them to work. Some **appliances** use **mains electricity** (are plugged into a socket) and others have a **battery** to make them work. Examples of **mains-powered appliances** include toasters and televisions. **Battery-powered appliances** can include mobile phones and torches.

mains-powered



battery-powered



Thomas Edison is famous for developing one of the first practical electric light bulbs.



### Series Circuit

A **circuit** where the components are connected in a loop. **Electricity** flows through each component in a single pathway.



### Complete Circuit

**Electricity** can flow. The components will work.



### Incomplete Circuit

There is a break in the **circuit** that prevents the **electricity** from flowing. The components will not work.



**Key Knowledge: Metals** such as copper and steel are examples of electrical conductors.

**Wood, paper, glass, fabric, plastic and rubber** are examples of electrical insulators.



Switches can be used to open or close a **circuit**. When off, a switch 'breaks' the **circuit** to stop the flow of **electricity**. When on, a switch 'completes' the **circuit** and allows the **electricity** to flow.



Materials can be tested in a **circuit** to see if they are **electrical conductors** or **electrical insulators**.



10p = metal = electrical conductors



test circuit



ruler = plastic = electrical insulators

## Key Vocabulary

<b>electricity</b>	The flow of an electric current through a material, e.g. from a power source through wires to an <b>appliance</b> .
<b>appliances</b>	A piece of equipment or a device designed to perform a particular job, such as a washing machine or mobile phone.
<b>battery</b>	A device that stores electrical energy as a chemical. Two or more cells joined together form a battery.
<b>circuit</b>	A pathway that <b>electricity</b> can flow around. It is based around wires and a power supply. Examples of components (parts) you can add in to a <b>circuit</b> are bulbs, switches, buzzers and motors.
<b>mains electricity</b>	<b>Electricity</b> supplied through wires to a building.
<b>electrical conductor</b>	A <b>conductor</b> of <b>electricity</b> is a material that will allow <b>electricity</b> to flow through it.
<b>electrical insulator</b>	Materials that are <b>electrical insulators</b> do not allow <b>electricity</b> to flow through them.