



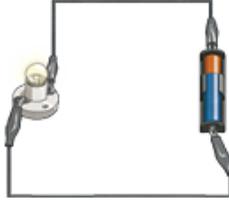
Key Vocabulary		Components (Parts) Vocabulary		
<b>electricity</b>	The flow of an electric current through a material, e.g. from a power source through wires to an <b>appliance</b> .	<b>cell:</b> Normally, we would call this a <b>battery</b> but scientifically, this is a cell. Two or more cells joined together form a <b>battery</b> .	<b>bulb:</b> Lights up in a complete <b>circuit</b> .	<b>buzzer:</b> Makes a noise in a complete <b>circuit</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 <b>battery</b> .	<b>wires:</b> Used to connect the different components in the <b>circuit</b> together.	<b>motor:</b> Produces movement in a complete <b>circuit</b> .	<b>switch:</b> Used to turn other components in the <b>circuit</b> on or off.
<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.			

**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.



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.



push button switch



slide switch



# As a Scientist...

## Electricity

Year 4

### Key Vocabulary

<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.

### 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.

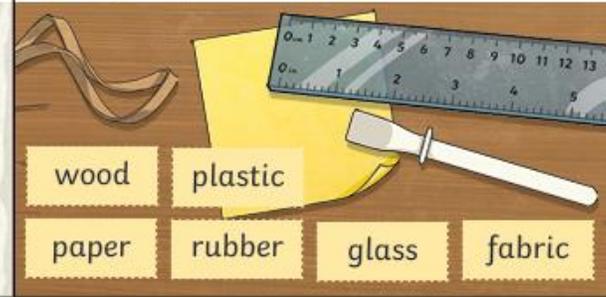


### Key Knowledge

#### Examples of Electrical Conductors



#### Examples of Electrical Insulators



To work safely with **circuit** components in the classroom:

- None of the equipment needs to use mains power, so do not put any of it in or near plugs.
- Report any damaged or broken equipment to your teacher. Do not use it.
- Only use equipment as instructed.
- Connect equipment correctly.
- Disconnect equipment after use and put it away neatly.



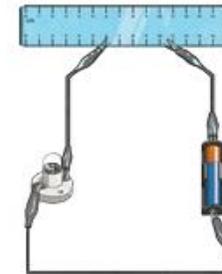
Materials can be tested in a **circuit** to see if they are **electrical conductors** or **electrical insulators**.



10p = metal = **electrical conductors**



test **circuit**



ruler = plastic = **electrical insulators**



## As a Scientist...

### In year 4:

- Identify common appliances that run on electricity.
- Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.
- Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery.
- Recognise that a switch opens and closes the circuit and associate this with whether or not a lamp lights in a simple series circuit.
- Recognise some common conductors and insulators, and associate metals with being good conductors.
- *Know the difference between a conductor and an insulator; giving examples of each.*
- *Safety when using electricity.*

### In Year 6:

- Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.
- Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.
- Use recognised symbols when representing a simple circuit in a diagram.