

**Science Focus:**

Electricity

Year 4

Term:

## Electricity

What is Electricity?	<ul style="list-style-type: none"> <li>Electricity is created by generators which can be powered by gas, coal, oil, wind or solar.</li> <li>The electrical energy can be converted into other types of energy such as light, heat, movement or sound.</li> <li><b>Electricity is dangerous, so be careful when using electrical appliances.</b></li> </ul>
What are common appliances that run on electricity?	<p>Any appliances that need to be plugged in run on electricity.</p> <p>For example:</p> <ul style="list-style-type: none"> <li>⇒ Television      Kettle</li> <li>⇒ Computer        Hairdryer</li> <li>⇒ Microwave       X-Box</li> </ul>



## Electrical Conductors and Electrical Insulators

Conductors	<ul style="list-style-type: none"> <li>Some materials let electricity pass through them easily. They are known as electrical conductors.</li> <li>Many metals, such as iron, copper and steel are good electrical conductors.</li> </ul>
Insulators	<ul style="list-style-type: none"> <li>Some materials do not let electricity pass through them. They are known as electrical insulators.</li> <li>Wood, glass, plastic and rubber are good electrical insulators. That is why they are used to cover materials that carry electricity.</li> </ul>

## Working as a Scientist

- Set up circuits and predict whether the bulb will light or not.
- Set up circuits and experiment with ways to make the bulbs brighter.
- Set up a circuit to test materials that are conductors or insulators.

## Energy can be transferred

Electrical energy can be transferred from one store to another. For example, electricity can make light bulbs glow.

### Diagrams and Symbols

#### Would the bulb light up?

	<p>Will the bulb light?</p> <p><b>Yes</b></p> <p>Why?</p> <p>The circuit has a battery and a bulb and is complete.</p>
	<p>Will the bulb light?</p> <p><b>No</b></p> <p>Why?</p> <p>The circuit has no battery to provide the electrical power.</p>
	<p>Will the bulb light?</p> <p><b>No</b></p> <p>Why?</p> <p>The circuit is not complete.</p>
	<p>Will the bulb light?</p> <p><b>No</b></p> <p>Why?</p> <p>The switch is in the off (0) position.</p>

## An electrical circuit

A series circuit (One pathway around the circuit)	<ul style="list-style-type: none"> <li>Electricity can flow through the components in a complete electrical circuit.</li> <li>A circuit always needs a power source, such as a battery, with wires connected to both the positive (+) and negative (-) ends. (A battery is made from a collection of cells connected together).</li> <li>A circuit can also contain other electrical components, such as bulbs, buzzers or motors, which allow electricity to pass through.</li> <li>Electricity will only travel around a circuit that is complete. That means it has no gaps.</li> </ul>

What is a switch?	<ul style="list-style-type: none"> <li>You can use a switch in a circuit to create a gap in a circuit. This can be used to switch it on and off.</li> <li>When a switch is open (off), there is a gap in the circuit. Electricity cannot travel around the circuit.</li> <li>When a switch is closed (on), it makes the circuit complete. Electricity can travel around the circuit.</li> </ul>
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## What? (Key Vocabulary)

Spelling	Definition/Sentence
Generator	A machine that make electrical energy
Component	A part of something (a part of a circuit)
Circuit	A path through which an electrical current flows
Current	The flow of electrical charge
Connected	Something that is joined or linked