

# Science Knowledge Organisers

Science Focus

Electricity

Year 4

Autumn 1

Key Knowledge	
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>□ Electricity is dangerous, so be careful when using electrical appliances.</li> </ul>
What are common appliances that run on electricity?	Any appliances that need to be plugged in run on electricity. For example: Television, Computer, Microwave, Lights
A series 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>
Conductors	□ Many metals, such as iron, copper and steel, are good electrical conductors.
Insulators	<ul style="list-style-type: none"> <li>□ Wood, glass, plastic and rubber are good electrical insulators. That is why they are used to cover materials that carry electricity.</li> </ul>

Key Vocabulary	
Generator	A machine that make electrical energy
Component	A part of something
Circuit	A path through which an electrical current flows
Current	The flow of electrical charge
Connected	Something that is joined

Possible Experiences
- 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.

Diagrams and Symbols	
<p><b>Would the bulb light up?</b></p>	<p>Will the bulb light?</p> <p style="text-align: center; color: green;"><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 style="text-align: center; color: red;"><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 style="text-align: center; color: red;"><b>No</b></p> <p>Why?</p> <p>The circuit is not complete.</p>
	<p>Will the bulb light?</p> <p style="text-align: center; color: red;"><b>No</b></p> <p>Why?</p> <p>The switch is in the off (0) position.</p>

## Greater Depth Thinking

Show understanding of a concept by using scientific vocabulary correctly  
 Apply knowledge in familiar related contexts, including a range of enquiries  
 Work scientifically to explore the concept with a greater degree of independence