



**Unit Title:** Electricity

**Year Group:** 4

**Academic Year:** 2024-2025

**Science Intent:** Many household devices and appliances run on electricity. Some plug in to the mains and others run on batteries. An electrical circuit consists of a cell or battery connected to a component using wires. If there is a break in the circuit, a loose connection or a short circuit, the component will not work. A switch can be added to the circuit to turn the component on and off.

Metals are good conductors so they can be used as wires in a circuit. Non-metallic solids are insulators except for graphite (pencil lead). Water, if not completely pure, also conducts electricity.

Prior Scientific Learning:	Literacy Links (including texts/media used):	Maths Links:
<ul style="list-style-type: none"><li>Explore how things work</li></ul>	N/A	N/A
Scientific Knowledge	Scientific Enquiry Approaches:	Working Scientifically:
<ul style="list-style-type: none"><li>Identify common appliances that run on electricity.</li><li>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</li><li>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.</li><li>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.</li><li>Recognise some common conductors and insulators, and associate metals with being good conductors.</li></ul>		<ul style="list-style-type: none"><li>Identify common appliances that run on electricity.</li><li>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</li><li>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.</li><li>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.</li><li>Recognise some common conductors and insulators, and associate metals with being good conductors.</li></ul>



<b>Week 1:</b> <b>WALT: Retrieve prior knowledge using KWL grid</b> <b>WALT: Identify areas in the school that uses electricity</b>	<b>Key Vocabulary:</b>
<p>Activity: Children will retrieve any prior knowledge of electricity and record this in their KWL grid. As part of a stunning start, they will go on an 'electricity hunt' around the school, looking for appliances that require electricity.</p> <p>Identifying, grouping and classifying</p>	<p>Electricity, electrical appliance/device, plug</p>
<b>Week 2:</b> <b>WALT: Recognise how electrical appliances are powered.</b>	<b>Key Vocabulary:</b>
<p>Activity: Children will learn what electricity is and how appliances can be mains or battery-powered. They will begin to sort items based on what type of electricity they use.</p> <p>All children will be able to identify items that are an electrical appliance.</p> <p>Most children will be able to identify whether an electrical appliance is mains or battery-powered.</p> <p>Some children will be able to identify whether an electrical appliance is mains, battery powered or if it requires being plugged into a mains in order to charge a battery.</p> <p>Identifying, grouping and classifying</p>	<p>Electricity, electrical appliance/device, plug, mains, battery</p>
<b>Week 3:</b> <b>WALT: Construct a simple electrical circuit.</b>	<b>Key Vocabulary:</b>
<p>Activity: Children will learn the names and symbols associated with components in a simple electrical circuit. They will begin to understand that an electrical circuit must have a constant flow. They will be given images of circuits and predict whether the bulb will light or not, then test this as they build the simple circuits.</p> <p>All children will be able to construct a simple electrical circuit.</p> <p>Most children will be able to name and identify the components in a simple electrical circuit.</p> <p>Some children will be able to explain why a bulb has not lit in a simple electrical circuit.</p> <p>Comparative/fair testing</p>	<p>Electricity, electrical appliance/device, plug, mains, battery, component, cell, positive, negative, loose connection, crocodile clip, bulb, switch, buzzer, motor, symbol</p>



<b>Problem-solving</b>	
<b>Week 4:</b> <b>WALT: Investigate which materials are good electrical conductors or insulators.</b>	<b>Key Vocabulary:</b>
<p>Activity: Children will learn what conductors and insulators of electricity are. They will then test various materials, by placing them in an electrical circuit, to see if they are a conductor or insulator of electricity.</p> <p>All children will be able to define a conductor and insulator of electricity.</p> <p>Most children will be able to group materials based on whether they are a conductor or insulator of electricity.</p> <p>Some children will be able to use this knowledge to explain why wires are covered in a plastic casing.</p> <p><b>Comparative/fair testing</b></p> <p><b>Identifying, grouping and classifying</b></p>	<p>Electricity, electrical appliance/device, plug, mains, battery, component, cell, positive, negative, loose connection, crocodile clip, bulb, switch, buzzer, motor, symbol, conductor, insulator, metal, non-metal</p>
<b>Week 5:</b> <b>WALT: Explain the use of switches in a circuit.</b>	<b>Key Vocabulary:</b>
<p>Activity: Children will learn about the importance and purpose of a switch in an electrical circuit. They will make their own version of a switch using cardboard, split pins and a paper clip and add this to a circuit to test the purpose of a switch.</p> <p>All children will be able to explain the purpose of a switch in an electrical circuit.</p> <p>Most children will be able to build a switch and add it to a circuit.</p> <p>Some children will be able to identify whether a circuit will work or not, depending on whether the switch is open or closed.</p> <p><b>Comparative/fair testing</b></p> <p><b>Problem-solving</b></p>	<p>Electricity, electrical appliance/device, plug, mains, battery, component, cell, positive, negative, loose connection, crocodile clip, bulb, switch, buzzer, motor, symbol, loose connection</p>
<b>Week 6:</b> <b>WALT: Investigate what affects bulb brightness.</b>	<b>Key Vocabulary:</b>
<p>Activity: Children will learn how to affect the brightness of a bulb in a simple electrical circuit. They will test this by building a circuit with one bulb, then adding another and then testing this again with a third bulb. They will observe what</p>	<p>Electricity, electrical appliance/device, plug, mains,</p>



<p>happens to the brightness each time a further bulb is added and record their observations in a table. All children will be able to make an observation about the brightness of a bulb. Most children will be able to predict what would happen if you added another bulb. Some children will be able to explain why the brightness of the bulb is affected when adding another.</p> <p><b>Comparative/fair testing</b></p>	<p>battery, component, cell, positive, negative, loose connection, crocodile clip, bulb, switch, buzzer, motor, symbol, loose connection</p>
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<p><b>Stunning Start/Marvellous Middle/Fabulous Finish:</b></p> <p><b>Stunning Start</b> – Electrical hunters</p> <p><b>Marvellous middle</b> – creating circuits using items around the classroom</p> <p><b>Fabulous Finish</b> – ‘Inventors assemble’ – creating a new item that requires electricity. Children will pitch how it works and explain why the materials it has been made from have been used.</p>	<p><b>OAA/Trips/Visits/Visitors:</b></p>
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