



<b>Subject</b>	Science	<b>Theme</b>	Electricity	<b>Term</b>	Spring 1
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What should I already know?
<ul style="list-style-type: none"> <li>- A wide range of common <b>appliances</b> run on electricity. Some use mains electricity and some are powered by batteries, and there are reasons why this choice is made.</li> <li>- Batteries are available in different shapes, sizes and voltages, depending on the needs and design of the appliance they are used in.</li> <li>- Mains electricity in particular is dangerous.</li> <li>- How to construct a simple series electrical <b>circuit</b>, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</li> <li>- Based on whether or not the lamp is part of a complete loop with a battery, be able to identify whether or not a lamp will light in a simple series circuit.</li> <li>- That a switch opens and closes a circuit to operate a light, and apply this principle to make a simple switch</li> <li>- Recognise some common conductors and insulators, and associate metals with being good conductors.</li> </ul>

Working Scientifically
<ul style="list-style-type: none"> <li>- Scientific Literacy: interpret safety warnings / symbols on different equipment.</li> <li>- Take measurements using data loggers, taking repeat readings when necessary (e.g. testing brightness/volume)</li> <li>- Recording data and results of increasing complexity using scientific diagrams and labels (e.g. circuit diagrams)</li> <li>- Making Improvements. Use results to identify when further tests and observations might be needed (e.g. what affects the brightness of a bulb?)</li> </ul>

Enquiries and Conclusions
<ul style="list-style-type: none"> <li>- Is electricity safe?</li> <li>- What might a circuit look like in this appliance?</li> <li>- What is the impact of changing the voltage in this circuit? (using dataloggers to test brightness/volume)</li> <li>- What affects the brightness of a bulb in an electrical circuit? (Write up results as a scientific report)</li> <li>- How does a switch work, and can I make my own?</li> </ul>

What should I know by the end of the unit?
<ul style="list-style-type: none"> <li>- associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</li> <li>- 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</li> <li>- use recognised symbols when representing a simple circuit in a diagram</li> </ul> <p><b>Silver Threads:</b>  <b>Process</b> – What process can I use to check the impact?  <b>Changes</b> – How can I change the output of a circuit?  <b>Structure</b> – What is the structure of a circuit?  <b>Energy</b> – Electricity is a form of energy</p>

Circuit Symbols	
cell	
battery	
wire	
raw bulb	
buzzer	
motor	
switch (open)	

Key Vocabulary	
voltage	Volts are a measure of the energy of a flow of electricity. Mains electricity carries a voltage of 210-240 volts. A typical cell in school has 1.5 volts.
cell	A single electrical energy source.
circuit	A complete path that an electric current can flow around. It flows from the battery, through wires and devices before returning to the battery. If the circuit is not complete, the electric current cannot flow.
circuit symbol	A symbol used to represent various electronic components or functions in a diagram of a circuit.
circuit diagram	A visual representation of an electrical circuit using symbols to represent the electrical components.
switch	A component that opens and closes a circuit, to switch the flow of electricity on and off.