

# Year Six Knowledge Organiser: Electricity. What happens when we change the components in a circuit?

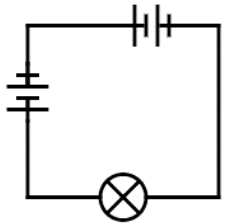


National Curriculum Specification	
Pupils should be taught to:	
<ul style="list-style-type: none"> <li>associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</li> <li>compare and give reasons for variations in how components function, including 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>	

## Talking points for home!

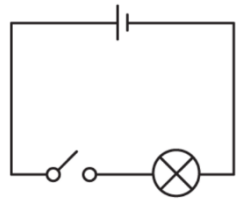
How do we stay safe when using electrical equipment?  
Where might there be circuits in my home, or in objects I own?  
Why do you think we need recognised symbols like these?

Key Vocabulary	
<b>Circuit</b>	A path that an electrical current can flow around.
<b>Cell</b>	A device that stores energy until it is needed. A cell is a single unit.
<b>Battery</b>	A collection of cells.
<b>Current</b>	The flow of electrons, measured in amps.
<b>Amps</b>	How electric current is measured.
<b>Voltage</b>	The force that makes the electric current move through the wires. The greater the voltage, the more current will flow.
<b>Resistance</b>	The difficulty that the electric current has when flowing around the circuit.
<b>Electrons</b>	Very small particles that travel around an electrical circuit.

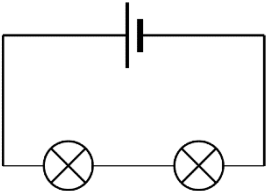
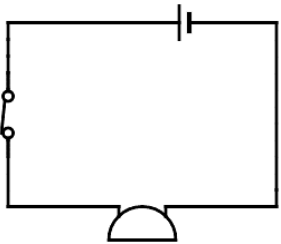


↑ using 2 batteries will increase the current. A circuit does not need a switch to function, but it does need at least a cell.

↓ The open switch breaks the circuit.

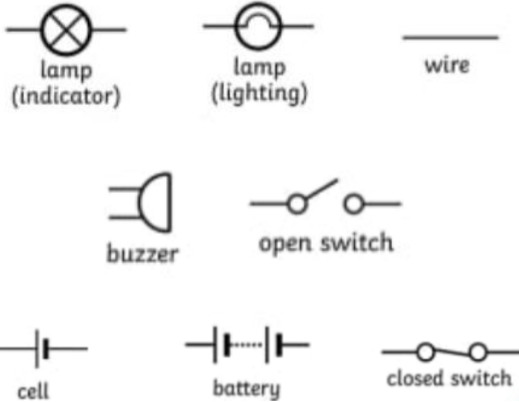


↓ this circuit includes one cell, a closed switch and a buzzer.



← more lamps means more resistance

Recognised electrical circuit symbols:



Key Facts
<p><b>What affects resistance?</b> <i>Remember: more resistance = less current</i></p> <p>Changing the components of a circuit affects resistance.</p> <ul style="list-style-type: none"> <li>Longer and thinner wires have greater resistance, making it harder for the current to flow.</li> <li>Adding components (eg lamps, buzzers) increases resistance, as the current is shared between more objects.</li> </ul>
<p><b>How can I make a bulb brighter or a buzzer louder?</b></p> <ul style="list-style-type: none"> <li>Use a higher voltage battery, or increase the number of batteries.</li> <li>Shortening the wires lowers resistance and increases the current.</li> <li>Reduce the number of components in the circuit using power.</li> </ul>
<p><b>How can I make a bulb dimmer or a buzzer quieter?</b></p> <ul style="list-style-type: none"> <li>Use a lower voltage battery, or use fewer batteries.</li> <li>Lengthening the wires increases resistance and reduces the current.</li> <li>Increase the number of items in the components using power.</li> </ul>
<p>A series circuit has only one route for the current to take. If just one part of the series circuit breaks, the circuit is broken and the flow of current stops. An open switch breaks the series circuit.</p>
<p>TIP to understand the difference between <b>current</b> and <b>voltage</b>: Think of a circuit as a pipe full of flowing water. The <b>current</b> is the amount of water flowing, and the <b>voltage</b> is the pressure of the flow.</p>