

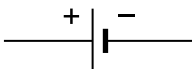
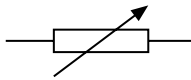

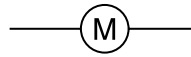
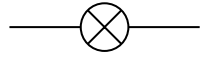
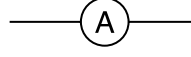
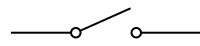

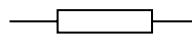
## Electrical circuits

**Electricity** is a flow of **electrons**. Electricity can flow through **conductors** but not through **insulators**. **Metals** are good conductors of electricity.

### Circuits

A complete **circuit** is needed for electricity to flow.

We use symbols when we draw circuits:

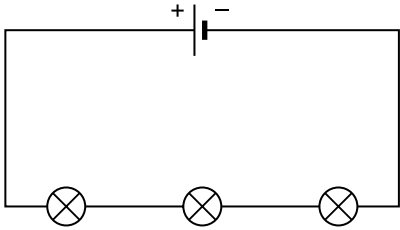
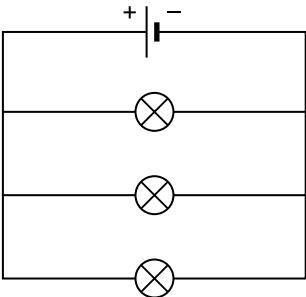
Component	Symbol	Component	Symbol
cell		variable resistor	
battery of cells		motor	
bulb		ammeter	
switch		fuse	
resistor			

The **current** is the amount of electricity flowing in the circuit. The units for current are **amps (A)**. Current is measured using an **ammeter**.

The **resistance** of a circuit is a way of saying how easy or difficult it is for electricity to flow.

- high resistance = hard for electricity to flow = small current
- low resistance = easy for electricity to flow = large current

Circuits can be **series** or **parallel** circuits.

Series circuit	Parallel circuit
	
<ul style="list-style-type: none"> <li>• If one bulb breaks, all the others go off.</li> <li>• The current is the same everywhere.</li> <li>• If you put more bulbs in they will be dimmer, because it is harder for the electricity to get through. The resistance of the circuit is higher.</li> <li>• The voltage from the cell or power pack is divided between the components.</li> </ul>	<ul style="list-style-type: none"> <li>• If one bulb breaks, the bulbs in the other branches stay on.</li> <li>• The current splits up when it comes to a branch. The current in all the branches adds up to the current in the main part of a circuit.</li> <li>• If you add more bulbs they stay bright. It is easier for the current to flow with more branches, because there are more ways for the electrons to go.</li> <li>• The voltage is the same across all the branches of the circuit.</li> </ul>

### Electricity and heat

- When electricity flows through a wire, the wire can get hot.
- Hot wires are used in electric fires, irons and cookers.
- A **fuse** is a thin piece of wire that melts if too much electricity flows through it. It is used for safety.

### Electricity and your body

Electrical signals in your body travel along nerves. If an electrical current passes through your body you may get an electric shock. This could burn you, or stop your heart or lungs working.