

Prior Learning

- Some appliances run on electricity (Year 4)
- Know how to construct a simple circuit (Year 4)
- Know whether a bulb will light depending if a circuit is complete (Year 4)
- That a switch opens and closes a circuit (Year 4)
- That some materials conduct electricity and some insulate electricity (Year 4)

Key Learning

The more voltage in a circuit, the brighter the bulb or louder the buzzer will be.

The longer the wires, the dimmer the bulb and quieter a buzzer will be due to more resistance.

The shorter the wires, the brighter a bulb/ louder a buzzer will be due to less resistance.

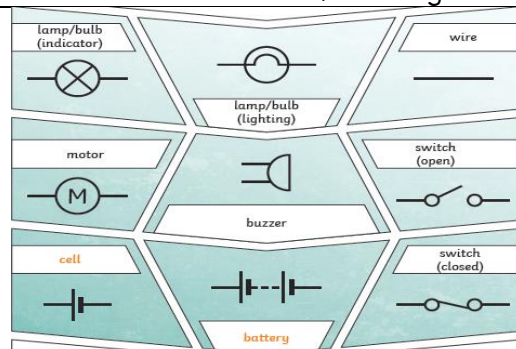
A bulb converts energy from chemical energy to light energy.

A buzzer converts chemical energy into sound energy.

A switch controls the movement of electrons by opening or closing a circuit.

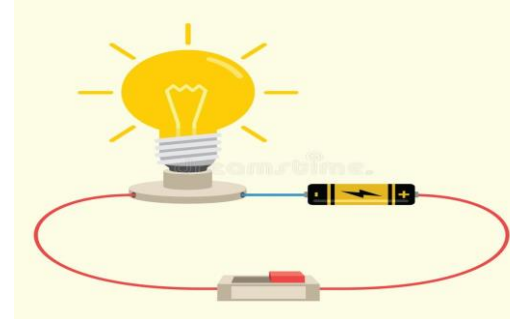
The symbols for: wire, a bulb, a cell, a battery, a buzzer and an on/off switch.

When too many electrons flow into a part of a circuit the circuit can 'short' (overheat/damage components)



Key vocabulary

Circuit	A path that an electrical current can flow through.
Current	A flow of electrons measured in amps
Voltage	The force that makes the current move through the wires. The greater the voltage the more the current will flow.
Electrons	Very small particles that travel around an electrical circuit.
Components	Individual parts of a circuit
Energy	Power from chemical or physical resources
Cell or battery	A device that stores energy as a chemical until it is needed. A cell is a single unit. A battery is a collection of cells.
Resistance	The difficulty the electric current has when flowing around a circuit.



Scientific skills

By the end of the year, children should be able to ...

-  Plan scientific enquires to answer different questions, recognising and controlling variables where necessary
-  Take measurements, using a range of scientific equipment
-  Record data and results, using charts, tables, diagrams, keys and graphs
-  Use test results to make predictions to set up further tests
-  Report and present findings, drawing conclusions about results
- Identify scientific evidence which has been used to support or refute ideas

Opportunities for scientific enquiry within the unit:

- Pupils will test different circuits and combinations of components and assess their effectiveness in a circuit
- Pupils investigate how to adapt the power of the output from bulbs, motors and buzzers
- Pupils will investigate how broken circuits can be fixed or corrected.