

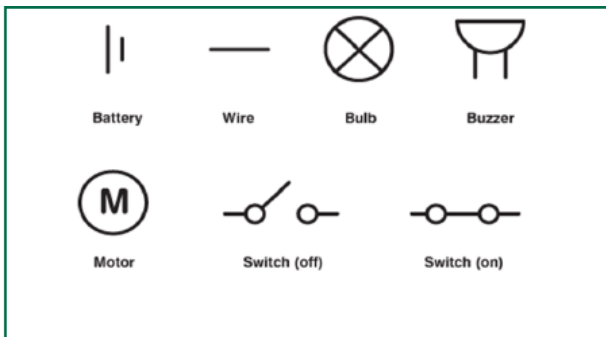
Shocks and Sparks Knowledge Organiser

Key Concept: Innovation

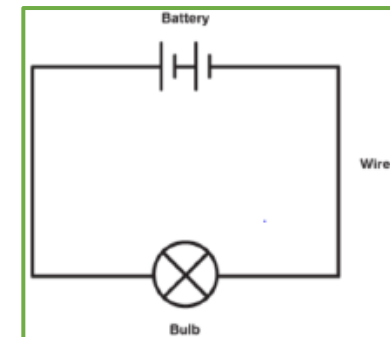
Key Question: How does the need for electricity affect the health of our planet?

amps	How electric flow is measured.
battery	A container of one or more cells that stores electricity.
bulb	An electric lamp that provides light.
buzzer	An electrical object that makes a sound.
cable	A piece of wire that electricity can flow through.
cell	A device that stores electricity.
circuit	A closed path that electricity can flow around.
conductor	A material that electricity can flow through easily.
current	The flow of electrons measured in amps.
electricity	A form of energy used to power items.
electrons	Very small particles that travel around an electrical circuit.
fossil fuels	Coal, oil and natural gas are fossil fuels. Burning them produces heat, which generates electricity.
generate	Producing electricity.
insulator	A material that electricity cannot flow through easily.
motor	A machine that is powered by electricity and causes motion.
power station	A place where electricity is generated.
resistance	The difficulty that the electric current has when flowing around the circuit.
switch	A device which may be closed (completes the circuit) or open (breaks the circuit).
symbol	A visual picture that stands for something else.
voltage	The force that makes electric current move through the wires. The greater the voltage, the more the current will flow.

Symbols used for circuit diagrams



A simple circuit



Electrical conductors and insulators

A conductor is a material that allows charges to flow easily throughout the material. Metals are often good conductors. Examples include: silver, gold, copper, steel and salt water.

An insulator is a material that does not allow charges to flow easily throughout the material. Examples include: rubber, glass, oil, diamond and dry wood.



A power station

Generating Electricity
Mains electricity is generated in a number of ways:

- Burning fossil fuels (such as gas or coal),
- Solar panels convert the sun's energy into electricity.
- Hydro-electric power harnesses the energy of water.
- Nuclear power uses the energy inside an atom.
- Turbines convert the wind's energy into electricity.
- Power can also be generated by burning waste.

Solar panels

A hydro-electric dam

Wind turbines

A nuclear power station

Key Questions we will be able to answer by the end of this unit:

- How does the need for electricity affect the health of our planet?
- How could renewable energy affect the health of our planet?
- How do batteries affect the brightness of a bulb or the volume of a buzzer?
- Why are recognised symbols used to represent equipment in a circuit?

Fun facts! An electric eel can produce shocks that measure approximately 500 volts. A bolt of lightning can measure up to 3 million volts even though it will last less than a second. The first electric car was invented in 1835 but it wasn't very popular as it was expensive to run.