



Big Question:

How can we control the brightness of a bulb?

Knowledge from Y4 that will help me answer the big question:

- Electricity is a type of energy. It is used to power many everyday items, such as kettles, computers and televisions. Electricity can also come from batteries. Batteries eventually run out of power and need to be recycled or recharged. Batteries power devices that can be carried around, such as mobile phones and torches.
- Electrical components include cells, wires, lamps, motors, switches and buzzers. Switches open and close a circuit and provide control.
- Electrical conductors allow electricity to flow through them, whereas insulators do not. Common electrical conductors are metals. Common insulators include wood, glass, plastic and rubber.
- A series circuit is a simple loop with only one path for the electricity to flow. A series circuit must be a complete loop to work and have a source of power from a battery or cell.

Key Vocabulary:

Circuit: A path that an electrical current can flow around.

Symbol: A visual picture that stands for something else.

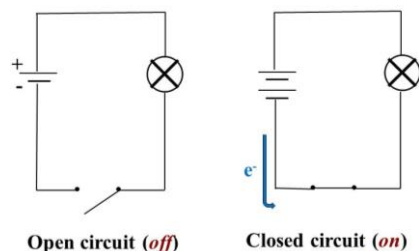
Cell/Battery: A device that stores chemical energy until it is needed. A cell is a single unit. A battery is a collection of cells.

Current: The flow of electrons, measured in amps. Amps: How electric current is measured.

Voltage: The force that makes electric current move through the wires. The greater the voltage, the more current will flow.

New knowledge that will help me answer the big question:

- A circuit needs a power source, such as a battery or cell, with wires connected to both the positive and negative ends.
- Other components include lamps, buzzers or motors, which an electric current passes through and makes something happen, such as lighting a lamp or turning a motor.
- When a switch is open, it creates a gap and the current cannot travel around the circuit.
- When a switch is closed, it completes the circuit and allows a current to flow all the way around it.



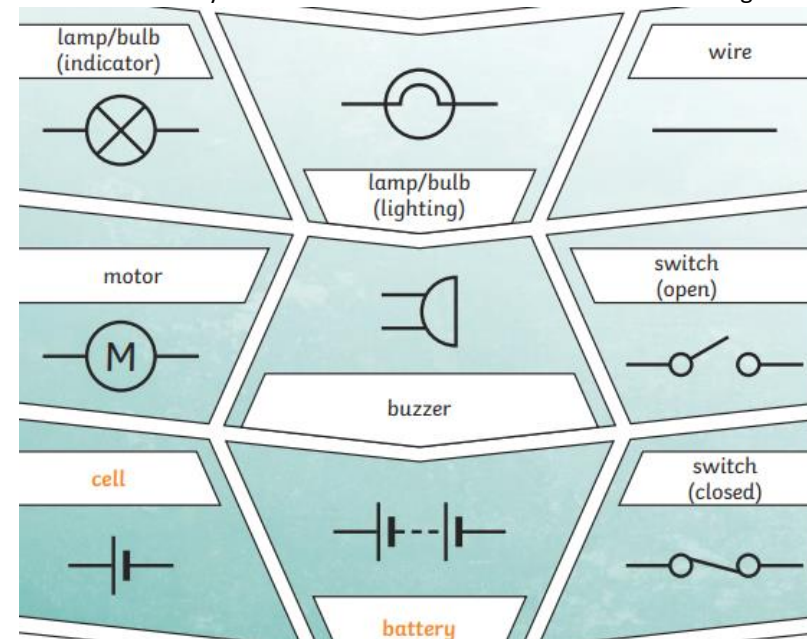
- Voltage is measured in volts (V).
- The bigger the voltage, the more electrons are pushed through the circuit. The more voltage flowing through a lamp, buzzer or motor, the brighter the lamp, the louder the buzzer and the faster the motor.

New knowledge that will help me answer the big question:

- A method is a clear set of instructions to carry out an investigation.
- A variable is something that can be changed during a fair test.
- A prediction is a statement about what might happen in an investigation based on some prior knowledge or understanding.

New knowledge that will help me answer the big question:

- These symbols can be used to create electrical circuit diagrams.



As an scientist, by the end of our topic, I will know that:	Date
There are recognised symbols for different components of circuits.	
A method is a set of clear instructions for how to carry out a scientific investigation, including what equipment to use and observations to make.	
A variable is something that can be changed during a fair test.	
A prediction is a statement about what might happen in an investigation based on some prior knowledge or understanding.	
Data can be recorded and displayed in different ways, including tables, bar and line charts, scatter graphs, classification keys and labelled diagrams.	
Voltage is measured in volts (V) and is a measure of the difference in electrical energy between two parts of a circuit. The bigger the voltage, the more electrons are pushed through the circuit. The more voltage flowing through a lamp, buzzer or motor, the brighter the lamp, the louder the buzzer and the faster the motor.	
A circuit needs a power source, such as a battery or cell, with wires connected to both the positive and negative terminals. Other components include lamps, buzzers or motors, which an electric current passes through and affects a response, such as lighting a lamp or turning a motor.	
When a switch is open, it creates a gap and the current cannot travel around the circuit. When a switch is closed, it completes the circuit and allows a current to flow all the way around it.	
Questions can help us find out about the world and can be answered using a range of scientific enquiries, including fair tests, research and observation.	
A method is a set of clear instructions for how to carry out a scientific investigation, including what equipment to use and observations to make. A variable is something that can be changed during a fair test. A prediction is a statement about what might happen in an investigation based on some prior knowledge or understanding.	
The results are information, such as measurements or observations that have been collected during an investigation. A conclusion is an explanation of what has been discovered, using correct, precise terminology and collected evidence.	