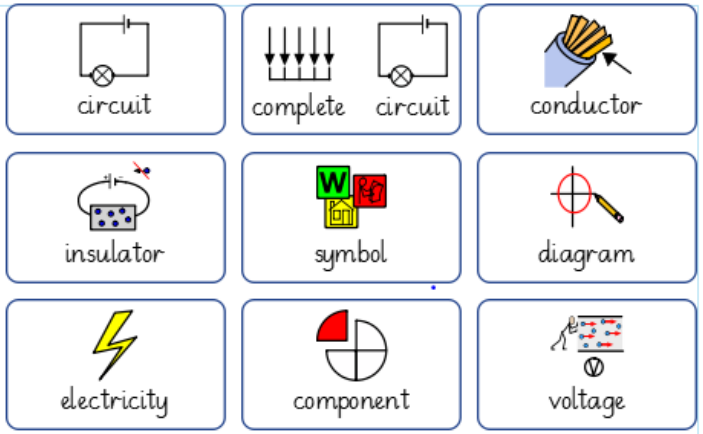
Knowledge Organiser Focus:

Electricity

Voltage	Voltage measures the energy carries by the charge flowing into a circuit.
Cell	A battery; a component in an electrical circuit
Buzzer	A component in a circuit that buzzes when it is correctly connected
Diagram	A simple drawing using lines and symbols to show an electrical circuit
Circuit	Closed paths for energy to follow; usually made out of components and wires
Lamp	A bulb; a component of an electrical circuit
Symbol	A simple drawing to show what component was used
Series	In a series circuit the current is the same all the way around
Motor	A component of a circuit; it transfers electrical energy into movement
Component	Part of a circuit
Switch	A switch turns a circuit on and off again
Brightness	Brightness is determined by the amount of voltage and cells in a circuit
Position	Where something is placed
Electricity	A flow of energy from place to place that powers appliances



Thinking deeper

How do you know that a circuit is working correctly? Do you think that there is more than one way for a circuit to work?

The big picture

What I should know...

Year 4

To identify and name appliances that require electricity to function
To identify if a lamp will light or not in a circuit dependent on if the lamp is part of a lamp
To conduct a series circuit
To predict if a lamp will light in a circuit
To know the function of a switch
To know the difference between a conductor and an insulator

What I will know...

- To know that the number and voltage of cells in a circuit links to the brightness of a bulb or the loudness of a buzzer
- I will be able to give reasons why a circuit does not work
- I will be able to draw circuit diagrams

Links to future topics...

Year 7

Create energy transfer diagrams for different appliances

Discuss the pros and cons of using fossil fuels for energy purposes

Knowledge Organiser Focus:

Electricity

Electricity

Electricity is the transference of energy in a circuit. Electricity powers many appliances in homes and schools such as iPads, fridges and televisions.

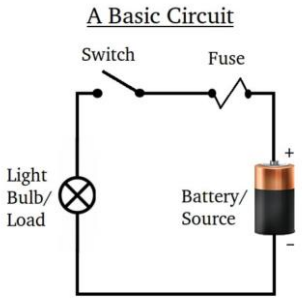
Circuits

Circuits are closed paths that the energy created by electricity has to follow. These circuits are what powers our appliances and if these are broken then the appliance will not work. They can also closed and opened using a switch,

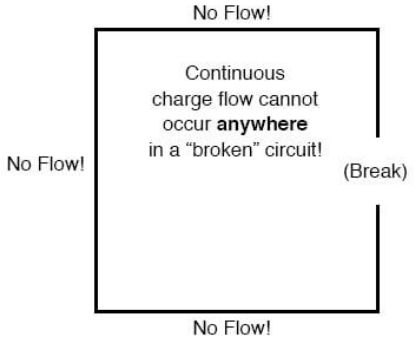
Why won't a circuit work?

Circuits won't work for a number of reasons. It could be that there is a component missing like a cell, a switch or a lamp. They could also be faulty because the wires are damaged. You will need to recognise why a circuit is not working based off what you know about electricity so far. Here are some things to check:

- Are all the components there?
  - Is anything damaged?
  - Is the circuit closed?
- Is there a gap in the circuit?
  - Is the switch off?

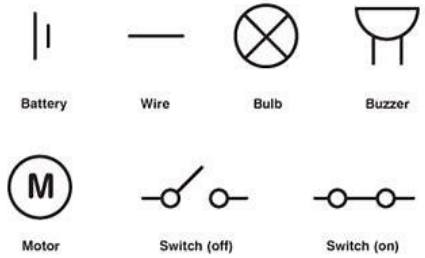


This is the difference between an open and a closed circuit



Circuit Symbols

When you are drawing a scientific diagram you need to make sure that you are including the correct symbols. These are the symbols that you are going to need to use to be able to draw a correct scientific diagram.



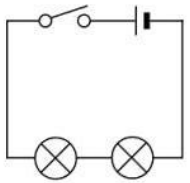
Variables

Variables are the items that you can change in a scientific experiment. When we are looking at electricity the variables that can be changed include the number of cells, the number of lamps or even the number of buzzers. Changing these variables will change what happens in the electrical circuit.

What happens if I add more buzzers, cells or lamps?

If you add more cells to a circuit the buzzer will get louder or the bulb will get brighter because there is more energy available to be transferred.

If you add more bulbs or lamps to a circuit they will get dimmer or quieter because the energy needs to be shared by the different components.



Knowledge Organiser Focus: Electricity

1) What is electricity?

_____

2) What is a cell?

_____

_____

3) Which symbol shows a switch? Circle the correct answer.

4) List three reasons that a circuit would not work.

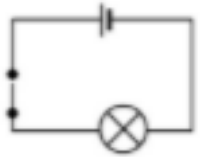
_____

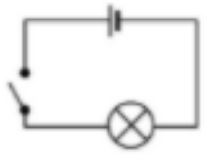
_____

_____

5)Which if these two circuits would not work? Explain why?

_____





6) Draw a circuit that shows 1 cell, 2 lamps and a switch.

7) What does the word voltage mean?

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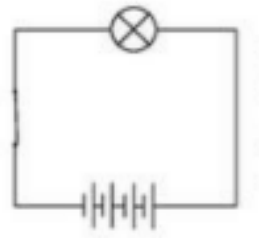
_____

8) What would happen to the bulb in this circuit? Explain how you know.



19) Explain the process of a lamp turning on when in a circuit.

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