

# Knowledge Organiser - Year B - Science - Electricity - Upper Key Stage 2 (Years 5 and 6) - Summer 1

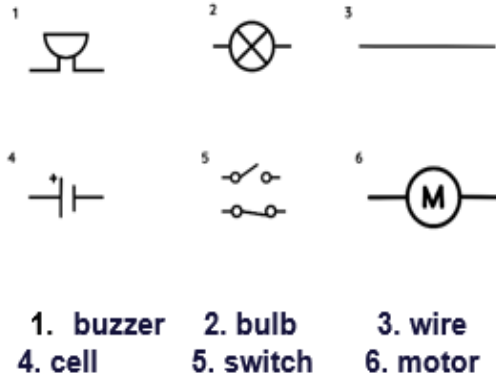
Careers connected to this unit: mechanical engineering technician, electricity distribution worker, electrical engineer, energy engineer



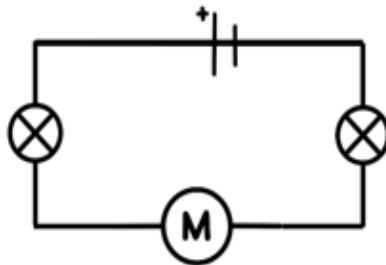
## Sticky Learning (What I already know)

- I know the names and roles of components - battery/cell, wires, bulb, motor, switch
- I understand that electricity flows in a complete loop
- I understand that switches can open/ close circuits
- I understand that component order/ location in the loop matters
- I have seen or begun using circuit symbols
- I have labelled some simple circuit pictures
- I can identify conductors and insulators (metal vs. non-metal)

### Circuit Symbols

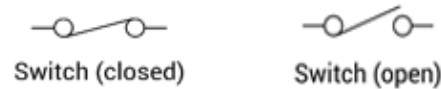


Wires are always drawn with a straight line and using a ruler in scientific diagrams.  
Wires are drawn at right angles like this:



### Key Facts

- In a simple series circuit, the current flows from negative to positive. There are no gaps – a complete circuit allows the components to work.
- Gaps in the wires or faulty components cause the circuit to be incomplete and the current cannot flow in a complete loop.
  - Switches can be open or closed and this determines whether the electricity can flow in a complete loop.



### Voltage

- Adding more cells (or batteries) to a circuit will make bulbs brighter, buzzers louder and motors faster!
- A cell is a single unit of energy; a battery is two or more cells stacked together.
- Voltage is the force that pushes the electricity around the circuit; current is the rate at which the electricity travels around the circuit.
- The more components in a circuit, the more they share the energy from the cell.
- Adding more components to a circuit can mean their outputs decrease.

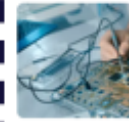
## Core Learning



1. Describe the parts of an electrical circuit



2. Explore voltage and its effect on an electrical circuit



3. Apply knowledge to identify and correct problems in a circuit



4. Investigate what affects the output of a circuit



5. Build a set of traffic lights



6. Apply knowledge of circuits to a real-life problem

**Rocket Words**

<b>component</b>	<b>the individual parts that make up a whole circuit e.g. bulb, buzzer, cell</b>
<b>circuit diagram</b>	<b>scientific drawing of an electrical circuit</b>
<b>voltage</b>	<b>force which pushes the electric current round the circuit; measured in volts and given the symbol V</b>
<b>current</b>	<b>the rate of electricity flowing through a circuit</b>
<b>filament</b>	<b>a thin wire in a light bulb that heats up and produces light when electric current passes through it</b>
<b>output</b>	<b>the amount of something produced (e.g. brightness of a bulb)</b>
<b>insulative</b>	<b>describes something that prevents or resists the flow of electricity or heat</b>
<b>conductive</b>	<b>the ability of a material to allow the flow of electric current</b>