

Year 6 Science Autumn 1 Unit Electricity

Key Scientific Skills	Year 6 Electricity
Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	
Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	
Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	
Use test results to make predictions to set up further comparative and fair tests	
Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations	
Identify scientific evidence that has been used to support or refute ideas or arguments	

Lesson Sequence

1. Describe the parts of an electric 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 conductors and insulators

Progression of Knowledge

Unit	YEAR 4	YEAR 6
Electricity	<p>Identify common appliances that run on electricity</p> <p>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</p> <p>Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery</p> <p>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</p> <p>Recognise some common conductors and insulators, and associate metals with being good conductor</p>	<p>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</p> <p>Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches</p> <p>Use recognised symbols when representing a simple circuit in a diagram</p>

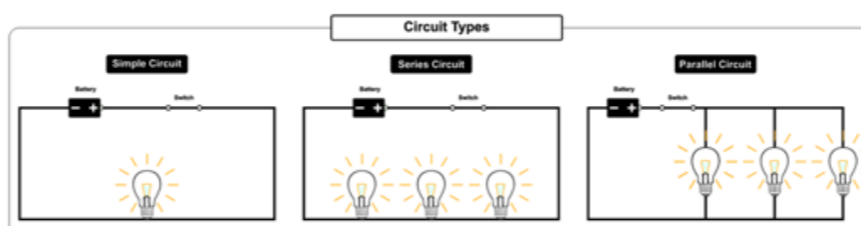
Circuit Symbols



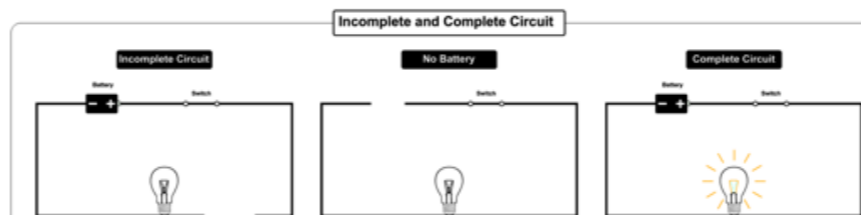
Wires are always drawn with a **straight line** using a **ruler** in scientific diagrams.

Rocket Words	
circuit	a complete path which allows electricity to flow
battery	a source of energy in an electrical circuit
electricity	a form of energy
resistor	a component that reduces electric current flow
variable resistor	a component which varies the amount of electric current flow
dimmer switch	a light control which allows you to change the brightness of a light
output	the amount of something produced (e.g., brightness of a bulb)
systematically	working in a methodical way
synchronised	operating at the same time or rate
signal	an electrical impulse transmitted or received
conductor	materials which allow electricity to flow through them easily
insulator	materials that do not let electricity pass through them easily

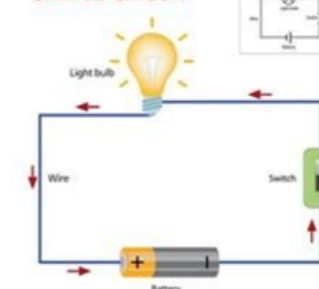
Different Circuits



Adding more cells (batteries) to a circuit will make bulbs **brighter**, buzzers **louder** and motors **faster**.

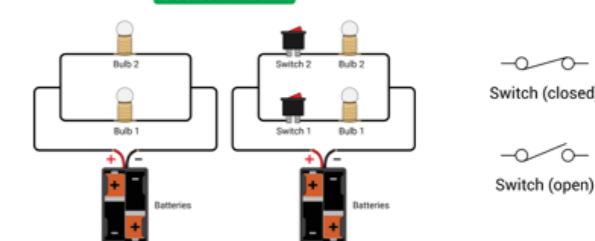


SIMPLE CIRCUIT



The **current** flows from negative to positive. There are no gaps - it is a **complete** circuit and the bulb lights up.

2 Bulbs in Parallel



Switches can be placed in a **parallel circuit**, so that 1 light can be turned on while another is off (just like in a house).