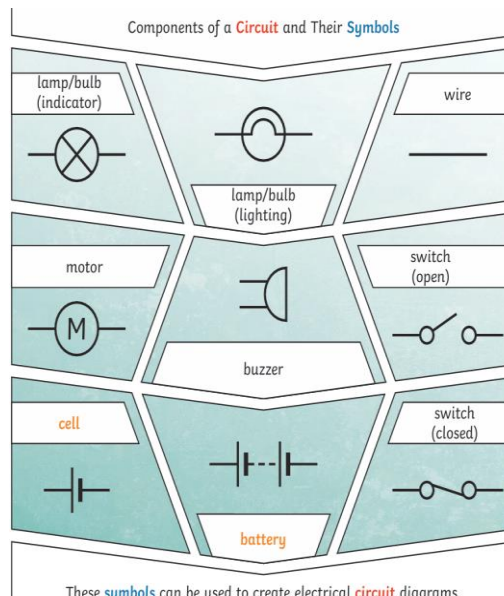




Knowledge Organiser	Subject: Science	Topic: Changing Circuits	Year: 6
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<u>Key Knowledge</u> Adding more cells to a complete circuit will make a bulb brighter, a motor spin faster or a buzzer make a louder sound. If you use a battery with a higher voltage, the same thing happens. Adding more bulbs to a circuit will make each bulb less bright. Using more motors or buzzers, each motor will spin more slowly and each buzzer will be quieter. Turning a switch off (open) breaks a circuit so the circuit is not complete and electricity cannot flow. Any bulbs, motors or buzzers will then turn off as well. You can use recognised circuit symbols to draw simple circuit diagrams. <u>Common misconceptions</u> • Larger-sized batteries make bulbs brighter • A complete circuit uses up electricity • Components in a circuit that are closer to the battery get more electricity.			<u>Key Learning</u> • To associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. • To 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. • To use recognised symbols when representing a simple circuit in a diagram. <u>Disciplinary Skills</u> • Planning a Scientific Enquiry • Identifying Variables • Taking Accurate Measurements • Using Results to Draw Conclusions • Recording Using Circuit Diagrams • Making Predictions • Evaluating and Improving Investigations		
<u>Key Concepts</u>			The Big Question How can we modify circuits to get different outcomes?		
Power and Component Performance More cells or higher voltage = brighter bulbs, louder buzzers, and faster motors. Adding more components (like bulbs or motors) can reduce performance — they become dimmer, quieter, or slower.	Switches and Circuit Flow A circuit must be complete for electricity to flow. An open switch breaks the circuit, turning off bulbs, motors, or buzzers.	Circuit Diagrams and Symbols Use recognised circuit symbols to draw and understand simple circuit diagrams.			

Key Vocabulary	
Circuit	A path that electricity flows through.
Complete Circuit	A closed loop where electricity can flow all the way around, powering components like bulbs or motors
Circuit Diagram	A drawing that shows a circuit using symbols instead of pictures.
Circuit Symbol	A simple, standard sign used in diagrams to show components like bulbs, batteries, and switches.
Cell	A single unit that provides electrical energy to a circuit (like one battery).



What will make a bulb brighter or a buzzer louder?

- More **batteries** or a higher **voltage** create more power to flow through the **circuit**.
- Shortening the wires means the **electrons** have less **resistance** to flow through.

What will make a bulb dimmer or a buzzer quieter?

- Fewer **batteries** or a lower **voltage** give less power to the **circuit**.
- More buzzers or bulbs mean the power is shared by more components.
- Lengthening the wires means the **electrons** have to travel through more **resistance**.

Series Circuit
A **circuit** that has only one route for the **current** to take. If more bulbs or buzzers are added, the power has to be shared and so they will be dimmer or quieter. If just one part of this series **circuit** breaks, the **circuit** is broken and the flow of **current** stops.

More components sharing less power.

A broken **circuit** with no electrical **current**.

Linking Thinking Across Our Learning Journey						
Early Years	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
				Electricity Identify common appliances that run on electricity. Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. 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. Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. Recognise some common conductors and insulators, and associate metals with being good conductors.		Changing Circuits