



ELECTRICITY

YEAR 5/6 KNOWLEDGE ORGANISER



What I will have learnt by the end of the unit

I can associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuits.

I can 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.

I can use recognised symbols when representing a simple circuit in a diagram.

Recall & Remember ~ Add information to your knowledge mind map regularly, to help you reflect on, and remember what you have learnt throughout the unit. At the end of the unit, work in a small group to create a fun quiz on purple mash about forces for your friends to complete.

Key Concepts

Biology
Chemistry
Physics
Scientific enquiry
Science for the future
Vocabulary

What I should already know

I can identify common appliances that run on electricity

I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers

I can identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a loop with a battery

I can recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit

I can recognise some common conductors and insulators, and associate metals with being good conductors

What I will have learnt at the end of the key stage

- I will be able to associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
- I will be able 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
- I will use recognised symbols when representing a simple circuit in a diagram

Key Vocabulary

Circuit: a closed loop for electricity to travel around.

Component: a part used in an electrical circuit.

Electricity: a form of energy caused by electrons moving.

Cell (battery): a stored source of electricity.

Switch: a switch turns an electrical circuit on or off by completing or breaking the circuit.

Conductor: an object that allows electricity to flow through it easily (objects made of metal are good conductors).

Insulator: an object that does not allow electricity to flow through it easily.

Voltage: a force that makes electricity flow through a wire (it is measured in volts).

Motor: a machine that turns electrical energy into movement.

Opportunities for teaching diversity, equality (including protected characteristics and expanding cultural capital)

Get to meet a scientist! Explore people who use science in their jobs. I'm a Scientist, Get me out of here! - A super-curricular science outreach education & engagement activity (imascientist.org.uk) Science for Everyone (science4everyone.org)

Skills I may use for other subjects

Literacy- I can use my literacy knowledge to write about my findings.

Mathematics- I can use my knowledge carry out simple tests and record my findings using diagrams and graphs.

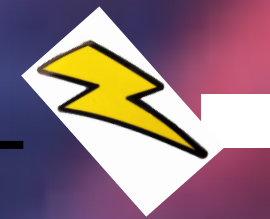
Key Skills I will learn/use

- Use recognised symbols when representing a simple circuit in a diagram.
- Associate the brightness of a lamp or the volume of a buzzer with the number of cells in a circuit.
- Compare and give reasons for variation in how components function.
- Asking relevant questions and using different types of scientific enquiries to answer them.
- Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment.
- Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.

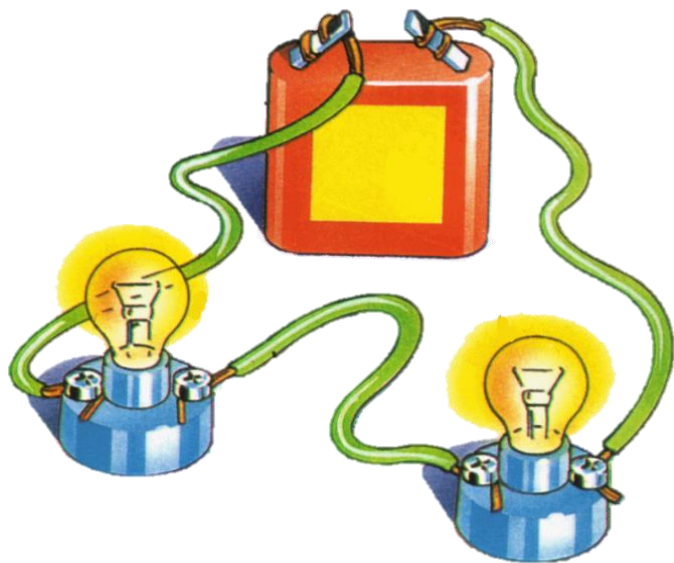


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Key Knowledge



- Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.
- 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.
- Use recognised symbols when representing a simple circuit in a diagram.

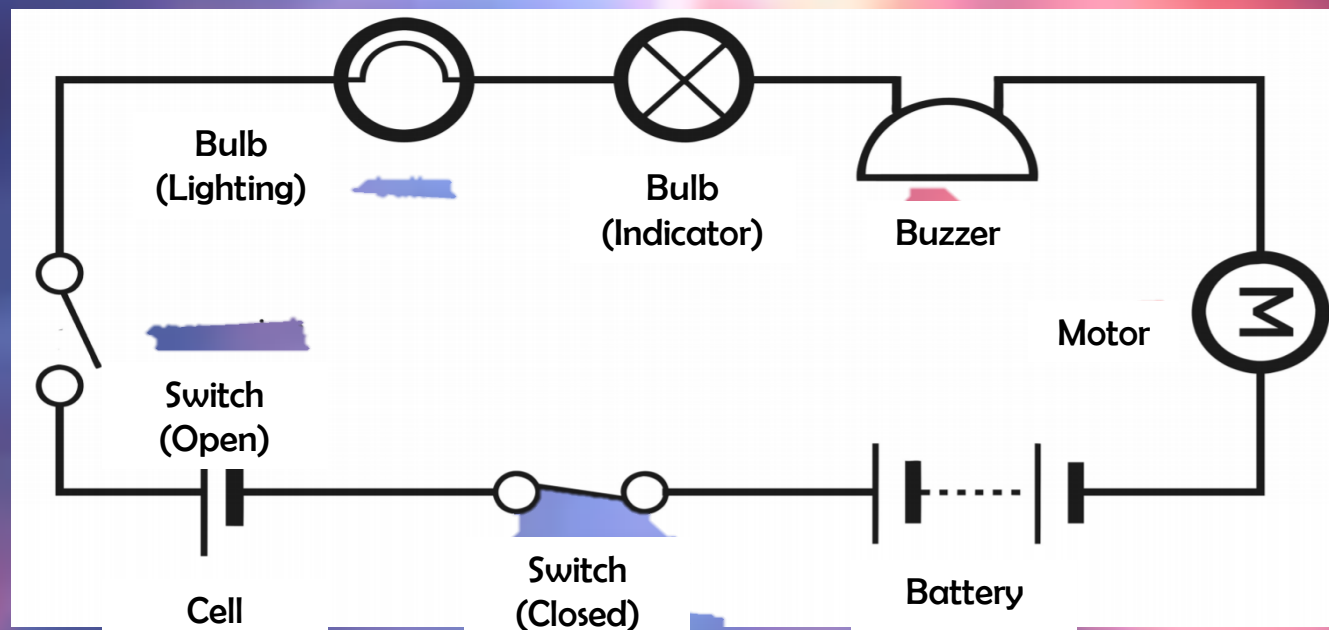
Electricity Safety



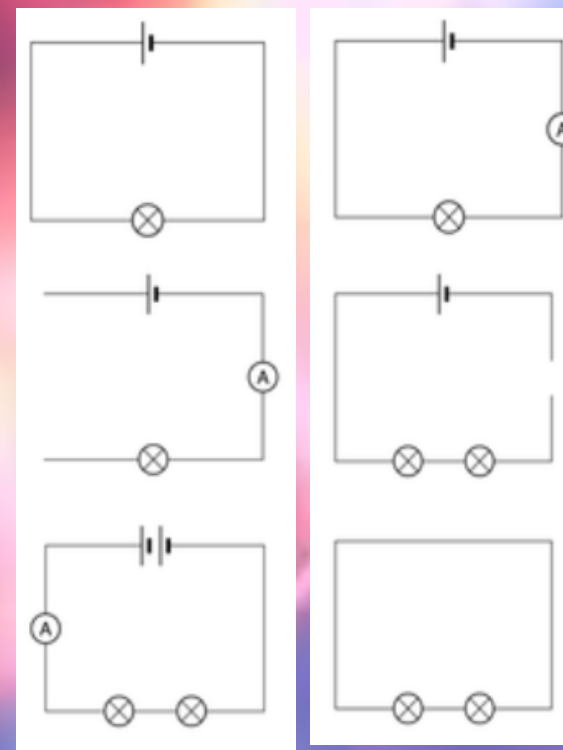
- If electricity is not used safely, it can be highly dangerous. When using electricity, make sure that you:
- Make sure that wires are placed in safe locations, where people cannot trip over them;
 - Never stick your fingers or objects into a plug socket;
 - Never use frayed wires – don't pull wires;
 - Ensure that your hands are dry when you are near sockets/ electrical equipment;
 - Do not overload a plug socket;
 - Always get broken appliances and plugs fixed.

Circuit Diagrams

When drawing electrical circuits, you should use the standard symbols to show the different components.



Variation of Components



- When changes are made to circuits, components can function differently:
- When switches are open or wires are removed from a circuit (so that it is no longer a closed circuit), bulbs and buzzers will turn off. You can use crocodile clips to investigate adding and removing wires.
 - When more batteries or cells are added (or batteries or cells are included with a higher voltage) the brightness of bulbs and the volume of buzzers will increase.
 - When more bulbs are added to a simple circuit, they will be dimmer than if there were one bulb. This is because the electricity is shared between the two bulbs. More voltage would be needed to make them brighter.
- You should be able to look at circuits like those on the left, and work out what would happen.

Key Electrical Vocabulary

Switch Bulb Voltage Motor Battery Buzzer Cell Voltmeter Ammeter Wire