

Subject: Science

Year group: 6

Term: Autumn

Unit name: Electricity

Prior Knowledge -

Identify common appliances that run on electricity. (Y4 - Electricity). Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. (Y4 - Electricity). 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. (Y4 - Electricity). Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. (Y4 - Electricity). Recognise some common conductors and insulators, and associate metals with being good conductors. (Y4 - Electricity)

Scientific enquiry

Classifying	Not relevant
Observing over time	Not relevant
Pattern seeking	Not relevant
Comparative/fair testing	Investigate the effect of adding more bulbs to a circuit. Investigate the effect of adding more cells to a circuit. Investigate the effect of adding more buzzers to a circuit. Investigate the effect of adding more motors to a circuit.
Researching	Not relevant

National curriculum:

- 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

Key vocabulary

Circuit	Bulb
Complete circuit	Buzzer
Circuit diagram	Motor
Circuit symbol	Switch
Cell	Voltage
Battery	

Spiritual Development *Isaiah 43:19*





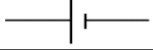
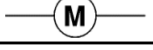
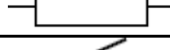
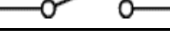
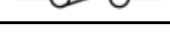
"See, I am doing a new thing! Now it springs up; do you not perceive it? I am making a way in the wilderness and streams in the wasteland."

Assessment for Learning

- Recapping prior knowledge- beginning of unit- what do children already know?
- Beginning of each lesson- focus on recall of previous learning (quick quizzes)

Key Learning- what will the children know by the end of the unit? 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.

To understand the symbols used to represent parts in an electrical circuit.

Circuit Symbols	
Symbol	Component
	ammeter
	battery
	bulb
	buzzer
	cell
	motor
	resistor
	switch (open)
	switch (closed)

To understand 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.

To know what a series circuit is.

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.

To know what will make a bulb dimmer or 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.

Activity ideas

Explain how a circuit operates to achieve particular operations, such as to control the light from a torch with different brightnesses or make a motor go faster or slower.
 Make circuits to solve particular problems, such as a quiet and a loud burglar alarm.
 Carry out fair tests exploring changes in circuits.
 Make circuits that can be controlled as part of a DT project.