Year 4 Science Summer 2 Unit - Electricity

Key Scientific Skills	Year 4 Electricity
Ask relevant questions and using different types of scientific enquiries to answer them	
Set up simple practical enquiries, comparative and fair tests	
Make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	
Gather, record, classify and present data in a variety of ways to help in answering questions	
Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	
Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	
Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	
Identify differences, similarities or changes related to simple scientific ideas and processes	
Use straightforward scientific evidence to answer questions or to support their findings	

Progression of Knowledge

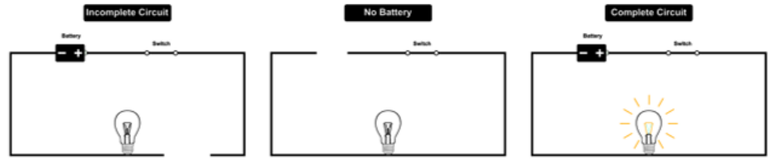
Unit	YEAR 4	YEAR 6
Electricity	Identify common appliances that run on electricity Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers Identify whether or not a lamp will light in a simple series circuit, based on whether 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 conductor	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

Rocket Words

electricity	energy that powers electrical appliances
batteries	containers made of cells in which chemical energy is converted into electricity
circuit	a pathway that electricity flows around
voltage	the measure of electrical power
current	the flow of electricity
bulb	the glass case that contains the filament of an electric lamp
conductor	electrical conductors are materials which allow electricity to flow through them easily
insulator	materials that do not let electricity pass through them easily
switch	a device which builds and breaks the connection in an electric circuit
control	manage the amount of something
wind turbines	a device which produces electricity using the power of the wind
hydropower	a process that produces electricity using the power of water

Simple Electrical Circuit

These are complete circuits - they have a battery (cell) and a component (bulb). The wires are placed in the right places of the battery for the circuit to work.



These circuits will not work as they are incomplete.

Key Facts

1. A circuit contains a battery (cell), wires and a component that requires electricity to work (bulb, motor or buzzer).
2. Electrical current flows through the wires from the battery (cell) to the bulb, motor or buzzer.
3. A switch can break or reconnect a circuit.
4. A switch controls the flow of the electrical current around the circuit. When the switch is off, the current cannot flow. This is not the same as an incomplete circuit.

Lesson Sequence

1. Understand electrical appliances and safety

2. Learn about electrical compounds in a series circuit

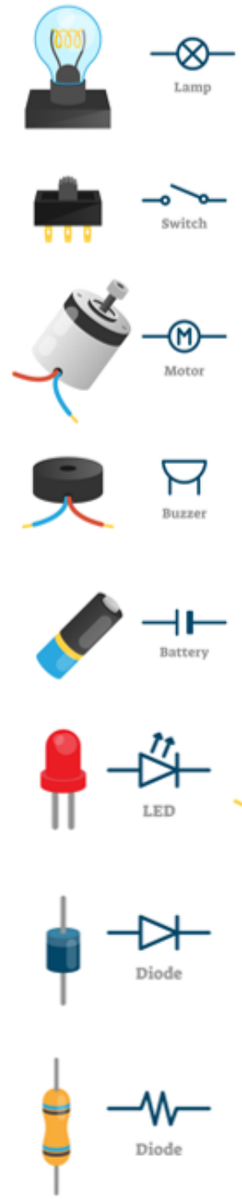
3. Investigate electrical circuits

4. Explore conductors and insulators

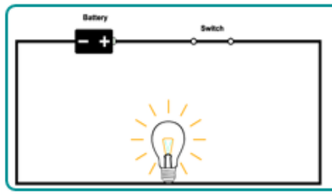
5. Learn about electrical switches

6. Investigate how electrical components can change within a circuit

Electrical Components



Simple Circuit



A **complete** circuit is a **loop** that allows electrical current to flow through wires.

Conductors and Insulators

- Materials that allow electricity to pass through to create a complete circuit are called electrical conductors.
- Materials that do not allow electricity to pass through and do not complete a circuit are called electrical insulators.

Bird in Bush Primary School Science Knowledge Organiser 2023—2024

Knowledge Organiser adapted from the Developing Experts Science Scheme