



Knowledge

What is the purpose of different components in a circuit?

Identifying and classifying

Recap prior knowledge about circuits. Identify and name main components of a circuit.

Does it matter how the circuit has been constructed?

Pattern Seeking

Explore ways in which simple circuits are constructed and explain the patterns and observations found.

What is the difference between battery and mains powered?

Pattern Seeking

Categorise the different appliances as to whether they are battery or mains and notice the patterns surrounding their use. Identify which ones are safe to carry experiments out with.

How can we keep ourselves safe?

Identifying and classifying

Create electrical safety posters stating facts about electrical circuits.
Consider why working with electricity is dangerous and recap the importance of only using battery powered circuits for experiments.

How was electricity discovered?

Research

Find out about Benjamin Franklin. Research facts about his life. Explore the idea that some scientists believe he didn't discover electricity and why.
Create a biography about his life and findings.

Which objects are conductors and which are insulators?

Identifying and classifying

Organise materials as to whether they are conductors or insulators (rubber, paperclips, pencil, teaspoon, coin, paper, teabag, pen etc)

Why are conductors and insulators used in different ways?

Pattern Seeking

Notice why conductors and insulators are used in different ways inside and outside electrical appliances.

Are conductors or insulators best to use when building a complete circuit?

Comparative Testing

Build circuits to show how insulators prevent the electrical flow and how conductors allow for electricity to pass through the wires.

Can switches impact on complete circuits?

Research

Find out about switches and how they are used to close a circuit. Design and test a circuit using switches.

How do we change the brightness of a bulb?

Research

Plan and carry out an experiment to suggest ways in which a bulb in a circuit could be made to glow brighter or dimmer.

Vocabulary

Circuit	A complete route which an electrical current can flow around
Current	A flow of electricity through a wire
Physics	The study of forces including electricity and the way it affects objects
Battery	A small device that provides power for electrical items
Cell	A device used to generate electricity. A battery is an example of a cell
Conductor	Any material that electricity can pass through or along
Insulator	Any material that electricity cannot pass through or along
Wire	A long thin piece of metal that carries an electrical current often covered in plastic for safety
Voltage	An electrical force that makes electricity move through a wire, measured in volts (V)
Socket	A device on a wall that you can plug electrical equipment into
Switch	Button or lever
Bulb	A lamp or light
Appliance	An electrical device that is used for a specific purpose in the home



Hurst Hill Primary School Knowledge Organiser

Science

Electricity

Year 4

Spring

Physics

Physics is the science that understands the nature and properties of energy and matter.

Electricity

Pupils should be taught to:

- 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