

# Preston Primary School Knowledge Organiser

**Topic:** Science- Electricity- including circuits.

**Term:** Spring 1

**Year:** Unit 3

**Duration:** 6 Weeks

The Powerful Knowledge we will take away from this Learning Enquiry (what children will be learning):



- I can identify objects which are powered by electricity (mains/battery)
- I can construct a simple series circuit, identifying and naming the basic components: cells, wires, bulb, switches, and buzzers.
- I can identify whether a lamp will light in a simple circuit based on whether it is part of a complete loop, with working battery.
- I recognise that a switch opens and closes a circuit and associate this with whether a lamp lights or not within a simple circuit.
- I recognise some common conductors and insulators and associate metals with being good conductors.



- I can ask relevant scientific questions.
- I can communicate findings from a practical investigation.

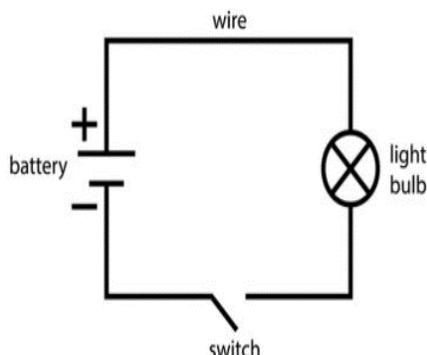
Our Key Vocabulary

Word	Meaning
Design	Design is developing, planning and communicating your ideas about what you intend to make.
Make	To work with tools, equipment, materials, ingredients, and components to make quality products and dishes.
Evaluate	To reflect on ideas and products against the design criteria.
Design Criteria	The specific and concise requirements that a product must achieve to be successful. This is used to evaluate a product.
Battery	A cell which stores electrical energy.
Bulb	A glass container that converts electricity into light
Circuit	A collection of components which make an electrical system.
Conductor	Materials that allow electricity to flow through them.
Current	An electrical current is the flow of electricity
Electricity	A type of energy, that is usually invisible, that can be made or stored and used to make objects work.
Insulator	A material that does not allow electricity to pass through it.
Switch	A circuit part that you can open or close to allow electricity to flow through it or to stop it flowing through.
Voltage	Force of an electrical current. It is measured in volts.
Wire	A thin flexible string like thread. Wire is made from metal as it is a good conductor of electricity.

Steps in learning	
	<ul style="list-style-type: none"> <li>Know that electricity is a form of energy that is natural or can be used from a mains or battery source.</li> <li>Create a simple circuit using the basic components: cells, wires, bulb, switches, and buzzers.</li> <li>Explore whether a lamp will light in a simple circuit based on whether it is part of a complete loop, with working battery and identify why it does or does not light up.</li> <li>Observe how a switch opens and closes a circuit and associate this with whether a lamp lights or not within a simple circuit.</li> <li>Investigate a range of materials to identify common conductors and insulators and to draw conclusions that metals are good conductors.</li> </ul>
	<ul style="list-style-type: none"> <li>I can conduct a practical investigation to explain how the components of a circuit work together to allow electricity to be conducted (to light a bulb and to control this light using a switch).</li> <li>I can communicate my findings to my peers.</li> </ul>

### What I already know:

This area of learning is new to Unit 3. It will be developed and expanded upon in Unit 4.



A circuit diagram shows the scientific way to record our working circuits.



Electrical appliances are part of our everyday lives.

**Factual knowledge:** Electricity can be very dangerous if misused. Electricity is a form of energy. Energy is needed to make things happen. A cell is the basic unit that produces electricity. Batteries store chemical energy and change it to electrical energy. A simple circuit contains components attached to each other, like holding hands in a circle. The flow of electrons in a circuit is known as a current. An electrical current can only flow when there is a complete circuit. The current depends on what is connected in the circuit. A bulb in the circuit slows down (resists) the flow of electricity. More bulbs, wired in series, will slow down the flow even more so the bulbs become dimmer. A switch can control the flow of electricity within a circuit. Materials that allow electricity to flow within them are electrical conductors. Insulators are materials that do not allow electricity to flow within them.