

National Curriculum History

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.

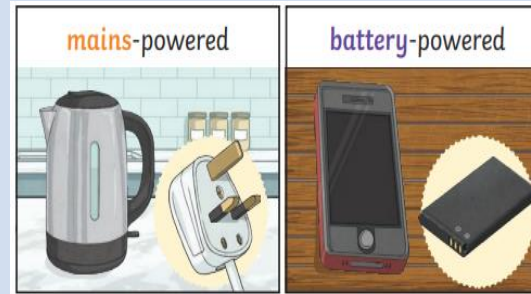
Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery.

Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.

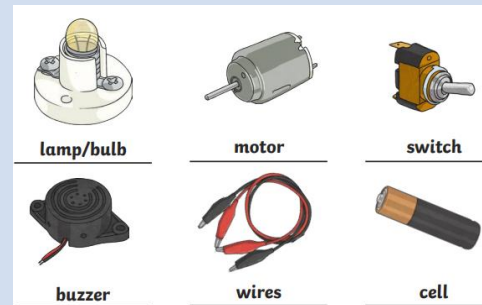
Recognise some common conductors and insulators, and associate metals with being good conductors.

Key Learning

- Electricity is the flow of an electric current or charge through a material.
- Many everyday appliances rely on electricity for them to work. Some appliances need to be plugged into a socket (mains electricity) while others require batteries to make them work.



- A battery is a device that stores electrical energy as a chemical.



Series Circuit	Complete Circuit	Incomplete Circuit
<p>A circuit where the components are connected in a loop.</p> <p>Electricity flows through each component in a single pathway.</p>	<p>Electricity can flow. The components will work.</p>	<p>There is a break in the circuit that prevents the electricity from flowing. The components will not work.</p>

Vocabulary

- Electricity:** a form of energy caused by electrons moving.
- Circuit:** a closed loop for electricity to travel around.
- Component:** a part used in an electrical circuit.
- Cell / battery:** a stored source of electricity.
- Bulb:** a component that turns electrical energy into light energy.
- Buzzer:** a component that turns electrical energy into sound.
- Motor:** a component that turns electrical energy into movement.
- Switch:** a device for making and breaking the connection in an electric circuit.
- Wire:** a long thin piece of metal that carries an electrical current often covered in plastic for safety.
- Voltage:** a force that makes electricity flow through a wire (it is measured in volts).
- Current:** a flow of electricity which results from the ordered directional movement of electrically charged particles.
- Conductor:** a material or device 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.
- Resistor:** an object

Note: Children do not need to understand what voltage is but will use volts and voltage to describe different batteries.

Note: The words cells and batteries are now used interchangeably

	Key Learning:
1	What is an appliance? An appliance is a device or machine in your home that you use to do a job such as cleaning or cooking. Appliances often rely on electricity for them to work. Some appliances need to be plugged into a socket (mains electricity) while others require batteries to make them work.
2	How do we stay safe around electricity? Any form of energy can be dangerous if it is not used properly. Never touch electrical sockets/switches (lights) with wet hands. Never stick anything into an electrical socket. Do not touch bare or frayed wires because you could receive an electric shock. If too many appliances are plugged into a single socket it may overheat and cause a fire. Any of the above could result in electrocution.
3	What is a circuit? A circuit is a device made of other, smaller electrical devices that can move the flow of electricity through itself to power larger devices. Every complete circuit must have a power supply. The power supply could be the mains, or it could be a battery.
4	Is the circuit complete? A complete circuit needs: 1. There is a power supply (the battery). 2. There are no gaps anywhere, so the electrical current can flow around the entire circuit. 3. The wires connect to both the positive and negative ends of the battery.
5	What is a conductor? What is an insulator? Conductors let electricity pass through them, however insulators do not. Many metals, such as copper, iron and steel, are good electrical conductors. That is why the parts of electrical objects that need to let electricity pass through are always made of metal. Metal is used in plugs to allow electricity to transfer from the wall socket, through the plug, and into a device such as a radio or TV. In a light bulb, the metal filament conducts electricity and causes the light bulb to light up. Plastic, wood, glass and rubber are good electrical insulators. That is why they are used to cover materials that carry electricity.
6	How do switches work? Electrical products work by using circuits and switches. Circuits allow electricity to flow through - and so power - bulbs, motors and buzzers. Switches are used to control circuits. They can break a circuit - and so switch bulbs, motors and buzzers off - or complete a circuit - and so switch them on again.