Year 4 Term 2 Science

ELECTRICITY

Key Vocabulary

electricity	The flow of an electric current through a material, e.g. from a power source through wires to an appliance.
appliances	A piece of equipment or a device designed to perform a particular job, such as a washing machine or mobile phone.
battery	A device that stores electrical energy as a chemical. Two or more cells joined together form a battery.
circuit	A pathway that electricity can flow around. It is based around wires and a power supply. Examples of components (parts) you can add in to a circuit are bulbs, switches, buzzers and motors.

Components (Parts) Vocabulary

cell: Normally, we would call this a battery but scientifically, this is a cell. Two or more cells joined together form a battery.

bulb: Lights up in a complete circuit.

buzzer: Makes a noise in a complete circuit.

wires: Used to connect the different components in the circuit together.

motor: Produces movement in a complete circuit.

switch: Used to turn other components in the circuit on or off.

Series Circuit

A circuit where the components are connected in a loop. Electricity flows through each component in a single pathway.

Complete Circuit

Electricity can flow. The components will work.

Incomplete Circuit

There is a break in the circuit that prevents the electricity from flowing. The components will not work.

Switches can be used to open or close a circuit. When off, a switch 'breaks' the circuit to stop the flow of electricity. When on, a switch 'completes' the circuit and allows the electricity to flow.

push button switch

slide switch

Materials can be tested in a circuit to see if they are electrical conductors or electrical insulators.

10p = metal = electrical conductors

test circuit

ruler = plastic = electrical insulators

Key Vocabulary

mains electricity	Electricity supplied through wires to a building.
electrical conductor	A conductor of electricity is a material that will allow electricity to flow through it.
electrical insulator	Materials that are electrical insulators do not allow electricity to flow through them.

Electricity can be extremely dangerous if it is not used safely. It can cause burns, shocks, serious injury and in extreme cases, death.

Some important Electrical safety tips

-Do not put fingers or other objects in a plug
-Never use anything with a cord or a plug around water
-Stay away from power stations and power lines
-Never place drinks near electrical items
-Do not overload a plug socket or extension cord
-Do not use an electrical item if the cord/ wire is broken
-Do not put batteries in your mouth or swallow them

What should I already know?

Electricity is a source of power/ energy that allows something to heat up, light up, move or produce sound.
Electrical power can come from plugging something in or using a battery.
Electricity can be dangerous.
Electrical appliances have switches to turn them on and off.

What I will know by the end of the topic:

- How to identify common appliances that run on electricity.
- How to construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.
- How to 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.
- How to recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.
- How to recognise some common conductors and insulators, and associate metals with being good conductors.