Year 3&4 Science **Title of Topic : Electricity** **Term: Autumn 1**

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.

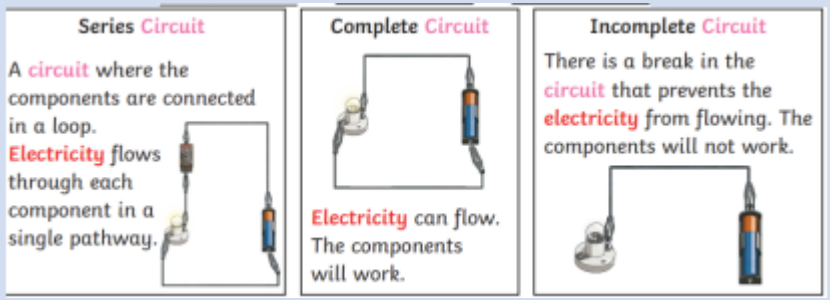
Recognise some common conductors and insulators, and associate metals with being good conductors.

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.

What objects are mains or battery powered?

What do you need to make a complete circuit?



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*

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	Learning sequence
Lesson 1	Common appliances that use electricity children will identify common appliances that use electricity. Children learn that appliances can either be plugged into the mains at a socket or powered by cells or batteries. They will look at some of the dangers of electricity and how it can be extremely harmful. They will identify ways to keep safe when using electrical appliances.
Lesson 2	**What is a circuit?** Children are introduced to the concept of circuits and will focus on series circuits. These are circuits where all the parts are connected in a single loop. Children build working circuits and explore the role of each part in these circuits
Lesson 3	**Build and draw circuits** .Children will then think about how they could draw their circuits. They should draw circuits they create using pictorial representations and think carefully about how they represent each object. They will look at a range of circuits which do not work for different reasons and make systematic observations to use their knowledge from previous learning to identify ways to fix the circuit.
Lesson 4	**Conductors and insulators.** Children will be introduced to the terms “conductors” and “insulators”. They will understand that a conductor is a material that allows energy to flow through it and an insulator is a material that blocks the energy. They will then begin to look at which materials are conductors and insulators.
Lesson 5	**Conductivity within a circuit.** Children continue to learn about conductors and insulators, with a greater focus on circuits. They will explore how a conductor/ insulator affects a circuit, through testing different materials. They will analyse their findings to draw conclusions to conclude metals being good conductors.