Year 4 – Electricity (biology, chemistry, physics)

NC objectives

- 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.

Prior learning

- Explore how things work. (Nursery - Electricity)

Future Learning

• Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. (Y6 - Electricity)
• Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. (Y6 - Electricity)
• Use recognised symbols when representing a simple circuit in a diagram. (Y6 - Electricity)

Key vocabulary

Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol
N.B. Children in Year 4 do not need to use standard symbols for electrical components, as this is taught in Year 6.

Common misconceptions

Some children may think:
• electricity flows to bulbs, not through them
• electricity flows out of both ends of a battery
• electricity works by simply coming out of one end of a battery into the component.

Areas of enquiry	Hook suggestions
• Observation over time – How long does a battery light a torch for? • Comparative and fair testing - Which metal is the best conductor of electricity? • Identifying and classifying – How would you group these electrical devices based on where the electricity comes from? • Pattern seeking – Are objects that are magnetic always good electrical conductors? • Researching using secondary sources – How does a light bulb work?	<u>Books</u> When Charlie McButton lost power by Suzanne Collins <u>Scenarios</u> **Scenario** – Fiona says all metals conduct electricity. Is she correct? (Identifying, grouping & classifying) **Scenario** – Aaliyah needs a bright light to read by. Can you help? (Comparative & fair testing)