SW9 Partnership SCIENCE Medium Term Plan: Year Group: 4 Term: Teacher:

TOPIC	NATIONAL CURRICULUM	KEY VOCABULARY	POSSIBLE TRIP
ELECTRICITY	• 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.	**TIER 2 (Academic):** Identify, construct, test, classify, complete, break, flow. **TIER 3 (Topic Specific):** Electricity, cell, battery, wire, bulb, switch, buzzer, circuit, series circuit, loop, current, conductor, insulator, metal, appliance, mains, safety.	**Sphere Science** (In-School Provider): Brings specialised equipment into your classroom for hands-on circuit building, component testing, and testing electrical conductors versus insulators. **Freshwater Theatre Company** (In-School Provider): Runs an interactive, drama-based "Electricity" workshop that reinforces series circuit rules and electrical safety.
PRIOR LEARNING	**Y1, Y2 and Y3:** Material classifications (metal, plastic) and magnetic properties.		

	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6
ENQUIRY QUESTION	Which household appliances use electricity and how are they powered?	How can we build a simple series circuit to light a bulb?	Why do some electrical circuits fail to work?	How does a switch control an electrical circuit?	Which materials allow electricity to flow through them?	How does adding more cells or bulbs alter circuit behavior?
LEARNING OBJECTIVES	To identify electrical appliances and distinguish mains vs battery power.	To construct a simple series circuit using cells, wires, and bulbs/buzzers.	To troubleshoot broken circuits and identify incomplete loops.	To construct switches and investigate loop opening/closing.	To test and classify materials as electrical conductors or insulators.	To conduct comparative tests on component changes in series circuits.
ACTIVITY **WORKING SCIENTIFICALLY SKILLS**	**CLASSIFYING:** Sort appliance cards into Mains (wall socket), Battery powered, or Non-electrical.	**MODELLING:** Assemble simple series circuits using cells, wires, bulbs, and buzzers; trace electrical flow.	**PROBLEM SOLVING:** Diagnose "broken" test circuits (e.g., disconnected wire, dead cell, missing loop gap).	**MODELLING:** Build DIY switches (cardboard, paperclips, brass fasteners) to open/close circuits.	**COMPARATIVE TESTING:** Insert test objects (copper coin, plastic ruler, wood, foil, rubber) into a gap in a circuit to test conductivity.	**COMPARATIVE TESTING:** Add extra cells or extra bulbs to a working series circuit; measure bulb brightness change.

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ASSESSMENT	Categorize appliances by power source and state electrical safety rules.	Correctly name and connect cell, wire, bulb, and buzzer in a series loop.	Identify broken circuit features (gaps, loose connections, dead components).	State that an open switch breaks the loop while a closed switch completes it.	Classify metals as conductors and non-metals (wood, plastic) as insulators.	State effect: adding more cells increases current/brightness; adding bulbs dims them.
END POINT ASSESSMENT	Pupils can build and troubleshoot simple series circuits (cells, wires, bulbs, switches, buzzers), explain complete loop current flow, demonstrate switch mechanisms, categorize mains vs battery appliances, and classify electrical conductors and insulators.					
HIGHER ORDER QUESTIONS	Why is mains electricity much more dangerous than a 1.5V AA battery?	What would happen if you connected a wire directly from one end of a cell to the other end without a bulb?	Why won't a bulb light up if the cell is put in backward?	How do light switches in homes prevent us from touching live electrical wires?	Why is water dangerous around electrical appliances if pure water doesn't conduct electricity well?	Why do headlight bulbs in cars stay lit even if one tail light bulb breaks?
FURTHER OPTIONAL QUESTIONS/BIG QUESTIONS FOR DISPLAY	Why will a light bulb not work if there is a tiny gap in the wire connection? Why are electrical wires always coated in plastic? What is the difference between a cell and a battery?					
INCLUSION & ADAPTATION	Appliance sorting cards with plug vs battery visual icons.	Oversized snap-circuit components with clear color-coded snap connectors.	Visual troubleshooting checklist (1. Is wire touching? 2. Is battery in?).	Physical paperclip switch model with simple Open/Closed visual diagram.	Testing tray with pre-cut material swatches and Light/No-Light result cards.	Visual brightness rating chart (1 Star=Dim, 3 Stars=Bright).
GREATER DEPTH	Research how mains electricity is generated and distributed via grid networks.	Draw circuit diagrams using standard international electrical component symbols.	Design complex circuit challenges (e.g., 2 switches controlling 1 buzzer independently).	Design a burglar alarm circuit utilizing a pressure-pad switch.	Investigate variable resistance materials (graphite pencil leads) in circuits.	Predict and test current flow behaviour in parallel vs series circuit configurations.