Year 4 Science Curriculum

Working scientifically links Rubric/PCMD opp. Key Vocabulary

Electricity

What's the big picture? Big Picture - electricity is a vital part of modern life - children to generate own questions to investigate - *"I know how to ask simple scientific questions"*

Prior learning:
Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes. (Early Learning Goal)
Ch know that sound and light sources sometimes need electricity to work

National Curriculum Principles	Objectives	Knowledge and key Vocabulary	Reading opportunities	Technology
To identify common appliances that run on electricity.	Identify common appliances that run on electricity.	Children to sort **appliances** by whether they run on **mains electricity** or **battery** or no electricity.	Until I Met Dudley (Roger McGough) Oscar and the Bird: A Book about Electricity (Geoff Waring)	
To construct a simple series circuit, identifying and naming its basic parts including cells, wires, bulbs, switches and buzzers	To construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers	To construct a simple circuit using **battery, wires, bulbs, crocodile clips** and other **components** and name each part. Talk through vocabulary - **positive, negative, terminal** Change circuit to include a **buzzer**.		
Identify whether or	identify whether	Know that a **circuit** must have 2 things to work a) a		

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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	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	**power source**, b) be complete Use this information to identify if a circuit will work. Build a squishy circuit using conductive and non conductive play doh.		
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 that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit	Add a switch to a circuit and explain how it works and whether a **bulb** in a simple circuit will light when it is open and closed. Explore how to conduct different switches and investigate how they function. Children to build their own circuit switch and add it to the circuit. - vocabulary (**open/closed)**		
Recognise some common conductors and insulators, and associate metals with being good conductors	Recognise some common conductors and insulators and associate metals with being good conductors	Know what a **conductor** and **insulator** are - test materials to find out if they are conductors or insulators. Name materials that are good insulators and conductors Classify materials according to if they are good conductors or not		

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Famous scientists

Michael Faraday - discovered relationship between electricity and magnets

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.

Enquiry ideas

Comparative tests	Identify and classify	Observations over time	Pattern seeking	Research
How does the thickness of a wire affect how bright the lamp is?	Group these electrical devices based on where the electricity comes from.	Use data loggers to measure how the strength of light from a battery operated torch changes over time.	Which room has the most electrical socket in the house?	How has electricity changed the way we live?
Which metal is the best conductor of electricity?				How does a lightbulb work?