Science – Year 6 Summer 2

Electricity

Components in a circuit

(Previous knowledge – Year 4 – Simple electrical circuits)

Vocabulary		
Tier 1	Tier 2	Tier 3
bulb	predict	circuit
wire	compare	component
buzzer	observe	series circuit
battery	conclude	voltage
switch	variable	current
light	function	resistance
motor	effect	conductor
sound	pattern	insulator
bright	result	terminal
loud	symbol	cell

don't know — I know this word — I can use it in a sentence

Useful Resources

https://www.youtube.com/watch?v=CQofbLIa0O8&ab_channel=SeaMillsPrimary

What You Already Know About Electricity:

In Year 4, you learned how to build a simple series circuit using components such as bulbs, buzzers, wires, batteries, and switches. You found out that a circuit needs to be complete for electricity to flow and that switches can open or close a circuit.
You also learned how to identify conductors (materials that let electricity flow through them) and insulators (materials that block electricity). You used simple symbols to talk about circuits and could recognise when a circuit would or wouldn't work.

What we will be learning now:

- We will be learning how to build and investigate more complex electrical circuits.
- This includes understanding how components such as bulbs, buzzers, switches, and motors work, and how the number and type of components affect how well a circuit functions.
- We will be learning how to use symbols to draw accurate circuit diagrams and how to spot and fix broken circuits.
- We'll also be testing different setups to find out how we can change the brightness of a bulb or the volume of a buzzer by changing things like the number of batteries.
- We will work scientifically by planning fair tests, recording results clearly, and using our findings to explain how and why circuits behave the way they do.

Circuit Components

Battery (cell): Pushes electricity around a circuit
Wire: Carries electric current
Bulb: Lights up when current flows
Buzzer: Makes a sound when electricity flows
Switch (open/closed): Starts or stops the flow of electricity
Motor: Converts electricity into movement

What affects how a circuit works?

Number of batteries (cells): More batteries usually mean a stronger electrical push (voltage), making bulbs brighter or buzzers louder.
Length of wires: Longer wires can reduce how well the electricity flows (increasing resistance).
Number of components: More bulbs or buzzers in a series circuit may make them dimmer or quieter.

Why a circuit might not work?

There is a break in the circuit (not connected properly).
A component is faulty or connected the wrong way.
The battery is flat or not strong enough.
A switch is open, stopping the flow of electricity.

Key Scientist: Alessandro Volta (1745–1827)

Alessandro Volta was an Italian scientist who invented the first battery, called the Voltaic Pile. It was the first time people could create a steady flow of electricity. His work helped other scientists understand how electricity could be used to power devices. The unit of electric potential, the volt, is named in his honour.

Remember!

A circuit is a loop that electricity flows around.
It must be complete – with no breaks – for electricity to flow.
A cell (or battery) gives the circuit the power it needs.
Wires carry the electrical current between components.
A switch can open (stop) or close (start) the flow of electricity.
Components like bulbs, buzzers, and motors only work when the circuit is complete.