Year 4

Science

Electricity

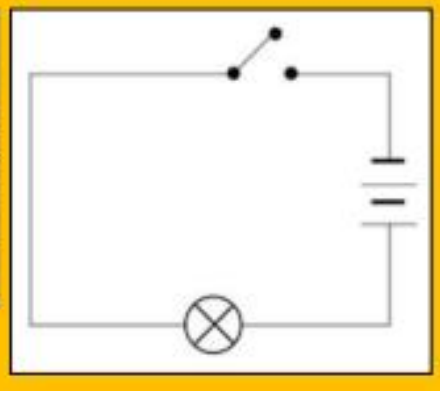
What We Need to Know	
What is electricity?	Electricity is created by generators which can be powered by gas, coal, oil, wind or solar. The electrical energy can be converted into other types of energy such as light, heat, movement or sound. Electricity is dangerous, so be careful when using electrical appliances.
What are common appliances that function on electricity?	Any appliances that need to be plugged in functions on electricity. For example: a television, a computer, a microwave, lights.
What is an electrical circuit? A series circuit (One pathway around the circuit)	Electricity can flow through the components in a complete electrical circuit. A circuit always needs a power source, such as a battery, with wires connected to both the positive (+) and negative (-) ends. (A battery is made from a collection of cells connected together). A circuit can also contain other electrical components, such as bulbs, buzzers or motors, which allow electricity to pass through. Electricity will only travel around a circuit that is complete. That means it has no gaps.

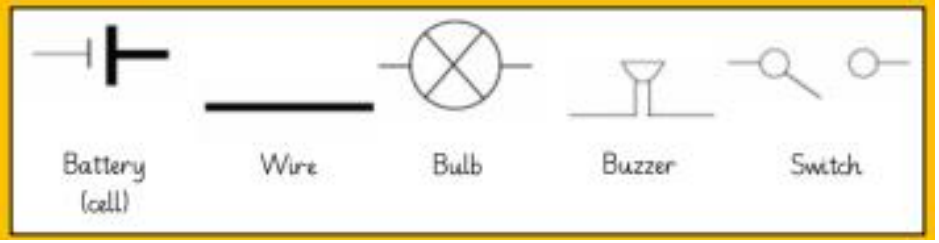
Key Vocabulary and Phrases	
Generator	A machine that make electrical energy
Component	A part of something (a part of a circuit)
Circuit	A **complete** and **closed** path through which an electrical **current** flows.
Current	The flow of electrical charge
Connected	Something that is joined or linked
Electrical conductors	Some materials let electricity pass through them easily. They are known as electrical conductors. Many metals, such as iron, copper and steel, are good electrical conductors.
Electrical insulators	Some materials do not allow electricity to pass through them. They are known as electrical insulators. Wood, glass, plastic and rubber are good electrical insulators. That is why they are used to cover materials that carry electricity.
Switch	Electrical component that is used to create a gap to switch circuits off. It can be closed to turn circuits on.

wind turbine

burning fossil fuels

solar panels





Year 4

Science

Working Scientifically – Electricity

Key Vocabulary and Phrases	
ask questions	Use the question words **What, where, when why, how**
compare and contrast	Look at two or more objects and describe similarities (what is the same) and differences (what is different)
Diagram/ model	A labelled picture/ a 3D representation of the real item
record data	Drawings, scientific diagrams, photos, classification keys, tables, bar graphs and line graph, writing and numbers are ways to show what I have found out.
reporting and presenting findings	Giving reasons, explaining causes and relationships, explaining results and trusting its accuracy

How I could record my findings

Pictures
For EXPLORING

Use this if you want to tell the story of what you did or what you observed, e.g. bread going mouldy

Line Graph
For FAIR TESTING

Use this if you have continuous (numerical) data for both axes e.g. mass on an elastic band & how long it is or are measuring over time

Carroll Diagram
For CLASSIFYING/GROUPING

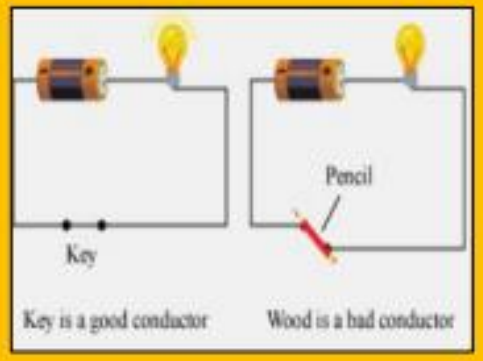
	Red	Blue
Square		
Triangle		

Use this when you want to put objects into categories for having a property or not, e.g. prime/not prime numbers against even/not even (odd) numbers

What I could investigate

Do bulbs get brighter if more cells are added?

Are all materials conductors of electricity? Which material makes the best switch?



Equipment I could use

electrical wire

A bulb and battery

Paperclip and lollipop sticks

Camera, pencil and paper to record what I find out.