Lilycroft Primary School

Knowledge Organiser

Science	Year 4	Electricity

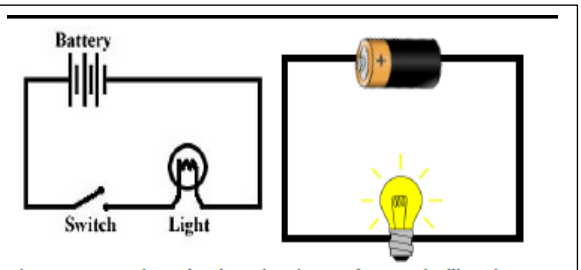
What should I already know?

• **Electricity** is a form of **energy** that can be carried by wires and is used for heating and lighting, and to provide **power** for **devices**.
 Sources of light and sound may need **electricity** to work**.**

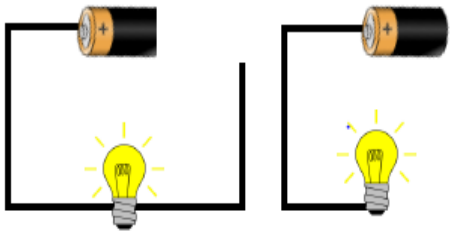
What will I know by the end of the unit?

Where does **electricity** come from?	***Electricity is generated using energy from natural sources such as the Sun, oil, water and wind.** ***These can also be called fuel sources.**
Which **appliances** run on **electricity**	***Some appliances use batteries and some use mains electricity.** *** Batteries come in different sizes depending on how much and for how long the appliance is used.** ***Common appliances that use electricity.**
How does a **circuit** work?	***A complete circuit is a loop that allows electrical current to flow through wires.** ***A circuit contains a battery (cell), wires and an appliance that requires electricity to work (such as a bulb, motor or buzzer).** ***The electrical current flows through the wires from the battery (cell) to the bulb, motor or buzzer).** ***A switch can break or reconnect a circuit.** ***A switch controls the flow of the electrical current around the circuit. When the switch is off, the current cannot flow. This is not the same as an incomplete circuit.**
What are **electrical conductors** and **insulators**?	• When objects are placed in the **circuits**, they may or may not allow **electricity** to pass through. * Objects that are made from materials that allow **electricity** to pass through a create a complete **circuit** are called **electrical conductors**. * Objects that are made from materials that do not allow **electricity** to pass through and do not complete a **circuit** are called **electrical insulators**.

Diagram



These are complete circuits - they have a battery (cell) and a component (bulb).
The wires are placed in the right places of the battery for the circuit to work.



These circuits will not work as they are incomplete.

Vocabulary

WORD	DEFINITION
battery	small **devices** that provide the **power** for **electrical** items such as torches
Cell	A synonym for battery
circuit	A complete route which an **electric current** can flow around
Component	The parts something are made of
conductor	a substance that heat or electricity can pass through or along
Current	A flow of electricity through a wire or a circuit
energy	the **power** from **sources** such as **electricity** that makes machines work or provides heat
mains	where the supply of water, **electricity**, or gas enters a building
insulator	a non-**conductor** of **electricity** or heat
source	Where something comes from
energy	the **power** from **sources** such as **electricity** that makes machines work or provides heat

Investigate

• Research how to work safely with **electricity**.
 Make a variety of **circuits**, investigating which **circuits** work and why.
 Create **circuits** using **switches**.
 Investigate what happens if more **batteries** are added to a **circuit**.
 Investigate which materials are **electrical conductors** and **insulators**.