



Year 4 – Autumn –Electricity – Science – Knowledge Organiser

Key Vocabulary			
Electricity	A type of energy that is usually invisible that can be made or stored and used to make objects work.	Mains Power (alternating current)	something that changes or breaks the circuit of electricity.
Circuit	a rough circular line that starts and finishes at the same place	Conductor	a material that allows electrical current to flow through it (e.g. metal)
Switch	A circuit part that you can open or close to all electricity to flow through or stop it flowing through.	Insulator	a material that does not allow an electrical current to flow through it (e.g. plastic)
Plug	connects an appliance to the main power.	Battery power (direct current)	a device that stores electrical energy as a chemical.
battery	Two or more cells put together to provide electrical energy to power a circuit.	cell	A single unit that provides electrical energy to power a circuit
wire	A thin piece of copper thread which conducts electricity to connect circuit components together.	appliance	a device or piece of equipment designed to perform a specific task
bulb	A circuit part made from glass or plastic which gives out light when electricity is passed through it.	Component	a piece of electrical equipment such a wire or plug

Electrical appliances

Mains	Battery

Switches can be used to open or close a **circuit**. When off, a switch 'breaks' the **circuit** to stop the flow of **electricity**. When on, a switch 'completes' the circuit and allows the **electricity** to flow.



Conductors and insulators



Conductors

Some materials let electricity pass through them easily. These are known as electrical conductors. Many metals are good electrical conductors, such as iron, copper and steel.

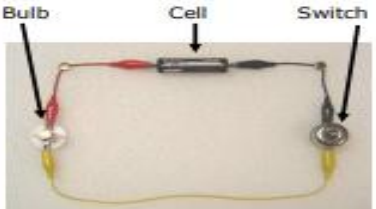



Insulators

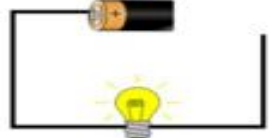
Some materials do not allow electricity to pass through them. They are known as insulators. Plastic, wood, rubber and glass are good electrical insulators.

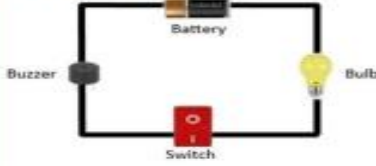
Electrical Circuits



The switch opens and closes the circuit. The bulb lights because the switch is




This circuit will not work as it is not complete



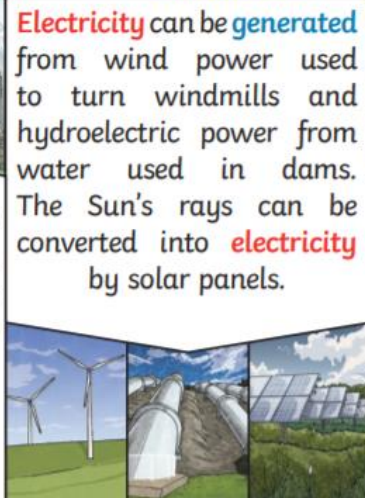
This circuit is complete so the buzzer will sound and the bulb will light.

Lightning and static **electricity** are examples of **electricity** occurring naturally but for us to use **electricity** to power **appliances**, we need to make it.



Coal, oil and natural gases are fossil fuels which, when burnt, produce heat which can be used to **generate electricity**.

Electricity can be **generated** from wind power used to turn windmills and hydroelectric power from water used in dams. The Sun's rays can be converted into **electricity** by solar panels.



Nuclear energy is created when atoms are split. This creates heat which can be used to **generate electricity**. Geothermal energy is heat from the Earth that is converted into **electricity**.

