Auckland College Knowledge Organiser – Electricity

This unit is the first introduction to studying electricity in Key Stage 2. Children will learn about what electricity is and how it was discovered. They will identify which appliances use electricity in their homes and how to keep themselves safe. Children will construct circuits, start to create pictorial circuits and conduct an investigation into how easily different types of switches can break and reconnect a circuit.

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. Many everyday appliances rely on electricity for them to work. Some appliances use mains electricity (are plugged into a socket) and others have a battery to make them work.

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.

Key Vocabulary

Bulb	Gives out light when electricity passes through it.
Switch	Small control for an electrical device
Buzzer	An electrical device that is used to make a buzzing sound
Cell/Battery	Small device that provides the power for smaller electrical items.
Conductor	A substance that heat or electricity can pass through
Insulator	A substance that heat or electricity cannot pass through
Circuit	A complete loop that an electrical current can pass around.
Generate	Cause something to begin or develop.

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Circuits

Electricity can only flow around a complete circuit that has no gaps. There must be wires connected to both the positive and negative end of the power supply/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.

Types of electric current:

Mains electricity: power stations send an electric charge through wires to transformers and pylons. Then, underground wires carry the electricity into our homes via wires in the walls and out through plug sockets.

Battery electricity: batteries store chemicals which produce an electric current. Eventually, even rechargeable batteries will stop producing an electric current

Conductor of electricity

A conductor of electricity is a material that will allow electricity to flow through it.

Metals are good conductors.

Materials that are **electrical insulators** do not allow electricity to flow through them. Wood, plastic and glass are good insulators