# Knowledge Organiser

## Key Electricity Knowledge

Electricity is the presence and flow of electric charge. It is the flow of electrons through conductors such as copper wires. It is a form of energy which we use to power machines and electrical devices.

In order for a bulb in a series circuit to light, the circuit must be a complete loop including a cell. If there are any breaks in the circuit; the battery is flat or the bulb filament is blown, then the bulb will not light.

In a light bulb, the metal filament conducts the electricity. The electricity causes the filament to heat up to a temperature that produces light and this causes the bulb to light up.

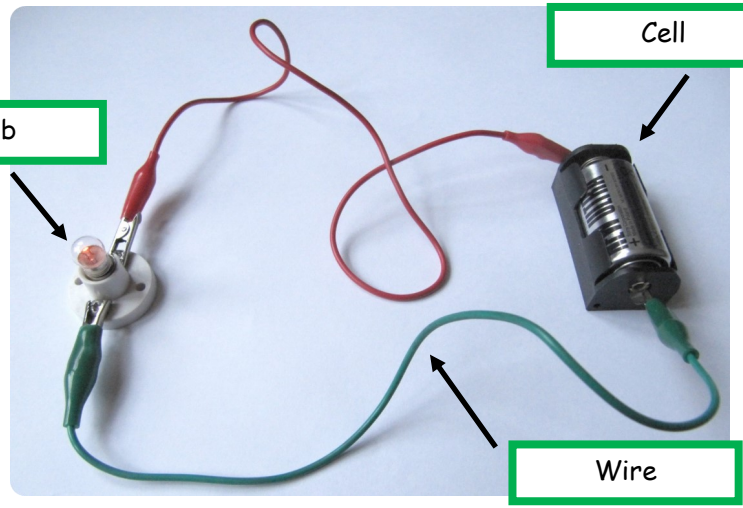
Switches are used to break an electrical circuit. If the switch is open the bulb or other appliance will not work because there is a break in the circuit. So, when a switch on a plug is off, there is a break in the circuit meaning electricity cannot flow.

Lightning and static electricity are examples of electricity occurring naturally. However, if we want to use electricity to power things, then we need to make it using things like coal, oil and natural gases, windmills and nuclear energy.

There are two types of electrical current. Mains electricity which tends to come from power stations, and battery electricity which is stored in batteries in the form of chemicals that produce an electrical current.

## Why do we need Electricity?


## Example of a simple electrical circuit



## Electrical Safety


Remember - you should never mix water and electricity, so no electrical appliances should be placed anywhere near a water source.

## Vocabulary/Terminology

Appliances - A device or piece of equipment designed to perform a specific task.

Current - The flow of electrical charge. Measured in amps.

Energy - The ability to do work, it is what causes things to change or move.

Voltage - What makes electric charges move. It is the 'push' that causes charges to move in a wire or other electrical conductor.

Electrons - small particles with an electric charge that move through a circuit and generate electricity.

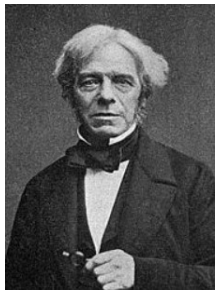
Circuit - A closed loop which allows electricity to travel around it.

Insulator - An object that does not allow electricity to flow through it easily.

Conductor - An object that allows electricity to flow through it easily.

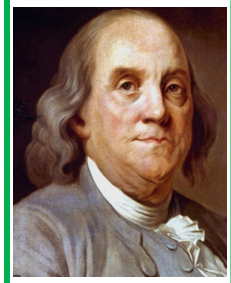
Filament - A thin wire that is heated white hot by the passage of an electric current.

## Key Figures

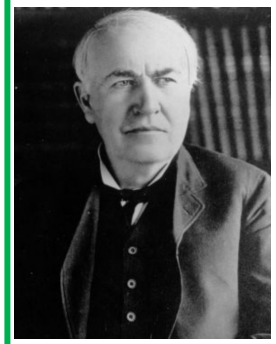


Michael Faraday (1791-1867) He was an English scientist, and one of the most important scientists of all time. He is known for his discoveries in electricity. In 1821, he invented the electric motor.

Alessandro Volta invented the first electric battery in 1800. Using his invention, scientists were able to produce steady flows of electric current unleashing a wave of new discoveries.



Benjamin Franklin was the first person to use the terms positive and negative charge. He discovered that electricity is not generated by rubbing two objects, but is transferred from one object to the other.



Thomas Edison is often described as America's greatest ever inventor. He developed many electrical devices such as the first light bulb and first camera. He also improved the telegraph and telephone systems.