History of Electricity Reading Comprehension Sheets

In modern life, we use electricity on a daily basis and do not think anything of it. We take it for granted. However, for most of human history electricity was not known about so how and why did that change? Read on!

We Ancient Greeks knew that rubbing amber would make light objects attract to it. We thought it became magnetic.

What they were actually observing was static electricity!

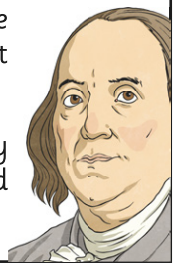
While we did not know that electric currents existed, we were aware of shocks from a fish. We called it 'Thunderer of the Nile'.

Ancient Egyptians thought that electric fish were 'protectors' of other fish. Electric fish were written about by the Ancient Greeks, Romans and Arab Scholars.

Benjamin Franklin was the first person to study electricity in depth. One of his most important findings was proving that lightning was electrical (it had been thought of as different up until then). He flew a kite during a storm, to which he had attached a key. When the kite was indeed hit by lightning, he felt electric sparks from the key.

He was very fortunate not to be electrocuted! This is not an experiment that needs to be repeated!!

He was also the first to store electricity and knew it consisted of positive and negative charges.



Alessandro Volta invented the first battery – which was known as the 'voltaic pile' as it was made of layers of zinc and copper which was either combined with sulphuric acid or saltwater brine to create an electric current.

Volta's name was also the basis for the following words:

Voltage: This is the electric force that causes free electrons to move from one atom to another.

Volt: Is the unit of measurement for Voltage (written as V).

It was not until hundreds of years later in the 1600's that **William Gilbert** studied and distinguished between magnetism of metals and static electricity. He used the Greek word for amber – 'elektron' – and invented a new Latin word – electricus.

The voltaic pile was hugely important as it allowed an electric current to be released steadily and efficiently. Therefore it was now possible to use an electric current as a form of power for other objects.

Michael Faraday used Volta's discoveries and was able to make an electric current move by using a magnet inside a wired coil. He was able to build an electric motor and generator!

Thomas Edison invented the modern lightbulb. While lightbulbs were not a new idea, he did improve on the previous designs which were not useful as they did not stay lit for very long.

Lewis Latimer worked for Edison and invented a filament (the metal part that you can see in lightbulbs, through which the electric current passes) which enabled Edison's lightbulb to stay lit for a long time.

From these electrical inventions, many others followed and changed the way we live our everyday lives!

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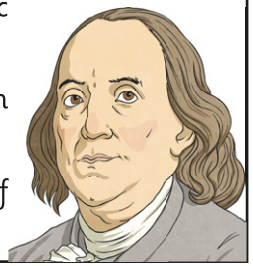

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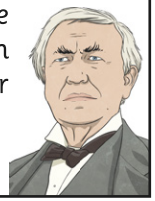

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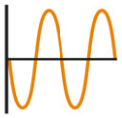
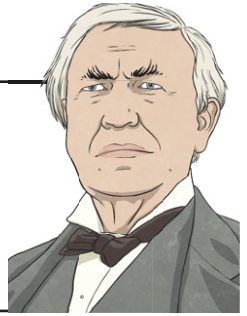
War of the Currents
AC vs DC

There are two types of electric currents that can be generated – direct current and alternating current.



Alternating Current (AC)
The electric charge changes direction periodically.

Direct Current (DC)
The electric charge flows in one direction.



While there wasn't a real war about it, there was a time when it wasn't clear whether AC or DC would be used to power homes and other buildings.

The voltage of AC can be increased and decreased using a transformer. This means high voltage electricity can be transferred along power lines at a high voltage but it can be reduced to safe levels of voltage by the time it reaches buildings. DC cannot be increased or decreased in this way so is a less efficient way of transferring an electric current and also needs to be closer to the buildings it served.

There were many concerns about the use of AC due to the high voltages of electric current and whether it was safe. Edison decided that it was too dangerous and wanted DC to be used. His own company was involved in setting up DC systems in many American cities. Tesla created a more complex AC system which was called the polyphase system. It was Tesla's invention of transformers that eventually led to the victory of the AC current, as it allowed electricity to be transferred more efficiently, cheaply and safely. Even today, mains electricity in the UK comes from an AC current generated by power stations.

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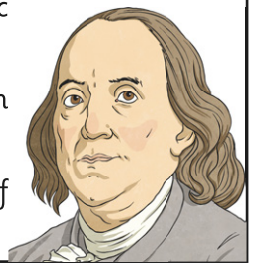

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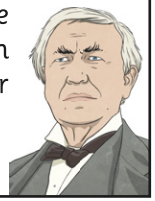

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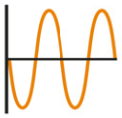

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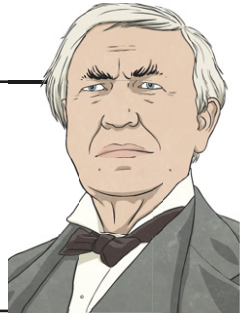

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