

Parent Guide



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games



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experiments



word searches



What is this resource and how do I use it?

Read about the work of Nikola Tesla and find out some of the dreams and desires he had for providing free energy for all. Tesla's vision for using renewable energy sources in the early 20th Century were ground-breaking. Reading about significant individuals can not only develop reading comprehension, but it might also inspire your child!

What skills does this practise?

Reading Fluency

Vocabulary

Comprehension

Further Activity Ideas and Suggestions

Why not read about Elon Musk with this [Fact File](#)? Dive into the world of engineering, with this [design your own car to send to space activity](#).

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Nikola Tesla



Born: 10th July 1856.
Smiljan, Austrian
Empire (now known
as Croatia)

Died: 7th January
1943. New York City,
USA. 86 years of age.

Engineer and Scientist

One of five children, Tesla's mother invented small household appliances during her spare time. His father was a priest and writer, who tried to encourage his son to pursue a career within the church, but young Nikola Tesla had other ambitions. He wanted to explore opportunities in science and engineering.

He studied in Germany, Austria and Czechoslovakia. After graduating, he moved to Budapest where he began working at the Central Telephone Exchange. In his spare time, Tesla began inventing.

At 28 years of age, after a number of his inventions had been rejected in Europe, he moved to America. Arriving with few possessions, what he

did have was a letter to Thomas Edison asking for work.

Edison was impressed by Tesla's confidence and employed him to work on improving some of his existing inventions. For a number of months, Tesla and Edison shared ideas and suggestions. They terminated their working partnership after many disagreements. Some historians believe this was due to Edison being very business minded and somewhat threatened by Tesla's ability to visualise ideas.

Setting up on his own, Tesla managed to secure funding for the new Tesla Electric Light Company and continued to develop his inventions. Tesla went on to design and develop his ideas for a range of inventions, including; dynamos (electrical

Nikola Tesla



generators, similar to batteries) and the technology behind radars, x-rays and remote control systems.

Many of these inventions were credited and officially patented by other inventors. Tesla's ability to create and invent was groundbreaking, but he did not have a good eye for business and did not protect all of his ideas, often losing out on financial gain and the credit he deserved. Many of his inventions were only recognised to be his, after his death in 1943.

Tesla designed the alternating-current (AC) system which quickly became the powering system of the 20th Century. With the success of this new electrical system and the Tesla Coil, he was finally able to apply for a number of patents to protect his AC powered inventions.

It was not long before the AC system caught the eye of other engineers. One in particular, George Westinghouse, was looking for solutions to provide the nation with long-distance power. Subsequently, he bought Tesla's patents for

\$60,000 (about £43,000) and shares in his company; the Westinghouse Corporation.

Together, Tesla and Westinghouse found themselves to be in competition with Edison's growing DC (Direct Current) system. Edison was determined to sell his powering system to the nation and began to spread negative and false information about the Tesla-Westinghouse partnership, with the intention of undermining their success and to become the leader in powering electrical systems. However, Tesla's AC system was chosen to supply the lighting to the World Columbian Exposition in Chicago in 1893. Much to Edison's disgust and disappointment.

Two years later in 1895, Tesla invented one of the world's first AC hydro-electrical power plants at Niagara Falls. The next year, this hydro-electrical system was used to power the city of Buffalo in New York State. An incredible and forward thinking achievement putting the needs of the environment first and reducing the cost of electricity.

The Tesla Coil was patented and

Nikola Tesla



led Tesla to begin working on wireless technologies which can still be found in radio technology today.

Tesla was known for his photographic memory and attention to detail. He could speak several languages and was able to visualise individual components in a machine or mechanism, allowing him to run simulations in his head. This ability saved thousands of pounds worth of testing, which would be done today using computer generated simulators.

Tesla's long-term plan was to try and build a system which would provide sustainable, clean energy world-wide, free for all to use. He was against using fossil fuels, such as coal, to power systems due to the amount of carbon dioxide emitted. He saw this burning of fossil fuels as a sinful waste. Tesla really was way ahead of his time.

He believed the Earth had 'fluid electrical charges' beneath the surface which, if interrupted at a set number of intervals, could

provide unlimited power by generating bundles of low-frequency electrical waves.

He became tired of people he called "ignorant, unimaginative" and "consumed by self-interest". Typically, this was people in powerful positions who were keen to protect their highly profitable energy industries- afraid of losing their companies and profits to the wind and sun.

Tesla's dream of providing free world-wide energy would not be realised in his life-time. The number of inventions he created is unknown. His lack of business sense and good nature left him penniless and in debt. He became a recluse and died in his New York City home in 1943. The realisation of Tesla's valuable input to the engineering world would not be found until after his death.

Tesla's legacy can be seen today in many products, places and even a company named after him. A street sign 'Nikola Tesla Corner' was erected near his former laboratory in New York City. Many films have been made telling the story of his incredible life.

Nikola Tesla



In 2003, a small group of engineers got together and founded Tesla Motors, named after Nikola Tesla. Their objective was to design and manufacture the world's first electric-powered car. Elon Musk, seeing the potential in such a project, invested \$30 million (about £21.5 million) and became the company's co-founder and CEO.



Glossary:

Patent – used to protect a design. The rights of the designer allow them to take legal action against anyone who copies the patented design or idea without the designer's permission.

Hydroelectric Power– the converting of flowing water into mechanical power. A generator converts the mechanical energy into electricity.

AC – Alternating Current. The direction of the flow of electrons alternates back and forth at regular intervals or cycles.

DC – Direct Current. Electric current flows in one direction. For example, an appliance running on batteries will have a DC powering system.

Dynamos – an electrical generator creating direct current.