

Name: _____ Teacher: _____ School: _____

Grade 5: Lesson 8 Students will learn about the history of electricity with a focus on the contributions of Thomas Edison, specifically, his invention of the lightbulb.

Electrifying Personalities: Thomas Alva Edison (1847-1931)

Thomas Alva Edison was born on February 11, 1847, in Milan, Ohio. He was the youngest of seven children, three of whom died when they were young. Because Edison was so much younger than his brother and sisters, he was sometimes lonely.

When he was seven, his family moved to Port Huron, Michigan. Edison caught a disease called scarlet fever, which destroyed most of his hearing.

Edison developed a keen interest in the world and a curiosity about everything around him. This curiosity sometimes got him into trouble at school. His teacher often grew angry with Edison's endless stream of questions. Edison's mother took him out of school and taught him at home. It was at this time that young Edison began to conduct simple scientific experiments—a habit that would last a lifetime.

When Edison was 12 years old, his father's business began to fail. To help his family, Edison sold newspapers and refreshments on a train that came through Port Huron. Whenever he could, he read books or conducted his own experiments.

He had become interested in the telegraph and had built one of his own. When the Civil War broke out, he had a chance to put his knowledge to work. In 1862, there was a battle in Shiloh, Tennessee, in which more than 20,000 men were killed or injured. Edison convinced the telegraph operator at the train station to send an advance message about the battle to all the stops along the train line.

When Edison was 16, he became a "tramp telegrapher." He traveled throughout the country looking for the highest-paying telegraph work he could find. In 1868, he moved up in Boston, Massachusetts, working for the Western Union telegraph company. Throughout this period, he continued to do experiments and work on inventions.

"The Wizard of Menlo Park"

Young Edison moved to Newark, New Jersey, in 1870. There he started a company that made stock tickers. These machines transmitted the latest stock prices by telegraph and printed them on long strips of paper tape. Edison was paid a great deal of money to find a way to improve the machines.

In 1874, Edison invented a telegraph that could send four messages at once. Up until then, telegraphs had been able to send only one message at a time. This machine helped Edison establish a reputation as an important telegraphic inventor.

In 1876, Edison moved his company to Menlo Park, New Jersey, where he created a research laboratory. There he found himself in a race with Alexander Graham Bell to perfect the "speaking telegraph," or telephone.

Edison lost the race, with Bell's design becoming the standard. However, in 1877, Edison and his research staff made improvements on Bell's telephone. They invented a transmitter that made voices sent through wires louder and clearer.

Life at the lab moved at a fast pace. Edison worked hard and expected his employees to do the same. That hard work paid off. Edison and his team made the first recording of the human voice with a machine called a phonograph. His inventions earned him the nickname “the Wizard of Menlo Park.”

A Bright Idea

Although gas lamps had been in use since the late 18th century, most of the world still shut down when darkness fell. In the 1840s, people began to experiment with electric light. The idea was to have an electric current pass through a filament and heat it so that it gave off light. Inventors tried filaments of paper and other substances. None of them lasted long, even in a glass bulb from which nearly all the air had been pumped out.

In 1879, Edison and his team began experimenting with filaments. In October 1879, they got a lightbulb to burn at the Menlo Park lab for an entire day. The next one glowed for 40 hours straight! Soon, Edison put bulbs all over the lab and his house. People came from all over to see this miracle of electricity.

Homes and businesses at that time did not have the electricity to power electric lights. Edison knew that his lightbulb would never be more than a curiosity unless he figured out how to make electricity widely available.

He had an idea. He went to New York City to design an electric power station and his team worked out a way to supply electricity to a large area. They built an enormous generator, a device that made electricity. They ran cable into the city for the electricity to flow through. Then on September 4, 1882, power began to flow from the Edison Electrical Light Company to its first few customers. It worked! Lights went on as planned. A new electrical age had begun.

It took some time before Edison’s ideas really caught on. When they did, however, people began working, reading, and writing into the night under Edison’s lights.

Edison’s invention of a long-lasting electric light was an amazing accomplishment. He had turned an idea into a valuable product.

Despite his success and the fact that he was now dear, Edison began working again on his phonograph. Although early phonographs did not require electricity to work, more modern and sophisticated versions did.

Edison’s pace did not slow down as he grew older. Although he was now wealthy and famous, he continued to work and invent. He designed car batteries for the Ford Motor Company. He experimented with early movies. He was active right up to his death on October 18, 1931. After he died, President Herbert Hoover requested that homes and businesses across the country dim their lights for one minute to honor Edison. Parts of the country were almost completely dark for that minute. Even the torch on the Statue of Liberty was dark in tribute to a man who had truly lit up the world.

Student Independent Practice:



This is a picture of one of Edison's early, original lightbulbs

Imagine that you're living during the late 1800's, during the Electrical Age, when both Alexander Graham Bell and Thomas Edison lived. You are a reporter for a local newspaper and have been invited to Edison's research laboratory at Menlo Park. He has hand-picked a few people from the community to attend the reveal of his new invention: the lightbulb (just like the one in the image). You are so excited to go!

When you get there, Edison shares stories about all of the research and experimentation that he and his team did before they *finally* landed on a lightbulb design that actually worked...that lit up *and* stayed lit up for more than a day! He also shared his plans to make "electric light" widely available to everyone. He said that he had dreams that lightbulbs would one day replace the use of candle light and gas-lamp light. Before you leave, you make your way over to Edison himself in hopes that he will give you a few quotes to add to your story. Lucky for you, he does!

After the event, you rush back to your office to begin writing your story to be published in tomorrow's paper. You can't wait to get this amazing experience all down on paper and share it with the world!

Use a clean piece of paper to write your article. Be sure to pull evidence from the text for facts and details to support your writing.