

Name: _____ Teacher: _____ School: _____

Grade 5: Lesson 7 Students will use *Electrifying Personalities: Alexander Graham Bell* to learn about the history of electricity with a focus on the contributions of Alexander Graham Bell, specifically, his invention of the telephone.

Electrifying Personalities: Alexander Graham Bell (1847-1922)

Alexander Bell was born in Edinburgh, Scotland, on March 3, 1847. Bell's parents did not give him a middle name, so he chose "Graham." He often went by that name rather than Alexander.

Bell was born into a talented family. His mother, Eliza, was a musician and painter. His father, Alexander, was a speech teacher, as was his grandfather. Bell himself was such a gifted pianist that he could easily have made a career of it. Instead, he chose to follow in his father and grandfather's footsteps becoming fascinated by the human voice and human communication.

Bell was an imaginative boy. He went to school from age 10 to age 14 only. Before that, his mother educated him at home.

Bell was not a very good student. He was more interested in pursuing his own interests, such as collecting birds' eggs and animal skulls.

When he was 15, Bell went to London, England, to study with his grandfather. There he met scientists with whom he discussed sound and electricity.

Bell's father had invented a written code called Visible speech to help deaf people learn to speak. In 1862, Bell and his brothers, Edward and Melville, began helping their father demonstrate how Visible Speech worked. In 1863, Bell and his brothers built a speaking machine. Bell had begun his pursuit to invent instruments for human communication.

Determined to Succeed

By 1870, Alexander's two brothers had died from a lung disease called tuberculosis. He, too, was sick with the disease. His family moved to Canada, where they believed the young man would have a better chance for survival. Having become a teacher of the deaf in London, young Bell did not want to move. But in 1870, Bell and his parents set sail for Canada.

Bell did not stay in Canada long. In 1871, he moved to Boston, Massachusetts, where he began teaching at Sarah Fuller's Boston School for Deaf Mutes. He was a gifted instructor. He explained to his students that sound is actually vibrations in the form of waves. The sound waves enter a person's ear, where they cause parts of the ear to vibrate. These vibrations are changed into electrical signals that are sent to the brain. In 1873, Bell became a professor at Boston University.

Bell continued to work on several inventions while living in Boston. His fascination with speech had been accompanied by a study of electricity. Years before, he and his brother had tried to transmit the sound of a human voice over a wire.

One of the inventions Bell worked on was a new telegraph machine. The telegraph was the first machine that allowed people to send messages electrically over wires.

Bell hired a young man named Thomas A. Watson as his assistant. One day in 1875, a remarkable thing happened. Bell and Watson had run into a problem. A transmitter and a receiver on a telegraph they were working with had failed. While Bell was fixing the transmitter, one of its parts vibrated and sent a sound to Watson at the receiver. They realized that they had the beginnings of a “speaking telegraph,” or telephone!

An Incredible Invention

Bell and Watson continued to work on their new device. Soon, Bell discovered a way to transmit an actual human voice. It was an exciting time as the two inventors continued to improve the design of their telephone.

Bell had to tell people about the telephone and convince them that it worked. He was a good speaker, so this was not a difficult thing to do. The telephone was both fascinating and practical. Although some people doubted that it would ever replace the telegraph, in time it did. Bell’s original telephone became the standard form of communicating over distances.

Bell did not stop working after the success of his telephone. He continued his work with deaf students. In 1890, he founded the American Association to Promote the Teaching of Speech to the Deaf. He also made improvement to the phonograph, one of Thomas Edison’s inventions. Bell called his machine a graphophone. Fascinated by flying, Bell also worked on a flying machine. However, Orville and Wilbur Wright succeeded before he did.

Bell’s greatest invention, the telephone, would in time connect the entire world. Bell died on August 2, 1922. Telephone service in Canada and the United States was stopped for one minute as a tribute to the man who had made it all possible.

Student Independent Practice:

Imagine that you are an inventor, just like Alexander Graham Bell. However, you are living 50 years in the future! You’ve been asked to develop the next generation of the telephone, way beyond the phones we have today. Your boss has asked for you to give a presentation to her product development team that includes:

- The history of the telephone since its invention by Alexander Graham Bell. This means you will need to interview others in your home that are older and may remember phones from years ago. There have been many versions along the way!
- *Your* improvements: proof that you are building upon the ideas of others.
- Your own additions! What makes your phone different than anything anyone has ever seen before.

Use a clean piece of paper to make notes for your presentation, then be sure to summarize in a few short paragraphs at the bottom. Top it off with a prototype drawing of your new phone! Be sure to pull evidence from the text for facts and details to support your writing.