

Name: _____ Teacher: _____ School: _____

Grade 5: Lesson 9 Students will learn about the history of electricity with a focus on the early life of Guglielmo Marconi, specifically, his scientific explorations concerning electromagnetic waves and their role in the development of a wireless communication system.

Electrifying Personalities: Guglielmo Marconi (1874-1937)

Guglielmo (gool-YAY-moh) Marconi was born in the city of Bologna, Italy, on April 25, 1874. His mother, Annie, was Irish, and his father, Giuseppe, was Italian. Giuseppe Marconi was a wealthy man.

When Marconi was very young, his mother took him and his brother, Alfonso, to southern Italy during the winter. There he learned to love the sea.

Tutors taught Marconi and his brother, but the young Marconi did not like to do schoolwork. He preferred to pursue his own interests instead. At the age of 12, he was sent to school in Florence, Italy. He was serious and shy, and his teachers were often frustrated by his lack of interest in his studies.

In his free time, Marconi devoured books about science. He like to tinker with wire and batteries, and take things apart and put them back together. His father thought he was wasting his time, but his mother supported his interests.

Much to his father's disappointment, Marconi began attending the Leghorn Technical Institute in 1887. Giuseppe Marconi had hoped that his son would attend the Naval Institute to become a naval officer.

At Leghorn, a change took place in Marconi. He began to enjoy his schoolwork. He was able to study science. One of his interests was electricity.

At 18 years old, Marconi hoped to go to the University of Bologna. Unfortunately, he did not get in. His mother convinced a physics professor there to allow her son to use the university library. With access to the university's books, Marconi began to focus on the idea of creating a worldwide communication system.

Wireless Communication

Marconi become extremely interested in telegraphic communication. Telegraphic wires had been strung all over the United States and Europe. Marconi wondered if it might be possible to communicate over long distance without those wires. During this time, he learned as much as possible about telegraphs, including Morse code.

One thing that caught Marconi's attention was the idea of electromagnetic wave. Though the idea itself was not new, the possibility of using these waves to communicate was.

Marconi began to wonder whether electromagnetic waves could be used to carry messages as a telegraph did, but without wires. Although his professor in Bologna was not impressed by the idea, Marconi was not discouraged. He was fascinated by the idea of wireless communication.

Scientists had already proved that electromagnetic waves could travel very short distances. Marconi set out to get the waves to travel much longer distances—even across oceans.

With his mother's help, he set up a laboratory in the attic of his parents' house. His father reluctantly provided money for the equipment. Marconi spent long nights in his laboratory, working to get electromagnetic waves to travel longer distances.

END OF PART 1 OF THIS TEXT.

Student Independent Practice:

Imagine you are 20-year-old Guglielmo Marconi! Since you were young, you have immersed yourself in everything *science*. You read books about science, you tinker with wires and batteries, you take things apart and put them back together, you even know all about the famous inventions that inspire your curiosity, like Alexander Graham Bell's telegraph.

Just two years ago, you had a wonderful idea: to create a worldwide communication system! As you work toward making your idea a reality, you have been focused on the electromagnetic wave. Although scientists have been able to prove that electromagnetic waves can travel a very short distance, you are convinced that they can travel much, much further. Not to mention, you believe electromagnetic waves are the key to sending messages far distances and sending them *wirelessly*!

However, you don't have a good place to continue your research and experimentation. You need a laboratory! Your mother agrees and says you can use the attic, but warns you that your father will likely not support your new endeavor. She suggests you write him a letter and leave it on his desk, convincing him that your laboratory could lead to an amazing invention! You agree and get started writing your letter.

Use a clean piece of paper to write your *very convincing* letter. Don't forget to reference your organizer for facts and details. Be sure to include:

- why you really need a laboratory to continue your work.
- how close you are to making an important discovery: that electromagnetic waves can travel much further than anyone knows.
- what you already know about electromagnetic, how they work, and why you believe they are the key to sending messages far distances, *wirelessly*.