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WEB & WIRELESS TECH

Guglielmo Marconi

Pioneer of Wireless Telegraphy

The Man Who Bridged the Atlantic

Guglielmo Marconi (1874–1937) was an Italian inventor who became a pioneer of long-distance radio, also known as wireless telegraphy. Scientists had discovered that invisible radio waves could travel through the air, but Marconi was one of the first people to use them to send real messages across long distances without any wires.

Marconi began his experiments in 1895, when he sent wireless signals about 1.5 miles. He continued to improve his transmitters, receivers, and antennas. In 1901, he achieved a breakthrough: the first transatlantic radio signal. He transmitted the Morse code letter 'S' — three dots — from Poldhu in Cornwall, England, across roughly 3,500 kilometers (about 2,200 miles) of ocean to Signal Hill in St. John's, Newfoundland, which is now part of Canada.

It is important to understand that Marconi transmitted code, not voice. His system used Morse code, a language of short and long signals called dots and dashes. Radio that could carry the human voice came later. Even so, Marconi's wireless telegraphy was revolutionary because coded messages could now cross entire oceans in an instant.

Marconi's invention had a huge impact on the world. His wireless radios were installed on ships, and in 1912 Marconi operators aboard the Titanic sent distress signals that helped rescue survivors. In 1909, Marconi shared the Nobel Prize in Physics with Karl Ferdinand Braun, honoring his contributions to wireless communication.

Part 1 · Reading Comprehension

1. What did Marconi's early system transmit, and how was that different from the radio that came later?

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2. Trace the path of the 1901 transatlantic signal. Where did it start and end?

3. Who did Marconi share the 1909 Nobel Prize in Physics with?

4. Name two devices Marconi improved to make wireless communication work.

Part 2 · Critical Thinking

Marconi transmitted Morse code rather than voice. Why might sending simple dots and dashes have been easier for early equipment than sending the sound of a human voice?

Part 3 · STEM Challenge

Radio Wave Math

Radio waves travel at the speed of light, about 300,000 kilometers per second (km/s). Use this to solve each problem, and show your work!

1. How far does a radio wave travel in 3 seconds? (Multiply 300,000 km/s by 3 seconds.)

2. The transatlantic signal crossed about 3,500 km one way. How far would a signal travel going there and back (a round trip)?

3. In 1901 a signal reached about 2,200 miles. In 1895 the first test reached about 1.5 miles. How many more miles did the 1901 signal travel?

4. The Morse code letter 'S' is three dots. If each dot takes 1 second to tap, how long does it take to tap the letter 'S' three times in a row (9 dots total)?