Spoken Word:
Spreading the word

The early years of radio

Read the following information about the scientists and engineers who helped to develop radio. You must read the information carefully to carry out the instructions that follow it.

Scientists and Engineers

Nikola Tesla

In 1891 Tesla began his research into radio. He later published an article, The True Wireless, concerning this research. In 1893, at St. Louis, Missouri, Tesla gave a public demonstration of wireless radio communication. The apparatus that Tesla used contained all the elements that were incorporated into radio systems.

Afterward, the principle of radio communication (sending signals through space to receivers) was publicised widely from Tesla's experiments and demonstrations. Various scientists, inventors, and experimenters began to investigate wireless methods.

Oliver Lodge

Oliver Lodge transmitted radio signals on August 14, 1894 (one year after Tesla, and one year before Marconi) at a meeting of the British Association for the Advancement of Science at Oxford University. On 19 August 1894 Lodge demonstrated the reception of Morse code signalling using radio waves using a coherer.

Jagdish Chandra Bose

In November 1894, the Bengali Indian physicist, Jagdish Chandra Bose, demonstrated publicly the use of radio waves in Calcutta, but he was not interested in patenting his work. Bose ignited gunpowder and rang a bell at a distance using electromagnetic waves, proving that communication signals can be sent without wires. He was the first to send and receive radio waves over a significant distance but did not commercially exploit this achievement.

Alexander Popov

Popov was the first man to demonstrate the practical applications of radio waves. In 1895, the Russian physicist Alexander Popov built a coherer. On May 7, 1895, Popov performed a public demonstration of the transmission and reception of radio waves used for communication at the Russian Physical and Chemical Society, using his coherer: This day has since been celebrated in Russia as Radio Day. He did not apply for a patent for this invention. Popov's early radio transmissions could only work up to about 550 metres.

Guglielmo Marconi

Guglielmo Marconi was an electrical engineer and Nobel laureate known for the development of a practical wireless telegraphy system. In 1895, Marconi transmitted a telegraph message without wires over a short distance (below a mile), but he did not send his voice over the airwaves.
In 1896, Marconi was awarded a patent for radio with British Patent 12039, called Improvements in Transmitting Electrical Impulses and Signals and in Apparatus There-for. This was the initial patent for the radio, though it used various earlier techniques of various other experimenters (primarily Tesla) and resembled the instrument demonstrated by others (including Popov). Marconi equipped ships with life-saving wireless communications, conducted a reported transatlantic radio communications experiment in 1901 and established the first commercial transatlantic radio service in 1907.The reason it is not obvious who invented radio is that the technology is a product of many different discoveries and developments.

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1. In your group, make up ten questions about what you have read.
2. Swap your questions with another group.
3. Answer the questions you are given. If you have read the information carefully, you should be able to do this without reading it again. Answer as many questions as you can without looking at the information.
4. Give your answers to the other group, and collect their answers.
5. Mark their answers to your questions. Now discuss the questions you wrote, their answers and how you marked them with the other group.
6. Many different scientists and engineers from countries all over the world led to the development of the radio. Complete the table below to summarise these.

Date	Scientist or engineer involved	Discovery or breakthrough
1893		
1 Aug 1894		
	Bose	
		Demonstration of the transmission and reception of radio waves used for communication.
1895		
1901		
1907		