

Marie Curie & Determination

Learn more about this topic! Each section gives more detail on one of the lyrics from the song. Read each section, and then respond by answering the question or taking notes on key ideas.

1. Marie Curie was born Maria Sklodowska on November 7, 1867. She lived in Warsaw, Poland, which was occupied by Russia at the time. Maria was a brilliant student, but women weren’t allowed to go to college in Warsaw at the time. In an act of defiance, she enrolled in the Floating University, a secret institution that provided education to Polish youth.

Notes

Maria’s sister Bronia was also devoted to her studies. The two sisters made a deal: they would each support the other to get advanced degrees. While Bronia went to medical school, Maria worked as a governess and used her earnings to pay Bronia’s tuition. When Bronya graduated, she paid for Maria to study at the famous Sorbonne University in Paris. At the Sorbonne, Maria earned master’s degrees in both physics and math. She met and married Pierre Curie, a physics professor. Around this time, she changed her name to Marie, which sounded more French than Maria.

2. In 1896, the French physicist Henri Becquerel discovered that uranium spontaneously emitted energy in the form of radiation. Marie decided to write her doctoral dissertation to continue Becquerel’s study of radiation. Pierre put aside his own research to assist Marie with hers.

Notes

Marie was the first person to figure out that this emission of energy is not caused by interaction between molecules. Instead, it comes from changes within the atom itself. This was a revolutionary discovery. Until then, scientists had thought atoms were constant and unchanging. Marie also coined the term “radioactivity” to describe this phenomenon. In 1903, Pierre Curie and Henri Becquerel were nominated for a Nobel Prize in physics. Pierre insisted that Marie be included, and in the end she and Pierre shared the prize with Becquerel.

3. In 1906, Pierre died in a tragic accident. He was hit by a horse-drawn carriage while he was crossing the street. Marie was devastated by her husband's death and threw herself into her work. She inherited Pierre's professorship at the Sorbonne, becoming the university's first female professor. She continued her research into two new radioactive elements, polonium (named for her native Poland) and radium (from the Latin word for "ray"). In 1911, Marie Curie earned a second Nobel Prize, this time in chemistry. She was the first person to win two Nobel Prizes. She is still the only person who has won the Nobel in two different sciences.

Notes

4. When World War I broke out in Europe in 1914, Marie put her own research on hold. She donated her and Pierre's gold Nobel Prize medals to the cause. She also developed x-ray machines for hundreds of field hospitals and over 20 ambulances. The x-rays helped surgeons remove bullets and shrapnel from wounded people's bodies. Marie even drove one of the ambulances herself. By the end of the war, her contributions to medicine were estimated to have saved 1 million lives.

Notes

5. It's not clear whether Marie realized that being exposed to radiation was bad for her health. By the time Pierre died, he was already showing signs of radiation sickness, including fatigue and pain. Marie developed shaky hands and cracked skin from handling so much radium in her years of research. She even kept a piece of glowing radium in her bedroom as a nightlight.

Notes

Even if Marie did know about the harmful effects of radiation, she likely would have continued her research anyway. She was determined to learn how to use radiation to help people. Marie died in 1934 at the age of 66 from a blood disorder caused by radiation. Her body was buried in a lead-lined coffin to contain the radiation coming off her body. Her notebooks and belongings are still so radioactive that they cannot be safely touched.