

7th Grade – Argumentative

Prompt:

Write an argumentative essay in which you reflect whether Marie Curie or Louis Pasteur made more significant contributions to society. Your essay must include relevant (be based on) ideas, concepts, and information from the passage set (both texts/passages).

Manage your time carefully so that you can

- read the passages;
- plan your response;
- write your response; and
- revise and edit your response.

Be sure to

- include a claim;
- address counterclaims;
- use evidence from multiple sources; and
- avoid overly relying on one source.

Type your response in the space provided.

You have one class period to read, plan, write, revise and edit your response.

Passage 1:

Marie Curie Biography

Marie Curie was a Polish scientist who won a Nobel prize in both chemistry and physics. She was the first female professor of the University of Paris, and made ground-breaking work in the field of radioactivity.

“Humanity needs practical men who get the most out of their work and without forgetting the general good, safeguard their own interests. But humanity also needs dreamers, for whom the

disinterested development of an enterprise is so captivating that it becomes impossible for them to devote their care to their own material profit.” - Marie Curie

Marie Sklodowska was the youngest of five children, born in 1867 in Warsaw, Poland. She was brought up in a poor but well-educated family. Marie excelled in her studies and won many prizes. At an early age she became committed to the ideal of Polish independence from Russia which was currently ruling Poland with an iron fist, and in particular making life difficult for intellectuals. She yearned to be able to teach fellow Polish women who were mostly condemned to zero education.

Unusual for women at that time, Marie took an interest in chemistry and biology. Since opportunities in Poland for further study were limited, Marie went to Paris, where after working as a governess she was able to study at the Sorbonne, Paris. Struggling to learn in French, Marie threw herself into her studies, leading an ascetic life dedicated to studying. She went on to get a degree in physics and finish top in her school. She later got a degree in mathematics, finishing second in her school year.

It was in Paris that she met Pierre Curie, who was then chief of the laboratory at the school of Physics and Chemistry. He was a renowned chemist who had conducted many experiments on crystals and electronics. Pierre was smitten with the young Marie and asked her to marry him. The unromantic Marie initially refused but after persistence from Pierre she relented. The two would later become inseparable until Pierre's untimely death.

Marie Curie's work on Radioactivity

Marie pursued studies in radioactivity. In 1898, this led to the discovery of two new elements. One of which she named polonium after her home country.

There then followed four years of extensive study into the properties of radium. Using dumped uranium tailings from a nearby mine, they were very slowly and painstakingly able to extract a decigram of radium.

Radium was discovered to have remarkable impacts. Marie actually suffered burns from the rays. It was from this discovery of radium and its properties that the science of radiation was able to

develop, using the properties of radium to burn away diseased cells in the body. Initially radiotherapy was called 'currietherapy.'

The Curries agreed to give away their secret freely; they did not wish to patent such a valuable element. The element was soon in high demand and it began industrial scale production.

For their discovery they were awarded the Davy Medal (Britain) and the Nobel Prize for physics in 1903.

In 1905, Pierre was killed in a road accident, leaving Marie to look after the laboratory and her two children.

In 1911 she was awarded a second Nobel Prize in Chemistry for the discovery of actinium and further studies on radium and polonium.

The success of Marie Curie also brought considerable hostility, criticism and suspicion from a male dominated science world. She suffered from the malicious rumors and accusations that flew around.

The onset of World War I in 1914, led to Marie Curie dedicating her time to the installation of x-ray machines in hospitals. Marie understood that x-ray machines would easily be able to locate shrapnel, enabling better treatment for soldiers. By the end of the First World War over a million soldiers had been examined by her x-ray units.

At the end of the First World War she returned to the Institute of Radium in Paris and also took great pride in serving the fledgling League of Nations. She also published a book on radioactivity which encompassed her great ideas on science.

Marie Curie died in 1934 from cancer. It was an unfortunate side effect of her own groundbreaking studies into radiation which were to help so many people.

Marie Curie pushed back many frontiers in science; and at the same time set a new bar for female academic and scientific achievement.

Citation : Pettinger, Tejvan, "Biography of Marie Curie ", Oxford, UK – Biography Online Last updated 15th June. 201

Passage 2:

Louis Pasteur Biography

Louis Pasteur (1822 – 1895)

Louis Pasteur worked tirelessly to develop antidotes and cures to many dangerous illnesses such as anthrax and rabies. He also successfully invented a way to pasteurize milk and make it safe from tuberculosis.

Louis Pasteur was born in Dole, France. He was a conscientious and hardworking student, though not considered exceptional. One of his professors called him ‘mediocre.’ He received a doctorate in 1847 and after obtaining posts at Strasbourg, Lille and Paris he spent much time researching aspects of Chemistry. One key discovery related to research on tartrate acid, showing the crystals contained a mirror image of right-handed and left handed isomers.

His most important discoveries were in the field of germ study. He showed that germs required certain micro-organisms to develop; using this knowledge he found that the fermentation of yeast could be delayed. Louis Pasteur then turned to practical ways of killing bacteria in liquids such as milk. His process of pasteurization successfully killed bacteria in milk without destroying milk protein. This was a radical discovery and made drinking milk safe. The process of pasteurization was named after him and it saved many lives.

Louis Pasteur was a great believer in hard work. Never content to rest on his laurels, he continued to work very hard in his laboratory to develop more cures. He said in advice to other scientists:

“An individual who gets used to hard work can thereafter never live without it. Work is the foundation of everything in this world.”

Louis Pasteur next created a cure for anthrax – a disease that mainly affects cattle. He found that by giving cattle a weakened form of the illness they were able to develop immunity to the illness.

This success encouraged him to develop a cure for rabies – a very common disease at the time. Using similar principles he developed a weakened strain of the disease. Testing on animals affected with rabies was successful, however he was reluctant to test on humans for fear it might

not work. At one point he considered testing on himself by subjecting himself to rabies and then trying his cure. However, before he could implement his scheme a young boy was brought to him who had been bitten 14 times by a rabid dog. His parents agreed to try the uncertain new technique. His treatment was a success and news of the treatment soon spread. Over 350 people came to Louis Pasteur for treatment. Louis and his team of scientists worked around the clock to save the people who had contracted rabies.

There was only one failure, a ten-year-old girl Louise Pelletier. Louis knew the disease was too advanced when she came to him but he tried to save her nevertheless. The girl died in his arms, and with tears in his eyes, the great scientist said to her parents, “I did so wish I could have saved your little one.” It was testament to the big heart of the famous scientist that he took so much interest in his patients.

In 1888, friends and supporters funded an institute for the treatment of rabies. Louis Pasteur successfully campaigned for better research facilities for scientists. His pleas of more funding were heard by Napoleon III. Louis Pasteur argued that, “Physicists and chemists without laboratories are like soldiers without arms on the battlefield.

Louis died in 1895 aged 73. On his last day he remarked:

“I should like to be younger, so as to devote myself with new ardor to the study of new diseases”

Louis Pasteur had great faith in the good nature of humans. He worked tirelessly to deliver real benefits for the treatment of infectious diseases. More than any other person, Louis Pasteur helped to increase the life expectancy of man in the late nineteenth and early twentieth century.

Citation : Pettinger, Tejvan. “Biography of Louis Pasteur “, Oxford, Biography Online, 18th Feb. 2008.