

The Past and Present of Women in Science

An Examination of Women in Science from the nineteenth Century to the twenty-first

Grades: 8-9(potentially for high honors grade 7)

Time: 2-3 hours of class time

Materials:

- Maria Mitchell's speech, "The Need for Women in Science"
- Ted Talk (<https://www.youtube.com/watch?v=FEeTLopLkEo>)

Description

This lesson will introduce students to Maria Mitchell and her contributions to the women's rights movement in the nineteenth century. Students will learn about Maria Mitchell and her desire for increased representation of women in science. They will read her speech entitled "The Need for Women in Science" and watch a Ted Talk discussing the representation of women in science today. Then, students will compare and contrast the video and speech. For homework, students will complete a short assignment —writing about why they believe women are important in science, the difficulties they face within the scientific community, and the importance of increasing opportunities for women using arguments from both Maria Mitchell's speech and the Ted Talk.

Objectives

- Read Maria Mitchell's speech "The Need of Women in Science"
- Discuss the importance of women in science
- Watch Ted Talk entitled "Inspiring the Next Generation of Women in Science"
- Compare and contrast both speeches
- Write a paper about the importance of women in science citing both sources

Curriculum Connection

English Language Arts and Literacy educational experiences will ensure that students:

- Will discuss and write about their readings to develop critical thinking skills
- Will cite textual evidence
- Will compare and contrast two sources
- Will determine a text's central ideas
- Will evaluate the advantages and disadvantages of using different mediums to present a particular topic or idea
- Will draw evidence from literary or informational texts to support written analysis

History and Social Science educational experiences will ensure that students:

- Will cite specific textual evidence from primary or secondary sources
- Will identify aspects of a text that reveal an author's point of view or purpose
- Will analyze the purpose of information presented in diverse media

Order of the Lesson Plan

1. Educate students about the life of Maria Mitchell through the biography provided.
2. Have students read Maria Mitchell's speech "The Need of Women in Science"
3. Watch the Ted Talk entitled "Inspiring the Next Generation of Female Engineers" by Debbie Sterling.
4. Split students into small groups to compare and contrast the two speeches and what their arguments are.
5. Once students have discussed, bring the class together and have a larger discussion about the two speeches.
6. For homework have students write 1-2 pages explaining the need for women in science today, the importance of increasing opportunities for women in science, and the difficulties they face within the scientific community based off of arguments from the two speeches and citing textual evidence.

All About Maria Mitchell

Maria Mitchell is America's first professional female astronomer. She is famous because she discovered a telescopic comet, and because of this discovery, she was awarded a medal from the King of Denmark. She was the first American and the first woman to receive this honor. Maria was the first female member of the American Academy of Arts and Sciences in 1848 and led as the only woman until the next was inducted in 1943. She was born on August 1, 1818 on Nantucket Island, Massachusetts. She was the third eldest of 10 children born to parents William and Lydia Mitchell. From a young age, Maria was always interested in the study of the skies. At age 12, she helped her father, William, count the seconds of a solar eclipse. This helped to pinpoint the longitude and latitude of her house, which made it an official observatory!

While Maria studied reading, writing, and mathematics in school, her favorite subjects were always mathematics and astronomy. Maria was formally educated until age 16 and from then on she was self-taught. Much of the information she learned came from the library on Nantucket – the Atheneum. Maria was the first librarian at the Atheneum. She was there for twenty years, during which she taught herself multiple languages and increased her knowledge of mathematics and astronomy. On October 1, 1847, Maria discovered a comet from the roof of the Pacific Bank, the family's new residence. Maria's father alerted the Danish government of this discovery and she was awarded a gold medal from the King of Denmark for her discovery of the comet.

Maria was the first professor hired at Vassar College for women when it opened in 1865. She originally turned down this offer because she did not have a college degree, so she thought she was not qualified enough to be a professor of mathematics and astronomy. She was a favorite professor of the students at the College. With her students, she traveled to view two solar eclipses; one in Burlington, Iowa and another in Denver, Colorado.

Because of her accomplishments Maria became a world famous astronomer. When she traveled around Europe in 1858 she was the first woman to be admitted to the Vatican Observatory with special permission from the Pope. In 1872, Maria helped found the Association for the Advancement of Women, and was president of the Association for two years beginning in 1875. In 1876, Maria gave a speech at the Fourth Congress of the Association for the Advancement of Women entitled "The Need for Women in Science," in which she discussed the importance of including women in the different fields of science.

Maria was a member of a women's club called SOROSIS. It was a club for working women who felt their success in the professional world was deterred by sexism. At first, Maria attended meetings with the women of SOROSIS; the more meetings she attended the more well respected she became because of her contributions to the group. In 1871 she became an honorary member and within two years was a working member and was elected vice president.

Maria and her colleague, Alida C. Avery, discovered that they were not being paid the same as the male professors at Vassar College. Maria received \$800 including room and board while the male professors received \$2,000 and a few years later \$2,500 while Maria's pay remained at \$800. Maria and Alida wrote a letter to the Vassar Trustees asking for their pay to be equal to the men; it was increased to \$1400. They both wrote letters to the Board of Trustees every year until finally, in 1871, the vote was passed to have equal pay between men and women professors at Vassar.

In 1850, Maria Mitchell was inducted into the American Association for the Advancement of Science. In 1874 she was made a fellow—a higher category within the Association. She was the first inductee in the Association and one of the first seven fellows, all inducted at the same time, who were women.