

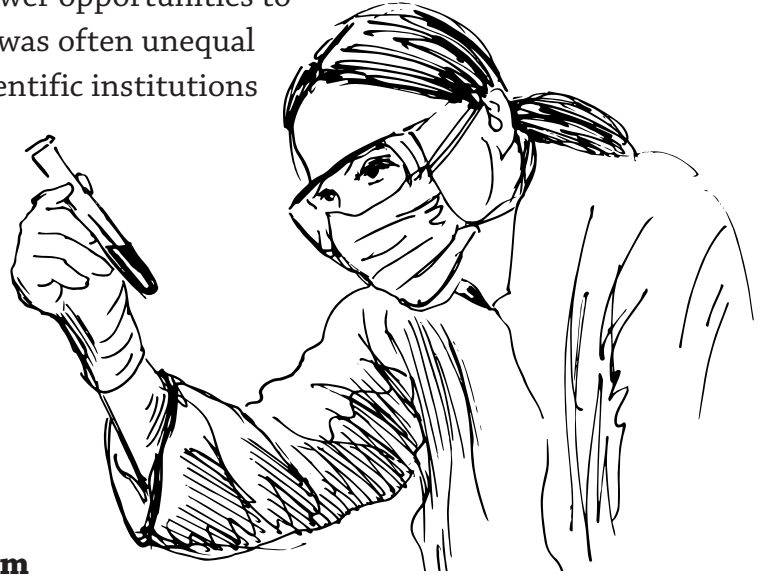
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Women in Science

Throughout history, women have generally had fewer opportunities to succeed in scientific careers than men. Education was often unequal between boys and girls, and many schools and scientific institutions did not even allow women to enroll! Today, women in many parts of the world have a better chance to succeed in scientific careers than did women of the past. How have women overcome challenges to make their mark on the history of science? What important scientific achievements have women made that impact the world today? Let's learn about some notable women scientists of the past and present!



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Find It!

Find the answers to the questions below by using the "Search" tool.

Since this section is about Ada Lovelace, you can start by searching the key words "Lovelace, Ada."

Write the answers on the lines provided or below the question.

1. Ada Lovelace wrote the first published _____.
2. Lovelace was interested in the work of the mathematician _____ and she worked as his associate for a number of years.
3. In what year was the computer programming language, Ada, named in Lovelace's honor?
 - a. 1815
 - b. 1838
 - c. 1979
 - d. 2011

*Users of the *Advanced* database can find extension activities at the end of this webquest.

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Look for the answers to the following questions in the "Cannon, Annie Jump" article.

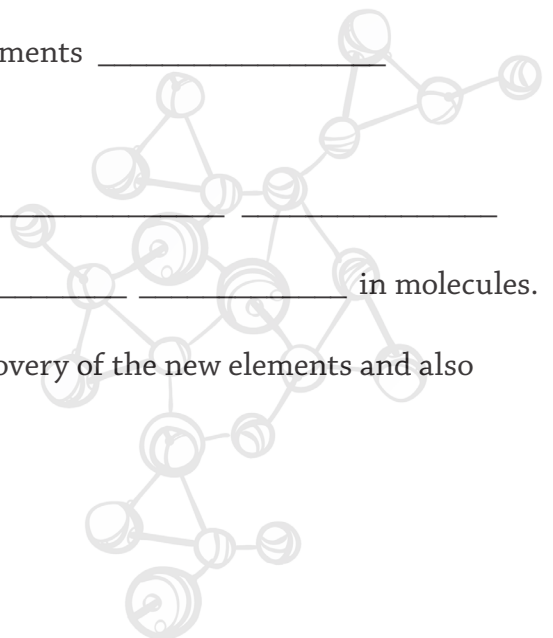
4. Annie Jump Cannon developed a system of classifying _____.
5. Which of the following objects did Cannon discover?
 - a. A binary star
 - b. 5 novae (types of exploding stars)
 - c. 300 variable stars
 - d. All of the above

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Look for the answers to the following questions in the "Picotte, Susan La Flesche" article.

6. Susan La Flesche Picotte was the first American Indian woman to become a _____.
7. What did Picotte do in 1913 to help the Omaha people?

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Look for the answers to the following questions in the "Curie, Marie Skłodowska" article.

8. Marie Skłodowska Curie achieved many firsts! List three of them below.
 1. She was the first woman awarded _____.
 2. She was the first person to win _____.
 3. She was the first woman to teach at _____.
9. Curie and her husband, Pierre, discovered and named the elements _____ and _____.
10. Curie theorized that radioactivity was a property linked to _____ rather than one that depended on the _____ in molecules.
11. In 1911, Curie won the Nobel Prize in chemistry for her discovery of the new elements and also for her work in isolating and studying which element?
 - a. Francium
 - b. Polonium
 - c. Radon
 - d. Radium



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Look for the answers to the following questions in the “Lehmann, Inge” article.

12. Inge Lehmann was the first scientist to _____
_____.

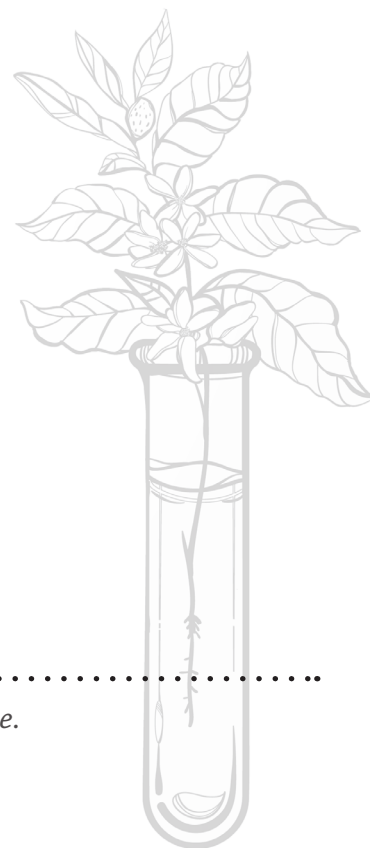
13. What made the school that Lehmann attended unusual for its time?

14. What generated the pressure waves, or P waves, that Lehmann observed?

- a. Volcanoes
- b. Earthquakes
- c. Hurricanes
- d. Stampeding elephants

15. Circle the two metals that make up most of the Earth’s inner core.

- | | | |
|----------|---------|----------|
| aluminum | lead | silver |
| copper | mercury | titanium |
| iron | nickel | zinc |



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Look for the answers to the following questions in the “Kwolek, Stephanie Louise” article.

16. What is Kevlar?

17. _____ are long chains of molecules that can be spun into fibers and made into fabrics or plastics.

18. Kevlar is now used to make many different items. List six of them below.

- | | |
|----------|----------|
| 1. _____ | 4. _____ |
| 2. _____ | 5. _____ |
| 3. _____ | 6. _____ |

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Look for the answers to the following questions in the “Rubin, Vera” article.

19. Vera Rubin discovered key evidence to support the theory of _____, an invisible form of matter thought to make up as much as 90 percent of the matter in the universe.

20. Rubin and the astronomer W. Kent Ford conducted a study of about 60 _____.

21. What award did Rubin win in 1993?

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Look for the answers to the following questions in the "Goodall, Jane" article.

22. Jane Goodall is best known for her studies of which animals?

- a. Chimpanzees
- b. Gorillas
- c. Hyenas
- d. Lions



23. How did Goodall win the trust of many chimpanzees?

24. Goodall found that the diet of chimpanzees includes _____ and _____.

25. List three behaviors that Goodall discovered in chimpanzees, to the surprise of many scientists.

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Look for the answers to the following questions in the "Jemison, Mae Carol" article.

26. Mae Carol Jemison became the first black woman to _____

_____.

27. Aboard the spacecraft Endeavor, Jemison conducted the first experiment that fertilized _____ in space.

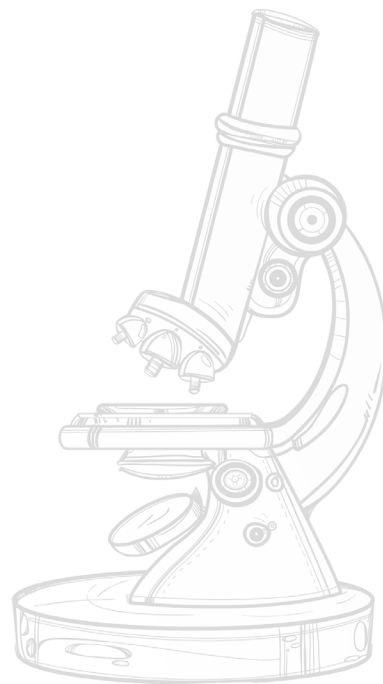
28. Jemison also studied the loss of _____ experienced by people and other animals in orbiting spacecraft.

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Look for the answers to the following questions in the “Wood, Fiona” article.

29. What is Fiona Wood known for?
30. Thanks to the work of Wood and the Australian medical scientist Marie Stoner, healthy skin cells can now be harvested and _____ onto a burn wound within _____ minutes.
31. In what year was Wood made a Member of the Order of Australia?
- a. 1999
 - b. 2003
 - c. 2005
 - d. 2012

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Look for the answers to the following questions in the “Tu, Youyou” article.

32. What prize did Youyou Tu win in 2015 for developing a highly effective drug to treat malaria?
33. What kind of texts did Tu study to find a treatment for malaria?
34. List the three names for the plant that Tu used to produce a treatment for malaria.
- 1. _____
 - 2. _____
 - 3. _____



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Extension Activity 1: *Write a letter!*

Write a 1-2 page letter to any of the women scientists that you have read about today. Think about the facts that you learned about her life and her achievements. Tell her what parts of her life or work you find interesting or inspiring. Ask her questions about her research or experiences as a scientist. What would you like to know more about?

Make sure to include an appropriate greeting and signature to frame the body paragraphs of your letter.

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Extension Activity 2: *Be an Inspiration for the Future!*

Choose one field of science that you find interesting. If you need ideas, go to the “Science” article and click on the “Related Information” tab. Under “Encyclopedia Articles” you will find a list of sciences and scientists.

Choose one field of science to explain to a child in a series of cartoon images.

Through your cartoon, you will explain:

What does a scientist in this field study?

What do you find most interesting about this field of science?

How does this field of science impact the world today?

Which female scientists have made an impact on this field? Who are they, and what did they do?

If there are no female scientists, explain how someone can get into this field of science, if they wanted.

Teacher Page

Answers:

1. Ada Lovelace wrote the first published computer program.
2. Lovelace was interested in the work of the mathematician Charles Babbage, and she worked as his associate for a number of years.
3. C. 1979
4. Annie Jump Cannon developed a system of classifying stars.
5. D. All of the above
6. Susan La Flesche Picotte was the first American Indian woman to become a physician.
7. Picotte established a hospital on the reservation.
8.
 1. She was the first woman awarded a Nobel Prize.
 2. She was the first person to win two Nobel Prizes.
 3. She was the first woman to teach at the Sorbonne.
9. Curie and her husband, Pierre, discovered and named the elements radium and polonium.
10. Curie theorized that radioactivity was a property linked to individual atoms rather than one that depended on the arrangements of atoms in molecules.
11. D. Radium
12. Inge Lehmann was the first scientist to show that Earth has a solid inner core.
13. Girls were given the same educational opportunity as boys.
14. B. Earthquakes
15. Iron and nickel
16. Kevlar is a fiber that is five times as strong as steel.
17. Polymers are long chains of molecules that can be spun into fibers and made into fabrics or plastics.
18. Acceptable answers may include: body armor, helmets (or motorcycle helmets), vehicle liners, brake pads, bridge cables, skis, airplane parts, spacecraft parts, and belted tires.
19. Vera Rubin discovered key evidence to support the theory of dark matter, an invisible form of matter thought to make up as much as 90 percent of the matter in the universe.

20. Rubin and the astronomer W. Kent Ford conducted a study of about 60 spiral galaxies.
21. The National Medal of Science
22. A. Chimpanzees
23. She won the trust of many chimpanzees through daily contact with them.
24. Goodall found that the diet of chimpanzees includes young monkeys and pigs.
25. Hunting, tool use, and warfare.
26. Mae Carol Jemison became the first black woman to travel in space.
27. Aboard the spacecraft Endeavor, Jemison conducted the first experiment that fertilized frog eggs in space.
28. Jemison also studied the loss of bone tissue experienced by people and other animals in orbiting spacecraft.
29. Fiona Wood is known for inventing new treatments for patients with severe burns.
30. Thanks to the work of Wood and the Australian medical scientist Marie Stoner, healthy skin cells can now be harvested and sprayed onto a burn wound within 30 minutes.
31. B. 2003
32. The Nobel Prize OR The Nobel Prize for physiology or medicine
33. Tu studied ancient texts on traditional Chinese medicine.
34. Qinghao, sweet wormwood, and *Artemisia annua*

Extension Activity 1, & 2: Answers will vary.