



Born Curious: 20 Girls Who Grew Up to Be Awesome Scientists

By Martha Freeman, illustrated by Katy Wu

About the Book

Discover the histories of twenty incredible female scientists in this inspiring biography collection. Without the vision, insight, and hard work of these scientists, the world would be a sicker, dirtier, and more dangerous place. These groundbreaking women came from all kinds of backgrounds and had all kinds of life experiences. Some grew up rich. Some grew up poor. Some were always the smartest kid in class. Some struggled to do well in school. But all had one thing in common: they were born curious. Are you curious, too? Read on.

Prereading activities

The activities below particularly address the following English Language Arts Common Core State Standards: (RL.4-7.2,9)

1. Look at the title of the book. How do you think it applies to these women? How might someone who is born curious act or think? How can curiosity lead to great things? What are you most curious about? How do you think it feels to let a sense of curiosity lead your passions? Explain your answers. Keep a list of your favorite examples of curiosity as you're reading.
2. Look at the table of contents. Are you familiar with any of these women? Do you know any other women who are scientists or mathematicians?

3. The introduction includes a paragraph that says, “From ancient times until today, women have pursued science and math, even if their contributions weren’t always recognized. We chose the women in this book because they do different kinds of science, and because each of their stories is different. . . . As women in professions dominated by men, some felt discrimination, while others said they were usually able to shrug it off. One thing they had in common: They were born curious.” What does this introduction tell us about the book’s content and messages? Why might the author want to highlight people whose “contributions weren’t always recognized”?

4. Find a map of the world to display in your classroom. As you read, place a pin where each story takes place, and mark the map with each woman’s name.

5. Flip through the book and look at each woman’s section. How is it organized? Think about what information the images provide, and what they add to the experience. Why do you think the author chose to include an achievement, a quote, and a fascinating fact from each woman?

Discussion Questions

The discussion questions below particularly address the following English Language Arts Common Core State Standards: (RL.4-7.1,2,3,7,9) (W.4-7.6,8,9) (RL.4-7.6) (W.4-7.6,7,8,9)

1. Of the women featured in these pages, whom do you most identify with? What qualities do you admire, and how do you see these qualities reflected in your everyday life? Provide examples from your life that illustrate this.

2. Where do you see the influences of these women’s lasting legacies today? How do you think their stories have impacted others beginning their careers? For example, when Tu Youyou recovered from tuberculosis, she “decided she wanted to develop medicines for her own good and for others,” sacrificing time with her children and working with limited resources that exposed her team to toxic chemical fumes. Make a chart of these legacies.

3. Think about how many of these women you’d heard about before reading this book. Why do you think they are not talked about more often? Which woman do you think should be widely known or respected for their contributions? Write a persuasive essay introducing her, and make your argument as to why she should be more well known. Be sure to include at least three reasons and specific details to support your choice. Explain your point of view using convincing language to deliver a strong message.

4. Name some of the women about whom you are most excited to learn more. What did they do? Why do you think they can be classified as “born curious”?

5. What is a Nobel Prize in Physiology or Medicine? How many times has it been awarded? Explore the Nobel Prize website (<https://www.nobelprize.org/prizes/lists/all-nobel-laureates-in-physiology-or-medicine>) and the book’s glossary to understand the history and criteria for the award. Then read about the women included in this book who have won the Nobel Prize. What characteristics do they have in common? Is there someone else in the book who you think should

have won? Why did “many people [think it] was unfair” that Jocelyn Bell Burnell did not win the 1974 Nobel Prize alongside Antony Hewish and Martin Ryle? Explain your answers by citing evidence from the book. Use a graphic organizer like the ones found on this website (<https://www.eduplace.com/graphicorganizer/>) that features the Nobel Prize in the center and the women, their characteristics, and their winning areas out to the sides.

6. Throughout the book, the author uses quoted statements and fascinating facts for each of the women to help us understand and define them. Find a quote or fact that is interesting, surprising, or inspirational to you. Write a personal essay on why the quote or fact is important or revelatory, what it means to you, and what it means to the book’s themes. Be sure to include an introductory paragraph, supporting paragraphs, and a conclusion.

7. Many of the women in *Born Curious* had to work around limited resources, poor conditions, and discrimination from men who were more respected in their fields simply because of their gender. How might these situations have had both a positive and negative impact on these women’s efforts? Do you think the scientific community has made progress in terms of equal opportunities and its support of women? How do these women try to get people to listen to them? Which of their actions do you find most empowering?

8. What does advocacy mean? What does it take to become an advocate? Make a word cloud (<http://www.wordle.net/>) using words that show personal characteristics that made these women strong advocates for what they believed in.

9. In small groups, make a chart of five different kinds of obstacles these women had to face. Include the name of the woman, who encouraged her, why she was encouraged, obstacles they had to overcome, and the results of that encouragement. How many of these obstacles were related specifically to being a woman in her specific field? Hang charts on the wall, and with your classmates, look for common elements across themes. Discuss the different approaches these women took, and how they accomplished their goals.

10. If you were going to write a sequel to *Born Curious*, what criteria would you use for including other women? Consider areas of study, goals, and accomplishments. Compile a list of women that fit your rationale and decide what quote(s) or fascinating fact(s) you’d include in their sections. Be sure to give reasons and examples from your current reading and research.

11. Choose a career or experience featured in the book and think about someone your age who has similar dreams; it could be someone who you’ve heard about, or a classmate or friend. Once you’ve selected them, think about how you might support their efforts or interests and about any challenges they might face. Share your findings with your class.

12. The afterword asks, “Do you want to be an awesome scientist or mathematician like the ones in this book?” and offers tips to follow. How would you answer that question? Which tip do you find most interesting or most applicable to your life? Which area of study did you find most interesting? Which careers hadn’t you heard about before? What did this book make you think about your future goals?

Extension Activities

The activities below particularly address the following English Language Arts Common Core State Standards: (SL.4-7.1,2,3,4,5,6) (RL.4-7.5) (W.4-7.6,8,9) (RI.4-7.3) (RST.6-7.7)

1. Pretend you are interviewing one of these women for a documentary about her life. What questions would you ask? What would be the topics or messages of the film? With a partner, plan an interview exchange with one of these women. Use your school library or the internet as well as the sources section in the back of the book to research the interviewee you've chosen in order to help you answer the questions accurately. Then perform the interview for your class, with one of you acting as the reporter and the other playing the role of the interviewee.
2. Many of the women are still working on projects that lead them to exciting discoveries, such as new species, enzymes, and cures for diseases. How did they go about learning the skills that led them to these past achievements? How do they view the importance of education and being in a classroom? With your classmates, divide into groups, each studying one or two of these women and the role education has played in their lives. Stage a panel about education with your teacher as the moderator, switching roles for each question posed; each group member will have a chance to participate to represent their chosen woman's view. Discuss each woman's education, and how they went about pursuing information related to their interests. Discuss how boredom can affect learning, and how curiosity can be sparked and supported. Discuss women's access to continuing education, and how that has changed over the last century. Talk about how having an education can impact an individual and incite global change, and the tools and efforts needed to accomplish this.
3. Using the glossary in the back of the book, pick a term to explain to your classmates. Use multimedia to illustrate and give examples of the concept. Make sure to correctly label any images that explain each component.
4. With your classmates, create a time line of the women featured in *Born Curious* to post in your classroom; use the internet or library resources to locate these dates. The time line can be constructed using lengths of butcher paper on the walls or floor. Decide with your classmates whether to use birthdates or dates of major accomplishments to mark the time line, and add pictures of the women or objects related to their work.
5. What would it be like to spend a day with one of these women? Choose one woman and write a letter to her explaining what you would like to do, or discuss if you could spend the day with her. Be sure to include where you would go, what you would do, and the kinds of questions you would like to ask her.
6. Create a "Choose your own adventure" book using Google Forms or Google Slides for one of the women from *Born Curious* (<https://www.google.com/slides/about>). Consider the different

consequences if she had not been encouraged, had chosen a different path, or had lived during a different time period.

*For teachers: use examples and suggestions from

<http://blog.justinbirckbichler.com/2017/06/creating-their-own-adventures.html> to help set up a “Choose your own adventure” template for students to use.

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