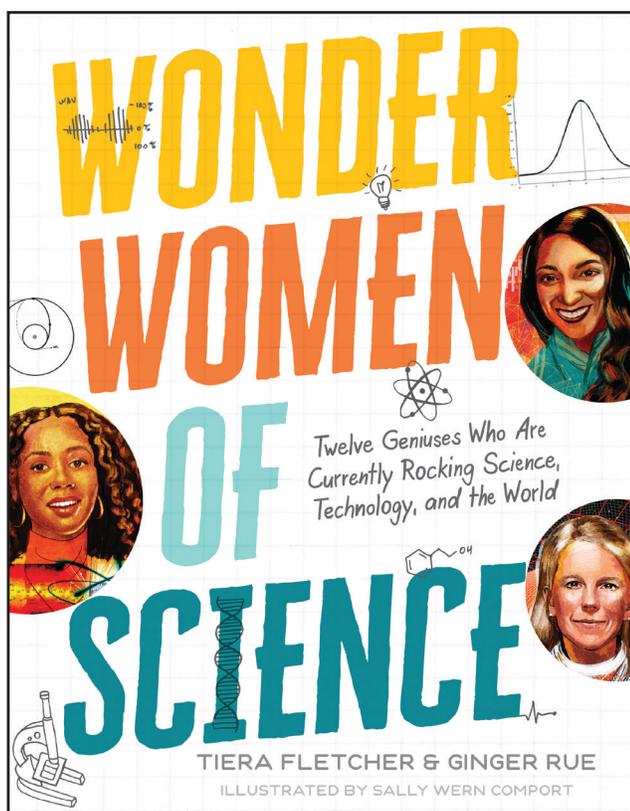


WONDER WOMEN OF SCIENCE

*Twelve Geniuses Who Are Currently Rocking
Science, Technology, and the World*

TIERA FLETCHER & GINGER RUE
ILLUSTRATED BY SALLY WERN COMPORT



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Also available as an e-book

ABOUT THE BOOK

Meet award-winning aerospace engineer Tiera Fletcher and twelve other science superstars and hear them tell in their own words not only about their fascinating work, but also about their childhoods and the paths they traveled to get where they are—paths that often involved failures and unexpected changes in direction, but also persistence, serendipity, and brilliant insights. Their careers range from computer scientist to microbiologist to unique specialties that didn't exist before some of the amazing women profiled here created them.

This is a book to surprise and inspire not only die-hard science fans, but also those who don't (yet!) think of themselves as scientists. Back matter includes reading suggestions, an index, a glossary, and ideas for how to get involved in the world of STEM.

COMMON CORE CONNECTIONS

This guide, which can be used with large or small groups, will help students meet several of the Common Core State Standards (CCSS) for English Language Arts. These include the reading informational text standards for key ideas and details, craft and structure, and integration of knowledge and ideas (CCSS.ELA-Literacy.RI), as well as the speaking and listening standards for comprehension and collaboration and for presentation of knowledge and ideas (CCSS.ELA-Literacy.SL). As you explore the text with students, be sure to encourage students to cite textual evidence in their responses. Also consider using the questions as a foundation for writing prompts during independent work or collaborative discourse opportunities.



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DISCUSSION QUESTIONS

1. Preview Activities: Think about the STEM focus of the book. Why is *Wonder Women of Science* an appropriate title? Review the sequence of the text and explain how the information is organized (e.g., table of contents, chapters, glossary, index). Consider how the authors arrange each individual chapter (i.e., fact files, subheadings). Is the organization similar to or different from that of other informational texts that you have read? What is helpful about the layout? Why? Provide textual details in your explanation. (*Reading: Informational Text: RI. 6.5, 7.5*)
2. Make Text to World Connections: Preview the table of contents. Are the names of any of the featured women familiar? If yes, what do you already know about the individual(s)? What new information do you hope you will learn about the individual(s)? Which STEM-related professions and areas of study do you think will be discussed in the book? Support your responses with evidence.
3. As you read each chapter, summarize the following sections: (a) “The Spark,” (b) “The Eureka Moment,” and (c) overall advice (“Note to Self,” “Note to You,” and “Words to Live By”). What do you believe is the central idea of each chapter? Which key details support that idea? Be specific. (*Reading: Informational Text: RI. 6.2, 7.2*)
4. After each profile, the authors include a distinct section that expands on a topic related to the subject’s work—for example, the section titled “Two Types of Research: Qualitative and Quantitative” (page 18). Are these sections a helpful addition to the text? Which concluding section had facts that you found the most interesting? Why? Explain your rationale.
5. What are specific obstacles or challenges that each scientist had to overcome in order to be successful? Consider school experiences and factors like opportunity gaps. How did each woman learn from mistakes or challenges? For example, Evelyn Galban failed her board exams twice, but kept pursuing her goal. Can you describe an obstacle that you overcame or a failure that taught you a valuable lesson? (*Reading: Informational Text: RI. 6.1, 7.1*)
6. Several of the women featured in the book emphasize the need to pursue one’s interests regardless of other people’s perceptions. In the preface, Tiera Fletcher shares, “Even in the industry, I run into many people who do not expect me to be able to answer their questions. . . . As a triple minority in the field of aerospace engineering (young, female, and African American), I have continually experienced false assumptions based on the way that I look” (page 4). What are negative stereotypes that young women may face when expressing interest in STEM fields? What are potential benefits of having more women from diverse backgrounds in STEM? What are your unique interests? How could you turn your interests into a career?

7. Many of the women in the book discuss their family and/or role models as important elements of their success. Select three women from the text and describe interactions with family, friends, and/or role models that influenced their work. What discouraging interactions impacted each scientist? Explain. How might positive interactions counter negative interactions in someone's life? Who are family members and role models that support you as you work toward your goals? How do they do so? (*Reading: Informational Text: RI. 6.3, 7.3*)
8. In the text, what is each scientist's major STEM contribution? If applicable, what questions did each woman seek to answer? How did her work build upon the investigation of previous professionals? How does each scientist's work make a positive contribution to society? How can the work be further used to improve the world through connections to issues such as equal access, civil rights, and/or environmental concerns? If you could solve a local, national, or world problem, what would it be? Why?
9. What was the authors' purpose in writing this book? What central idea are they trying to convey to the reader? How does each chapter support the overarching central idea? Cite textual evidence in your response. (*Reading: Informational Text: RI. 6.2, 6.6, 7.2, 7.6*)
10. Based on the information you learned in *Wonder Women of Science*, which particular field of science, technology, engineering, or mathematics do you find the most interesting? Why? Select one idea from the section titled "Suggestions for Further STEM Awesomeness" (page 181) to help you further explore STEM ideas and connections.

CLASSROOM ACTIVITIES

GOAL SETTING: FUTURE ASPIRATIONS

Each chapter begins with a fact file about the featured scientist. Have your students create their own fact files using the template below. They should include accomplishments they hope to attain in the future and outline short- and long-term goals that they need to make their fact file a reality. Then have them share their fact file with a peer or mentor in conversations where they explain their goals and ask and answer questions. (*Speaking and Listening: Comprehension and Collaboration, SL. 6.1, 7.1*)

FACT FILE

HOMETOWN _____

EDUCATION _____

EMPLOYMENT _____

TOP HONORS AND ACHIEVEMENTS _____

5 SHORT-TERM GOALS TO MAKE THE FACT FILE A REALITY

5 LONG-TERM GOALS TO MAKE THE FACT FILE A REALITY

WRITE A LETTER: MAKE A DIFFERENCE THROUGH STEM

Several of the women featured in the book are working to address a challenge or significant issue in our society. For example, Davina Durgana explores the problem of human trafficking, Maureen Raymo studies climate change, and Patrícia de Medici works to preserve tapirs. Have your students individually or in groups research one of the topics mentioned in the text or another issue that they feel passionate about addressing. While researching, they should create a reference list of their electronic and text-based sources. Then have them compose letters to your state's governor or one of your state's representatives in the federal government. The letters should contain the following: (a) a statement introducing the issue, (b) evidence to support the issue, (c) a way the student(s) can help solve the issue, (d) the action the student(s) want the recipient to take to help, and (e) a conclusion reiterating the importance of addressing the issue. Lastly, mail the letters to ensure that your students' voices are heard. (*Writing: Text Types and Purposes: W. 6.1, 7.1*)

ADDITIONAL READING: TEXT-TEXT CONNECTIONS

Have your students each select a book from the "Suggestions for Further Reading" section (pages 185–187). Ask them to write a one- to two-page paper comparing the format, author's purpose, central ideas, and information presented about science or important scientists in the selected book with those of *Wonder Women of Science*. Questions they should answer include: What similar information is shared about each scientist and/or field? What contrasting details are presented in the new text? How did both texts build your understanding of the subject and/or scientists featured? Their papers should explain their findings with textual citations and examples. (*Reading: Informational Text: RI. 6.9, 7.9; Writing: Text Types and Purposes: W. 6.1, 7.1*)

ART CONNECTION: BREAKING BARRIERS

Many of the women in the book faced barriers when attempting to enter their STEM field due to societal stereotypes about gender. Have your students design "Breaking Barriers" collages using multimedia tools and electronic sources. The collages should include meaningful images of women engaging in activities that go against stereotypes, with at least three of the images aligning with the text and highlighting women in STEM. Post the collages in your classroom and have students take turns explaining why they chose to include each image and answering questions from their peers. (*Speaking and Listening: Comprehension and Collaboration, SL. 6.2, 7.2*)

EXPLORE MULTIMEDIA: INTERVIEWING AN EXPERT

Have each student conduct and record an interview with an expert working in a STEM field. They should be prepared to ask about the expert's area of study, their path to the field, challenges in their career, and the impact of their work. They should transcribe their interviews, including the questions and the subject's responses, and finish with a reflection that highlights what the student learned from the scientist. Then, with support from an adult, have them create a blog post, podcast, or other media distribution tool to share the interview with others. (*Writing: Production and Distribution of Writing: W. 6.6, 7.6*)

ABOUT THE AUTHORS

TIERA FLETCHER is an award-winning aerospace engineer who was hired by NASA directly after graduating from MIT. While working to send humans to Mars and inspire others to achieve their dreams, she was featured in a North Face ad campaign, “Tiera Moves Mountains.” She travels the world with her family.



GINGER RUE is an author and a contributing editor for *Guideposts* magazine. A former teacher, she lives in Alabama with her husband and their blended family.



ABOUT THE ILLUSTRATOR

SALLY WERN COMPORT is a commercial artist and an award-winning illustrator. She is also principal of Art at Large, Inc., a large-scale environmental graphics studio that has designed and produced exhibitions and public art for numerous museums and institutions. Sally Wern Comport lives in Annapolis, Maryland, with her family.



This guide was prepared by Dawn Jacobs Martin, PhD, director of special education teacher certification programs and assistant clinical professor at the University of Maryland, College Park, with additional activities contributed by Ginger Rue.