



Welcome to Rosie Reads, a curated book collection by Rosie Riveters. We're a nonprofit whose mission is to equip and empower girls to be strong, confident, and competent in the fields of science, technology, engineering, and math (STEM) by providing a fun space for girls ages 4-14 to imagine, learn, build, and play. Our free programs provide girls with opportunities to learn by doing in a space where they can embrace failure and learn to solve problems on their own; our aim is to teach girls to delete the words 'I can't' from their vocabulary and inspire them to be confident enough to try. Because although they may not always get it right, they will always learn.

The books in this collection embrace the themes that drive our organization - confidence, failure, and perseverance - and engage with others that are central to modern girlhood as well, issues like acceptance, compassion, and self-doubt. Not only do the characters in these books serve as positive role models, their storylines also offer a means for delving into these issues with your children. We've provided questions to get those conversations started (listed for each book below), as well as ideas for activities to keep them going after the story is finished. Our programs use several of these very books, and we know from experience that they're

an excellent way to instill confidence, pursue new ideas, and dive into topics that can be difficult to discuss (bullying and failure).

Before you start reading, we'd also like to say thank you. By purchasing this collection, you're supporting our programs and enabling us to share the fun of STEM and the power of confidence with more young women. If you'd like to learn more about Rosie Riveters and the programs we offer for girls ages 4-14, please visit <http://www.rosieriveters.com/>.

Have fun reading and an awesome conversation afterwards!

*Rosie Riveters*

# *What Miss Mitchell Saw*

by Hayley Barrett

Published in 2019

**Real women, real lives:** Unlike most girls born in the early 1800s, Maria Mitchell received a robust education due to her family's Quakerism, which held that girls should be educated to the same standard as boys. Her time spent in the classroom and under her father's tutelage (he was an avid astronomer) culminated in a great love for astronomy and space, and by age 14 she was working with her father to rate chronometers, a mechanical timepiece used by ship captains to determine their position at sea via celestial navigation. Mitchell eventually became a librarian - the first at Nantucket's Atheneum - and she continued her astronomical adventures at night, "sweeping" the sky with a telescope. In 1847, she saw a comet while doing so and, after one of the world's first international space races, was credited with its discovery. International fame followed, and Mitchell went on to an illustrious career, becoming the first woman astronomer to be employed by the U.S. government; the first professor hired at Vassar, where she taught astronomy; and the first woman elected to the American Academy of Arts and Sciences.

**Questions to ponder with your kids:** Maria Mitchell grew up on Nantucket, and it is central to her story. Help your kids locate Nantucket on a map, and ask them what makes it unique. Why was it important to shipping, and why did astronomy matter so much to nineteenth-century ship captains? How did that influence Maria? Be sure to ask your kids to name some of the stars, planets, and celestial phenomena that Mitchell “knew” as well! One of the really exciting parts of astronomy is that it connects STEM and literature as so many planets and stars are linked to ancient Roman and Greek mythology. Use *What Miss Mitchell Saw* as a jumping off point for an investigation into constellations - NASA recognizes 88 of them! - and the mythical stories, characters, and creatures they are named after. Have your kids pick a few and read the myths they're associated with; you can check out a full list of constellations from NASA [here](#). Ask them if they think the constellations they chose visually resemble the figures they were named for, and do some research together to explore how and why constellations were given their names!

# *Grace Hopper: Queen of Computer Code*

by **Laurie Wallmark**

Published in 2017

**Real women, real lives:** Grace Hopper, the woman who coined the term “bug” in relation to computers and invented the compiler, the basis for software as we know it, was born in New York City in 1906. After earning her PhD in mathematics from Yale (quite the rare feat for a woman in the 1930s), she taught math at Vassar college until WWII when the widespread enlistment of able-bodied men forced the Navy to start accepting women. It was the Navy that brought Hopper into contact with computers, and her persistence and imagination led to innovations that continue to dictate how humans interact with computers. Hopper facilitated the development of open source by encouraging programmers to share code that worked, streamlined coding by storing frequently used instructions in the code rather than repeating them ad nauseum, and “taught” computers how to use English by creating code that translated it into binary. Without Hopper’s innovations and others like it, for example, Microsoft Windows would take nearly 5,000 years to install if each switch on the semiconductor chip had to be flipped manually. Hopper is a pioneer in computing, and

everything from an annual women's technology conference to a naval guided missile destroyer carry her name. In 2016, she posthumously received the Presidential Medal of Freedom along with Margaret Hamilton, another groundbreaking female computer scientist, for her visionary work.

**Questions to ponder with your kids:** Grace Hopper faced several setbacks on her way to becoming one of the world's first and most notable computer programmers. Ask your child to identify them and describe how Grace overcame each one. Has she/he ever faced setbacks like Grace? How did they get past them? What lessons could we all learn from Grace? While Grace was doing her pioneering work on FLOW-MATIC, a computer program that essentially translated English into binary, the "language" used by computers, she took a break and doodled in order to think unconventionally and get her brain to consider new ideas. Ask your child what helps her/him to problem-solve and think creatively. As Grace Hopper said, "Humans are allergic to change. They like to say, 'We've always done it this way.'" What problems, in her/his life and the wider world, require new ideas and solutions? What would she/he do/create/solve if there were no rules or expectations? Take this activity further by asking your child to define their ideas more fully, whether it be drawing a new invention she/he has come up with or outlining her/his plan of action in a bulleted list.

# *The Girl Who Thought in Pictures: The Story of Dr. Temple Grandin*

by **Julia Finley Mosca**

Published in 2017

**Real women, real lives:** Born in 1947, Temple Grandin failed to meet developmental milestones, particularly related to speech, and physicians believed she suffered from brain damage. As she grew, however, it became clear that she was autistic. She was sent to a preschool for children with special needs, began intensive speech therapy, and started talking at age 4. While academic success eventually followed, her difficulty relating to her classmates and others persisted. As Grandin herself has explained it, "I couldn't figure out what I was doing wrong...I could never figure out why I didn't fit in." She has since realized this difference was due to her inability to pick up on the niceties of typical social interactions and exchanges; she can't "read" social languages. She found her refuge, however, in the explicit language of science, earning a PhD in animal science and making several noteworthy contributions to the field, including the center track restrainer system and a curved loading chute. Both inventions are for livestock and both relate to her own experience with autism - they are designed to make animals more comfortable and thus more calm. She also

lectures worldwide on her experience with autism, and serves as a source of inspiration for the autistic community. In light of the obstacles she has faced and overcome, it seems remarkable that she describes her greatest challenge in life as “being a woman in a man’s world” - the world of farms and animal science.

**Questions to ponder with your kids:** Temple Grandin has autism, which means her brain processes the world differently than other people. Ask your child to identify what Grandin does differently in the book - what did she like as a child, and what didn’t she like? What difficulties did she encounter? Continue by asking your child if they know anyone like Temple Grandin with autism or other special needs. How does she/he navigate the world? What is easy? What is difficult, and how does she/he overcome it like Grandin did? The book offers an excellent avenue into a conversation about difference and acceptance, and an opportunity to encourage empathy. Ask your child what makes them feel different. How does she/he, like Temple Grandin and other friends with special needs, get the courage to put aside that sense of difference and “march through that door”? How can she/he help others find that courage?

# *Joan Proctor, Dragon Doctor: The Woman Who Loved Reptiles*

by Patricia Valdez

Published in 2018

**Real women, real lives:** Joan Proctor was a groundbreaking female herpetologist and an international sensation during the 1920s due to her research and handling of exotic animals like pythons, crocodiles, and Komodo dragons. Her interest in reptiles began during a childhood characterized by chronic illness; often home from school and confined to her room, Proctor found solace in all things creepy and crawly. She even had a pet crocodile that she brought to math class when she was able to attend! It was Proctor's devotion to her pets that brought her to the attention of Dr. George Boulenger, curator of reptiles and fish at the Natural History Museum in London, and he immediately recognized her potential. She became his assistant after she completed secondary school (her chronic health issues meant that she couldn't attend college), and took over his duties when he retired in 1920. Her fame quickly grew from there, culminating with her appointment as the first female Curator of Reptiles at the London Zoo in 1923 and her work with the much-maligned Komodo dragon; visitors often saw her leading one around the zoo on a leash from her wheelchair. Proctor died in her sleep in 1931 at just 34 years of age.

**Questions to ponder with your kids:** As a child with a chronic illness (and a love for reptiles rather than tea parties), then as one of the first women in her field, Joan Proctor often felt misunderstood. This is a great book to use to talk to kids about judgement, and how we often form opinions based on what we've heard - or anecdotes - rather than evidence and interactions .Ask your child if he/she has ever felt misunderstood, and why he/she thinks it happened. Conversely, ask him/her if they've ever misunderstood someone. Have they ever treated a person like Londoners first treated the komodo dragon, relying on stories they've heard rather than their own interactions/experiences with that person in order to form an opinion? What happened? As Joan Proctor's Komodo dragons prove, it isn't really productive to judge a book by its cover! Take some time to follow Proctor's example as well, and do some research on a misunderstood animal like the Komodo dragon. Ask questions about what we humans have gotten wrong, and have your child develop a plan for studying and correcting those misconceptions!

# *Counting on Katherine: How Katherine Johnson Saved Apollo 13*

by Helaine Becker

Published in 2018

**Real women, real lives:** Katherine Johnson's intellect was apparent from a very young age. When she began her formal education, she went directly to second grade; she was ready for high school at age 10! Born in 1918 in West Virginia, her opportunities, however, were limited by both her gender and her race. Her family had to relocate so she could attend an all black high school (schools at the time were legally segregated by race, particularly in the Jim Crow south), and although she longed to be a research mathematician, women's careers were largely limited to teaching or nursing in 1937 when she graduated from college. So Johnson taught math until she landed her dream job as a "computer" at the agency that would become NASA. There, her genius for math and determination in the face of rampant sexism and racism led to promotion after promotion. Astronaut John Glen trusted her calculations more than the nascent electronic computers NASA was beginning to employ, and it was her extraordinary ability to devise flight trajectories that brought Apollo 13 back to earth after an in-flight explosion in 1970. A trailblazer who co-authored 26 scientific papers

throughout her career and was essential to the development of the American space program, Johnson was awarded the Presidential Medal of Freedom in 2015.

**Questions to ponder with your kids:** Katherine Johnson faced many challenges throughout her life and career, and one of the earliest was her ability to attend school. There were no all black high schools in her hometown - which she was legally obligated to attend due to segregation - so her family had to move in order for her to continue her education. Use Johnson's experience to talk about Jim Crow laws and their impact on black people in the United States. Who wrote and supported these laws, and what were they meant to achieve? How does their legacy continue to affect our society today? Societally-determined gender roles also impacted Johnson's career; she dreamed of becoming a research mathematician, but as those jobs were typically reserved for men, she began her career as a teacher. Ask your child to think through this - what jobs today are gendered? Take some time to consider this question in relation to all the books in this set as most of the women included were among the "firsts" in their fields. Ask your child to imagine how these women felt. Does he/she think it might have been exhilarating? Lonely? Overwhelming? In general, what challenge(s) did

all the women have in common? And, in particular, how did Johnson assert herself in a field full of men and prove that her contributions as a “computer” were neither “boring” nor “unimportant”?