

Counting on Katherine

by Helaine Becker and Dow Phumiruk

AGE LEVEL 7–9 YEARS

About the Story

Katherine Johnson wanted to become a research mathematician. But she faced many obstacles, including segregated schools and a lack of job opportunities for women. Katherine began teaching elementary school. In the 1950s, the new U.S. space program hired women mathematicians, including Katherine, who calculated—by hand!—numbers essential for designing the spaceship. Later, she was responsible for plotting the route home for the damaged Apollo 13 spaceship. She had achieved her goal.



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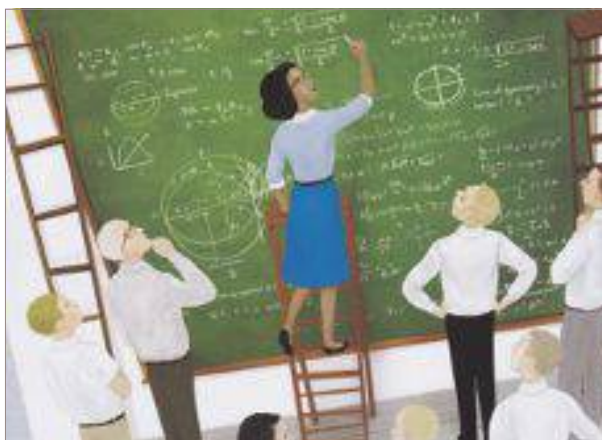
Words to Learn

universe, research mathematician (someone who makes discoveries about math), catapulted, graph, reputation, astronaut, triumph

About the Math

As children read the book, they can learn about these topics:

- A simple model explains a rocket ship's trajectory in space.
- Black children faced discrimination in school.
- Girls and women were (wrongly) not considered capable of doing mathematics or engineering (or much else!).
- Although very angry at the discrimination she faced, Katherine persisted to overcome these obstacles and make a vital contribution to the space program.



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Math Talk During Reading

TALK ABOUT THE JOY OF KATHERINE'S WORK

Why do you think Katherine enjoyed working on math problems, even though they were often very hard?

TALK ABOUT MOTIVATION

Have you been blocked from doing something you really wanted to do? How did you react?

TALK ABOUT SCHOOL DISCRIMINATION

In Katherine's time, Black children were not allowed to go to school with White children in the United States. How do you think the Black children felt about this? How do you think the White children felt?

TALK ABOUT JOB LIMITATIONS FOR WOMEN

Discuss how many women had (and still have) difficulty going into certain professions. "Do you know of any women who are not teachers or nurses? What do they do?"

Try to come up with some of your own questions and comments, too!

Activity After Reading

EXPLORE INFORMATION ON WOMEN MATHEMATICIANS

Check out these sites:

<https://www.womendomath.org/profiles/>

<https://www.lathisms.org/calendars/calendar-2021>

<https://mathematicallygiftedandBlack.com/>

Mathical

BOOK PRIZE

The Mathical Book Prize recognizes math-inspiring literature for kids ages 2-18. Prize-winning books are selected by a committee of teachers, librarians, mathematicians, and others. To get the Mathical List, plus reading guides, book reviews, and more, see

mathicalbooks.org

PreK WINNERS:

Baby Goes to Market by Atinuke
Crash! Boom! A Math Tale by Robie H. Harris
Have You Seen My Dragon? by Steve Light
Lia & Luis: Who Has More? by Ana Crespo
One Fox: A Counting Book Thriller by Kate Read
ONE Very Big Bear by Alice Brière-Haquet
8: An Animal Alphabet by Elisha Cooper

GRADES K-2 WINNERS:

Absolutely One Thing: Featuring Charlie and Lola by Lauren Child
The Animals Would Not Sleep by Sara Levine
Max's Math by Kate Bank
Nothing Stopped Sophie: The Story of Unshakable Mathematician Sophie Germain by Cheryl Bardoe
One Big Pair of Underwear by Laura Gehl
Pigeon Math by Asia Citro
Sheep Won't Sleep: Counting by 2s, 5s, and 10s by Judy Cox

PreK HONOR TITLES:

Animal Shapes by Christopher Silas Neal
Count the Monkeys by Mac Barnett
Count with Maisy, Cheep, Cheep, Cheep! by Lucy Cousins
Goodnight, Numbers by Danica McKellar
I Know Numbers by Taro Gomi
A Mousy Mess by Laura Driscoll
One Happy Tiger by Catherine Rayner
One Is a Piñata: A Book of Numbers by Roseanne Greenfield Thong
Over in a River: Flowing Out to the Sea by Marianne Berkes
Press Here by Hervé Tullet
Round by Joyce Sidman
100 Bugs! A Counting Book by Kate Narita

GRADES 2-K HONOR TITLES:

Billions of Bricks: A Counting Book about Building by Kurt Cyrus
Bird Count by Susan Edwards Richmond
The Boy Who Loved Math by Deborah Heiligman
Cao Chong Weighs an Elephant by Songju Ma Daemicke

Counting on Katherine: How Katherine Johnson Saved Apollo 13 by Helaine Becker
Counting the Stars: The Story of Katherine Johnson, NASA Mathematician by Lesa Cline-Ransom
Count on Me by Miguel Tanco
The Girl With a Mind for Math: The Story of Raye Montague by Julia Finley Mosca
How Many Jelly Beans? A Giant Book of Giant Numbers! by Andrea Menotti
Is 2 a Lot?: An Adventure with Numbers by Annie Watson and Rebecca Evans
Lifetime: The Amazing Numbers in Animal Lives by Lola M. Schaefer
Shapes, Reshape! by Silvia Borando
When Sophie Thinks She Can't by Molly Bang
Zero the Hero by Joan Holub
3x4 by Ivan Brunetti

HALL OF FAME TITLES:

Hippos Go Berserk! by Sandra Boynton
One Grain of Rice: A Mathematical Folktale by Demi
The Very Hungry Caterpillar by Eric Carle

