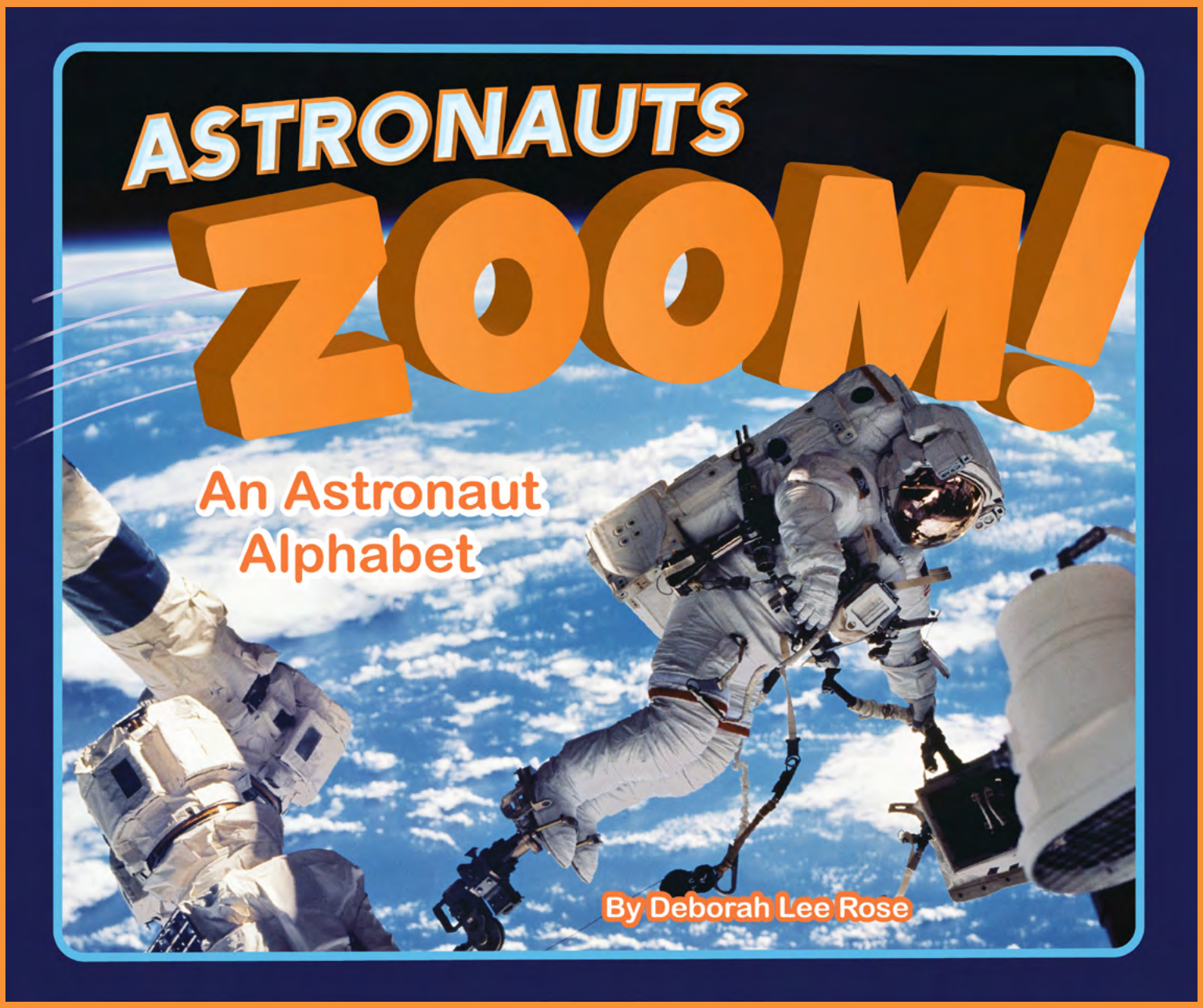
EDUCATIONAL GUIDE

Zoom through space with real women and men astronauts! How do they live, work, and even have fun on the International Space Station?



"A fizzy mix of space fun and science"—Kirkus Reviews

Deborah Lee Rose is the author of *SCIENTISTS GET DRESSED and* the coauthor of the award-winning book *BEAUTY AND THE BEAK: How Science, Technology, and a 3D-Printed Beak Rescued a Bald Eagle*— www.deborahleerose.com. All three books published by Persnickety Press/WunderMill Books.

WunderMill

Persnickety Press

The Cornell Lab of Ornithology

ABOUT THE BOOK

Children dream of being astronauts, and real women and men astronauts inspire children to learn about STEM. Zoom with astronauts in the book from the time they awake until they're zipped in for the night—all while they're traveling through space at 17,500 miles per hour! "You are there" NASA photos bring readers and prereaders inside and outside the International Space Station, to discover how diverse astronauts live, work, and even have fun as they orbit Earth. Get a space-eye view of how astronauts go on spacewalks, investigate science questions, do engineering work, eat floating pizzas, watch Earth from space, and much more. (All photos: NASA)

Award-winning author Deborah Lee Rose presents via Zoom and other platforms to schools, libraries, conferences, and book festivals around the world. Contact her through her website *www.deborahleerose.com*.

NEXT GENERATION SCIENCE STANDARDS (NGSS) HIGHLIGHTS

- *Understandings About the Nature of Science: K-2 Men and women of diverse backgrounds are scientists and engineers.*
- *3-5 Science investigations use a variety of...tools....*
- *Engineering Design: K-2 Develop a simple model based on evidence to represent a proposed object or tool. 3-5 Define a simple design problem that can be solved through the development of an object, tool...*

COMMON CORE STANDARDS/ENGLISH LANGUAGE ARTS/READING

- Describe the relationship between illustrations and the text in which they appear (e.g., what person, place, thing, or idea in a text an illustration depicts).
- Distinguish between information provided by pictures or other illustrations and information provided by words in a text.
- Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. Explain how specific images contribute to and clarify a text.
- Use information gained from illustrations (e.g., photographs) and words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).

GUIDED READING LEVEL	I

GRADE LEVEL EQUIVALENT	1

INTEREST LEVEL	GRADES
	PreK-3

RRL	LEXILE
17	480L

ISBN	Book Category	Page Count	Word Count
978-1-943978-50-2	Non-fiction	36	Text: 123 Back Matter: 2090

"Great photographs showing how we live in Earth orbit to inspire the next generation of space explorers and workers."

— Former NASA astronaut Jay Apt, Space Shuttle missions STS-37, 47, 59, 79

ASTRONAUT TOOLS TREASURE HUNT ACTIVITY

Special tools help astronauts do their jobs. For spacewalks outside the International Space Station, under their spacesuits astronauts wear clothing with built-in water cooling tubes. They also pull down gold-coated helmet visors to protect their faces. These different tools help keep them safe from the Sun's intense heat and light outside the space station.

- How many of these 25 kinds of tools can you find in *ASTRONAUTS ZOOM!*? In which photos can you spot each tool?

  [ ] camera [ ] spacesuit [ ] gloves [ ] helmet [ ] vacuum [ ] microscope [ ] scissors [ ] computer [ ] wristwatch [ ] microphone [ ] giant robotic arm [ ] tablet device [ ] water cooling tubes [ ] gold helmet visor [ ] windows [ ] handrail [ ] exercise machine [ ] spacesuit lights [ ] safety tether [ ] fitness wristband [ ] power drill [ ] cables [ ] emergency jet pack [ ] solar panels [ ] water pouch

- How are astronauts using each tool?
- Which tools let astronauts do something they couldn't do on Earth, like spacewalking?
- How do you think different tools help astronauts stay safe, investigate science questions, and do engineering work on the ISS?
- What tool would you design for astronauts in space? Draw your tool idea or make a 3-dimensional model. How could astronauts use this tool?

REACH FOR THE STARS!

You'll find lots of STEAM ideas in the book, including making a space station "cupola" area (like the ISS domed windows where astronauts watch Earth and space), for reading or hands-on STEM activities. Along with reading *ASTRONAUTS ZOOM!* you can:

- Write, illustrate, present and/or make a video biography report about an astronaut in the book. The book includes names of all the astronauts shown, and NASA.gov has information about these astronauts and many others.
- Invite a real astronaut to speak at your school or organization, maybe even live from space!
- Spot the International Space Station as it flies over your location (http://spotthestation.nasa.gov).

FUN FACTS

- Even if you turn *ASTRONAUTS ZOOM!* upside down, photos taken on and from the space station will still be correct! Astronauts on the ISS can do what they need to do in any direction.
- Astronauts zoom around Earth on the ISS at 17,500 miles per hour!
- Astronauts train on Earth for their spacewalks, by practicing fully suited—underwater—in a giant pool. See what this looks like in *ASTRONAUTS ZOOM!*

VENTURE FURTHER!

Resources and links to learn more about the International Space Station.

- https://www.nasa.gov/audience/foreducators/stem-on-station/forstudents
- https://www.windowsonearth.org

QUOTES

"A wonderful opportunity for the youngest readers to develop verbal language... a strong introduction to space travel... a mentor text for young writers to create their own ABC book." — School Library Journal

"An alphabet of activities inside and outside the International Space Station. In big, bright photographs, a cast of astronauts—38 all told, identified at the end, nearly half women, and diverse of race and national origin. A fizzy mix of space fun and science!" - Kirkus Reviews

"Great photographs showing how we live in Earth orbit to inspire the next generation of space explorers and workers." — Former NASA astronaut Jay Apt, Space Shuttle missions STS-37, 47, 59, 79

"A unique ABC book with cool space photos, that inspires kids to learn NEW information about what real astronauts do!" — Lori Oczkus, national literacy expert

"An engaging nonfiction picture book about the astronauts who live on the International Space Station. Young readers will enjoy." — Pennsylvania School Librarians Association (*PSLA)

WORDS

adapt
airlock
astronaut
cupola
curve
doff
don
EMU (Extravehicular Mobility Unit)
engineering
equipment
erupting
expedition
experiments
float
free fall
galaxy
gravity
ham radio
helmet
hurricanes
International Space Station
investigate
launch
microgravity
Milky Way
NASA
Neutral Buoyancy Lab
Olympics
onboard
orbit
particles
patch
recycle
replica
robotic arm
science
senses
solar rays
somersaulting
space
spacesuit
spacewalk
technology
telescope
tethers
training
vacuum
video streaming
visor
volcanoes

STEM SPARK INTERVIEW WITH DEBORAH LEE ROSE

***ASTRONAUTS ZOOM!* launches readers onto the International Space Station orbiting Earth. Can you tell us more about this?**

Deborah: I love creating books that let kids travel—in their imaginations—far beyond where they live or go to school. I've written about forests and the ocean, and I really wanted to write about space, but not just about planets and stars. I'm fascinated by what scientists do, and where and how they do it. So I decided to capture, with NASA photographs, how astronauts live and work every day on the International Space Station orbiting Earth. NASA celebrated 20 years of astronauts on the ISS on November 2, 2020, and new missions are being planned all the time. *ASTRONAUTS ZOOM!* will be published in 2021.

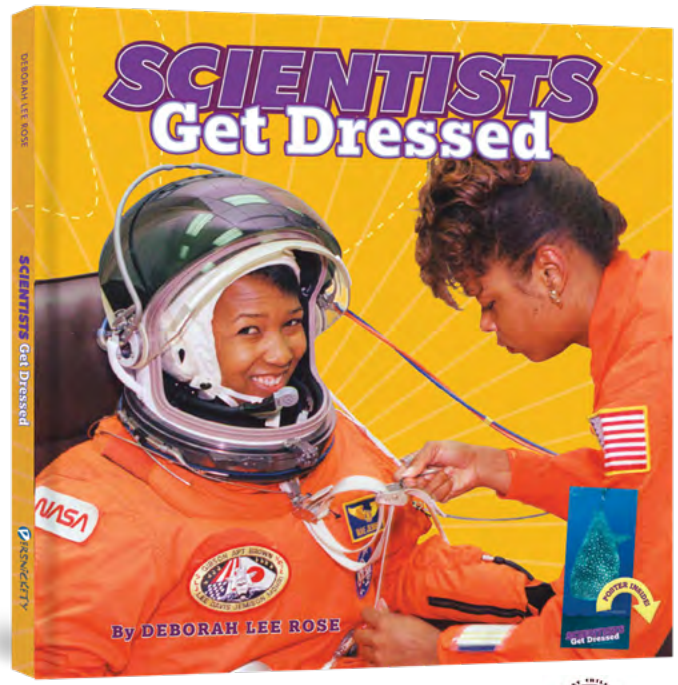
Doing STEM work in space is very different than on Earth, young readers and listeners will learn. On the space station, astronauts can do their work right side up, upside down or floating! They study how cells, substances, equipment and even their own bodies function differently in space. But they don't just do work in space, they have plenty of fun too—playing sports (carefully), making floating pizzas (with tortillas), reading, taking tons of photos, and watching the spectacular, ever changing views of Earth out the station's big domed windows, which together are called the cupola. I can almost imagine that I'm on the space station with the astronauts, and that's what I want my readers to feel too.

Can you share a couple of your other STEM titles and what they're about?

Deborah: *Scientists Get Dressed* was inspired by a photograph of my niece, who is a water pollution chemist. In the photo, she is wearing chest waders in an icy stream to stay dry and warm. I had no idea what her work truly involved until I saw this photo. Seeing it made me want to find out what kinds of unusual clothing many different scientists wear so they can do their jobs safely.

The book also includes a glaciologist wearing four pairs of mittens to keep his hands from freezing, a brain surgeon wearing special glasses so she can operate on tiny parts of the brain, a whale shark biologist (on a full detachable poster) wearing snorkel and flippers, astronauts in flight and spacewalking suits, and even panda scientists wearing full panda outfits!

"*Scientists Get Dressed* will help both youngsters and adults broaden their views about the scientific profession..."
—School Library Connection

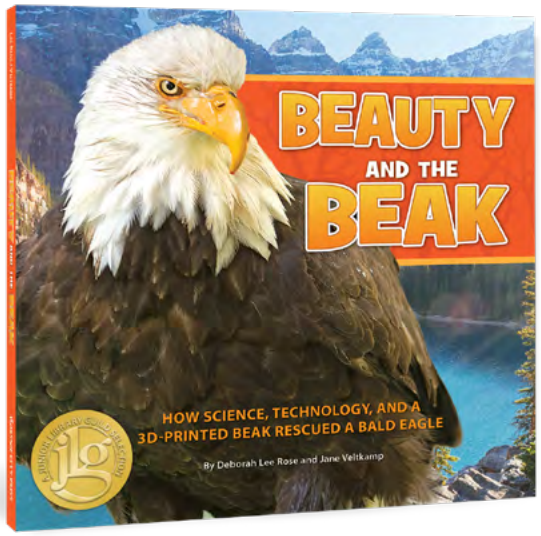


Winner, 2020
DeBary Award for
Outstanding Science
Books for Children

STEM SPARK INTERVIEW WITH DEBORAH LEE ROSE

Beauty and the Beak: How Science, Technology, and a 3D-Printed Beak Rescued a Bald Eagle is the true story of the bald eagle who got a pioneering prosthetic beak, after a poacher's bullet shattered her real beak. Telling the story of Beauty the eagle's life not only after humans found and helped her, but in the wild before she was shot, let my coauthor and me teach kids about the lives of all bald eagles, our national symbol.

Writing this book with raptor biologist Janie Veltkamp, who led the beak engineering team and has lifetime care of Beauty, helped bring Beauty's heart lifting story alive and showed how bioengineering is giving new chances to animals as well as humans.



AAAS/Subaru SB&F Prize for Excellence in Science Books
Bank Street College Cook Prize for Best STEM Picture Book
California Reading Association Eureka! Gold Award for Nonfiction

Out of this World Opportunities with *ASTRONAUTS ZOOM!*

On any given day or night, we can look up and know that the International Space Station is somewhere over the Earth. For more than 20 years, the ISS has been inhabited by scientists, engineers, doctors, teachers, and pilots on either short duration visits or extended missions. These explorers carry out an enormous array of science investigations, to better help us understand life in space, improve life on Earth, and look to our future of space exploration. One of the increasingly important parts of astronauts' work, while in space and back on Earth, is also to teach by sharing their extraordinary experiences. *ASTRONAUTS ZOOM!* takes readers onto the ISS to discover how women and men astronauts from different countries really live, work and even have fun together as they're on the station orbiting Earth.

— Christine Anne Royce, Ed.D.

Author - Teaching Through Trade Books, NSTA
Shippensburg University

ASTRONAUTS ZOOM!

by Deborah Lee Rose, coauthor of the award-winning book *BEAUTY AND THE BEAK* and author of the award-winning book *SCIENTISTS GET DRESSED.*

AUTHOR

Deborah Lee Rose's bestselling, award-winning and beloved books include *Astronauts Zoom!, Scientists Get Dressed, Beauty and the Beak: How Science, Technology, and a 3D-Printed Beak Rescued a Bald Eagle, Into the A, B, Sea: An Ocean Alphabet* (more than a quarter million copies sold), *Jimmy the Joey, Ocean Babies, The Twelve Days of Kindergarten, The Twelve Days of Winter,* and more. She was senior science writer for UC Berkeley's Lawrence Hall of Science, where she helped create groundbreaking STEM projects, including several funded by NASA and the NSF-funded STEM education website howtosmile.org. A graduate of Cornell University, she lives in Silver Spring, MD. *www.deborahleerose.com*

SPECIAL EVENTS

20th anniversary of the robotic Canadarm2 on the ISS
April 22-24, 2021
The Canadarm2 was Installed by astronauts during spacewalks on April 22 and 24, 2001. On the cover of *ASTRONAUTS ZOOM!*, the spacewalking astronaut is supported by a special foot platform attached to the Canadarm2.

World Space Week
October 4-10, 2021
Worldwide celebration of all things space
Special 2021 theme: Women in Space
www.worldspaceweek.org

EDUCATOR NOTES

Visit **wundermillbooks.com/astronauts_zoom**