

# BEST STEM BOOKS

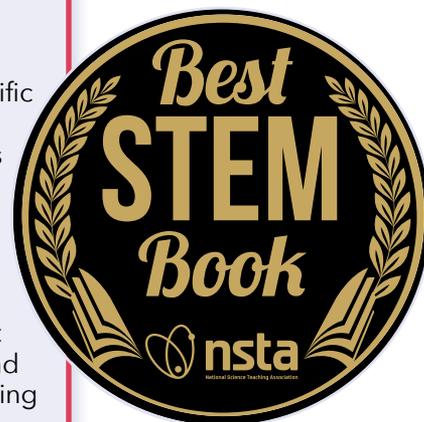
STEM books offer endless opportunities for engaged learning. They invite students to see the world differently and to think in new ways about what they observe.

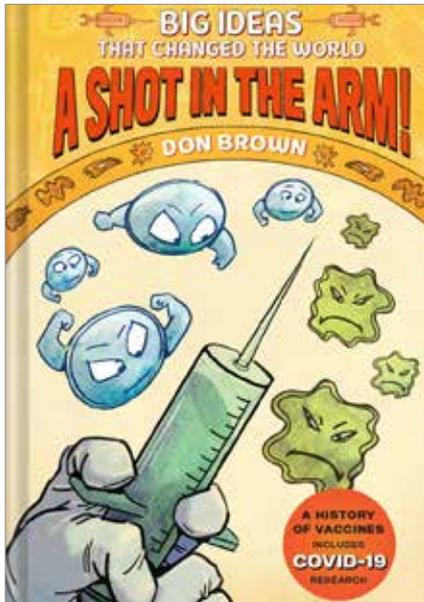
We have chosen titles that provoke readers to examine the “thinking stance” of characters—not simply to look at actions and results.

Best STEM Books winners explore problems and possible solutions in the scientific world and, where applicable, in the lives of the protagonists. Instead of focusing on specific content, the Best STEM Books emphasize real-world issues that cross disciplinary boundaries.

Teachers can use these books to foster and model “minds-on” work. Parents, grandparents, and other caregivers can involve even the very youngest children in the process of STEM thinking.

How do we prepare 21st-century kids for challenges and jobs that we at present cannot even describe? The Best STEM Books help by celebrating convergent and divergent thinking, analysis and creativity, persistence, and the sheer joy of figuring things out.

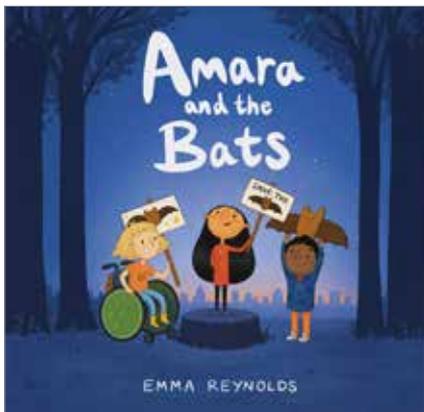




***A Shot in the Arm: Big Ideas that Changed the World #3***

Don Brown. Amulet Books. ISBN 9781419750014, \$13.99. (6-8)

A graphic novelization of the history of vaccines, this book gives an engaging overview of the search for cures to the pandemics that have impacted humanity. From early attempts to prevent disease by variolation – infecting patients with a weakened form of the disease – to the first vaccines and, finally, to COVID-19. (BH)



***Amara and the Bats***

Emma Reynolds. Simon & Schuster / Atheneum Books for Young Readers. ISBN 9781534469013, \$17.99. (K-2, 3-5)

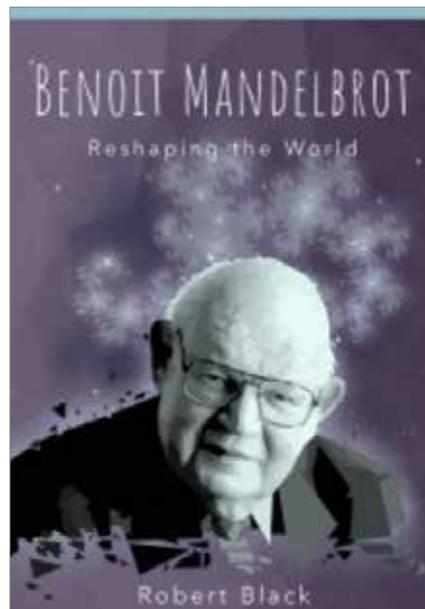
A young girl, Amara, loves bats. She watches these amazing creatures fly close to her house at night. But the bats are disappearing and she is determined to help bring them back to the neighborhood. She takes on an authentic problem and through research, perseverance, and collaboration she is able to bring the bats back to her community. (JCL)



***Artificial Intelligence***

Dinah Williams. Starry Forest Books. ISBN 9781946260871, \$9.99. (K-2)

Explore artificial intelligence—the process by which machines learn to act like a human brain—through hands-on activities, experiments, photos, facts, and figures. The future is now as computers and robots learn to think like us! Glossary included. (ST)



***Benoit Mandelbrot: Reshaping the World***

Robert Black. Royal Fireworks Press. ISBN 9780898246865, \$20.50. (9-12)

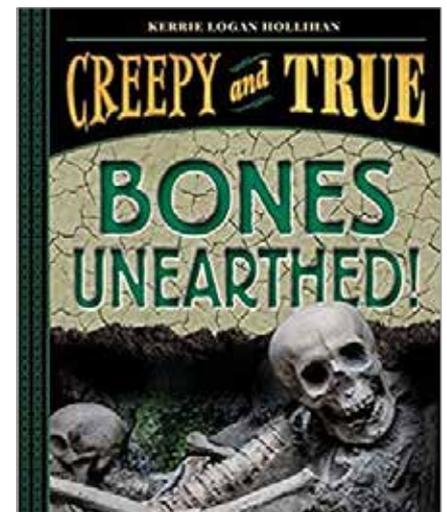
A well written journey through Benoit Mandelbrot's life and work. This book does an excellent job of explaining fractals to the everyday student. By making the connections between the natural world and mathematical equations clear, the author helps to see how fractals impact our technology today. (BH)

***Bicycle: Eureka! The Biography of an Idea***

Lori Haskins Houran. Illustrated by Aaron Cushley. Astra Books for Young Readers / Astra Publishing House / Kane Press. ISBN 9781635923940, \$5.99. (K-2)



Bicycles have been around for over two hundred years, but they have not always looked or performed like they do today. This easy-to-read book explains how bicycles have evolved and improved since their invention in 1817. Author's bike facts. (LB)



***Bones Unearthed (Creepy and True #3)***

Kerrie Logan Hollihan. Abrams / Abrams Books for Young Readers. ISBN 9781419755354, \$16.99. (6-8)

What secrets are uncovered when old bones are unearthed? See how the science and technology of DNA has changed over the years helping unearth the mysteries of bones right beneath our feet. Vikings bones, Ben Franklin's boneyard, and modern day mysteries intriguingly unfold with a story to tell. (AVF)

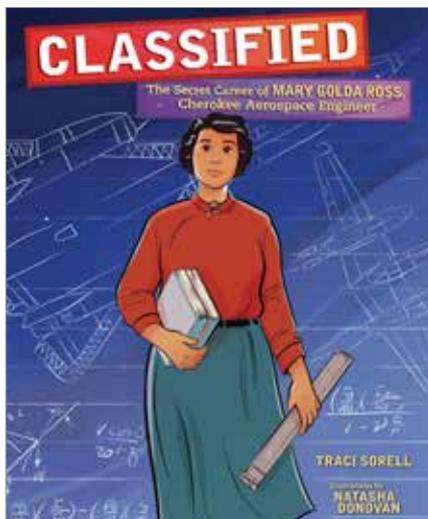


## Building Zaha:

### *The Story of Architect Zaha Hadid*

Victoria Tentler-Krylov. Scholastic. ISBN 9781338282832, \$10.99. (K-2, 3-5)

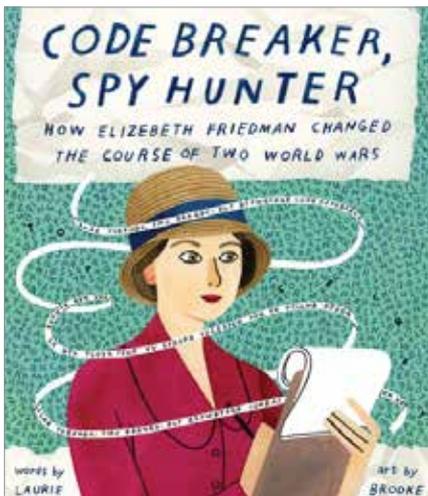
Zaha Hadid, one of the most influential architects of all time, liked to challenge the architectural rules. Learn how she modeled innovation and explored multiple solutions to create amazing architectural feats. Her building designs have become some of the most famous in the world although she was often doubted. (JCL)



### *Classified: The Secret Career of Mary Golda Ross, Cherokee Aerospace Engineer*

Traci Sorell. Illustrated by Natasha Donovan. Lerner Publishing Group/Millbrook Press™. ISBN 9781541579149, \$19.99. (3-5)

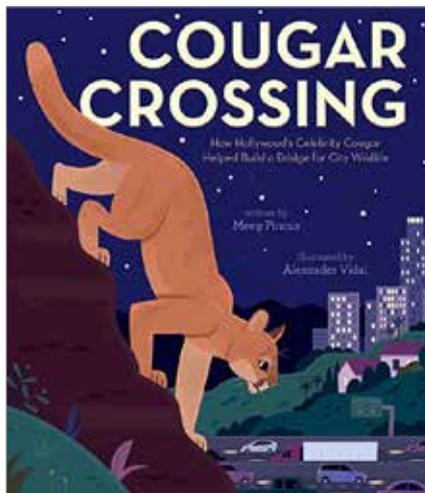
As a Cherokee woman and one of the first female engineers working for NASA, Mary Golda Ross was entrusted with numerous top-secret projects. *Classified* follows her path from the plains of Oklahoma to NASA and becoming one of the greatest minds behind spacecraft design. (SB)



### *Code Breaker, Spy Hunter: How Elizebeth Friedman Changed the Course of Two World Wars.*

Laurie Wallmark. Illustrated by Brooke Smart. Abrams / Abrams Books for Young Readers. ISBN 9781419739637, \$18.99. (3-5)

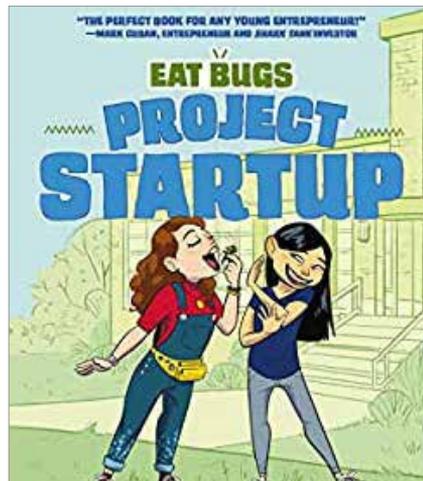
Long: As the first woman cryptographer in American history, *Code Breaker, Spy Hunter* outlines the life and work of Elizebeth Friedman. From counter spying on the Nazis to breaking up smuggling, her important contribution is told and illustrated in a beautiful and engaging tale for readers young and old. (SB)



### *Cougar Crossing: How Hollywood's Celebrity Cougar Helped Build a Bridge for City Wildlife.*

Meeg Pincus. Illustrated by Alexander Vidal. Simon & Schuster / Beach Lane Books. ISBN 9781534461857, \$17.99. (K-2)

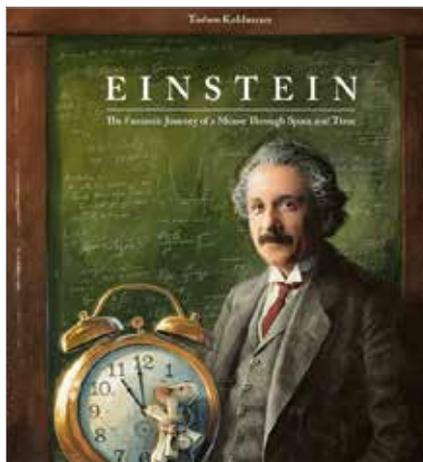
The story of P-22, a Cougar who defied the odds and survived in Griffith Park in the middle of Los Angeles. Wildlife biologists tracked P-22, documented his movements, experiences, and needs to help both P-22 and future wildlife. Their interdisciplinary solution was an innovative bridge to support city wildlife. Timeline, Facts, Resource Link, Animal Identification, Author's Note, Bibliography (WL)



### *Eat Bugs! #1: Project Startup.*

Laura D'Asaro, Rose Wang, and Heather Alexander. Illustrated by Vanessa Flores. Penguin Young Readers / Penguin Workshop. ISBN 9780593096178, \$14.99. (6-8)

Two young ladies embarked upon a dream – to develop a sustainable food source. That source turned out to be crickets. Based on a true story, readers are drawn into the entrepreneurship process as the founders of Chirps pursue their goal. Author Interview. (CAR)



### *Einstein: The Fantastic Journey of a Mouse Through Space and Time.*

Torben Kuhlmann. North South Books. ISBN 9780735844445, \$22.00. (3-5)

## ABOUT THE REVIEWS

In addition to standard publishing information, the reviews indicate the following:

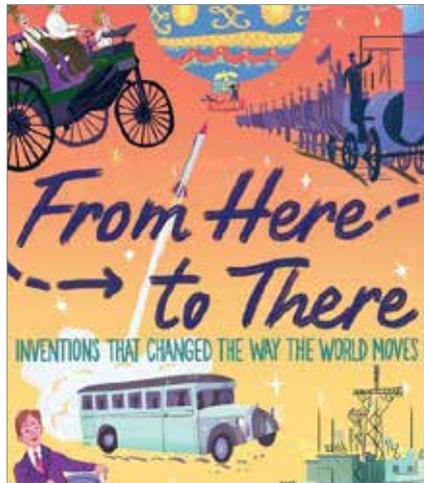
1. International Standard Book Numbers (ISBN) are included for trade editions.
2. The prices are current as of December 2021.
3. Reading levels (K-2, 3-5, 6-8, and 9-12) are provided by the reviewers. They are intended as guidelines and are not meant to limit the potential use of titles.
4. The reviewer's initials follow each description (see Table of Contents).

## ABOUT CBC AND NSTA

The Children's Book Council (CBC) is the nonprofit trade association for children's book publishers in North America, dedicated to supporting and informing the industry and fostering literacy. The CBC offers children's publishers the opportunity to work together on issues of importance to the industry at large, including educational programming, literacy advocacy, and collaborations with other national organizations. The anchor sponsor of Children's Book Week, the CBC is proud to partner with other national organizations on co-sponsored reading lists, educational programming, and literacy initiatives. For more information, visit [www.cbcbooks.org](http://www.cbcbooks.org).

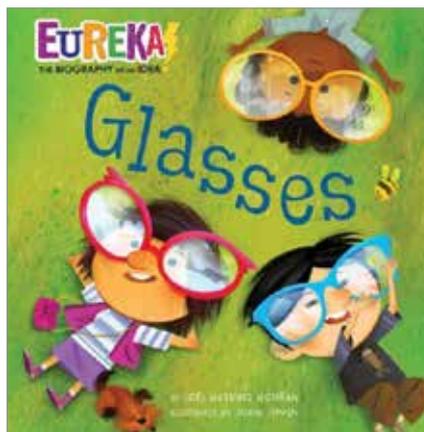
The books that appear in these lists were chosen by a review panel made up of educators and other subject-area experts, all appointed by the National Science Teachers Association. NSTA and CBC have joined forces on developing this annual list since 1973, and over the years it has become the go-to resource for school librarians, science teachers, and parents eager to cultivate a love of science in young readers. Initially, the list was primarily targeted at grades K through 8. Beginning in 2002, it expanded to include high school. Down through the years, this effort has had but a single mission—to highlight the very best in science trade books for young audiences.

A fictionalized story of a mouse named Einstein who has a lot of questions. Einstein wonders about time, clocks and mechanisms while taking us on an adventure through his STEM experiments and his quest for understanding. Bio Sketch of A. Einstein. (WL)



***From Here to There: Inventions That Changed the Way the World Moves.***  
Vivian Kirkfield. Illustrated by Gilbert Ford. HarperCollins Children's Books / Clarion Books. ISBN 9781328560919, \$17.99. (3-5)

Celebrate technological innovations that have helped people move across the globe. Explore the failures, successes, and experimentation that brought about change in transportation systems. Charming cartoon-like illustrations, running timelines, and resources help to tell the stories of twelve highly inventive minds. Build Your Dream section and source notes included. (JCW)

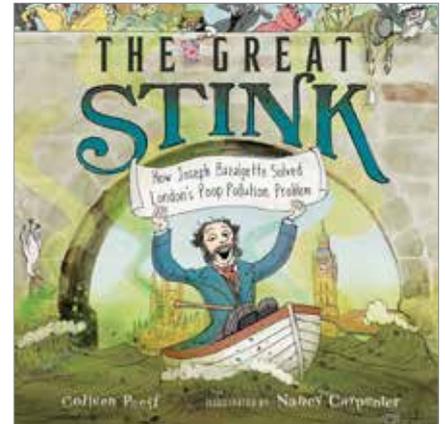


***Glasses: Eureka! The Biography of an Idea.***

Lori Haskins Houran. Illustrated by John Joven. Astra Books for Young Readers / Astra Publishing House / Kane Press. ISBN 9781635924251, \$5.99. (K-2)

Eyeglasses, in some form, have been around for over 2,000 years. This easy-

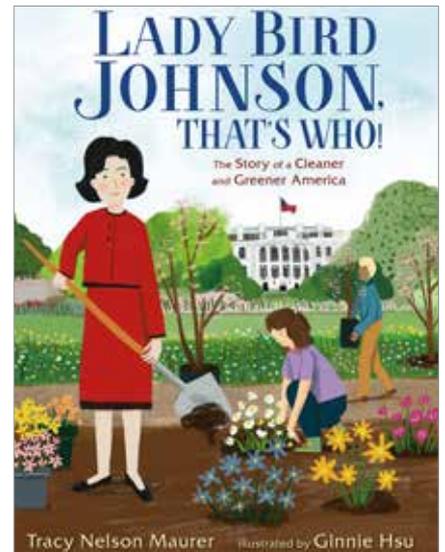
to-read book explains how glasses have progressed from Seneca discovering that he could read blurry letters through a glass of water to the plastic lenses we use today. Author's facts about glasses. (LB)



***The Great Stink: How Joseph Bazalgette Solved London's Poop Pollution Problem.***

Colleen Paeff. Illustrated by Nancy Carpenter. Simon & Schuster. ISBN 9781534449299, \$17.99. (K-2, 3-5)

When the Thames fouls the air and causes cholera outbreaks in the mid-1800's, engineer Joseph Bazalgette has the solution—a new sewer system to keep Londoners' waste out of the river. This book inspires readers to use STEM to help create a better world. Detailed timeline and further reading included. (ST)

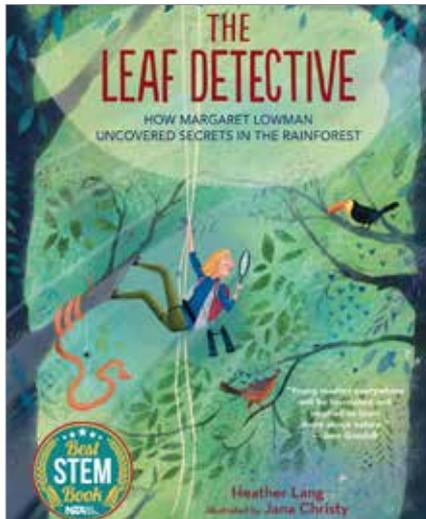


***Lady Bird Johnson, That's Who! The Story of a Cleaner and Greener America.***

Tracy Nelson Maurer. Illustrated by Ginnie Hsu. Macmillan Children's Publishing Group / Henry Holt and Co. ISBN 9781250240361, \$18.99. (K-2, 3-5)

In the 60's, who took on the beautification of the US by planting trees and plants on

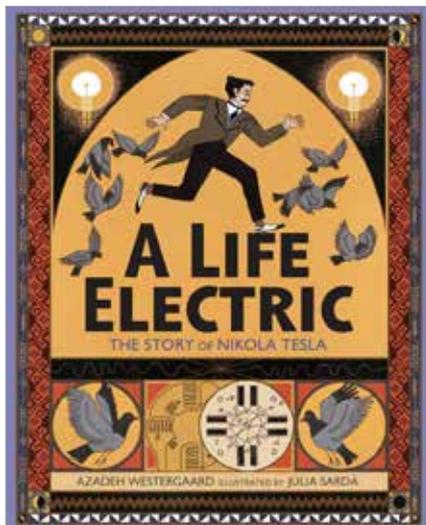
thousands of miles of American roadways? Lady Bird Johnson, the first lady, that's who! She also began initiatives to protect the redwoods, clean rivers, and stop pollution. As the first lady of America, she was also a lifelong environmentalist that helped pave the way to protect our land. (JCL)



**The Leaf Detective:**  
**How Margaret Lowman Uncovered Secrets in the Rainforest.**

Heather Lang. Illustrated by Jana Christy. Astra Books for Young Readers / Astra Publishing House / Calkins Creek. ISBN 9781684371778, \$18.99. (3-5)

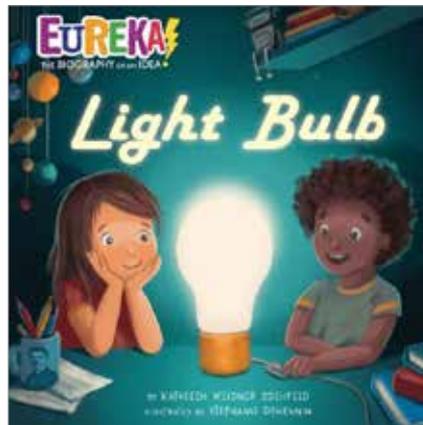
Follow Margaret Lowman's dream to learn about trees. Discover how her observations lead her to develop STEM thinking and problem-solving skills as she studies trees. Eventually she became an expert on rainforest canopies and her creativity and innovation have made it possible for others to experience and learn about the rainforest. Author's Note, Illustration/Terminology, Bibliography (WL)



**A Life Electric:**  
**The Story of Nikola Tesla.**

Azadeh Westergaard. Illustrated by Júlia Sardà. Penguin Young Readers / Viking BFYR. ISBN 9780593114605, \$17.99. (K-2)

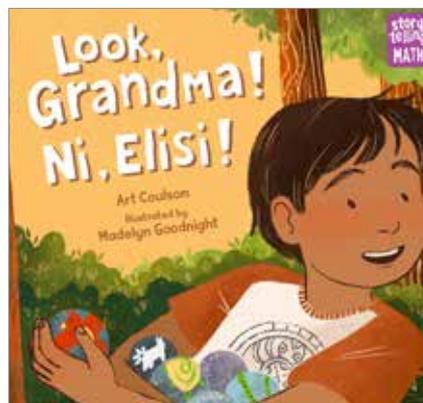
A wonderful introduction for young readers to the life and groundbreaking work of Nikola Tesla. Told through detailed and stylized illustrations that explore Tesla's genius and humanity. Author's notes give the reader more insight into Tesla's life and work. Sources provide detailed resources for further research and explorations. (JCW)



**Light Bulb: Eureka!**  
**The Biography of an Idea**

Kathleen Weidner Zoehfeld. Illustrated by Stephanie Dehennin. Astra Books for Young Readers / Astra Publishing House / Kane Press. ISBN 9781635923964, \$5.99. (K-2)

In the 1800s, many inventors tried to invent a long-lasting and safe electric light bulb. This book describes the trial and error process that Thomas Edison and his crew went through in the successful development of an electric light bulb. Author's facts about lights. (LB)

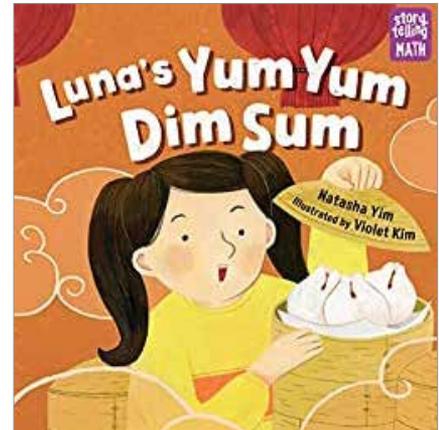


**Look, Grandma! Ni, Elisi!**

Art Coulson. Illustrated by Madelyn Goodnight. Charlesbridge. ISBN 9781623542030, \$15.99. (K-2)

A young Cherokee boy is faced with a problem; how can he build a container to

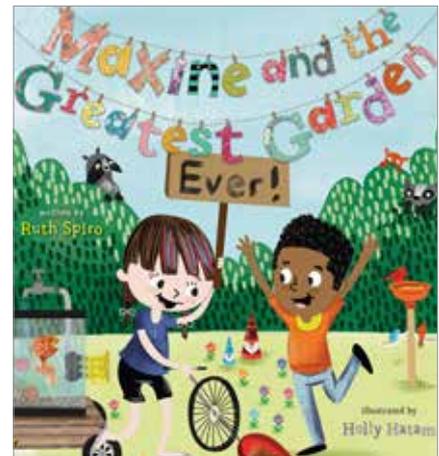
fit in his grandmother's booth so he can sell his homemade marbles? Grandma limits his space so he must come up with a plan. Repeated trials, divergent thinking and looking at multiple solutions he is able to be successful. (JCL)



**Luna's Yum Yum Dim Sum**

Natasha Yim. Illustrated by Violet Kim. Charlesbridge. ISBN 9781623541309, \$15.99. (K-2)

A birthday dinner for Luna and her family turns into a problem-solving opportunity. Luna and her brothers tackle the problem of equally splitting five pork buns among the three of them while eating Dim Sum. The book helps to demonstrate divergent thinking while investigating a math problem. Endnotes. (CAR)



**Maxine Greatest Garden Ever**

Ruth Spiro. Illustrated by Holly Hatam. Penguin Young Readers / Dial Books. ISBN 9780399186301, \$17.99. (K-2)

This book tells the story of how two friends with very different ideas create a garden. But, as the garden grows, so do the problems. The friends try to work together to solve these problems. This story is a great example of the Engineering Design Process for young readers! (LB)

# BEST STEM TRADE BOOKS CRITERIA AND RUBRIC

## OVERVIEW

STEM (Science, Technology, Engineering, and Mathematics) is an integrated and creative approach to discovering and applying knowledge about our world to solve problems which utilizes one, or more of the content areas. Trade books that deliver background and model the practices of STEM provide context and inspiration to readers. Recognizing the best publications in this field can help guide their use and provide direction to publishers.

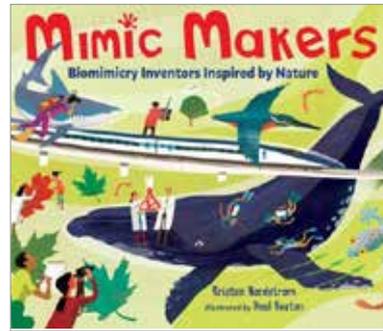
## CRITERIA

The best STEM trade books must invite STEM-like thinking by:

- Modeling real-world innovation
- Embracing real-world design, invention and innovation
- Connecting with authentic experiences
- Showing assimilation of new ideas
- Illustrating teamwork, diverse skills, creativity, and cooperation
- Inviting divergent thinking and doing
- Integrating interdisciplinary and creative approaches
- Exploring multiple solutions to problems
- Addressing connections between STEM disciplines
- Exploring Engineering Habits of Mind
  - Systems thinking,
  - Creativity
  - Optimisation
  - Collaboration
  - Communication
  - Ethical considerations
  - Critical thinking

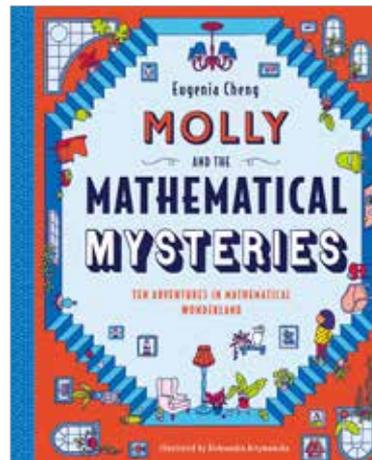
The best STEM trade books might represent the practices of science and engineering by:

- Asking questions, solving problems, designing and redesigning
- Integrating STEM disciplines
- Showing the progressive changes that characterize invention and/or engineering by:
  - Demonstrating designing or redesigning, improving, building, or repairing a product or idea
  - Showing the process of working through trial and error
  - Progressively developing better engineering solutions
  - Analyzing efforts and makes necessary modifications along the way
  - Illustrates at points, failure might happen and that is acceptable providing reflection and learning occurs.



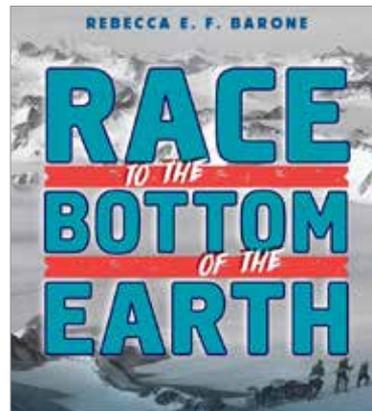
*Mimic Makers: Biomimicry Inventors Inspired by Nature*  
Kristen Nordstrom.  
Illustrated by Paul Boston.  
Charlesbridge.  
ISBN 9781580899475,  
\$17.99. (K-2, 3-5)

A well written and beautifully illustrated book for elementary students that shows how the natural world has been the inspiration for many technologies. Each technology is presented as a short vignette that helps make the connection between the invention and the natural phenomena. (BH)



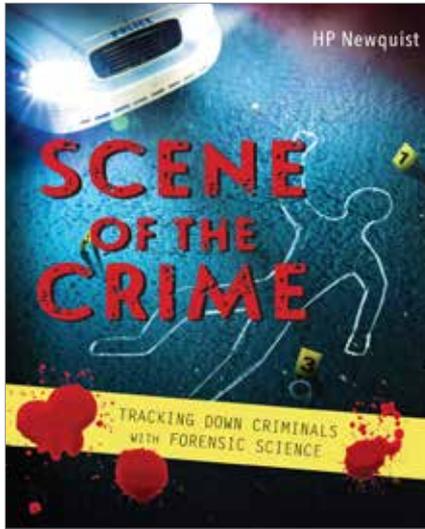
*Molly and the Mathematical Mysteries: Ten Interactive Adventures in Mathematical Wonderland*  
Eugenia Cheng. Illustrated by Aleksandra Artymowska.  
Candlewick Press / Big Picture Press. ISBN 9781536217100,  
\$24.99. (3-5, 6-8)

Mathematical mysteries are unveiled as Molly takes on a challenge. Each challenge incorporates interactive components on the pages and questions to consider. Challenges involve a wide range of math topics beyond numbers and each challenge is explained in the end notes. (CAR)



*Race to the Bottom of the Earth: Surviving Antarctica*  
Rebecca E. F. Barone.  
Macmillan Children's Publishing Group / Henry Holt and Co.  
ISBN 9781250257802,  
\$19.99. (6-8)

Follow along as Antarctic explorers use STEM thinking to reach their goal and stay alive! Scott and Amundsen's 1912 race to the South Pole is juxtaposed with the 2018 competition between Louis Rudd and Colin O'Brady to complete a solo crossing of the continent. Bibliography, endnotes, and index included. (ST)

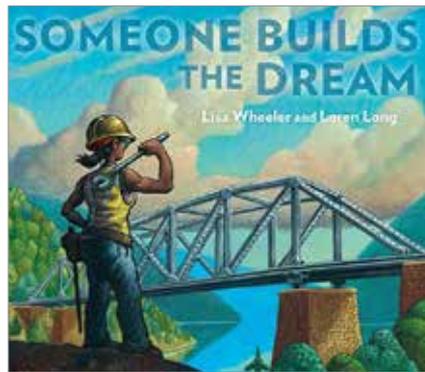


**Scene of The Crime: Tracking Down Criminals with Forensic Science**

HP Newquist. Penguin Young Readers / Viking BFYR. ISBN 9780451476463, \$22.99. (6-8, 9-12) CSI. NCIS.

Cold Case; not just for television. How do agencies track down criminals using forensic science? Dive deep into the minds of criminal investigators as they walk through solving well-known crimes. Deepen your understanding with hands-on activities used to solve crimes from the past and today. (AVF)

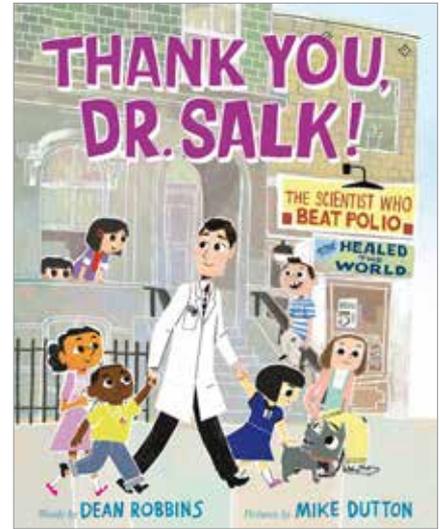
and ground breaking research unlocks the mysteries of the amazing sea animals that live within the sea. (AVF)



**Someone Builds the Dream**

Lisa Wheeler. Illustrated by Loren Long. Penguin Young Readers / Dial Books. ISBN 9781984814333, \$19.99. (K-2)

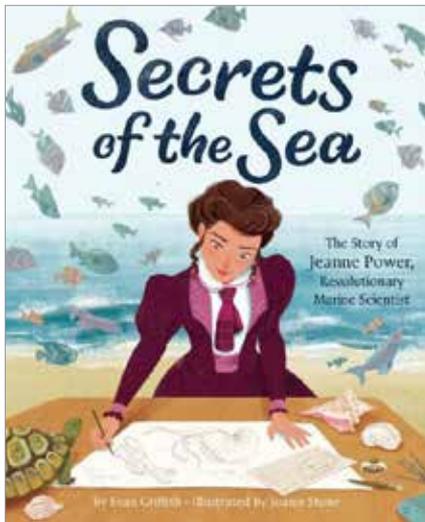
This richly illustrated and beautifully told book exposes children to non-traditional STEM work that is not done inside of a laboratory. Readers learn the importance of all jobs in the creation of the human-engineered world. A wonderful book to be read aloud to young children. (JCW)



**Thank You, Dr. Salk!: The Scientist Who Beat Polio and Healed the World**

Dean Robbins. Illustrated by Mike Dutton Macmillan Children's Publishing Group / Farrar, Straus and Giroux. ISBN 9780374313913, \$18.99. (K-2, 3-5)

This book introduces elementary-age students to the life of Dr. Jonas Salk, the inventor of the polio vaccine. Looking back at a past pandemic, this well illustrated book takes us from Dr. Salk's early life to his work on the polio vaccine. (BH)



**Secrets of the Sea: The Story of Jeanne Power, Revolutionary Marine Scientist**

Evan Griffith. Illustrated by Joannie Stone. HarperCollins Children's Books / Clarion Books. ISBN 9780358244325, \$17.99. (K-2)

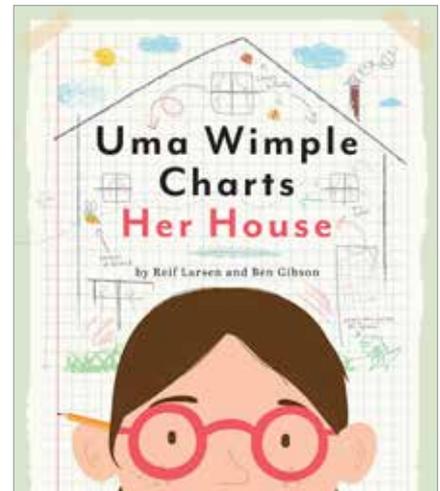
Curiosity of what lies within the sea set the wheels in motion for Jeanne Powers. The first to bring sea animals into a tank for humans to study, Jeanne's persistent



**The Stuff Between the Stars: How Vera Rubin Discovered Most of the Universe**

Sandra Nickel. Illustrated by Aimee Sicuro. Abrams / Abrams Books for Young Readers. ISBN 9781419736261, \$18.99. (3-5)

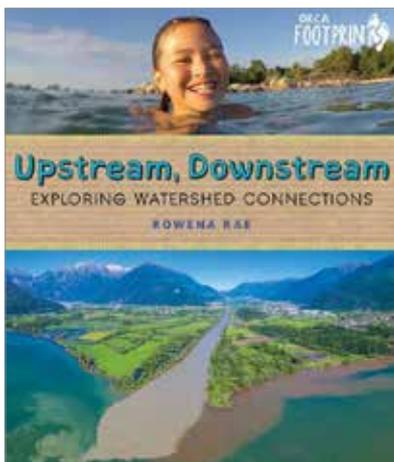
Long: In the male-dominated world of astronomy, Vera Rubin struggled to convince others of her breakthrough discoveries in astronomy. However, as recounted in The Stuff Between the Stars, hard work and determination paved the way for Vera to share her discoveries about space with others. (SB)



**Uma Wimple Charts Her House**

Reif Larsen. Illustrated by Ben Gibson. Random House Children's Books / Anne Schwartz Books. ISBN 9780593181188, \$17.99. (K-2)

Uma makes charts and is quite good at it. When given an assignment to chart her house, she finds that she must first determine what the characteristics of a house include before deciding to chart her family. End pages highlight different types of charts and how they are used. (CAR)

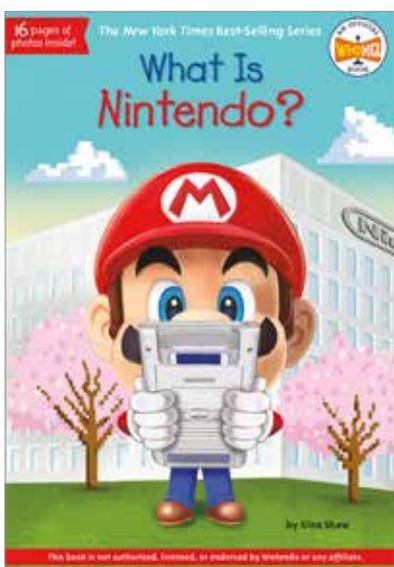


### *Upstream, Downstream: Exploring Watershed Connections*

Rowena Rae. Orca Book Publishers.

ISBN 9781459823921, \$19.95. (3-5, 6-8)

Explore and celebrate your watershed! This is an engaging book for upper elementary and middle school readers on the importance of watersheds, the issues facing them, and how citizen scientists are making a difference to improve the health of our watersheds around the globe. Resources and glossary. (JCW)



### *What Is Nintendo? (What Was?)*

Gina Shaw. Penguin Young Readers / Penguin Workshop. ISBN 9780593093795, \$5.99.

(3-5, 6-8)

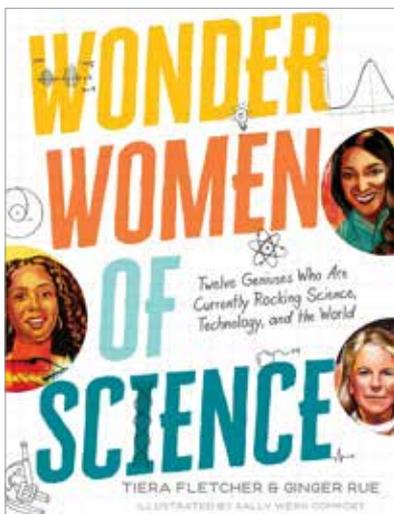
What is Super Mario Bros and The Legend of Zelda? Two amazing games developed by Nintendo. A business that started by selling playing cards evolved into a company that invented the first gaming console. Nintendo's 100-year history shows how technology and engineering can entertain and change the world. (AVF)

### *Wonder Women of Science: Twelve Geniuses Who Are Currently Rocking Science, Technology, and the World*

Tiera Fletcher and Ginger Rue. Illustrated by Sally Wern Comport. Candlewick Press.

ISBN 9781536207347, \$19.99. (3-5, 6-8)

Be inspired as you read the highly engaging biographies of twelve diverse female scientists and engineers actively engaged in STEM fields. These women are solving today's problems: designing new spacesuits, unlocking climate change, and saving the vanishing tapir. Discover what sparked their paths into STEM careers. Glossary and suggested readings. (JCW)



## CALL FOR SUBMISSIONS

for 2023 Best STEM Books for Students K-12

**Deadline for submissions: July 8, 2022**

### Eligibility

- Titles should be for grades K-12.
- All titles must originate from a children's publishing company or division and must be published (not simply distributed) by a publisher incorporated in the United States.
- Titles must be published in 2022.
- Titles originally published abroad are eligible only if they have a 2022 U.S. publication date; reprints or licensed editions of titles initially published in the United States before 2022 are not eligible.
- Original paperbacks are eligible; paperback reprints are not. If a book is published simultaneously in hardcover and paperback, either edition may be submitted. If both editions are submitted, they constitute separate entries.
- Revisions are eligible only if the book has been newly illustrated or if substantial text, constituting at least 25% of the book, has been changed or added.
- Math books are not eligible unless the mathematical principles are applied to scientific functions such as measuring for experiments, using statistical models for scientific research, and so on.
- Textbooks, workbooks, kits, experiment-only books, and activity books are not eligible.
- Spanish-language editions of titles published in English before 2022 are not acceptable. Spanish-language editions published simultaneously with English-language editions in 2022 are eligible.
- Fiction is eligible if the book has substantial science content.

### Number of titles you may submit

Each participating publisher may submit an unlimited number of titles.

### Submission guidelines

Books should have value for both classroom studies and library collections supporting students' work.

Full submission guidelines will be available throughout the month of June, 2022 at <https://www.cbcbooks.org/curated-reading-lists/>.

### Fees

There is no submission fee for CBC Regular and Affiliate Members. The fee is \$75 per title for Associate and Initiating Members and \$300 per title for non-members. All fees are non-refundable. Titles may not be substituted. There is no refund if a title is canceled or postponed.