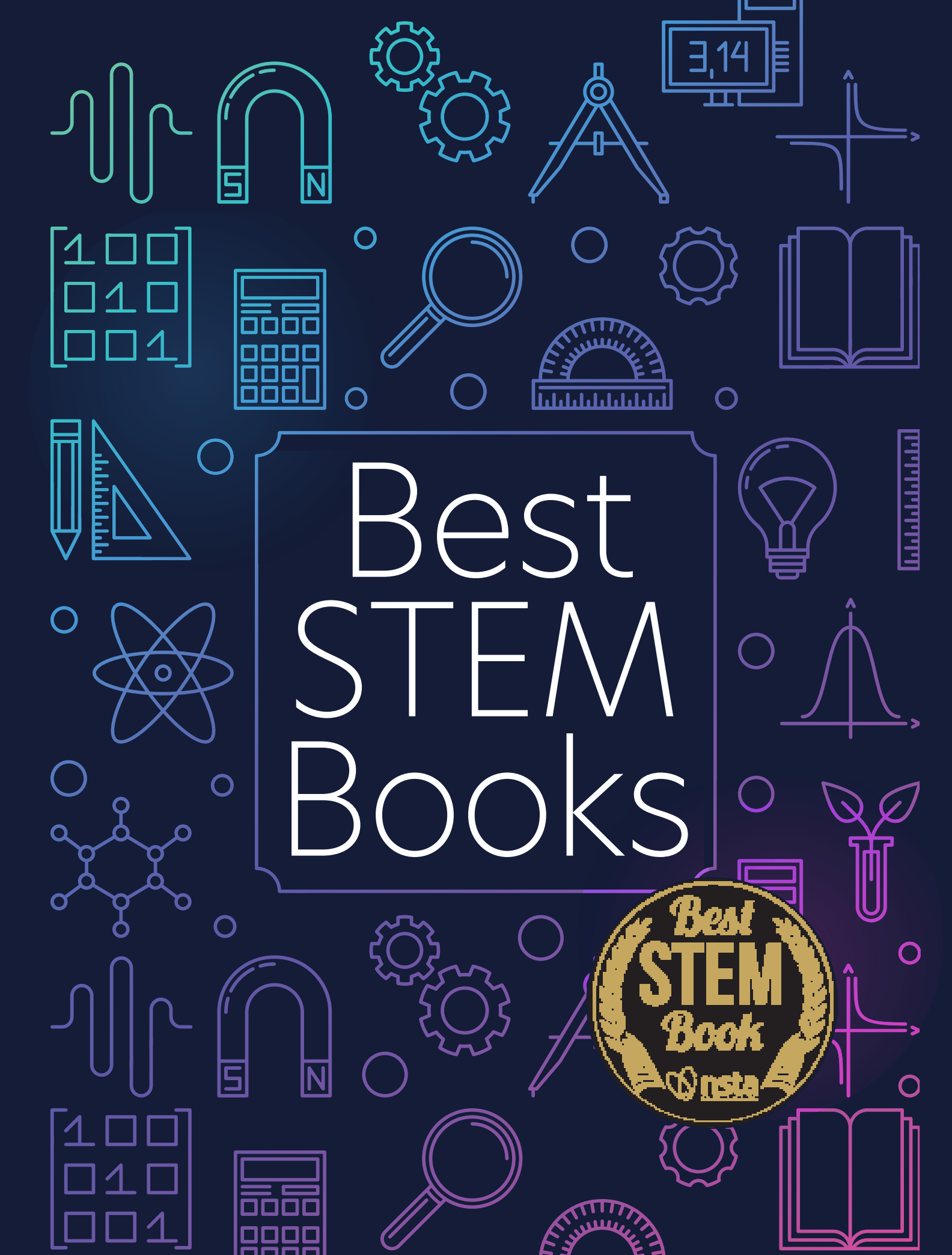


Best STEM Books



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.

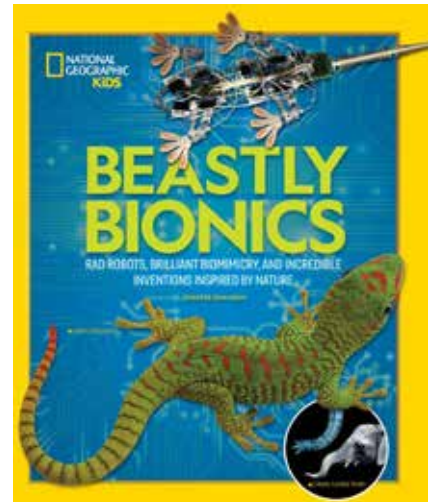
We have chosen titles that provoke readers to examine the “thinking stance” of characters—not simply to look at actions and results.

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.

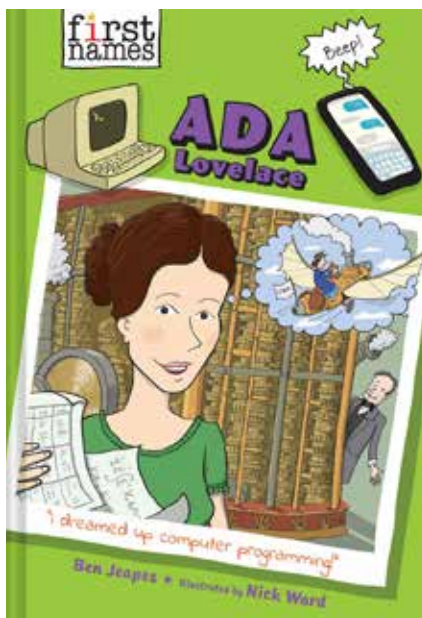
How do we prepare 21st-century kids for challenges and jobs that we at present cannot even describe? The Best STEM Books help by celebrating convergent and divergent thinking, analysis and creativity, persistence, and the sheer joy of figuring things out.

Beastly Bionics: Rad Robots, Brilliant Biomimicry, and Incredible Inventions Inspired by Nature.



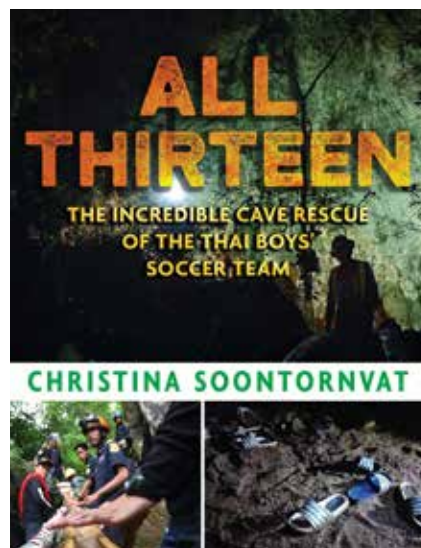
Jennifer Swanson. National Geographic Children's Books. 95pp. Trade ISBN 9781426336737, \$12.99. (3–5, 6–8) Explore the ways that engineers look to nature to solve complex problems. Using vivid photographs and figures, this book highlights the design process that has led to inventions like spider robots, firefly lightbulbs, turtle body armor, and more. Glossary, Additional Resources, and Index. (LR)

Ada Lovelace (The First Names Series).



Ben Jeapes. Illustrated by Nick Ward. ABRAMS / Abrams Books for Young Readers. 154pp. Trade ISBN 9781419740756, \$9.99. (3–5, 6–8) How did the first computer come to be? It started over 200 years ago with the determination and imagination of one little girl, Ada Lovelace. Go on an adventure with Ada and explore her amazing life as she becomes the brains behind the creation of the computer. Timeline, Glossary, Notes, Bibliography, Index (AF)

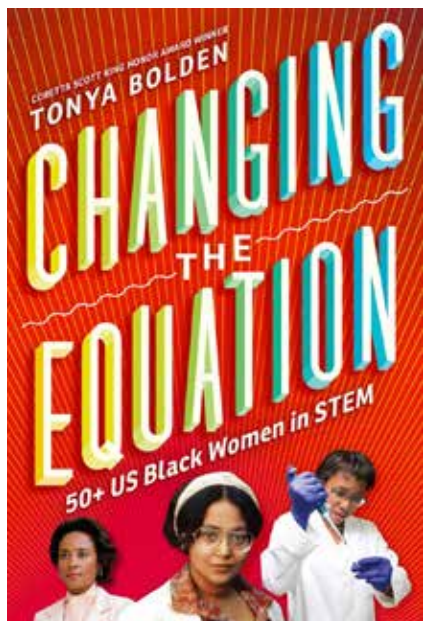
All Thirteen: The Incredible Cave Rescue of the Thai Boys' Soccer Team.



Christina Soontornvat. Candlewick Press. 288pp. Trade ISBN 9781536209457, \$21.99. (6–8) On June 23, 2018, twelve young soccer players and their coach became trapped in a cave as rising floodwaters blocked their path. The seventeen-day rescue operation involved the collaboration of thousands of rescuers from around the globe. This riveting account of complex engineering challenges solved by international teams as well as the mental struggles of the trapped boys is an inspiring story of perseverance and innovation. Author's Notes, Source Notes, Bibliography. (PC)



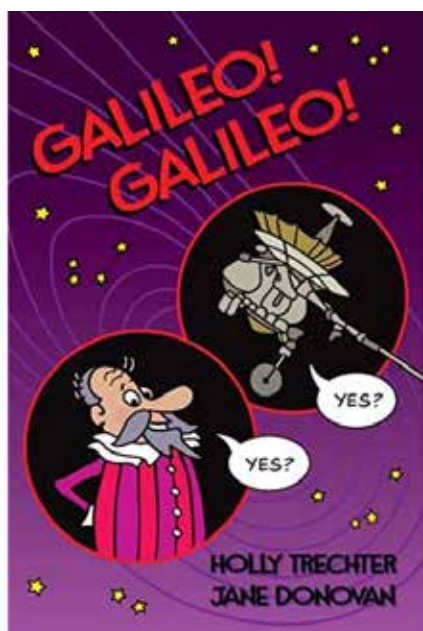
Changing the Equation: 50+ US Black Women in STEM.



Tonya Bolden. ABRAMS / Abrams Books for Young Readers. 202pp. Trade ISBN 9781419707346, \$14.99. (6–8) Meet more than 50 Black women who advanced progress in medicine, engineering, teaching, and other STEM fields despite societal barriers against Black women in the academy and workplace. These unsung heroes include Dr. Crumpler, who practiced medicine in the 1800s and wrote the first medical textbook by a Black American.

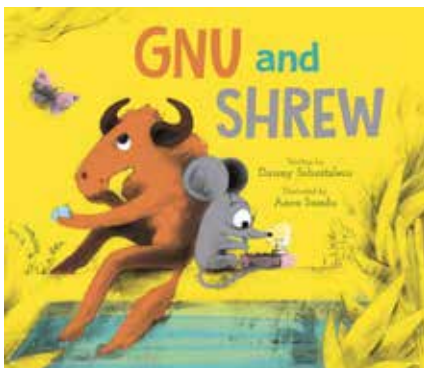
Notes. Selected sources. Acknowledgements. Image Credits. Index. (MH)

Galileo! Galileo!



Holly Trechter and Jane Donovan. Sky Candle Press. 91pp. Trade ISBN 9781939360083, \$13.99. (3–5, 6–8) This graphic novel takes the reader through the development and deployment of the Galileo probe. The authors show the processes scientists and engineers used to overcome the challenges and problems that arose throughout the mission's history. This book offers excellent insight into how STEM plays out in real-world situations. (BH)

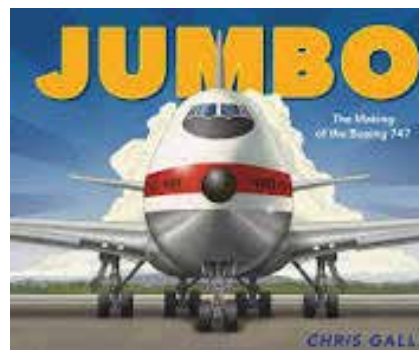
Gnu and Shrew.



Danny Schnitzlein. Illustrated by Anca Sandu. Peachtree Publishing Company Inc. 32pp. Trade ISBN 9781682631461, \$16.99. (K–2) Meet two delightful characters, Gnu and Shrew, and discover their unique ways of tackling problems. Gnu dreams of big solutions and Shrew engages in engineering and design thinking to solve problems. Enjoy their story of perseverance, engineering, and discovery. (MD)

Jumbo: The Making of the Boeing 747.

Chris Gall. Roaring Brook Press. 48pp. Trade ISBN 9781250155801, \$15.63. (K–2, 3–5) Discover the story behind the design and development of Boeing's 747 passenger plane. Through vivid illustrations and clever text, learn how engineers



designed, redesigned, and persevered to bring the world's largest passenger jet to reality. See how authentic problem solving and technological innovation changed the course of commercial aviation. Author's Notes and Glossary. (JCW)



About the Reviews

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

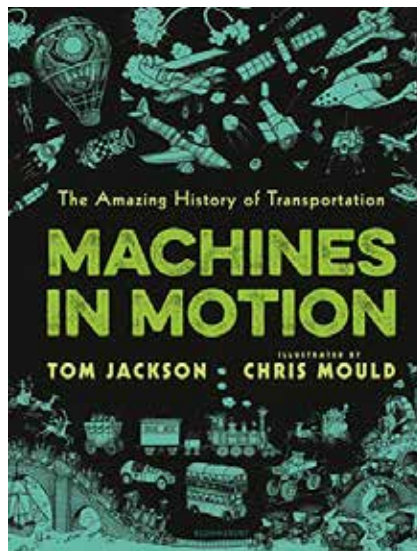
1. International Standard Book Numbers (ISBN) are included for trade editions.
2. The prices are current as of January 2021.
3. Reading levels (K–2, 3–5, 6–8, and 9–12) are provided by the reviewers. They are intended as guidelines and are not meant to limit the potential use of titles.
4. The reviewer's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

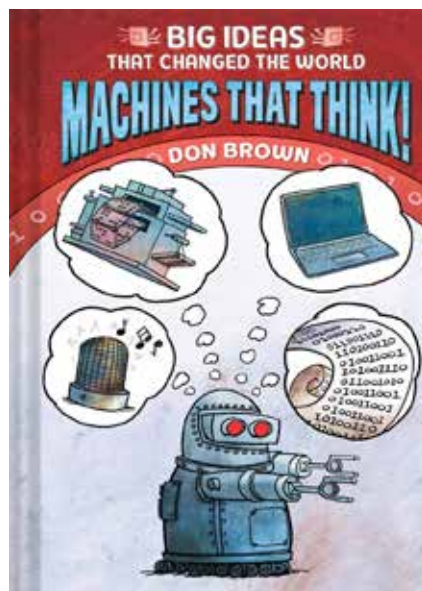
The books that appear in these lists were chosen by a review panel made up of educators and other subject-area experts, all appointed by the National Science Teachers Association. NSTA and CBC have joined forces on developing this annual list since 1973, and over the years it has become the go-to resource 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.

Machines in Motion: The Amazing History of Transportation.



Tom Jackson. Illustrated by Chris Mould. Bloomsbury Children's Books. 64pp. Trade ISBN 9781547603374, \$19.99. (3–5) For centuries humans have been solving problems about how to move things over land, water, and air. This book explores the fascinating history of machines and the people who built them as shared through detailed cartoons, captions, and timelines. (LR)

Machines That Think!: Big Ideas That Changed the World.

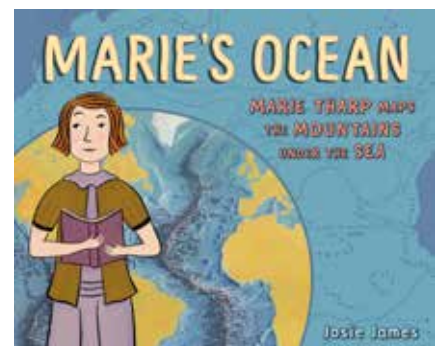


Don Brown. ABRAMS / Amulet Books. 124pp. Trade ISBN 9781419740985, \$11.59. (6–8) This graphic novel takes the reader through the evolution



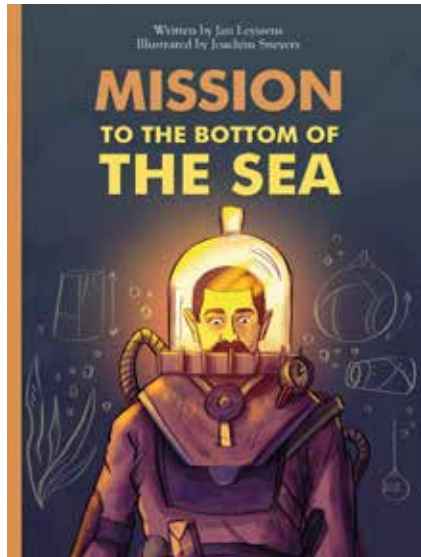
of computers and development of artificial intelligence. Starting with the development of the Arabic numeral system and ending with modern computers, readers are led through the historical and technological advances along the way. A fun introduction to the history of computers. (BH)

Marie's Ocean: Marie Tharp Maps the Mountains Under the Sea.



Josie James. Illustrated by Josie James. Macmillan Children's Publishing Group / Henry Holt BYR. 44pp. Trade ISBN 9781250214737, \$19.39. (3–5) Known as one of the greatest oceanographic cartographers, Marie Tharp's life is extraordinary. As she dives deeper into the ocean beyond the water, creatures, and coral, she uncovers what is underneath. The theory of plate tectonics was formulated through her amazing work while mapping and charting the ocean floor. Author's Afterword, Edited Bibliography, Source Notes. (AF)

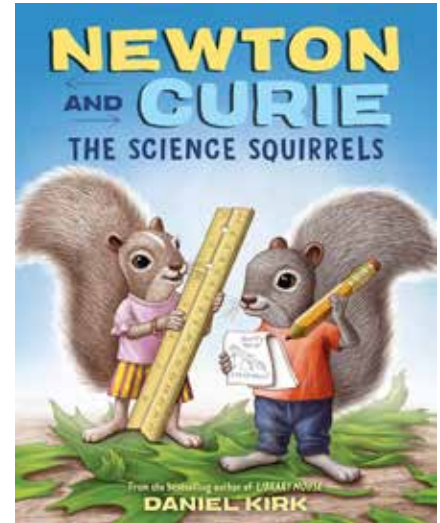
Mission to the Bottom of the Sea Jan Leysens.



Illustrated by Joachim Sneyers. Clavis Publishing. 32pp. Trade ISBN 9781605375311, \$16.95. (K–2, 3–5) Wanting to observe the deep-sea, but limited by the diving equipment of the time, naturalist William Beebe and engineer Otis Barton set out to design a spherical-shaped

submarine that would take them to depths greater than any human had descended before. A fascinating story of innovation and exploration. (JCW)

Newton and Curie the Science Squirrels.

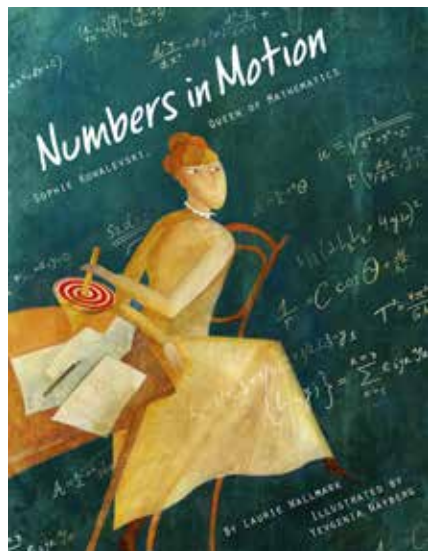


Daniel Kirk. Abrams Books for Young Readers. 38 pp. Trade ISBN 9781419737480, \$16.99. (K–2) Follow the adventures



of Newton and Curie as they use the engineering design process to investigate gravity, forces, and simple machines at home and on the playground. Join these inquisitive squirrels as they apply what they learn to help their forest friends. Author's Note, Glossary, and Extension Resources. (ST)

Numbers in Motion: Sophie Kowalevski, Queen of Mathematics.



Laurie Wallmark. Illustrated by Yevgenia Nayberg. Creston Books. 35pp. Trade ISBN 9781939547637, \$14.89. (3–5) Meet Sophie Kowalevski, the first female to earn a doctorate in mathematics. In a time when women were not permitted to be in a man's world, the “Queen of Mathematics” drive and persistence paved a way for all young girls to learn and develop a love of math. Author's Note, Sophie's Math, Timeline, Selected Bibliography, and Cyrillic Alphabet. (AF)



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

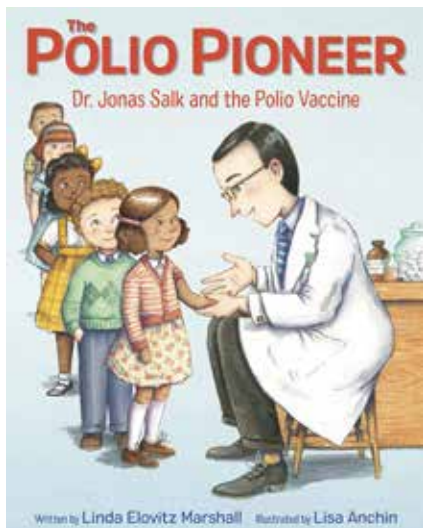
The best STEM trade books must invite STEM-like thinking by:

- 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:

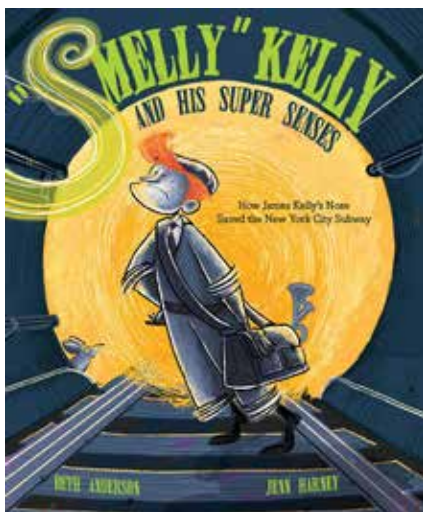
- Asking questions, solving problems, designing and redesigning
- Integrating STEM disciplines
- Showing the progressive changes that characterize invention and/or engineering by:
 - Demonstrating designing or redesigning, improving, building, or repairing a product or idea
 - Showing the process of 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.

The Polio Pioneer



Linda Elovitz Marshall. Illustrated by Lisa Anchin. Random House Children's Books / Alfred A Knopf BFYR. 40pp. Trade ISBN 9780525646518, \$16.69. (K-2) Have you ever wondered who makes vaccines and how they do it? Jonas Salk, a boy who "saw the world differently" wanted to make the world a better place. As an adult, Salk did just that by developing the polio vaccine, protecting children around the world from getting polio. Author's Note. Sources. (MH)

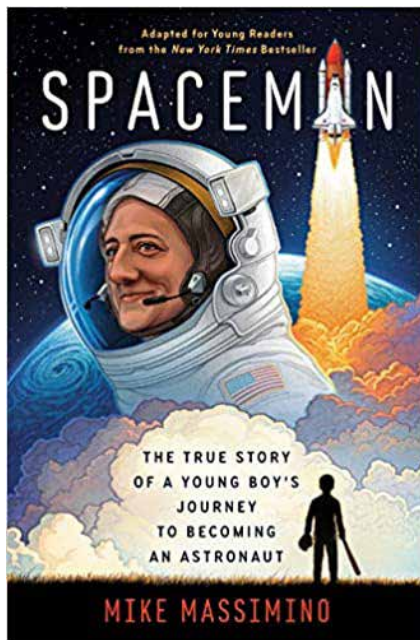
"Smelly" Kelly and His Super Senses. Beth Anderson.



Illustrated by Jenn Harney. Boyds Mills & Kane / Calkins Creek. 40pp. Trade ISBN 9781684373994, \$17.72. (3-5) This is the humorous, true story of James "Smelly" Kelly and how his extraordinary sense of smell saved the New York City subway in the early 1900s. This beautifully illustrated

book follows "Smelly" Kelly's career as a subway employee tasked with finding gas leaks. Also included is an author's note with historical information on Kelly, his tools, and the NYC subway. (LB)

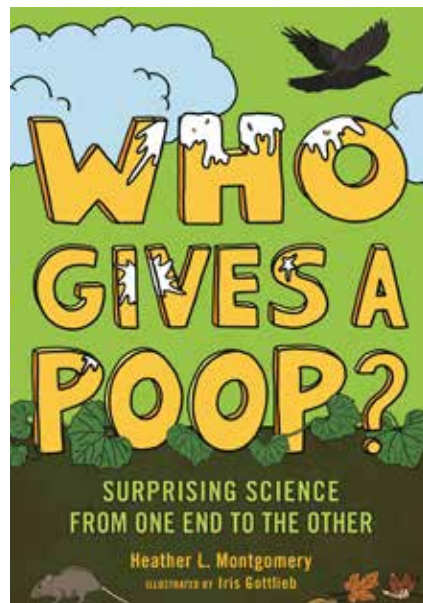
Spaceman: The True Story of a Young Boy's Journey to Becoming an Astronaut.



Mike Massimino. Random House Children's Books / Delacorte BFYR. 266pp. Trade ISBN 9780593120866, \$14.62. (6-8) Written especially for young readers, this autobiography is the incredible story of Mike Massimino's journey to fulfill his lifelong dream of becoming an astronaut. The book follows his life from a child who merely dreamed of becoming an astronaut to actually becoming a NASA spacewalker. (LB)

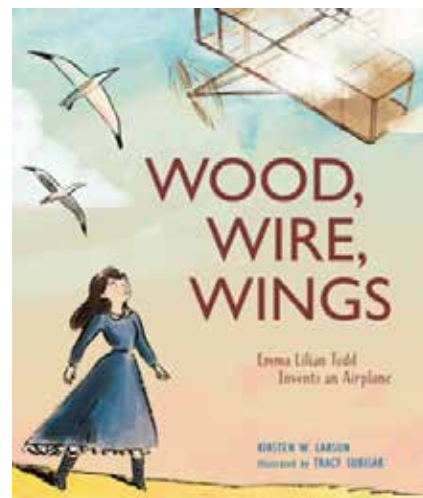


Who Gives a Poop?: Surprising Science From One End to the Other.



Heather L. Montgomery. Illustrated by Iris Gottlieb. Bloomsbury Children's Books. 183pp. Trade ISBN 9781547603473, \$16.80. (3-5, 6-8) From laboratories to forests, and hospitals to landfills, join us on a learning adventure that is #1 about #2! Learn from scientists and engineers doing their business to investigate the fascinating world of poop using STEM thinking and problem solving. Tired of books that stink? Then check this one out! Annotated bibliography and index included. (ST)

Wood, Wire, Wings: Emma Lilian Todd Invents an Airplane.



Kirsten W. Larson. Illustrated by Tracy Subisak. Boyds Mills & Kane / Calkins Creek. 48pp. Trade ISBN 9781629799384,

\$14.39. (3–5) Emma Lilian Todd grew up in a family of innovators who encouraged her to turn her dreams into successful inventions. She engineered her own fantastic flying machines, becoming the first woman to design a successful airplane. Lilian's persistence and perseverance are evident through her failures and revisions of plans and ideas – a great example for the budding inventor. Author's Notes, Timeline, Bibliography. (PC)

Work It Girl: Blast Off Into Space Like MAE JEMISON.



Caroline Moss. Illustrated by Sinem Erkas. Quarto Group / Frances Lincoln Children's Books. 64pp. Trade ISBN 9780711245150, \$12.69. (3–5) Discover the inspirational story behind Mae Jemison's journey to become the first African American woman in space. She empowers young people, especially girls, to be proactive in making their own dreams a reality. Life lessons are embedded throughout this powerful and creative story modeling cultural responsiveness, perseverance, determination, and being the hero of your own story. (MD)

Call for Submissions

for 2022 Best STEM Books for Students K-12

Deadline for submissions: July 8, 2021

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 2021.
- Titles originally published abroad are eligible only if they have a 2021 U.S. publication date; reprints or licensed editions of titles initially published in the United States before 2021 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 2021 are not acceptable. Spanish-language editions published simultaneously with English-language editions in 2021 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, 2021 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.

