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.
Artificial Intelligence
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)

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)

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)

Crooked and True
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 honeyard, and modern day mysteries intriguingly unfold with a story to tell. (AVF)

Building Zaha: The Diary of an Architect
In addition to standard publishing information, the reviews indicate the following:

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).
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.**

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.**

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.**

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.**

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)

A Life Electric: The Story of Nikola Tesla
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
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!
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
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
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
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
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
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)
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)

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

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)
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.

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?)
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
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)