

## Best STEM Books 2017

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This is the inaugural year for the "Best STEM Books" list. Interest from readers and publishers alike has been "off the charts." The impetus for the list is the profound difference between the purely-science books on the annual list of <u>Outstanding Science Trade Books</u> (jointly created by the National Science Teachers Association and the Children's Book Council) and the titles we honor here.



On the surface, STEM appears to be a clear-cut acronym for content that draws on science, technology, engineering, and math. But the fact is that many thoughtful readers have their own unique notion of what STEM means. Notwithstanding those definitional differences, the panel of judges that selected the titles below chose them because each book reinforces STEM thinking— modeling innovation, demonstrating authentic problem-solving and assimilation of new ideas, all while exploring solutions that show progressive change or improvement.

Best STEM Books is a joint project of several organizations: the American Society for Engineering Education, the International Technology and Engineering Educators Association, the National Science Teachers Association, the Society of Elementary Presidential Awardees, and the Children's Book Council (ASEE, ITEEA, NSTA, SEAP, and CBC). The list provides knowledgeable recommendations to educators, librarians, parents, and caregivers about the best trade books with STEM content.

We invite you to explore this extraordinary list of Best STEM books.

## Winning Titles

## Title. Author(s). Illustrator. Publisher.

<u>Ada Byron Lovelace and the Thinking Machine</u>. Laurie Wallmark. April Chu. Creston Books.

Ada is a unique young woman who models creative thinking, applies mathematics and science to design, and publishes a pioneering computer program.



<u>Ada's Ideas</u>. Fiona Robinson. ABRAMS.

The illustrations as well as the text invite the reader to engage with Ada (Lovelace) as she applies her math and science learning to new challenges.

<u>Ada Lovelace, Poet of Science</u>. Diane Stanley. Jessie Hartland. Simon & Schuster / Paula Wiseman Books /.

Ada Lovelace was able to nurture her imagination and model innovative thinking to create the first computer program ever published.

<u>Ben Franklin's Big Splash</u>. Barb Rosenstock. S.D. Schindler. Boyds Mills Press / Calkins Creek.

*Even as a young boy, Ben Franklin uses design thinking to explore multiple solutions to invent swim fins.* 

<u>Breakthrough</u>. Jack Andraka. HarperCollins. Faced with multiple challenges, young scientist Jack Andraka perseveres to design an early-detection test for several cancers.

*Emmet's Storm*. Ann Rubino. Catree Books.

*In the context of his era, Emmet explores solutions to a community problem through persistence.* 

*Fearless Flyer*. Heather Lang. Raúl Colón. Boyds Mills Pres / Calkins Creek s.

Ruth Law, 1916 biplane pilot, improves and redesigns flight equipment, daring to fly cross-country and setting a new longdistance record.

*Genetic Engineering*. Michael Burgan. Scholastic Library Publishing. *The fast-changing field of genetic engineering is highlighted, inviting readers to explore multiple solutions and implications for society.* 

<u>A Global Warming Primer</u>. Jeffrey Bennett. Big Kid Science. The impact of global warming is presented in detail.

*Green City*. Allan Drummond. Macmillan / Farrar Straus Giroux. *A city devastated by a tornado is rebuilt for an environmentally sustainable future by citizens who design multiple solutions.* 

*Hello Ruby*. Linda Liukas. Macmillan/Feiwel & Friends. *Ruby and her fanciful friends explore the logical skills that underpin programming in a book that will invite the youngest learners to explore.* 

*Inventions that Could Have Changed the World ... But Didn't*. Joe Rhatigan. Anthony Owsley. Charlesbridge/Imagine.







A flying car, a bed that ejects sleepers when it is time to awaken, a toilet seat for cats—these are just a few of the imagined, creative, and sometimes patented inventions that did not change the world.

*<u>The Inventor's Secret</u>*. Suzanne Slade. Jennifer Black Reinhardt. Charlesbridge.

Edison and Ford were widely curious—and all of the work they did (including the many mistakes along the way) highlights how these inventors persevered, designed, and redesigned.

*<u>The Marvelous Thing That Came from a Spring</u>. Gilbert Ford. Simon & Schuster/Atheneum Books for Young Readers.* 

While dreamer Richard James works as a navy engineer exploring ways to keep ships from vibrating, he designs one of the most popular toys in American history, the Slinky.

*The Most Magnificent Thing.* Ashley Spires. Kids Can Press. *A young girl engages in the engineering and design process as she struggles to create the most magnificent thing—which is not revealed until the end of the story.* 

<u>*Red Madness.*</u> Gail Jarrow. Boyds Mills Press/Calkins Creek. Pellagra, a mysterious disease, affected millions until a public health crusader kept an open mind while analyzing the results of medical research.

<u>Sabotage</u>. Neal Bascomb. Scholastic/Arthur A. Levine Books. Faced with Germany's invasion of Norway, nine Norwegian commandos explore multiple solutions to life-threatening problems, as they change the course of World War II.

*<u>The Secret Subway</u>*. Shana Corey. Red Nose Studio. Random House/Schwartz & Wade.

Alfred Ely Beach uses divergent ideas from the community to solve a transportation problem with vividly relevant illustrations.

<u>Six Dots</u>. Jen Bryant. Boris Kulikov. Random House/Alfred A. Knopf BFYR.

At age 15, blind Louis Braille exemplifies persistence and creativity as he constructs a system for reading and writing through code.

<u>Solving the Puzzle Under the Sea</u>. Robert Burleigh. Raúl Colón. Simon & Schuster/Paula Wiseman Books.

In 1948 at Columbia University, Marie Tharpe carefully plotted Atlantic Ocean depth data, ultimately discovering a remarkable formation—the mountainous Mid-Atlantic Ridge.







<u>Steve Jobs</u>. Jessie Hartland. Random House/Schwartz & Wade. The eclectic curiosity, drive for perfection, and imperfect personality of Jobs are all illustrated in this graphic novel about a quirky genius.

*Super Gear*. Jennifer Swanson. Charlesbridge.

Stronger, lighter, safer, faster: Innovative improvements through nanotechnology demonstrate progressively better solutions, changing the world of sports.

<u>SWAP!</u> Steve Light. Candlewick Press.

A little pirate uses ingenious thinking to progressively change an old ship into a new ship of which his friend can be proud.

*<u>Ticktock Banneker's Clock</u>*. Shana Keller. David C. Gardner. Sleeping Bear Press.

A young Benjamin Banneker perseveres to "reverse-engineer" a pocket watch to improve and scale up his design of a strike clock.

*<u>Trailblazers</u>*. Rachel Swaby. Random House/Delacorte Press. *Thirty-three vignettes that exemplify progressive change as well as perseverance, innovative thinking, change, and discovery.* 

<u>Wangari Maathai</u>. Franck Prévot. Aurélia Fronty. Charlesbridge. Strong and fearless, Wangari Maathai engineers both peace and environmental responsibility through problem solving and persistence.

<u>Welcome to Mars</u>. Buzz Aldrin with Marianne J. Dyson. National Geographic Kids Books.

Astronaut Buzz Aldrin shares ideas about failures and successes in an authentic situation—while being encouraged to think critically about planning for a trip to Mars.

<u>What Does It Mean To Be An Entrepreneur?</u> Rana DiOrio and Emma D. Dryden. Ken Min. Little Pickle Press.

Innovation and open-minded thinking are the focus of this story, in which a young entrepreneur demonstrates curiosity, takes risks, overcomes challenges, and exemplifies perseverance.

Whoosh! Chris Barton. Don Tate. Charlesbridge.

From childhood to adult, Tuskegee to NASA, Lonnie Johnson used authentic problems to design and construct the Super Soaker.

<u>Women of Steel and Stone</u>. Anna M. Lewis. Chicago Review Press. This diverse collection of biographies of female architects allows readers insight into the women's challenges and reflective thinking.



Women Who Launched the Computer Age. Laurie Calkhoven. Alyssa Petersen. Simon &

Schuster/Simon Spotlight.

The story of the women "computers" from World War II—and the process by which they developed the first programming for the ENIAC computers—is told through the lens of both history and technology.