

1. What Do You Do With an Idea? By Kobi Yamada

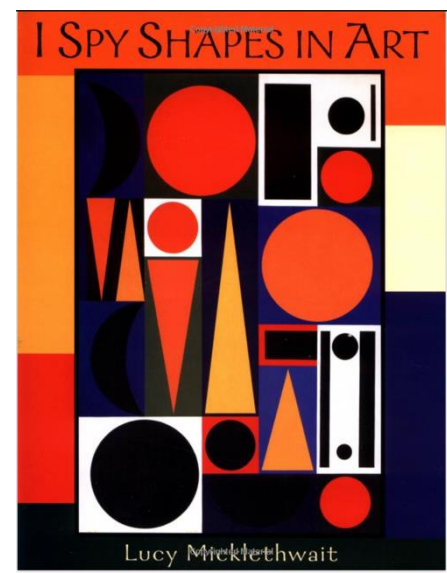
This book explores the magic of having an idea and playing with it for a while before allowing it to take shape into something extraordinary. This book could easily be used to introduce the process of moving from an artistic idea to an original work of art. Or, it could be used as a way to think about the many ways creativity is used to take an idea from another content area and broaden its scope and impact.

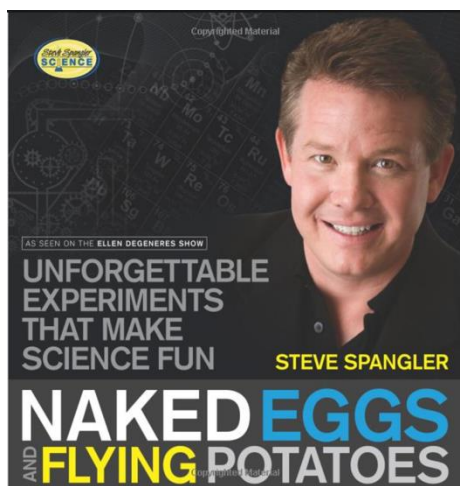
- **ISBN-10** : 1938298071
- **ISBN-13** : 978-1938298073

2. I Spy Shapes in Art, By Lucy Micklethwait

The connection between visual art and geometry is clear, and these are great resources to add to your STEAM classroom library to foster this connection. These picture books can be used for independent exploration by your students, or pieces can be incorporated into any lesson on geometry (our lesson seeds on geometry, Character Shapes and Mondrian Geometry, can be adapted for different geometric concepts or to include various pieces of visual art).

- **ISBN-10** : 0060731931
- **ISBN-13** : 978-0060731939





3. **Naked Eggs and Flying Potatoes: Unforgettable Experiments That Make Science Fun,** **by Steve Spangler**

This book is written and endorsed by the original creator of the mentos geyser! Inside your kids will find extraordinary science experiments they can do with household items. This isn't your average science – these tricks are sure to entertain and amaze, all while your kids learn more about the why's and how's!

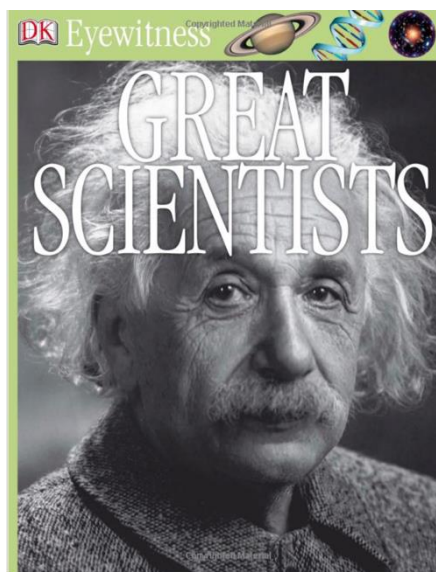
- **ISBN-10** : 160832060X
- **ISBN-13** : 978-1608320608

4. **Great Scientists,** **by Jacqueline Fortey**

Great Scientists takes a look at the world's pioneering scientist, their most popular discoveries and relevance to us today. The book begins with Aristotle, highlights Archimedes, William Harvey, Louis Pasteur, Marie Curie, Albert Einstein, Edwin Hubble (among many others), and ends with Stephen Hawking. It's an overview of leading discoveries and life's work in the vast field of science and shows bit about many subcategories. Each

scientist is afforded a summary of work and contribution to the science community and historical effect, some personal information, a timeline, and a photograph. This is a very in depth look at very important leading scientists that have shaped our knowledge and view of the world and a wonderful introduction to the history of science concepts. It is interesting and engaging, and will give kids a desire for more.

- **ISBN-10** : 0756629748
- **ISBN-13** : 978-0756629748



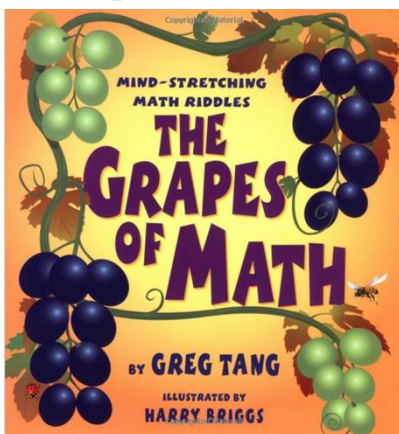
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5. The Grapes of Math,

by Greg Tang

Sixteen clever riddles illuminate quick-and-easy tricks to solving math problems. Math puzzles have never been so much fun!

Category: Math Skills "How many grapes are on the vine? Counting each takes too much time. Never fear, I have a hunch There is a match for every bunch!" Greg Tang, a lifelong lover of math, shares the techniques that have helped him solve problems in the most creative ways! Harry Briggs's vibrant & inviting illustrations create a perfect environment for these innovative games. So open your mind-and



have fun!" "This...clever math book uses rhyming couplets... riddles...visual clues to help the reader find new ways to group numbers for quick counting...A winning addition!" –Kirkus

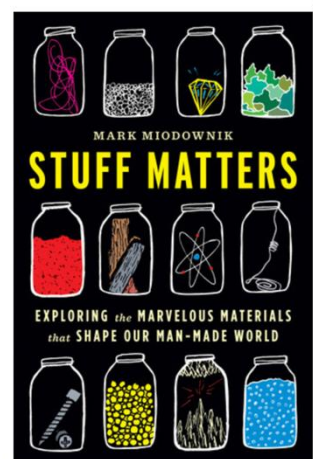
- ISBN 10: 0439598400
- ISBN 13: 9780439598408

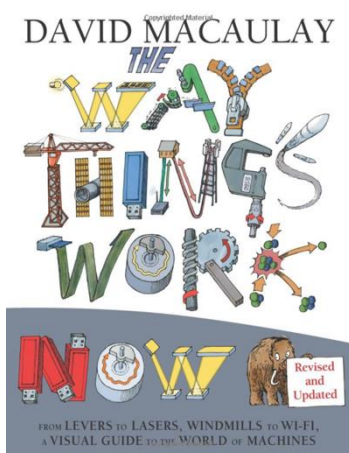
6. Stuff Matters: Exploring the Marvelous Materials That Shape Our Man-Made World,

By Mark Miodownik

Why is glass see-through? What makes elastic stretchy? Why does any material look and behave the way it does? These are the sorts of questions that renowned materials scientist Mark Miodownik constantly asks himself. Miodownik studies objects as ordinary as an envelope and as unexpected as concrete cloth, uncovering the fascinating secrets that hold together our physical world. In *Stuff Matters*, Miodownik explores the materials he encounters in a typical morning, from the steel in his razor to the foam in his sneakers. Full of enthralling tales of the miracles of engineering that permeate our lives, *Stuff Matters* will make you see stuff in a whole new way.

- ISBN-10 : 0544483944
- ISBN-13 : 978-0544483941





7. The Way Things Work Now

David Macaulay

Explainer-in-Chief David Macaulay updates the worldwide bestseller *The New Way Things Work* to capture the latest developments in the technology that most impacts our lives. Famously packed with information on the inner workings of everything from windmills to Wi-Fi, this extraordinary and humorous book both guides readers through the fundamental principles of machines, and shows how the developments of the past are building the world of

tomorrow. This sweepingly revised edition embraces all of the latest developments, from touchscreens to 3D printer. Each scientific principle is brilliantly explained--with the help of a charming, if rather slow-witted, woolly mammoth.

An illustrated survey of significant inventions closes the book, along with a glossary of technical terms, and an index. What possible link could there be between zippers and plows, dentist drills and windmills? Parking meters and meat grinders, jumbo jets and jackhammers, remote control and rockets, electric guitars and egg beaters? Macaulay explains them all.

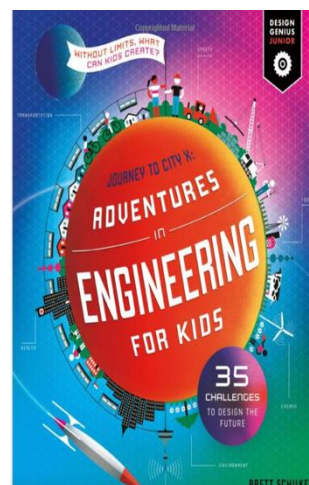
- **ISBN-10** : 0544824385
- **ISBN-13** : 978-0544824386

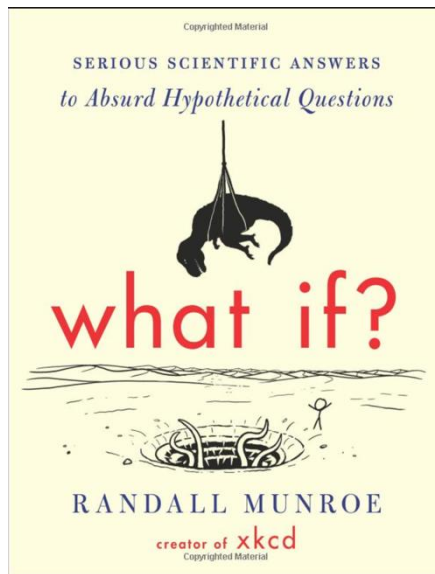
8. Adventures in Engineering for Kids: 35 Challenges to Design the Future - Journey to City X - Without Limits, What Can Kids Create?

By Brett Schilke

It's always fun for kids to think about the future, but it's not easy to keep the conversation going because everything becomes complicated. This book changes the rules—figuring out the future of transportation, food, energy, the environment and more—it all becomes an elaborate game. And not just a game, but a serious exercise in scenario planning, decision sciences and collaboration disguised as a game. What a great way to encourage kids to use their imagination to invent the future

- **ISBN-10** : 1631598392
- **ISBN-13** : 978-1631598395





• 9. What If?: Serious Scientific Answers to Absurd Hypothetical Questions

By Randall Munroe

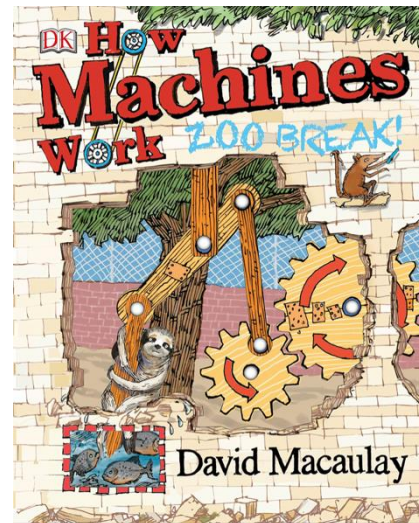
In pursuit of answers, Munroe runs computer simulations, pores over stacks of declassified military research memos, solves differential equations, and consults with nuclear reactor operators. His responses are masterpieces of clarity and hilarity, complemented by signature xkcd comics. They often predict the complete annihilation of humankind, or at least a really big explosion.

The book features new and never-before-answered questions, along with updated and expanded versions of the most popular answers from the xkcd website. What If? will be required reading for xkcd fans and anyone who loves to ponder the hypothetical.

- ISBN-10 : 0544272994
- ISBN-13 : 978-0544272996

10. How Machines Work: Zoo Break! by David Macaulay

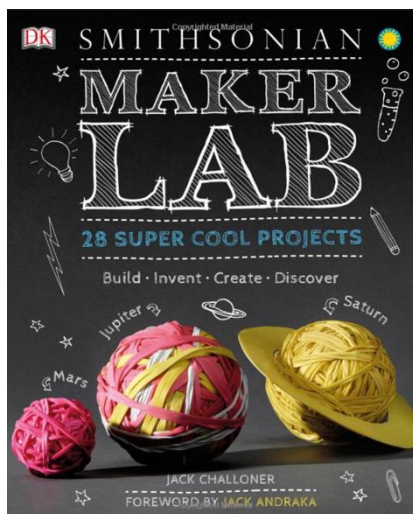
How Machines Work is a unique book full of inspiring illustrations by award-winning artist David Macaulay and packed with interactive elements, including press-out models, pop-ups, and pull-outs. Sloth and his sidekick Sengi are two furry friends on hand to guide you through book and break down the basics. They'll give you the lowdown on levers, pulleys, screws, inclined planes, wedges, and wheels on this intrepid adventure. You'll find out how all different technologies work, from bicycles, cranes, and drills to diggers, hammers, and zips.



the

Along the way, you'll help Sloth and Sengi plot their daring escape from the zoo using only newfound scientific knowledge to make a machine designed for break outs and break aways. But will they succeed? Grab this essential guide, get your brain in gear, and get set for engineering greatness.

- ISBN-10 : 1465440127
- ISBN-13 : 978-1465440129



11. Maker Lab: 28 Super Cool Projects

By Jack Challoner

Supporting STEAM education initiatives and the Maker Movement, the National Parenting Publication Award-winner *Maker Lab* includes 28 kid-safe projects and crafts that will get young inventors' wheels turning and make science pure fun.

Each step-by-step activity is appropriate for kids ages 8–12, and ranked easy, medium, or hard, with an estimated time frame for completion. Requiring only

household materials, young makers can build an exploding volcano, race balloon rocket cars, construct a lemon battery, make sticky slime, and more. Photographs and facts carefully detail the "why" and "how" of each experiment using real-world examples to provide context so kids can gain a deeper understanding of the scientific principles applied.

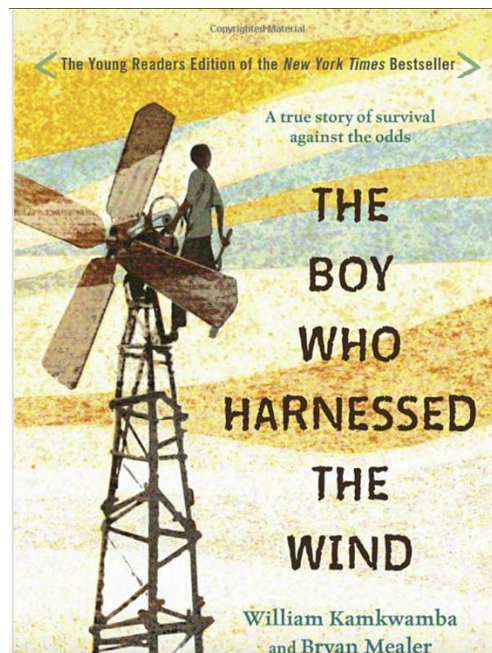
- **ISBN-10** : 1465451358
- **ISBN-13** : 978-1465451354

12. The Boy Who Harnessed the Wind,

Young Reader's Edition

By William Kamkwamba

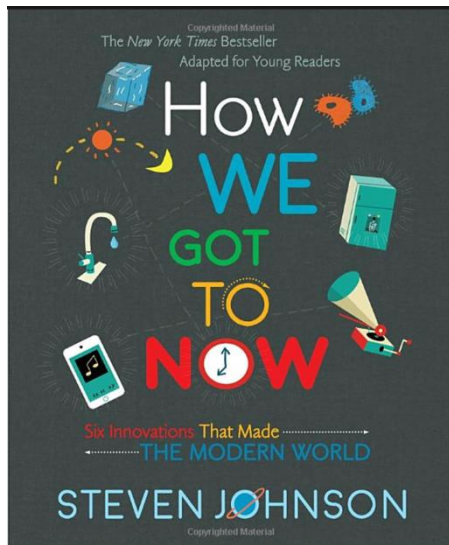
When a terrible drought struck William Kamkwamba's tiny village in Malawi, his family lost all of the season's crops, leaving them with nothing to eat and nothing to sell. William began to explore science books in his village library, looking for a solution. There, he came up with the idea that would change his family's life forever: he could build a windmill. Made out of scrap metal and old bicycle parts, William's windmill brought electricity to his home and helped his family pump the water they needed to farm the land.



Retold for a younger audience, this exciting memoir shows how, even in a

desperate situation, one boy's brilliant idea can light up the world. Complete with photographs, illustrations, and an epilogue that will bring readers up to date on William's story, this is the perfect edition to read and share with the whole family.

- **ISBN-10** : 9780147510426
- **ISBN-13** : 978-0147510426



13. How We Got To Now: Six Innovations That Made the Modern World

By Steven Johnson

Innovation starts with a problem whose solution sets in motion all kinds of unexpected discoveries. That's why you can draw a line from pendulums to punching the clock at a factory, from ice blocks to summer movie blockbusters, from clean water to computer chips.

In the lively storytelling style that has made him a popular, bestselling author, Steven Johnson looks at how accidental genius, brilliant mistakes, and unintended consequences shape the way we live in the modern world. Johnson's "long zoom" approach connects history, geography, politics, and scientific advances with the deep curiosity of inventors or quirky interests of tinkerers to show how innovation truly comes about.

His fascinating account is organized into six topics: glass, cold, sound, clean, time, light. Johnson's fresh exploration of these simple, single-syllable word concepts creates an endlessly absorbing story that moves from lightning strikes in the prehistoric desert to the herculean effort to literally raise up the city of Chicago to laser labs straight out of a sci-fi movie.

- **ISBN-10** : 0425287785
- **ISBN-13** : 978-0425287781

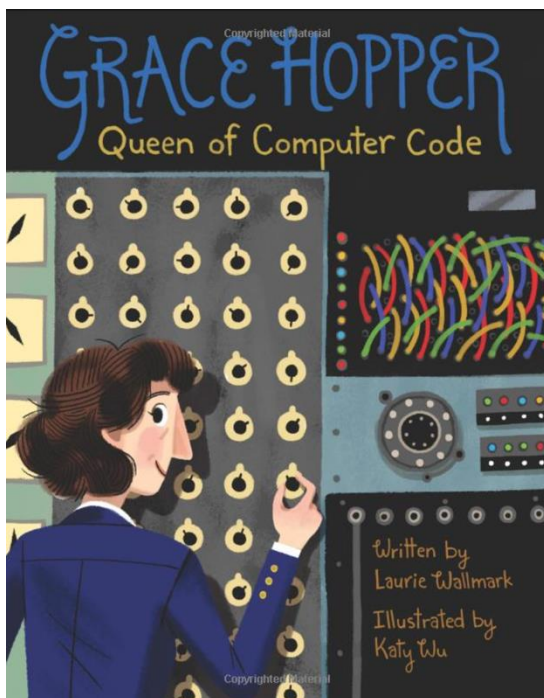
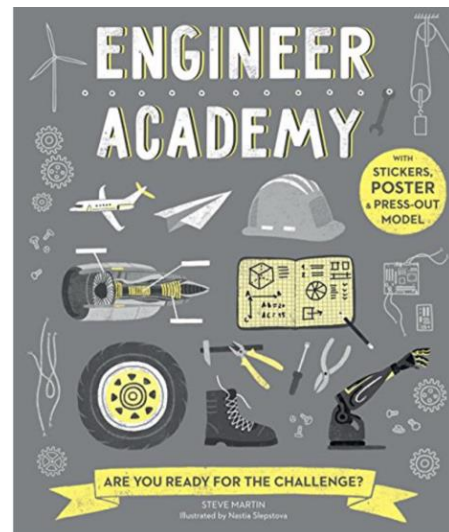
14. Engineer Academy: Are You Ready for the Challenge?

By Steve Martin

Packed full of great illustrations, fun facts, and absorbing activities, it guides readers through each strand of engineering science - Mechanics, Aerospace, Robotics, Energy, and Materials. Practical projects, each carefully designed to introduce the kinds of skills required by real-life engineers, help kids pick up the basics in a fun, hands-on way.

Design a robot, learn how to construct a simple car, create levers and pulleys, build paper planes, plus many other educational and inspirational activities - the sky's the limit!

- **ISBN-10** : 1610675460
- **ISBN-13** : 978-1610675468



15. Grace Hopper: Queen of Computer Code (Volume 1) (People Who Shaped Our World)

By Laurie Wallmark

Who was Grace Hopper? A *software tester, workplace jester, cherished mentor, ace inventor, avid reader, naval leader—AND rule breaker, chance taker, and troublemaker*. Acclaimed picture book author Laurie Wallmark (*Ada Byron Lovelace and the Thinking Machine*) once again tells the riveting story of a trailblazing woman. Grace Hopper coined the term “computer bug” and taught computers to “speak English.” Throughout her life, Hopper succeeded in doing what no one had

ever done before. Delighting in difficult ideas and in defying expectations, the insatiably curious Hopper truly was “Amazing Grace” . . . and a role model for science- and math-minded girls and boys. With a wealth of witty quotes, and richly detailed illustrations, this book brings Hopper's incredible accomplishments to life.

- **ISBN-10** : 1454920009
- **ISBN-13** : 978-1454920007

16. The Wild Robot

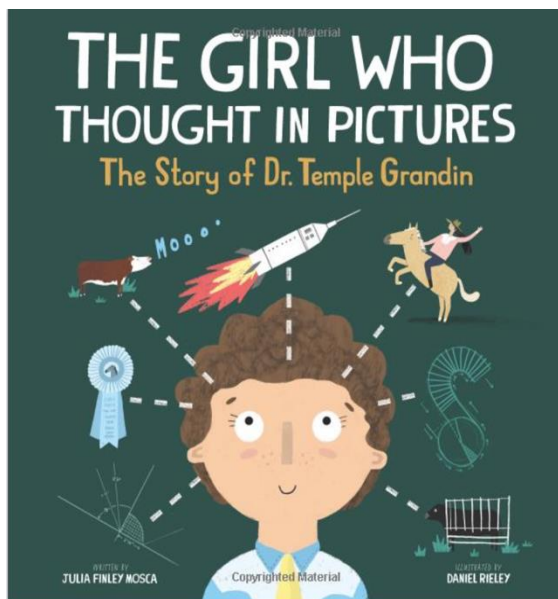
By Peter Brown

When robot Roz opens her eyes for the first time, she discovers that she is all alone on a remote, wild island. She has no idea how she got there or what her purpose is--but she knows she needs to survive. After battling a violent storm and escaping a vicious bear attack, she realizes that her only hope for survival is to adapt to her surroundings and learn from the island's unwelcoming animal inhabitants.

As Roz slowly befriends the animals, the island starts to feel like home--until, one day, the robot's mysterious past comes back to haunt her.

From bestselling and award-winning author and illustrator Peter Brown comes a heartwarming and action-packed novel about what happens when nature and technology collide.

ISBN: 9780316381994



17. The Girl Who Thought in Pictures: The

Story of Dr. Temple Grandin

By Julia Finley Mosca

When young Temple was diagnosed with autism, no one expected her to talk, let alone become one of the most powerful voices in modern science. Yet, the determined visual thinker did just that. Her unique mind allowed her to connect with animals in a special way, helping her invent groundbreaking improvements for farms around the globe!

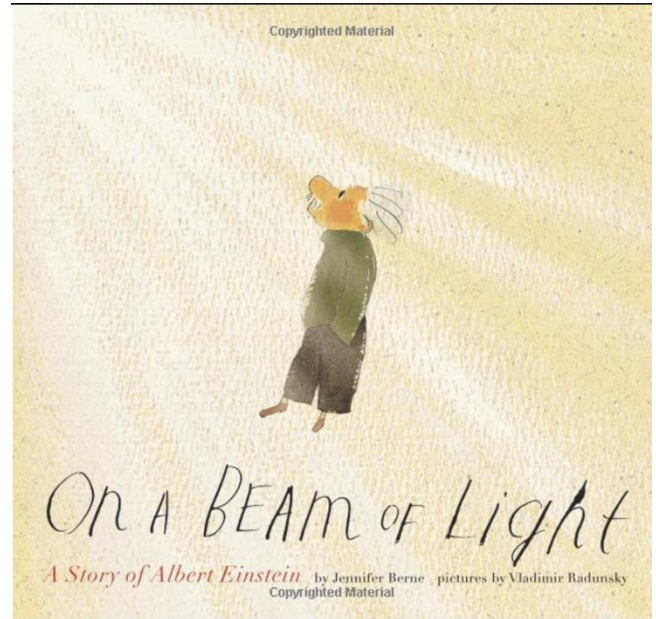
ISBN-10: 1943147302

ISBN-13: 9781943147304

18. On a Beam of Light: A Story of Albert Einstein

By Jennifer Berne

A boy rides a bicycle down a dusty road. But in his mind, he envisions himself traveling at a speed beyond imagining, on a beam of light. This brilliant mind will one day offer up some of the most revolutionary ideas ever conceived. From a boy endlessly fascinated by the wonders around him, Albert Einstein ultimately grows into a man of genius recognized the world over for profoundly illuminating our understanding of the universe. Jennifer Berne and Vladimir Radunsky invite the reader to travel along with Einstein on a journey full of curiosity, laughter, and scientific discovery. Parents and children alike will appreciate this moving story of the powerful difference imagination can make in any life.



ISBN-10: 0-545-65705-9

ISBN-13: 978-0-545-65705-1

Aa

by **AME DYCKMAN** illustrated by **DAN YACCARINO**



BOY + BOT

19. Boy and Bot

Ame Dyckman

One day, a boy and a robot meet in the woods. They play. They have fun.

But when Bot gets switched off, Boy thinks he's sick. The usual remedies—applesauce, reading a story—don't help, so Boy tucks the sick Bot in, then falls asleep.

Bot is worried when he powers on and finds his friend powered off. He takes Boy home with him and tries all *his* remedies: oil, reading an instruction manual. Nothing revives the

malfunctioning Boy! Can the Inventor help fix him?

Using the perfect blend of sweetness and humor, this story of an adorable duo will win the hearts of the very youngest readers.

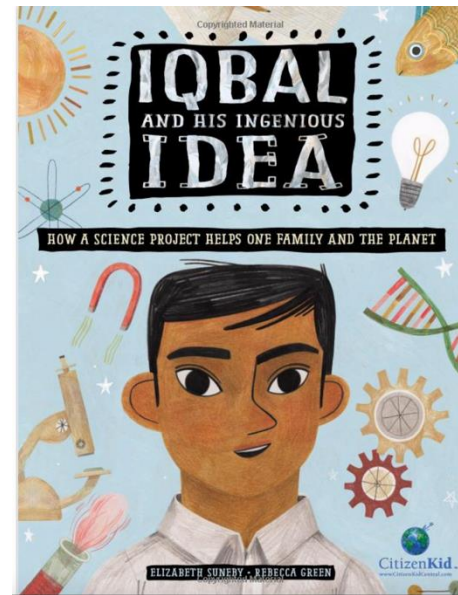
ISBN-10: 1-338-03826-5

ISBN-13: 978-1-338-03826-2

20. Iqbal and His Ingenious Idea: How a Science Project Helps One Family and the Planet (CitizenKid)

By Elizabeth Suneby

During monsoon season in Bangladesh, Iqbal's mother must cook the family's meals indoors, over an open fire, even though the smoke makes her and the family sick. So when Iqbal hears that his school's science fair has the theme of sustainability, he comes up with the perfect idea for his entry: he'll design a stove that doesn't produce smoke! Has Iqbal found a way to win first prize in the science fair while providing cleaner air and better health for his family at the same time?



Sometimes it takes a kid to imagine a better idea — make that an ingenious one! Gr 2–5—Based on actual experiences of people living in Bangladesh, this fictional story highlights the role of scientific problem-solving to improve daily life through the conceit of a science fair project. When Iqbal's teacher announces that the theme of this year's science fair will be sustainability, he constructs a solar cooker; that way, when the monsoon weather arrives in Bangladesh, his mother and baby sister will not have to breathe in the smoke-filled air caused by cooking indoors. With the help of his sister, Iqbal does win and, more important, he solves a problem in a way that protects the environment, reduces health problems, and especially benefits girls and women. The well-written text is clear and descriptive. A monsoon, for example, is described as follows: "Not a light mist or even a steady downpour, but gusts of rain that whip across your face and make you squint your eyes." The illustrations provide many details of the setting in Bangladesh, of Iqbal's dreaming and planning, and of the details of the solar cooker. Back matter includes more information about solar cookers and directions for making one from

a pizza box. VERDICT An excellent example of how children can apply science to problem solving.—Myra Zarnowski,

ISBN-10: 1-77138-720-3

ISBN-13: 978-1-77138-720-0

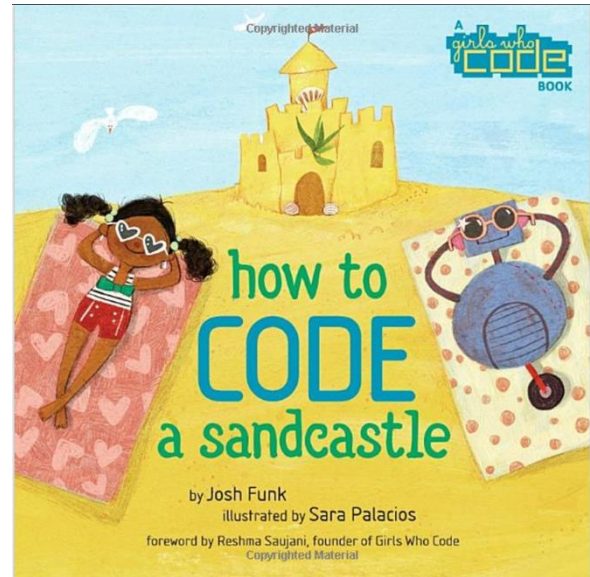
21. How to Code a Sandcastle By Josh Funk

All summer, Pearl has been trying to build the perfect sandcastle, but out-of-control Frisbees and mischievous puppies keep getting in the way! Pearl and her robot friend Pascal have one last chance, and this time, they're going to use **code** to get the job done. Using fundamental computer coding concepts like sequences and loops, Pearl and Pascal are able to break down their sandcastle problem into small, manageable steps. If they can create working code, this could turn out to be the best beach day ever!

With renowned computer science nonprofit Girls Who Code, Josh Funk and Sara Palacios use humor, relatable situations, and bright artwork to introduce kids to the fun of coding.

ISBN-10: 0-425-29198-7

ISBN-13: 978-0-425-29198-6



****Images and information regarding each book were provided by Amazon.**