



STEAM & STEM

Teaching Resources Center, Joyner Library A Selective Annotated Bibliography

Titles in the Teaching Resources Center are cataloged with Dewey call numbers and are preceded by Curric. Please ask someone at the Teaching Resources Service Desk if you need any assistance.

Grade Level	Title Information	Call Number
	Biography	
4-6	Borgert-Spaniol, Megan. <i>Katherine Johnson: Guiding Spacecraft</i> . Minneapolis, Minnesota: Checkerboard Library, an imprint of Abdo Publishing, 2018. Learn how Katherine Johnson broke barriers as a female African American mathematician.	B J6338BOR
1-4	Lew, Kristi. <i>Ada Lovelace: Mathematician and First Programmer</i> . First edition. New York: Britannica Educational Publishing in association with Rosen Educational Services, 2018. This biography will introduce readers to the mathematician who is considered by many to be the world's first computer programmer. Readers follow Lovelace, the daughter of renowned romantic poet Lord Byron and his highly educated, analytical wife, Annabella, from her sickly childhood to her untimely death at age thirty-six. What emerges is a compelling portrait of a woman who overcame Victorian conventions to become a pioneer in computer science.	B L942L

- 2-5 Rockliff, Mara, and Michele Wood. *Born to Swing: Lil Hardin Armstrong's Life In Jazz*. First edition. Honesdale, Pennsylvania: Calkins Creek, an imprint of Highlights, 2018.

B
AR5796R

Ever since she was a young girl, Lil Hardin played music with a beat. She jammed at home, at church, and even at her first job in a music store. At a time when women's only place in jazz was at the microphone, Lil earned a spot playing piano in Chicago's hottest band.

- 2-4 Simons, Lisa M. B. *Marie Curie: Physicist and Chemist*. North Mankato, Minnesota: Capstone Press, a Capstone imprint, 2018.

B
C925SIM

Marie Curie wasn't just a scientist. She was also an inventor and professor. Young readers will discover how she pioneered research on radioactivity and won two Nobel prizes while doing so.

Nonfiction

- 3-6 Abell, Tracy, and Alexis Roumanis. *3d Printing*. New York: AV2 by Weigl, 2019.

612.9
AB356T

Explores the fascinating world of 3D printing, including what it is, the pros and cons of using 3D printing, and what the future holds.

- 4-8 Albertson, Margaret E., and Paula Emick. *Music: the Sound of Science*. North Mankato, MN: Rourke Educational Media, 2019.

534
AL148M

Learn how STEAM subjects are involved in making music. Includes experiments, activities and other resources.

- 2-3 Bailey, R. J. *Chemist*. Minneapolis, MN: Pogo Books are published by Jump!, 2018.

540.23
B1551C

Carefully leveled text and vibrant photographs introduce early readers to the work chemists do and the preparation necessary for a chemistry career. Includes infographics, an activity, glossary, and index

- 5-8 Baum, Margaux, and Joel Chaffee. ***Engineering and Building Robots for Competitions***. New York, NY: The Rosen Publishing Group, Inc., 2018. 629.8 B3472E
- This book, newly updated to reflect the latest advances in amateur and professional robotics, including the exploding popularity of the Maker movement, gives readers all they need to enter this competitive and dynamic field. More importantly, readers learn the basics of how to build prize-winning robots, and how to find and enter contests, including local, regional, and national ones.
- 1-3 Bethea, Nikole Brooks. ***There's Math In My Art!***. Vero Beach, Florida: Rourke Educational Media, 2019. 701 B4654T
- Can you find math in your art? Discover math in art through symmetry, geometry, and patterns in this STEAM based title.
- 7-12 Bond, Dave. ***Artificial Intelligence***. Broomall, Pennsylvania: Mason Crest, 2017. 006.3 B6405A
- This book examines developments in AI research and explores some of the questions that improvements in artificial intelligence technology raise.
- 4-8 Brereton, Catherine. ***Women Scientists In Math and Coding***. New York, NY: Gareth Stevens Publishing, 2018. 510.92 B753W
- Discusses the progress women have made in mathematics.
- 4-7 Buller, Laura, Clive Gifford, and Andrea Mills. ***Robot***. First American edition. New York: DK Publishing, 2018. 629.892 B873R
- Explores the latest technology in robotics and describes the many different types of robots and how they are built and used in today's world.
- K-4 Burke, Lisa, and Robert Winston. ***The Steam Team: Simple Science Explained***. New York, New York: DK Publishing, 2018. 500 B9176S
- Introduces young readers to different areas of science, including technology, engineering, the solar system, plants and animals, and numbers and measurements.

- 4-6 Claybourne, Anna. *Noisy Experiments*. First edition. New York, NY: Gareth Stevens Publishing, 2019. 534.078 C5794N
- Presents several experiments with sound.
- 9-12 *Climate Change*. First edition. New York, NY: *New York Times* Educational Publishing, 2019. 363.738 C61365
- Global climate change is real. It is not new, and it is not fake news. The New York Times began reporting on climate change in the mid-twentieth century. The story of human-made climate change unfolds through articles written at the time of the events. It ends with a clear explanation of what's at risk, and what readers can do to help.
- 4-6 Colson, Rob. *Experts In Engineering*. St. Catharines, ON: Crabtree Publishing Company, 2019. 624 C723E
- From the Panama Canal to Hoover Dam and the Eiffel Tower, *Experts in Engineering* outlines the principles and processes followed to build some of the world's most spectacular structures. Readers will enjoy reading the stories behind each project as well as the mini bios of the "STEM-gineers" who worked on them. Experiments and research challenges help reinforce concepts.
- 3-6 Coss, Kelly. *Make it Yourself!: Bots & Circuits*. Minneapolis, Minnesota: Checkerboard Library, an imprint of Abdo Publishing, 2018. 680 C822M
- Learn about makerspaces with *Make It Yourself! Bots & Circuits!* Young makers will discover what makerspaces are and how to hold maker events. Kids will create LED constellations, build robots, make flashlights, and more. Each project has color photos and easy-to-follow instructions. Special techniques and tips help kids make the most of their makerspace experiences
- 3-5 Crane, Cody. *Electricity and Magnetism*. New York: Children's Press, an imprint of Scholastic, Inc., 2019. 537 C8504E
- This book details the science of electricity and magnetism. It explains how these forces work, how they are related, what uses people have found for them, and more.

4-6	Dickmann, Nancy. <i>Math In Space</i> . Minneapolis: Hungry Tomato, 2019.	520.151 D5611M
	From the phases of the moon seen on Earth to the rotation of far off galaxies, mathematics can be used to explain what's happening in the universe. Full-color photographs and related age-appropriate math questions engage young readers and give real world application to mathematics.	
PreK-2	Dziengel, Ana. <i>Steam Play and Learn</i> . Lake Forest, California: Walter Foster Jr., 2018.	507.8 D997S
	Preschoolers will love tackling these 20 fun, easy-to-follow step-by-step projects as they learn about STEAM topics (science, technology, engineering, arts, and math). This cross-subject approach to learning will prepare young children for the subjects they will soon learn in elementary school and beyond. Each project features simple instructions and large, full-color photos, to make each one enjoyable and fun for both kids and parents.	
3-7	Enz, Tammy. <i>Electronics Projects for Beginners</i> . North Mankato, Minnesota: Capstone Press, 2018.	621.381 EN97E
	Shock your imagination with a hands-on introduction to electronic circuits. Step-by-step instructions will jump-start your electronic knowledge. You'll be lighting up your imagination with possibilities.	
4-6	Farndon, John, and Joe Matthews. <i>Stickmen's Guide to Engineering</i> . Minneapolis: Hungry Tomato, 2019.	620 F235S
	Explore the structures in your everyday life and around the world that exist because of engineering. Discover how the world's tallest building stays standing and more with full-color illustrations designed to keep young readers engaged and entertained while they learn.	
5-9	Hamilton, John. <i>Mars Rovers</i> . Minneapolis, Minnesota: Abdo & Daughters, 2019.	629.43 H1805M
	This title covers the U.S. robotic rover missions on Mars. Through simple text, maps, and stunning photography, readers will learn about the Pathfinder, Spirit, Opportunity, and Curiosity rovers. Planned future missions from the U.S. and other countries will also be explored.	

- 9-12 Heos, Bridget. *Blood, Bullets, and Bones: The Story of Forensic Science From Sherlock Holmes to DNA*. First edition. New York: Balzer + Bray, an imprint of Harper-Collins Publishers, 2016. 363.25 H41B
- In this book, acclaimed author Bridget Heos uses real-life cases to tell the history of modern forensic science, from the first test for arsenic poisoning to fingerprinting, firearm and blood spatter analysis, DNA evidence, and all the important milestones in between. By turns captivating and shocking, *Blood, Bullets, and Bones* demonstrates the essential role forensic science has played in our criminal justice system.
- 3-7 Hunt, Shannon, and James Gulliver Hancock. *Engineered!: Engineering Design At Work*. Toronto, ON: Kids Can Press, 2017. 620 H943E
- In *Engineered!* bestselling author Shannon Hunt explores nine feats of engineering and the step-by-step process that engineers followed to get to a winning solution. By following a step-by-step process, engineers are able to come up with some ingenious (and sometimes crazy!) ideas that really work, like building a bridge taller than the Eiffel Tower to fix that five-hour long traffic jam.
- 6-8 Hynson, Colin. *Dream Jobs In Engineering*. St. Catharines, ON: Crabtree Publishing Company, 2017. 620.0023 H997D
- From designing robots to developing new forms of energy, 21st-century careers in engineering are not limited only to construction sites. This title explores the exciting and world-changing possibilities that an education in engineering can lead to.
- 4-6 Ives, Rob, and Eva Sassin. *Fun Experiments with Matter: Invisible Ink, Giant Bubbles, and More*. Minneapolis: Hungry Tomato, 2018. 530.4 IV38F
- Step-by-step instructions help readers conduct simple experiments to explore states of matter. Projects reveal how to create invisible ink, crystals, and more. Readers not only see science in action but come to understand the scientific concepts behind each project.

- K-3 Johnson, Robin. *Artists Use Tools*. New York: Crabtree Publishing Company, 2019. 702.84 J6368A
- Different art forms require different kinds of tools. Read about the tools different artists use, such as brushes for painting, computers for digital art, and instruments for music.
- 5-12 Johnson, Steven, and Sheila Keenan. *How We Got to Now: Six Innovations That Made the Modern World*. Young Readers edition. New York: Viking, an imprint of Penguin Random House LLC, 2018. 303.483 J6375H
- A Young Readers adaptation of the *New York Times* Bestselling book where author, Steven Johnson, walks readers through the history and impact of six inventions that influence the modern world.
- 4-6 Kenney, Karen Latchana. *Who Invented the Movie Camera?: Edison Vs. Friese-Greene*. Minneapolis: Lerner Publications, 2018. 777 K395W
- Most believe Thomas Edison was the mastermind of motion picture but what if William Friese-Greene patented the movie camera before him? Watch as these inventors fight to be the first to bring movies to the public in this invention showdown!
- 6-12 Kennon, Caroline. *Hidden No More: African American Women In Stem Careers*. New York: Lucent Press, 2018. 509.252 K398H
- In recent years, the stories of black women in scientific and mathematical fields have finally emerged from the shadows of history to inspire new generations of Americans. Through main text filled with quotes from prominent figures, readers understand how black women who pursued careers in science and math helped shape the history of the world and continue to shape its future.
- 9-12 Koch, Melissa. *Forest Talk: How Trees Communicate*. Minneapolis: Twenty-First Century Books, 2019. 581.7 K8116F
- Recently, researchers and citizen scientists made the surprising revelation that trees communicate with each other through an underground system of soil fungi and other methods. Complex social networks help trees survive and thrive by transferring resources to each other, sending defense signals, communicating with their kin, and more. Meet the tree scientists and learn more of their fascinating discoveries.

2-5	Krajnik, Elizabeth. <i>Biomass Energy: Harnessing the Power of Organic Matter</i> . New York: PowerKids Press, 2018.	662.88 K857B
	Biomass is a renewable source of energy that comes from organic material such as animal waste, landfill gases, and plants, including trees, grasses, and corn. This book will show students the pros and cons of using biomass as an alternative energy source. Informational diagrams and color photographs add depth to the text and help readers understand how the biomass cycle of energy works.	
1-4	Lepora, Nathan, and Sethu Vijayakumar. <i>Robots</i> . First American edition. New York, New York: DK Publishing, 2018.	629.892 L558R
	Explores how robots function and are made, looking at their computing components and how engineers design them with specific capabilities.	
4-6	Marquardt, Meg. <i>Stem In Auto Racing</i> . Minneapolis, Minn.: SportsZone, an imprint of Abdo Publishing, 2018.	796.72 M3479S
	This title examines the STEM concepts that make auto racing so thrilling. From the physics of drag and the chemistry of fuel to the technology of sensors and the engineering of car engines, chapters bring STEM concepts to life. The title also features sidebars on STEM in action, a glossary, and further resources.	
6-12	McCormick, Anita Louise. <i>10 Great Makerspace Projects Using Language Arts</i> . First edition. New York: Rosen Publishing Group, 2018.	372.55 M1372T
	Makerspaces, equipped with 3D printers, laser cutters, robotics, and other high-tech tools, are often associated with STEM programs like science, math, and technology. Educators have discovered that the learning opportunities makerspaces offer can be just as valuable in other curriculum areas as well.	
6-12	Montague, Charlotte. <i>Women of Invention: Life-Changing Ideas by Remarkable Women</i> . New York, NY: Chartwell Books, 2018.	609.2 M759W
	For many women in years gone by, the invention process was fraught with danger and difficulty. The 150 remarkable women in this book show all too clearly that not only can invention no longer be described as a male dominated domain but that a woman's inspiration and ingenuity will probably be driving the life-changing ideas of tomorrow's world.	

- 5-8 Randolph, Joanne. *African American Artists & Writers*. New York: Enslow Publishing, 2018. 700.922 AF833
- Despite inequality of access to education, relentless discrimination, and a starkly segregated society, African American artists and writers have made landmark contributions to American art and literature. With profiles of figures like Phillis Wheatley, Langston Hughes, James Baldwin, Rita Dove, Maya Angelou, and Toni Morrison, this collection puts the rich tapestry woven by African American authors and artists on full and breathtaking display.
- 7-12 Rauf, Don. *Dna, Rna, and the Inheritance of Traits*. New York, NY: Enslow Publishing, 2019. 572.8 R191D
- Why do people have certain traits and talents? We are all who we are because cells in our bodies grow and respond according to instructions from DNA molecules. RNA carries the DNA details from the cell nucleus to other parts of the cell. Featuring colorful images and diagrams, this book breaks down complicated scientific principles into pieces of information you can grasp more easily to help you gain a deeper understanding of how DNA and RNA work together to make all the individual humans, animals, and plants on our planet.
- 4-6 Reeves, Diane Lindsey. *Stem: Exploring Career Pathways*. Ann Arbor, Michigan: Cherry Lake Publishing, 2017. 502.3 R25946S
- STEM in the World of Work series provides an age-appropriate and interactive introduction to the nationally recognized Science, Technology, Engineering, and Mathematics career pathway using informal self-assessment elements, career profiles, informative sidebar features, and back matter activities.
- 3-7 *Robotics*. Broomall, Pennsylvania: Mason Crest, 2019. 629.892 R575
- Robots are widely used in the fields of medicine, the military, in space exploration, and for domestic purposes. They have proven to be of great help to human beings. To date, great advances have been made in the field of robotics. Still, more intense research is going on in the fields of robotics and nanorobotics.

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| 3-4 | Senker, Cath, Alexandre Affonso, and Bryan Beach. <i>The Science of Medical Technology: From Humble Syringes to Lifesaving Robots</i> . New York, NY: Franklin Watts®, an imprint of Scholastic Inc., 2019. | 610.28
SE579S |
| | Introduces the reader to the science of medical technology. | |
| 4-8 | Sherman, Jill. <i>25 Women Who Thought of it First</i> . North Mankato, Minnesota: Compass Point Books, a Capstone imprint, 2019. | 500.82
SH557T |
| | Discover 25 women who were trailblazers in science, technology, architecture, engineering, and more. Learn about some of the women who defied expectations and introduced the world to new ideas and creations big and small. | |
| 4-8 | Walker, Kevin. <i>Steam Jobs In Social Media</i> . Vero Beach, Florida: Rourke Educational Media, 2018. | 302.231
W1528S |
| | Introduces careers in the social media industry that utilize science, technology, engineering, art, and math skills. | |
| 5-8 | Wick, Walter. <i>A Ray of Light: A Book of Science and Wonder</i> . First edition. New York: Scholastic Press, 2019. | 535
W6321R |
| | The wonder of light has fascinated readers for ages. Walter Wick's mesmerizing photographs paired with simple, yet fascinating text and scientific observations help readers understand the secrets and complexity of light. You will learn what light is made of and how it fits alongside everything else in the world. Walter introduces readers into the mystery behind incandescence, light waves, the color spectrum and iridescence as well how we perceive light in our world and beyond. Walter Wick demonstrates that science and art both offer ways to observe the world around us. The text encompasses all the principles of STEM (Science, Technology, Engineering, and Mathematics) with simple and precise text. | |

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