

Programming Pioneer Ada Lovelace Stem Trailblazer Bios

Have you ever wondered how computers follow instructions so well? Or how they do math so quickly? In the How Do series, readers are invited to guess and then explore the science behind the right answers. Basic principles of coding, including variables, binary code, loops, programming languages, and more, are explored through diagrams, photos, and informative and engaging text.

Make a rocket from a plastic bottle, a hovercraft from a balloon, and a drag racer from cardboard! These amazing science projects use readily available items and have simple step-by-step instructions. Discover the science behind each experiment. They're quick to make and fun to show your friends and family. They bounce, they fly, they push, they whirl—they're forces and motion!

Programming Pioneer Ada LovelaceLerner Publications™

Do you enjoy playing computer games or learning programming code? As a child, Ada Lovelace loved learning about math and science. As an adult, she used that knowledge to create the first computer program—before electronic computers even existed! When Lovelace was a child, girls didn't typically study math. But she loved the subject and often dreamed about new machines. Lovelace learned from famous mathematicians and became friends with inventor and engineer Charles Babbage. Realizing the full potential of his calculating machines, she became a pioneer of computer programming. But how did she get there? Find out how Lovelace's determination helped her become the first computer programmer.

Inventor, Engineer, and Physicist Nikola Tesla

Scientists, Mathematicians and Inventors

Technology Pioneer

Robotics in the Real World

NASA Astronomer Nancy Grace Roman

Queen of Computer Code

Born during a short-lived marriage between the Romantic poet Lord Byron and an educated mathematician, Lovelace felt the pull of both the creative and scientific worlds. As a lonely and sickly young girl, Lovelace spent her hours building a flying machine and other inventions. While her mother pushed the study of mathematics on her, Lovelace often applied poetic and intuitive thinking to scientific concepts. It was during her work with mathematician Charles Babbage that she pushed the boundaries of technology. Lovelace's detailed notes on Babbage's Analytical Machine include a calculation method that has earned her recognition as the first computer programmer.

"[Ada Lovelace], like Steve Jobs, stands at the intersection of arts and technology,"—Walter Isaacson, author of The Innovators Over 150 years after her death, a widely-used scientific computer program was named "Ada," after Ada Lovelace, the only legitimate daughter of the eighteenth century's version of a rock star, Lord Byron. Why? Because, after computer pioneers such as Alan Turing began to rediscover her, it slowly became apparent that she had been a key but overlooked figure in the invention of the computer. In Ada Lovelace, James Essinger makes the case that the computer age could have started two centuries ago if Lovelace's contemporaries had recognized her research and fully grasped its implications. It's a remarkable tale, starting with the outrageous behavior of her father, which made Ada instantly famous upon birth. Ada would go on to overcome numerous obstacles to obtain a level of education typically forbidden to women of her day. She would eventually join forces with Charles Babbage, generally credited with inventing the computer, although as Essinger makes clear, Babbage couldn't have done it without Lovelace. Indeed, Lovelace wrote what is today considered the world's first computer program—despite opposition that the principles of science were "beyond the strength of a woman's physical power of application." Based on ten years of research and filled with fascinating characters and observations of the period, not to mention numerous illustrations, Essinger tells Ada's fascinating story in unprecedented detail to absorbing and inspiring effect.

Do you love solving problems with mathematics? So did groundbreaking computer programmer Jean Bartik. She turned her passion for math into a successful career in what was then a brand-new field. During World War II, women took on more technology jobs as men joined the armed forces. Bartik started her career doing mathematical calculations for top-secret weapons systems projects. After the war, a new machine took over these calculations. It was the first all-electronic computer, and Bartik helped build and program it. But how did Bartik's interest in mathematics take her to the forefront of cutting-edge technology? Find out how she went from gifted student to software pioneer.

Have you ever taken something apart to see how it works? As a child, Grace Hopper took apart five alarm clocks in a row, trying to figure out how all the pieces fit together. As an adult, she joined the Naval Reserve during World War II and worked on the world's first large-scale computer. After the war, Hopper served on a committee organized by the Department of Defense to create a standard computer language. That language, Common Business-Oriented Language, or COBOL, quickly became popular. How did a curious little girl grow up to become the "Grandmother of COBOL"? Learn how her outstanding innovations changed the field of computer programming.

Candace Parker

Coding Careers in Manufacturing

Cyber Spy Hunters!

A Novel of Ada Lovelace

A Symposium on Digital Computing Machines

"Simple text and full-color photographs briefly describe the life of Candace Parker and her career as a professional basketball player"--

Do you enjoy performing experiments or studying how the universe works? Growing up in China, Chien-Shiung Wu enjoyed learning about science. As an adult, she earned her PhD in physics and made a discovery that changed the field forever. Wu came to the United States to study physics. Soon she was a sought-after physics professor. As an expert in the field, she left teaching to work on secret government programs. She even helped disprove a major law of physics. But how did she get there? Find out how Wu's persistence drove her contributions in the field of physics.

Nearly one hundred years before the advent of the computer age, Ada King, Countess of Lovelace, published the first set of instructions intended to extract data from a machine. This accessible, engaging 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.

Ada Byron, Lady Lovelace, was one of the first to write programs for, and predict the impact of, Charles Babbage's Analytical Engine in 1843. Beautiful and charming, she was often characterized as "mad and bad" as was her illustrious father. This e-book edition, Ada, the Enchantress of Numbers: Poetical Science, emphasizes Ada's unique talent of integrating imagination, poetry and science. This edition includes all of Ada's fascinating letters to Charles Babbage, 55 pictures, and sidebars that encourages the reader to follow Ada's pathway to the 21st century.

Nate the Great Goes Undercover

Margaret and the Moon

Faster Than Thought

Ada Byron Lovelace and the Thinking Machine

Ada, the Enchantress of Numbers

Boots! Robotics Engineering

A collection of artworks inspired by the lives and achievements of fifty famous women in science, technology, engineering, and mathematics, from the ancient world to the present, profiles each notable individual.

Offers an illustrated telling of the story of Ada Byron Lovelace, from her early creative fascination with mathematics and science and her devastating bout with measles, to the ground-breaking algorithm she wrote for Charles Babbage's analytical engine.

Hands-on STEM activities, essential questions, and coding challenges

Relates the life, development, and art of the famous artist.

Robotics Engineer

Ada's Algorithm

How Do Computers Follow Instructions?

A 4D Book

Paper Circuits

Ada Lovelace Cracks the Code

This illuminating biography reveals how the daughter of Lord Byron, Britain's most infamous Romantic poet, became the world's first computer programmer. Even by 1800s standards, Ada Byron Lovelace had an unusual upbringing. Her strict mother worked hard at cultivating her own role as the long-suffering ex-wife of bad-boy poet Lord Byron while raising Ada in isolation. Toured by the brightest minds, Ada developed a hunger for mental puzzles, mathematical conundrums, and scientific discovery that kept pace with the breathtaking advances of the industrial and social revolutions taking place in Europe. At seventeen, Ada met eccentric inventor Charles Babbage, a kindred spirit. Their ensuing collaborations resulted in ideas and concepts that presaged computer programming by almost two hundred years, and Ada Lovelace is now recognized as a pioneer and prophet of the information age. Award-winning author Emily Arnold McCully opens the window on a peculiar and singular intellect, shaped—and hampered—by history, social norms, and family dysfunction. The result is a portrait that is at once remarkable and fascinating, tragic and triumphant.

As the British Industrial Revolution dawns, young Ada Byron Lovelace (daughter of the flamboyant and notorious Lord Byron) sees the boundless creative potential in the "analytic engines" of her friend and soul mate Charles Babbage, inventor of the first mechanical computer. Ada envisions a whole new world where art and information converge—a world she might not live to see. A music-laced story of love, friendship, and the edgiest dreams of the future. Jane Austen meets Steve Jobs in this poignant pre-tech romance heralding the computer age.

In the twenty-first century, students, recent graduates, and job seekers can find nearly limitless opportunities when it comes to jobs in tech, especially coding. Careers in coding are a perfect fit for those who want to flex their creative muscles, solve problems, and work with the latest technologies. Despite its long history, the manufacturing industry has advanced in recent years and is now in need of a workforce that is familiar with computers, robots, and coding languages. This book dives into the history of coding, the challenges and opportunities present in the manufacturing sector, and the outlook for coding careers in manufacturing in the future.

Scientists, Mathematicians, and Inventors provides biographies of 200 men and women who changed the world by leaving lasting legacies in the fields of science, mathematics, and scientific invention. It fills a gap in the biographical reference shelf by offering far more than basic facts about a scientist's life and work: each entry describes not only the immediate effects of the individual's discoveries, but also his or her impact on later scientific findings.

Mathematician and Computer Scientist Grace Hopper

Ada's Ideas

How Margaret Hamilton Saved the First Lunar Landing

Fun Experiments with Forces and Motion

Hovercrafts, Rockets, and More

How Lord Byron's Daughter Ada Lovelace Launched the Digital Age

Introduces the woman mathematician whose childhood love of numbers led to her prestigious education and contributions at NASA while explaining how her handwritten codes proved essential throughout numerous space missions.

"A fascinating look at Ada Lovelace, the pioneering computer programmer and the daughter of the poet Lord Byron." --

"A fascinating look into the fascinating world of robotics, why it is an intriguing STEM career, and the amazing work scientists in this field have accomplished throughout the years.

Beginning readers are introduced to the detective mystery genre in these chapter books. Perfect for the Common Core, kids can problem-solve with Nate, using logical thinking to solve mysteries! Somebody has been raiding Oliver's garbage can each night. How can Nate narrow the long list of suspects down to one? Nate the Great might just have to go under cover . . . under cover of the garbage can lid, that is! Check out the Fun Activities section in the back of the book! Visit Nate the Great and Sludge! NatetheGreatBooks.com *©Marc Simonot's charcoal and pastel illustrations provide the perfect backdrop for this clever case." —School Library Journal, Starred "First graders' favorite private eye solves the case of Oliver's scattered garbage in those short, easy sentences that Sharmat transforms into crisp, tough-guy humor." —Kirkus Reviews (A Kirkus Reviews Editor's Choice)

Women Scientists in Math and Coding

The Story of Ada Lovelace, the World's First Computer Programmer

Enchantress of Numbers

Ada Lovelace, Poet of Science

Computer Scientist Jean Bartik

Fearless Pioneers Who Changed the World

As a child, Nikola Tesla saw a picture of a waterfall and imagined an invention that would harness the water's energy. Decades later, he invented the water wheel. Learn about this innovative inventor, who changed the world of electricity.

This book discusses the role that women play in the field of computer science, highlighting women who are making major contributions in the field, while encouraging girls to consider a future career in computer science.

This is a children's book biography of Grace Hopper, who played a prominent role in the early days of computers.--

The art of drawingspaceships and other spacecraft. Basic rules for sketching are introduced, then specific examples are given. Newly updated to include current, CGI techniques.

Drawing Spaceships and other Spacecraft

Mathematician and First Programmer

Ada Lovelace

Women in Science

Nuclear Physicist Chien-Shiung Wu

Grace Hopper

Before modern day desktops and laptops, there were human "computers" or mathematicians who handled complex calculations. Katherine Johnson, Mary Jackson, and Dorothy Vaughan were among the greatest computers, but their vital work at NASA has been largely left out of history. This immersive book explores the lives and accomplishments of ingenious women mathematicians and coders throughout history, such as Johnson, Jackson, and Vaughan. Mini bio and feature boxes provide fast facts; while quotes from featured mathematicians, coders, and their contemporaries inspire readers to develop their own love for STEM. Original illustrations and stunning photographs bring the lives of these incredible women into exciting focus. A thorough timeline highlights the progress of women in STEM and lists Nobel Prize winners. A gallery spread introduces readers to even more women mathematicians and coders, while a "Science Now" spread shows readers the modern world of math and coding.

Hackers are out to get you . . . but these experts are on the job to stop them! Cybercrime is a growing problem, affecting businesses, governments, and individuals. A growing number of computer wizards are using science to prevent crime . . . or track down the cybercriminals. Visit this secret world inside! Every book in the SCIENTISTS IN ACTION! series takes you on a journey where science and adventure meet. Science is not just for the classroom or the lab—it's a living, breathing, exciting part of our world today. Throw off that lab coat and get out and do some science! Each title in this series contains color photos, insider quotes from real scientists in the field, recent news items highlighting the excitement of each field, and back matter including: an index, further reading lists for books and internet resources, and a series glossary. Mason Crest's editorial team has placed Key Icons to Look for throughout the books in this series in an effort to encourage library readers to build knowledge, gain awareness, explore possibilities and expand their viewpoints through our content rich non-fiction books. Key Icons are as follows: Words to Understand are shown at the front of each chapter with definitions. These words are then used in the prose throughout that chapter, and are emboldened, so that the reader is able to reference back to the definitions—building their vocabulary and enhancing their reading comprehension. Sidebars are highlighted graphics with content rich material within that allows readers to build knowledge and broaden their perspectives by weaving together additional information to provide realistic and holistic perspectives. Text Dependent Questions are placed at the end of each chapter. They challenge the reader's comprehension of the chapter they have just read, while sending the reader back to the text for more careful attention to the evidence presented there. Research Projects are provided at the end of each chapter as well and provide readers with suggestions for projects that encourage deeper research and analysis. A Series Glossary of Key Terms is included in the back matter contains terminology used throughout the series. Words found here broaden the reader's knowledge and understanding of terms used in this field.

"Cherished Reader, Should you come upon Enchantress of Numbers by Jennifer Chiaverini...consider yourself quite fortunate indeed...Chiaverini makes a convincing case that Ada Byron King is a woman worth celebrating."—USA Today
New York Times bestselling author Jennifer Chiaverini illuminates the life of Ada Byron King, Countess of Lovelace—Lord Byron's daughter and the world's first computer programmer. The only legitimate child of Lord Byron, the most brilliant, revered, and scandalous of the Romantic poets, Ada was destined for fame long before her birth. But her mathematician mother, estranged from Ada's infamous and destructively passionate father, is determined to save her only child from her perilous Byron heritage. Banishing fairy tales and make-believe from the nursery, Ada's mother provides her daughter with a rigorous education grounded in mathematics and science. Any troubling spark of imagination—or worse yet, passion or poetry—is promptly extinguished. Or so her mother believes. When Ada is introduced into London society as a highly eligible young heiress, she at last discovers the intellectual and social circles she has craved all her life. Little does she realize how her exciting new friendship with Charles Babbage—the brilliant, charming, and occasionally curmudgeonly inventor of an extraordinary machine, the Difference Engine—will define her destiny. Enchantress of Numbers unveils the passions, dreams, and insatiable thirst for knowledge of a largely unheralded pioneer in computing—a young woman who stepped out of her father's shadow to achieve her own laurels and champion the new technology that would shape the future.

Ada Lovelace (1815–1852) was the daughter of Lord Byron, a poet, and Anna Isabella Milbank, a mathematician. Her parents separated when she was young, and her mother insisted on a logic-focused education, rejecting Byron's "mad" love of poetry. But Ada remained fascinated with her father and considered mathematics "poetical science." Via her friendship with inventor Charles Babbage, she became involved in "programming" his Analytical Engine, a precursor to the computer, thus becoming the world's first computer programmer. This picture book biography of Ada Lovelace is a compelling portrait of a woman who saw the potential for numbers to make art.

Dreaming in Code: Ada Byron Lovelace, Computer Pioneer

The First Computer Programmer

Programming Pioneer Ada Lovelace

Van Gogh and the Post-Impressionists for Kids

Poetical Science

Ada and the Engine

Ada Lovelace wasn't just a mathematician. She was a pioneer in computer programming. Young readers will learn how this woman who lived 200 years ago helped the world see machines and numbers in new ways. Bring augmented reality to your students by downloading the free Capstone 4D app and scanning for access to an online article, video, and discussion questions.

Learn how Nancy Grace Roman followed her lifelong passion for astronomy and eventually became NASA's first chief of astronomy position that would allow her to shape the field for more than fifty years.

Ada Lovelace wasn't just a mathematician. She was a pioneer in computer programming. Young readers will learn how this woman who lived 200 years ago helped the world view machines and numbers in new ways.

With paper circuits, you can add lights, sounds, and more to paper crafts such as greeting cards. With this book, students learn the art of innovation through detailed explanations and hands-on activities built to foster creativity and problem solving. Fun, engaging text introduces readers to new ideas and builds on maker-related concepts they may already know. Additional tools, including a glossary and an index, help students learn new vocabulary and locate information.

With Makerspace Activities for Kids

Women in Computer Science

Their Lives and Ideas, 21 Activities

From the world of Good Night Stories for Rebel Girls comes a story based on the exciting adventures of Ada Lovelace: one of the world's first computer programmers. Growing up in nineteenth century London, England, Ada is curious about absolutely everything. She is obsessed with machines and with creatures that fly. She even designs her own flying laboratory! According to her mother, Ada is a bit too wild, so she encourages Ada to study math. At first Ada thinks: Bleh! Who can get excited about a subject without pictures? But she soon falls in love with it. One day she encounters a mysterious machine, and from that moment forward Ada imagines a future full of possibility—one that will eventually inspire the digital age nearly two hundred years later. Ada Lovelace Cracks the Code is the story of a pioneer in the computer sciences, and a testament to women's invaluable contributions to STEM throughout history. Includes additional text on Ada Lovelace's lasting legacy, as well as educational activities designed to teach simple coding and mathematical concepts.

Readers will learn what it takes to succeed as a robotics engineer. The book also explains the necessary educational steps, useful character traits, and daily job tasks related to this career, in the framework of the STEAM, Science, Technology, Engineering, Art, and Math, movement. Photos, a glossary, and additional resources are included.