

## Programming Pioneer Ada Lovelace Stem Trailblazer Bios

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.

Programming Pioneer Ada Lovelace Lerner Publications

A masterful portrait of two remarkable women, revealing how two turbulent lives were always haunted by the dangerously enchanting, quicksilver spirit of that extraordinary father whom Ada never knew: Lord Byron. In 1815, the clever, courted, and cherished Annabella Milbanke married the notorious and brilliant Lord Byron. Just one year later, she fled, taking with her their baby daughter, the future Ada Lovelace. Byron himself escaped into exile and died as a revolutionary hero in 1824, aged 36. The one thing he had asked his wife to do was to make sure that their daughter never became a poet. Ada didn't. Brought up by a mother who became one of the most progressive reformers of Victorian England, Byron's little girl was introduced to mathematics as a

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means of calming her wild spirits. Educated by some of the most learned minds in England, she combined that scholarly discipline with a rebellious heart and a visionary imagination. As a child invalid, Ada dreamed of building a steam-driven flying horse. As an exuberant and boldly unconventional young woman, she amplified her explanations of Charles Babbage's unbuilt calculating engine to predict—as nobody would do for another century—the dawn of the modern computer age. When Ada died—like her father, she was only 36—great things seemed still to lie ahead for her as a passionate astronomer. Even while mired in debt from gambling and crippled by cancer, she was frenetically employing Faraday's experiments with light refraction to explore the analysis of distant stars. Drawing on fascinating new material, Seymour reveals the ways in which Byron, long after his death, continued to shape the lives and reputations both of his wife and his daughter. During her life, Lady Byron was praised as a paragon of virtue; within ten years of her death, she was vilified as a disgrace to her sex. Well over a hundred years later, Annabella Milbanke is still perceived as a prudish wife and cruelly controlling mother. But her hidden devotion to Byron and her tender ambitions for his mercurial, brilliant daughter reveal a deeply complex but unexpectedly sympathetic personality. Miranda Seymour has written a masterful portrait of two remarkable women, revealing how two turbulent lives were often governed and always haunted by the dangerously enchanting, quicksilver spirit of that extraordinary father whom Ada never knew.

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Do you enjoy spotting wild animals in the forest? As a little girl, Rachel Carson loved to explore the woods near her house. As an adult, she became an ecologist who helped change national policy and inspired people to protect the environment. While conducting research on wildlife, Carson noticed that the pesticides farmers used on crops were harming animals. Alarmed, she wrote *Silent Spring*, a book that led to the banning of several dangerous pesticides. How did Carson grow up to become one of the most influential environmentalists of the twentieth century? Discover how her interest in wildlife led to her remarkable career as a scientist and writer.

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.

"Katherine Johnson overcame many barriers to become a NASA mathematician. As an African American woman, she had to work hard to earn respect. Learn how Johnson broke barriers and helped to send astronauts to the moon."

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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.

Now in paperback, meet the woman who made coding cool—and possible Before she was a famous mathematician and the first computer programmer, Ada Lovelace was the daughter of the famous Lord Byron. Byron died when Ada was very young, and Ada's mother encouraged her interest in mathematics in an attempt to prevent Ada from turning into a melancholy poet like her father. Ada grew up and married a count, and as a countess, she was given access to some of England's greatest scientists and authors, including Charles Babbage, who was working to develop an analytical engine. Seeing the potential in computers, Ada partnered with Charles and used her mathematical skills to create an algorithm that could make such a machine possible. Fascinating and lively, Ada Lovelace tells the story of the woman who helped pioneer computing! It includes a timeline, a glossary, and an index. First Names is a highly illustrated nonfiction series that puts readers on a first-name basis with some of the most incredible people in history and of today!

Drawing on the natural folk art tendencies of children, who love to collect buttons, bottle caps, shells, and Popsicle sticks to create beautiful, imperfect art, this activity guide teaches kids about the history of this organic art and offers inspiration for them to create their own masterpieces. The full breadth of

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American folk art is surveyed, including painting, sculpture, decorative arts, and textiles from the 17th century through today. Making bubblegum wrapper chains, rag dolls, bottle cap sculptures, decoupage boxes, and folk paintings are just a few of the activities designed to bring out the artist in every child. Along the way kids learn about the lives of Americans throughout history and their casual relationships to everyday art as they cut stencils, sew needlepoint samplers, draw calligraphy birds, and design quilts. Important folk artists such as the last surviving Shakers, the legendary Grandma Moses, and the Reverend Howard Finster are also explored in sidebars throughout the book.

While watching Star Trek on television as a child, Mae Jemison was certain she would one day visit space. As an adult, she made this dream a reality when she became the first black female NASA astronaut. Jemison became a medical doctor before applying for NASA's Space Shuttle program. Then, in 1992, she blasted off on the shuttle Endeavour and conducted scientific experiments to test the effects of space on human bone cells. Jemison has dedicated her life to science education and to finding ways to use technology to help communities around the world. Find out how Jemison's passion for science led to her many impressive achievements.

From the world of Good Night Stories for Rebel Girls comes a story based on the

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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.

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

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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.

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.

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

Do you enjoy visiting animals at the zoo or playing with pets? As a child, Jane

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Goodall loved watching and interacting with animals. As an adult, she became a scientist working with chimpanzees in Africa. Goodall used unconventional research methods to observe chimpanzees in East Africa. She studied the chimpanzees' behavior and revealed their tool-making abilities. As Goodall grew older, she turned her attention to raising awareness about endangered species and inspiring individuals around the globe to take action. She is one of the world's best-known scientists and activists. But how did she get there? Find out how Goodall's passion for animals helped her become the face of conservationism.

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.

"[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



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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.

Have you ever wondered who developed computer coding? Discover how Ada Lovelace's interest in mathematics led to her work on an early computer and the first programming algorithm ever used.

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.

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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.

This inspiring, STEM-focused biography describes the life and influential work of Ellen Ochoa, the first female Hispanic astronaut to go to space.

"Margaret Hamilton grew up during a time when very few women studied computer science, but she went on to develop software for NASA. Learn how Hamilton played a key role in sending humans to the moon."

"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

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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.

Meet Ada Lovelace, the British mathematician and daughter of poet Lord Byron. Part of the beloved Little People, BIG DREAMS series, this inspiring and informative little biography follows the colorful life of Lord Byron's daughter, from her early love of logic, to her plans for the world's first computer program. As a child, Ada had a big imagination and a talent for mathematics. She grew up in a noble household in England, where she dedicated herself to studying. Her work with the famous inventor, Charles Babbage, on a very early kind of computer made her the world's first computer programmer. This moving book features stylish and quirky illustrations and extra facts at the back, including a biographical timeline with historical images and a detailed profile of the mathematician's life. Little People, BIG DREAMS is a best-selling series of books and educational games that explore the lives of outstanding people, from designers and artists to scientists and activists. All of them achieved incredible things, yet each began life as a child with a dream. This empowering series offers inspiring messages to children of all ages, in a range of formats. The board books are told in simple sentences, perfect for reading aloud to babies and toddlers. The hardcover versions present expanded stories for beginning readers. Boxed gift sets allow you to collect a selection of the books by theme. Paper dolls, learning cards, matching games, and other fun learning tools provide even more ways to make the lives of these role models accessible to children. Inspire

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the next generation of outstanding people who will change the world with Little People, BIG DREAMS!

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.

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.

Ada Lovelace wasn't just a mathematician. She was a pioneer in computer

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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.

Ada Lovelace (1815–1852) was the daughter of Lord Byron, a poet, and Anna Isabella Milbanke, 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. Wangari Maathai grew up in Kenya, where she learned the value of the natural world around her. As an adult, she fought for the environment and women's rights and earned the Nobel Peace Prize.

Alan Turing loved math and science as a child. As an adult, he used his code-breaking skills to help the Allied Powers win World War II.

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

Learn how to think critically about the design of things you want to make. Readers will

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learn to analyze the efficiency of their plans, while still feeling encouraged to push forward with new ideas. Photos, sidebars, and callouts help readers draw connections between new concepts in this book and other makers-related concepts they may already know. Additional text features and search tools, including a glossary and an index, help students locate information and learn new words.

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.

Biography of science educator, television host, mechanical engineer, and comedian Bill Nye.

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

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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. Tutored 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.

Presents the life of the NASA engineer and inventor, from his childhood to his invention of the Super Soaker water gun.

"Following his blockbuster biography of Steve Jobs, *The Innovators* is Walter Isaacson's revealing story of the people who created the computer and the Internet. It is destined to be the standard history of the digital revolution and an indispensable guide to how innovation really happens. What were the talents that allowed certain inventors and entrepreneurs to turn their visionary ideas into

disruptive realities? What led to their creative leaps? Why did some succeed and others fail? In his masterly saga, Isaacson begins with Ada Lovelace, Lord Byron's daughter, who pioneered computer programming in the 1840s. He explores the fascinating personalities that created our current digital revolution, such as Vannevar Bush, Alan Turing, John von Neumann, J.C.R. Licklider, Doug Engelbart, Robert Noyce, Bill Gates, Steve Wozniak, Steve Jobs, Tim Berners-Lee, and Larry Page. This is the story of how their minds worked and what made them so inventive. It's also a narrative of how their ability to collaborate and master the art of teamwork made them even more creative. For an era that seeks to foster innovation, creativity, and teamwork, *The Innovators* shows how they happen"--

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.



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