# SWENextEd Newsletter - November 2018

Welcome to the November issue of SWENextEd. In this issue, learn about the origins of computer programming and how you can easily bring software development to your classroom. We also share books that highlight the accomplishments of female role models in STEM that you can incorporate into your lessons. Get in on the conversation and **join our SWENextEd Facebook page** to participate in engaging discussions and receive tips for the classroom, resources for educators and more!

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Coding in the Classroom

It has never been easier to teach principles of software engineering! **Code.org** allows you to set up a virtual classroom for your students and assign modules and activities and track progress. Their courses are geared toward elementary, middle and high school students. Students can also learn coding fundamentals using **MIT's Scratch project.** In this activity, students can learn to program interactive stories and games using Scratch, a **block-based coding language.** Once your students have mastered the fundamentals of coding, they start learning **CSS**, a language used for styling of web pages, using the **Flexbox Froggy** game!

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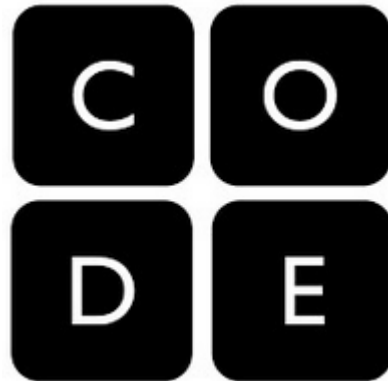
The First Computer Programmer Was a Woman?

The thought that the birth of computer science dates back to the 1840's may be astounding, but perhaps more remarkable is the woman we owe it to: **_Ada Lovelace_**.

Born in 1815 to the romantic poet Lord Byron and Anne Isabelle Milbanke, Ada Lovelace was raised independently by her mother due to her parents' separation just a month after she was born. Lady Byron was determined to steer her daughter away from Lord Byron's "volatile poetic insanity." As such, Lady Byron saw to it that Ada receive a rigorous education in math, science and music, an unusual course of study for a girl in Victorian England. Ada's intellectual giftedness shined as early as 1828 when she produced a design for a flying machine, writing about her plans to "make a thing in the form of a horse with a steam engine on the inside so contrived as to move an immense pair of wings…as to carry it up into the air as a person sits on its back."

Ada met Charles Babbage, Lucasian professor of mathematics at Cambridge and inventor of the Difference Engine, when she was just 17. Soon Babbage had made plans for a new type of calculating machine, an Analytical Engine, and Ada was enlisted as the translator for a French memoir about the machine. Demonstrated by her writings, Ada's vision for the machine far surpassed Babbage's: not only did she understand the plans for the machine, but she also foresaw opportunities to articulate its promise. She saw the engine as a general-purpose computer, suitable for the "expression of any indefinite function of any degree of generality and complexity." Her notes encompassed ideas for future developments, including computer generated music.

Ada died of cancer in 1852, at the young age of 37. Far ahead of her time and largely unappreciated until 100 years later, Ada will now forever be remembered as the first computer programmer. To see four more amazing female programmers, **check out this article!**

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Role Models Matter: Give Girls the Confidence They Need to Succeed!

As Marian Wright Edelman suggested in the film *Miss Representation*, you cannot be what you cannot see. Highlighting accomplishments made by female scientists and engineers goes a long way toward giving girls the confidence they need to be successful in STEM classes and professions. In a survey conducted by the Women's Media Center and BBC America, girls reported that their **"favorite female superheroes helped them identify as strong, brave, confident, and motivated."** Not all female superheroes are fictional. *Wonder Women*,
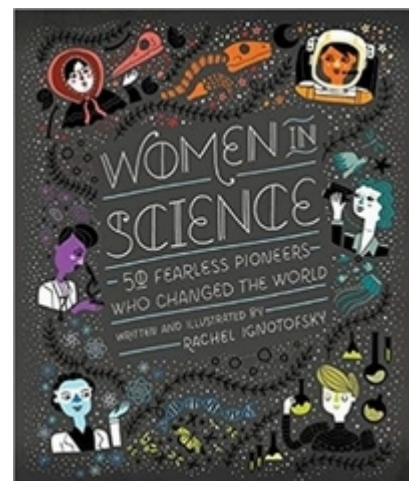
by Sam Maggs, shares the true stories of "25 innovators, inventors, and trailblazers who changed history." Rachel Ignotofsky's picture book called **_Women in Science: 50 Fearless Pioneers Who Changed the World_** features the contributions of 50 noteworthy women to the STEM field, and **_Her STEM Career: Adventures of 51 Remarkable Women_**, by Diane Prospner, highlights the accomplishments of female fashion engineers, fuel cell engineers and more!

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Educator Spotlight: Taylor Miles
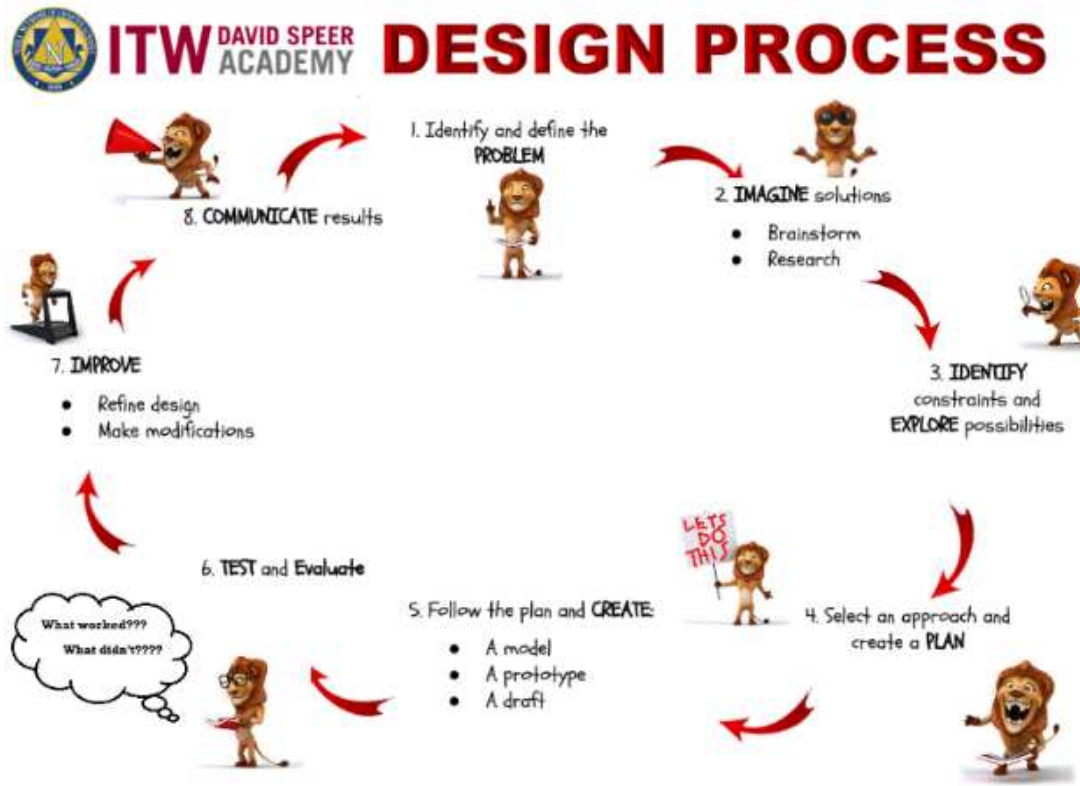
Taylor Miles teaches 9th grade engineering at the **ITW David Speer Academy**, located in Chicago, Illinois. The Speer Academy is a STEM-focused high school that was founded in 2014. Taylor's project-based curriculum focuses on four engineering disciplines: Aerospace, Civil, Mechanical and Naval engineering. To succeed as an engineering teacher, Taylor recommends embracing failure and accepting the unexpected. Modeling these behaviors will allow students to do the same, making them better engineers in the process. To read more about how Taylor has integrated the engineering design process into her curriculum and advice, check out our **SWE Blog post.**

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Get Ready for the 2019 SWENext DesignLabs

Have your students in Baltimore, St. Louis and Denver enter the **SWENext DesignLab Community Engagement**

Challenge for a chance to win a $1,000 to implement a community service project and an all-expense paid trip to SWE's annual conference, WE19, in Anaheim, California. The deadline to submit an entry proposal is December 23, 2018.

Be part of the SWE Community

SWE values educators as integral to attracting and engaging the next generation of engineers. SWE **Educator Membership** is only $20/year. Benefits include access to role models, networks, magazines, training, grants, news and events. Both men and women are welcome.

Your students can also be a part of SWE. K-12 grade girls and boys can join SWENext for free. **SWENexters** receive a monthly newsletter with cool projects, contests, SWE goodies, advice from women engineers, scholarships, events and more.

Did we forget something?

Let us know how we can better serve the K-12 Educator community by **participating in our survey.** Do you feel like sharing your story? Filling out this survey may give you the opportunity to be featured in our newsletter and on SWE's *All Together* Blog. You will also be entered to win copies of the **SWE Comic Book** for your classroom!
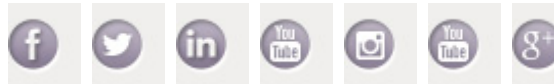
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