STEM forGIRLS

August 2021

STEM CAREERS UNBOXED

Spotlight: Mathematics

Mathematics-based careers span across many fields and include accountants, researchers, bankers, statisticians, math teachers, and economists. Each of these professionals has math at the core of their work and must use their skills every day in order to do their jobs.

Are you interested in animating the next Pixar movie? How about making data tell a story? Maybe you want to plot trajectories into space or designing giant skyscrapers? All of these feats can be achieved with a foundation in mathematics!

This month, thanks to our friends at Zorbit's Math Adventure, we will be playtesting their upcoming game, Mathstoria! This game will lead students through the once beautiful and now dystopian land of Mathstoria and challenge them to use math skills to rebuild what was lost. You can access this game once you've attended the live session happening Monday August 16th

Keep reading to find more math games and riddles, as well as the profiles of some of our role models working in math-based fields, post-secondary options in mathematics, and stories of some of the most influential women in math!

Mathematics Role Models

Angayatcanny Vadivelu – Mathematics Instructor

Lesley Chard – App Designer and Developer

Amanda Janes – Holistic Nutritionist

Yee Teing Lo – Software Developer

Click on the Role Model's picture to learn about her STEM career.

Post-Secondary

Through the Mathematics and Statistics Department of the Faculty of Science, Memorial University offers 3 majors: Pure Mathematics, Applied Mathematics, and Statistics.

Other math related programs at Memorial include a B.Sc in Economics, a B.Sc in Computer Science, or a B.Comm (commerce).

At the College of the North Atlantic (CNA), you can complete a diploma in accounting either through the Business Administration (Accounting) diploma or the Business Management (Accounting) diploma. CNA also offers more computational math-focused programs like Software Development (Co-op), Computer Systems and Networking, and Enterprise Web Development.

Famous Women of Mathematics

Ada Lovelace

Born in London, England in 1815, Ada Lovelace is often considered the world's first computer programmer. At the age of 17, she met Charles Babbage, inventor of the Analytical Engine, the predecessor of modern computers. Ada became fascinated by the machine and in her curiosity, translated and Italian text about it. Her translation was accompanied by a series of extensive notes. These notes contain what many consider to be the first ever computer program.

Sophie Germain

Sophie Germain was born in 1776 in France. When she was 18, the Ecole Polytechnique, a university, opened in Paris. Sophie was unable to attend due to her gender, however, she was able to obtain notes from the university and communicate with a faculty member while disguised as a man. She ultimately was found out by her mentor, however he admired her bravery and continued to tutor her. Sophie made great strides in the fields of number theory and elasticity with her work still being used by those in the field today.

Katherine Johnson

Played by Taraji P. Henderson in the 2016 movie, *Hidden Figures*, Katherine Johnson was born in West Virginia in 1918. In 1939 she became on of the first Black graduate students at West Virginia University. In 1953, Katherine began work at the segregated all-Black West Area Computing section at the National Advisory Committee for Aeronautics' (NACA's) Langley laboratory. In 1958, NACA became NASA, and Dorothy remained onboard working on projects such as the 1961 Freedom 7 mission, Project Apollo's Lunar Module, and many Space Shuttle flights. Katherine retired in 1986; in 2015 she received a Presidential Medal of Freedom from Barack Obama. She passed away in early 2020 at the age of 101.

Dorothy Vaughan

Another mathematician represented in the film *Hidden Figures*, Dorothy Vaughan, played by Octavia Spencer, was also born in West Virginia in 1910. Dorothy earned a B.A in Mathematics in 1929 and taught high school math until 1943 when she took a position at the Langley Memorial Aeronautical Laboratory as a temporary wartime job. She, like Katherine Johnson, got her start in the all-Black West Area Computing section where she was promoted to manager in 1949, making her the first Black manager in NACA/NASA history. She was known for being a fierce advocate for her employees, all Black women, fighting for them to receive projects, promotions, and pay raises. She retired from NASA in 1971 and passed away at the age of 98 in 2008.

Maryam Mirzakhani

Born in 1977 in Tehran, Iran, Maryam went on to set several records at the International Mathematical Olympiad, including being the first Iranian female to win a gold medal, the first Iranian to achieve a perfect score, and the first Iranian to win two gold medals. She attended university in Iran and moved to the United States for her graduate education. In 2004 she earned her PhD from Harvard University and in 2009 she became a professor at Stanford University. Throughout her life she made great strides in the field of Algebraic Geometry and in 2014 she was awarded the Fields Medal, the highest honour in Mathematics. She is so far the only woman recipient and first Iranian. In 2017, she passed after a battle with brain cancer at the age of 40.

Game Zone

Math Riddles

Do you love to flex your thinking muscles? Try some of these math riddles from TED-Ed!

- The Penniless Pilgrim Riddle
- The Bridge Riddle
- The Passcode Riddle
- The Virus Riddle

Math Games

Who says math can't be fun? These math games from Mathigon can keep you busy for hours on end! Give them a try!

- Factris
- Tangram Builder
- Social Distancing Game
- Math Puzzles

Shoutout

Zorbit's Math is a blended learning platform that builds students' conceptual understanding of math through the use of digital and offline tools and resources.

This August STEMforGIRLS Club members have an important task of play testing and troubleshooting their new Mathstoria game created for grades 4-6 in which students apply their knowledge of math to transform a post-apocalyptic dust bowl into a rich civilizations and ecosystem. Check out Pheedloop to get started!

ZORBIT'S
BY CARNEGIE LEARNING

"Everyone is a math person, just not everyone knows it yet."