

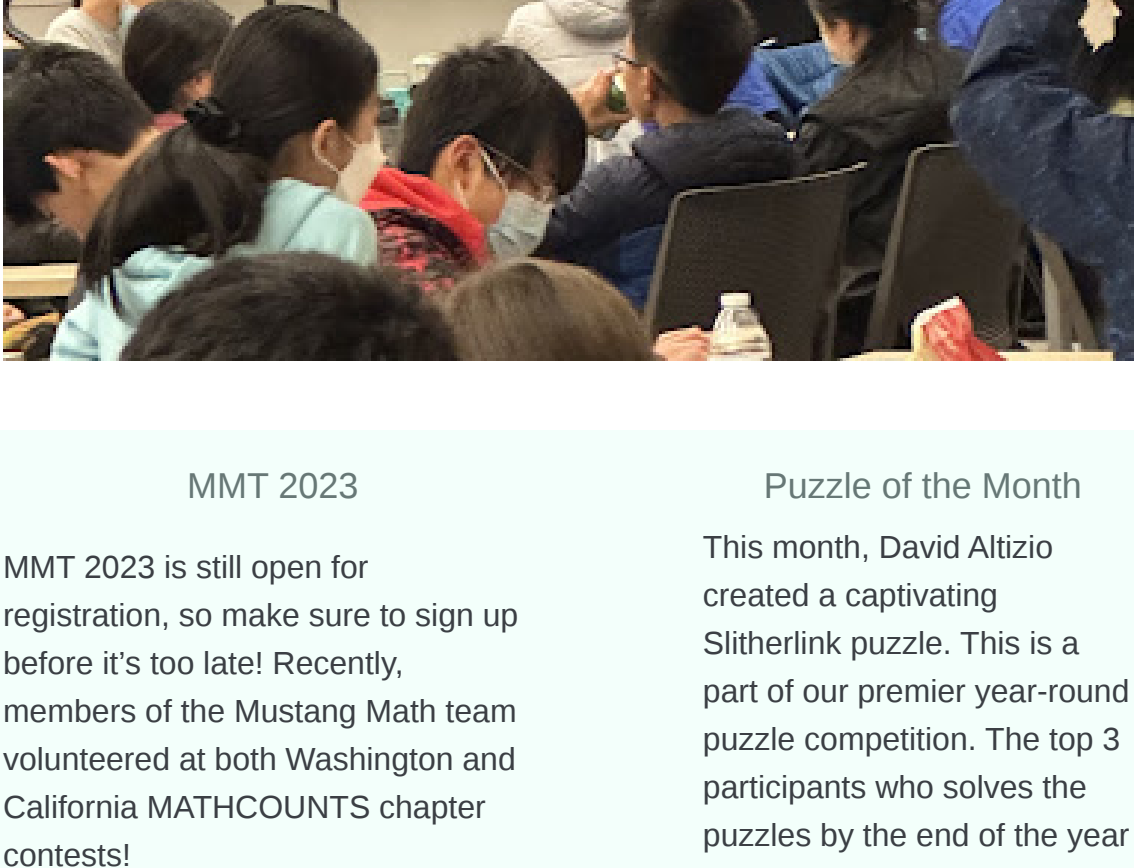
MUSTANG MEMO

February 2023

MUSTANG MATH UPDATES

Mustang Math at MATHCOUNTS!

Recently, Mustang Math volunteers volunteered at local Washington and California MATHCOUNTS tournaments. Their contributions have been very important to their respective math communities.



MMT 2023

MMT 2023 is still open for registration, so make sure to sign up before it's too late! Recently, members of the Mustang Math team volunteered at both Washington and California MATHCOUNTS chapter contests!

[MMT 2023 Info!](#)

Puzzle of the Month

This month, David Alizio created a captivating Slitherlink puzzle. This is a part of our premier year-round puzzle competition. The top 3 participants who solves the puzzles by the end of the year will get cash prizes while top 5 will get recognition. Read below to participate!

ARPITORIAL

Dear Mustang Math Community,

As another month of MMT 2023 preparation comes to a close, MATHCOUNTS chapter competitions are in full swing! A long-standing math competition for middle schoolers, they've been inspiring young mathematicians for almost 40 years.

Here at Mustang Math, our members (many of whom are MathCounts alumni) have been volunteering at different chapters in California and Washington to give back to the math community and encourage students to continue growing their passion in Mathematics.

In Washington, Mustang Math members volunteered at the Seattle and Lake Washington Chapters, and hopefully some of you got to meet and interact with some of our volunteers! In California, Mustang Math volunteers were present at the Diablo and East Bay Chapters, and were the primary volunteer force to help the Peninsula, Fremont, San Mateo, Sacramento, and San Joaquin chapters run smoothly.

We had an absolute blast helping out at these events, and we hope to keep extending these efforts to other chapters and communities across the nation.

Thanks,

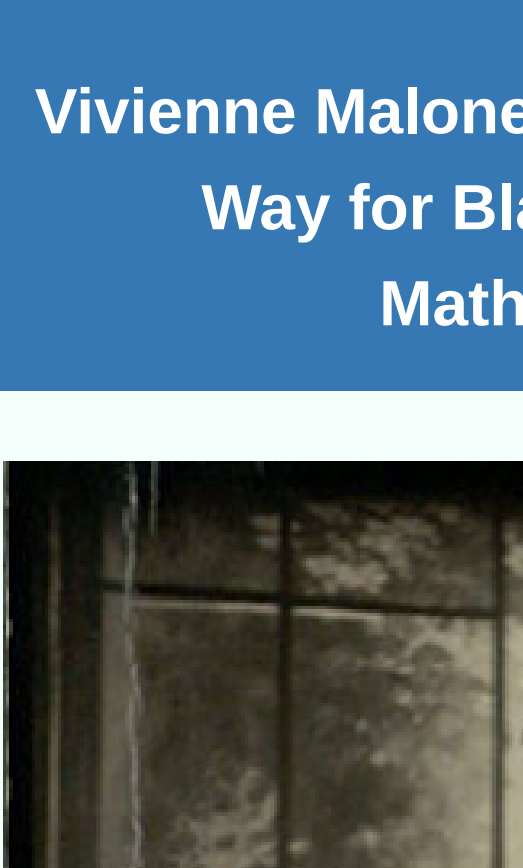
Arpit Ranasaria
Director

FERMAT'S LITTLE THEOREM

Fermat's Little Theorem is a fundamental theorem in number theory that relates to the properties of prime numbers. It was first stated by the French mathematician Pierre de Fermat in the 17th century and has since been extensively studied and applied in various fields, including cryptography, computer science, and physics. To learn more about FLT, click below!

[READ MORE](#)

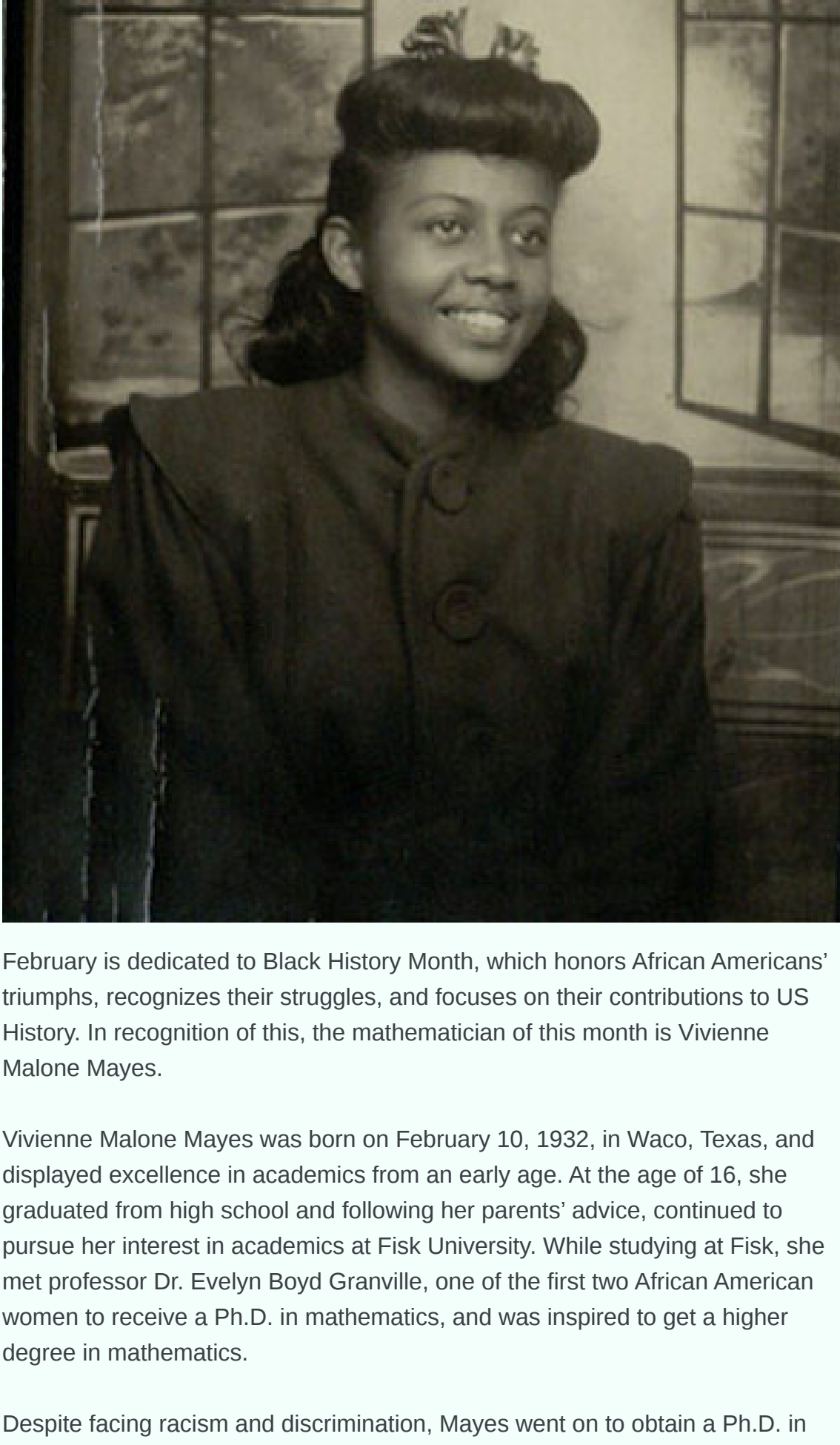
GROUP THEORY AND RUBIK'S CUBES



You've probably been handed a Rubik's cube sometime in your life. When you first see the cube, it looks quite simple. It's just a pattern of 6 colors on a block. However, when you start to scramble the cube, you notice that it quickly devolves into something much more complex than originally thought. Behind the Rubik's cube, there is a world of abstract math that shows itself in every turn you decide to make. While the Rubik's cube can be used to show many mathematical principles, it is an exceptional case study for group theory.

[READ MORE](#)

Vivienne Malone Mayes: Paving the Way for Black Women in Mathematics



February is dedicated to Black History Month, which honors African Americans' triumphs, recognizes their struggles, and focuses on their contributions to US History. In recognition of this, the mathematician of this month is Vivienne Malone Mayes.

Vivienne Malone Mayes was born on February 10, 1932, in Waco, Texas, and displayed excellence in academics from an early age. At the age of 16, she graduated from high school and following her parents' advice, continued to pursue her interest in academics at Fisk University. While studying at Fisk, she met professor Dr. Evelyn Boyd Granville, one of the first two African American women to receive a Ph.D. in mathematics, and was inspired to get a higher degree in mathematics.

Despite facing racism and discrimination, Mayes went on to obtain a Ph.D. in mathematics from the University of Texas, becoming the fifth African American woman to do so. Surprisingly, Baylor University invited her to be its first African American faculty member, following her graduation. Mayes went on to hold many positions of power, including being on the executive committee of the Association for Women in Mathematics and the board of directors of the National Association of Mathematics, a black community-oriented organization.

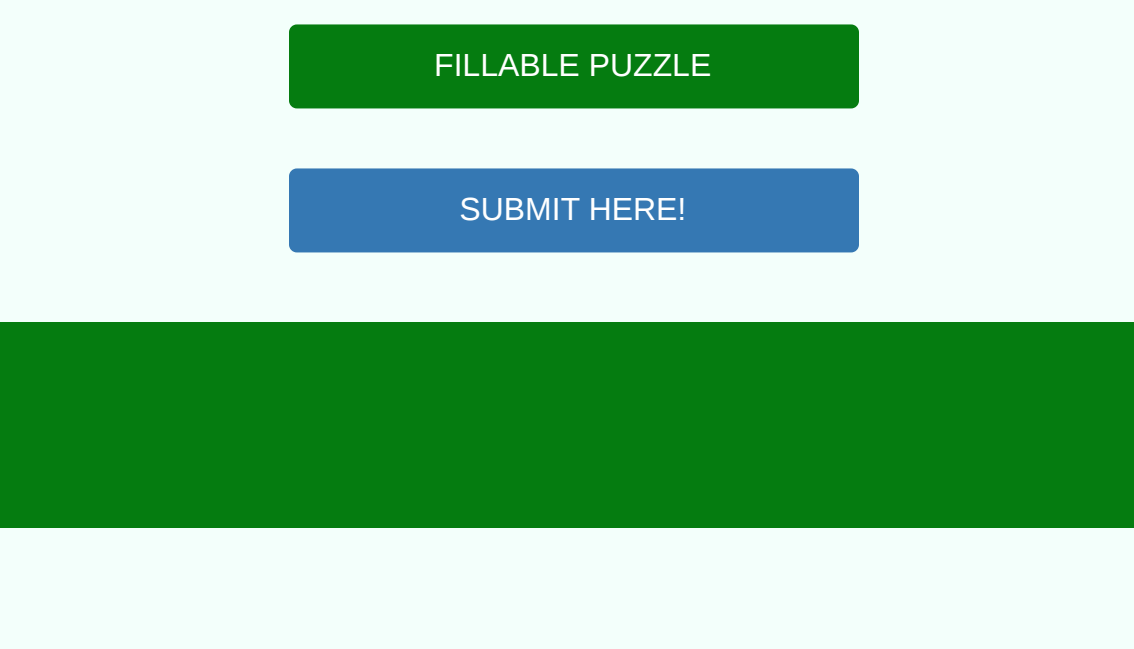
While Mayes did not make significant mathematical discoveries, she paved the way for future black women mathematicians. As a pioneer, she faced hardships fighting against racism and sexism in society. During her school years, she said, "When I made a low grade, I felt I'd let down 11 million people. That's a heavy burden. Every professor stereotyped blacks by my performance. You felt like you had no choice but to excel." Mayes was very pressured to achieve excellence, as she knew she could impact future generations of black women. This motivated her to work even harder in the field. To promote civil rights, Mayes urged federal officials to provide equal salaries and promotions for black professors and kept in contact with other civil rights agencies to motivate black women to pursue higher education.

Mayes made an enormous impact on people of color and women, paving the way for future generations of black women mathematicians and promoting civil rights.

FEBRUARY: SLITHERLINK

This month's puzzle, written by Puzzle Extraordinaire David Alizio, is a logic puzzle type known as slitherlink. The goal of slitherlink is to create one closed loop (a slither-link) around the board such that the loop doesn't branch off, cross, or intersect with itself. However, the numbers in the grid indicate how many of the 4 sides next to it are a part of the loop. More detailed information and examples can be found here ([puzzle rules](#) ([puzzle link](#))).

As a reminder, there are cash prizes for the students who solve all 12 months' puzzles the fastest, so give it a shot and submit your answer once you're done! You may still participate in last month's puzzle too! You can last month's newsletter on our website.



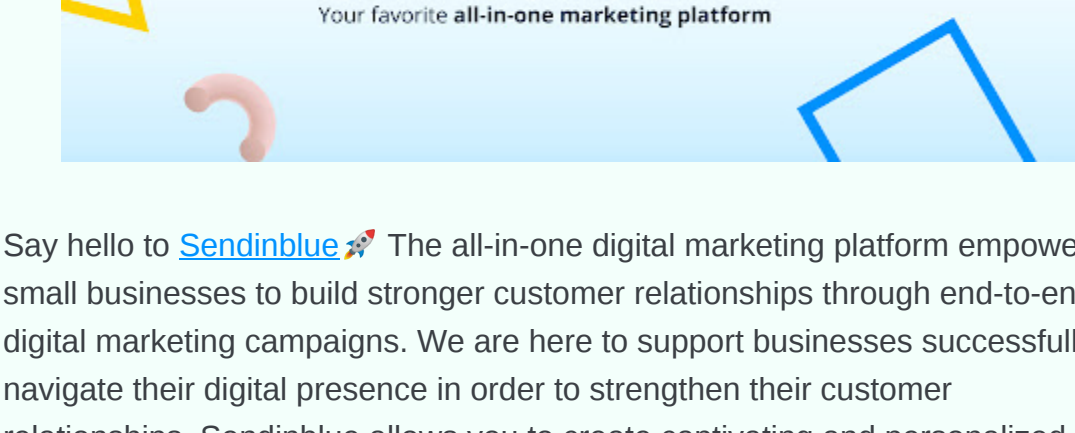
by David Alizio

[FILLABLE PUZZLE](#)

[SUBMIT HERE!](#)

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