



NOYCE NEWS

UCF - OCPS - CITY YEAR



COLLABORATION WITH OCPS

We are thrilled to announce that OCPS leadership will be making a visit to **Sarah Lumpkin's** mathematics class. However, this won't be a typical observation. Instead, the visit will be capturing Sarah's innovative teaching strategies on video. This footage will serve as a powerful showcase of the impactful methods being employed within our educational community. The video will be featured at professional development events, providing valuable insights and inspiration to educators across our district.



We are thrilled to announce a significant milestone for our Fellows at OCPS: several have achieved certification as OCPS Clinical Educator Teacher Leaders, showcasing dedication and leadership. Additionally, a few are nearing completion, soon to join their peers in this prestigious certification. Together, they're poised to mentor new teachers, reflecting our commitment to quality education. Congratulations to all, their accomplishments will shape the future of education in our community.

COLLABORATION WITH CITY YEAR



Deborah Blakeslee



Nisha Phillip-Malahoo

Fellows **Deborah Blakeslee** and **Nisha Phillip-Malahoo** provided virtual training for Mathematics to City Year Corps members.



Fellows **Julia Keith**, **Kelly Penny**, and **Yeidi Diaz** are supporting teachers and students as they prepare for standardized assessment.

[HTTPS://CCIE.UCF.EDU/NOYCE-MATHEMATICS-EDUCATION/](https://ccie.ucf.edu/noyce-mathematics-education/)

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Collaboration with City Year

Supporting Productive Struggle in Learning Mathematics

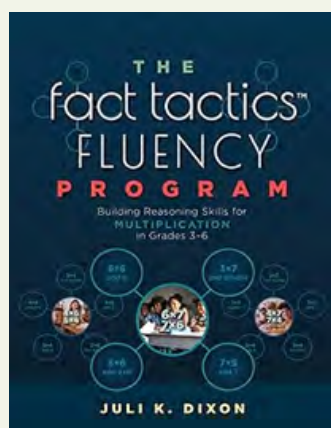


As part of the City Year/Noyce partnership, Fellows **Kayla Blankenship**, **Abi Ruiz**, and **Laura Pimentel** facilitated a PD at Catalina Titled: **Supporting Productive Struggle in Learning Mathematics**. The presentation detailed strategies for teachers to promote learning through productive struggle in mathematics. They advocated for timely scaffolding—providing it just in time rather than just in case—to support this approach. The methods discussed included Telling, Directed Guidance, Probing Guidance, and Affordance. It highlighted the critical role of asking questions, offering encouragement, allowing sufficient time, and valuing student efforts. These practices aim to help City Year Corps members provide students with rigorous and engaging learning opportunities to deepen their mathematical understanding.

THE FACT TACTICS FLUENCY PROGRAM



Fellows **Kayla Blankenship** and **Laura Pimentel** are concluding an OCPS mathematical pilot program on the Fact Tactics with several elementary schools across the district. Fact Tactics help students build mathematical reasoning skills for multiplication in 3 - 5 grades. The program provides students with alternative strategies that build fact fluency in multiplication to enrich young scholars' minds and spread the joy and beauty in mathematics and mathematics thinking.



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CONGRATULATIONS & CELEBRATIONS



We are pleased to announce that fellow **Lori Hart** was awarded the UCF Doctoral Research Support Award. This achievement reflects Lori's commitment to her education. Congratulations, Lori, on this accomplishment!



We are pleased to announce that fellow **Abi Ruiz** was named the Regional Director for the National Council of Supervisors of Mathematics Southern Region 1 board. Congratulations, Abi, on this achievement!

NOYCE CELEBRATES WOMEN'S HISTORY MONTH

We enthusiastically support Orange County Public Schools' commitment to honoring Women's History Month, with a particular focus on celebrating the significant contributions of women in Mathematics.

On behalf of the NOYCE Fellows we say **thank you** to Dr. Melissa Boston, Dr. Lisa Brooks, Dr. Sarah Bush, and Dr. Juli Dixon for their contributions to Mathematics.

Upcoming Presentations

Fellow	Conference Name and Date
Kayla Blankenship	NCTM Virtual, April 2024
Nisha Phillip Malahoo	ICRSME Virtual, April 2024

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Gateway to Wonder

by Brian E. Moore, Department of Mathematics, UCF

When I heard the learn'd astronomer
By Walt Whitman

*When I heard the learn'd astronomer,
When the proofs, the figures, were ranged in columns before me,
When I was shown the charts and diagrams, to add, divide, and measure them,
When I sitting heard the astronomer where he lectured with much applause in the
lecture-room,
How soon unaccountable I became tired and sick,
Till rising and gliding out I wander'd off by myself,
In the mystical moist night-air, and from time to time,
Look'd up in perfect silence at the stars.*

Indifference. Nonchalance. Disregard. At times, these words describe my casual everyday encounters with the stars. I have been known to go about my business beneath them without giving the slightest notice. However, I have also reclined on a mound of jagged gravel, farther away from the city than even text messages can go, completely unaware of the discomfort and cold, because the awe and wonder of the stars had me hypnotized. As the poem signifies, perspective plays a tremendous role. Feelings of indifference on one hand can soon be countered by awe on the other with only a slight change in perspective.

Like the character in Whitman's poem, students often sit in classrooms where marvelous and fascinating topics are reduced to "charts and diagrams." We should expect them to soon become "tired and sick." The resemblance with mathematics is particularly striking, as students of all ages seem to believe that mathematics is ultimately about memorizing formulas and applying procedures. As Paul Lockhart points out at the start of his book, *A Mathematician's Lament* (2009), typical ways of teaching mathematics are like using paint-by-numbers to teach art, robbing students of any freedom or potential creativity, and leading them (unintentionally it seems) directly to doldrums.

Then, as the students move on, leaving the classroom for the world beyond, this view of mathematics follows. Common discourse about mathematics often sounds somber and wearisome, but it is so far from the truth it might be called unjust. Using words like 'routine' or 'boring' to describe mathematics, is a little like using the words 'measly' or 'okay' to describe the night sky. There are many ways to describe the sky on a clear night, but if I met someone who could not, at a minimum, use the word 'impressive', then I would venture a guess that they have not seen it at midnight in the middle of October from a mountain in the North. A different perspective may be sufficient to inspire awe and wonder. Consider the following perspectives on mathematics.

"Mathematics is not a careful march down a well-cleared highway, but a journey into a strange wilderness, where the explorers often get lost. Rigor should be a signal to the historians that the maps have been made, and the real explorers have gone elsewhere."
– W.S. Anglin, Canadian mathematician

“Many people who have not studied mathematics confuse it with arithmetic and consider it a dry and fruitless science. In reality, however, it is a science which requires a great amount of imagination.”

– Sofia Kovalevskaya, Russian mathematician

“Mathematics has beauty and romance. It’s not a boring place to be, the mathematical world. It’s an extraordinary place; it’s worth spending time there.”

– Marcus du Sautoy, British mathematician

“Mathematics is like a puzzle with infinite pieces, waiting to be put together in new and fascinating ways.”

– Maryam Mirzakhani, Iranian mathematician and the first woman to win a Fields Medal

At the heart of these quotes is wonder, available through new perspectives. In his TED Talk, “Math is the hidden secret to understanding the world,” Roger Antonsen gives multiple perspectives on one seemingly uninteresting number. After all, many of my own encounters with $\frac{4}{3}$ might be characterized by indifference, nonchalance, and disregard. But, through a series of fascinating drawings, musical notes, drum beats, etc., all hinging on that number, the audience erupted with applause in a state of wonder, because of the multiple unique and beautiful perspectives he had to offer. He experienced the wonder of mathematics, and, like a poet, he inspired his listeners.

Those of us who have experienced that wonder have a unique angle for a view of mathematics that others never see. As teachers of mathematics, our opportunities to provide perspectives that inspire awe are a daily occurrence, but it isn’t easy. In contrast to Whitman’s poem, our students are not likely to find mathematical wonder as they simply ‘wander off by themselves.’ Amy Ellis, a mathematics education researcher at the University of Georgia, made this point clear in a seminar about ‘Playful Math,’ which she delivered at the Conference for Research in Undergraduate Mathematics Education last month. She clarified that “wonderment,” a state in which the doer of mathematics will dwell on the journey to discovery, is not something we can create or provide for our students, we can only set the stage to (hopefully) make it more likely. Teacher leaders make it their business to set the stage for their students, so that wonder is possible and probable.

As Maryam Mirzakhani also said, “Mathematics is not a spectator sport; you have to actively engage and participate to truly understand its beauty.” In the end, do not let yourself be content to read about the wonder of mathematics. That would be like hearing an astronomer lecture about the stars without gazing at the night sky in your own state of awe. It’s not enough to hear about the beauty of the stars or see it in pictures. You must stand in the cool air, far from the city, and let the magnificence take your breath away as you mesmerize in silence. Truthfully, it can be frustrating or uncomfortable to “actively engage and participate” in mathematics, but such feelings are light and momentary compared with the wonder that lies beyond them.

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