Aspire2STEAM.org

Niyathi Kukkapalli Awarded Aspire2STEAM EXPLORER Scholarship

Aspiring Scientist Desires to Combine Physics, Mathematics, and Computer Science to Help Solve the World's Unanswered Questions and Educate Others Along the Way

ANKENY, IA, UNITED STATES, July 27, 2023. Aspire2STEAM.org, which provides educational scholarships and mentoring to young women and girls who are working toward careers that require education in science, tech, engineering, the arts, or math (STEAM), has awarded Niyathi Kukkapalli an EXPLORER scholarship.

Niyathi Kukkapalli, EXPLORER Scholarship Recipient

A rising high school senior from Delaware, Niyathi used her Aspire2STEAM scholarship funds to help her attend the Program in Mathematics for Young Scientists (PROMYS) at Boston University in Massachusetts. This highly acclaimed summer program, with a 5% acceptance rate, exposes and trains aspiring mathematicians about proofs and advanced number theory (the study of integers and arithmetic functions). She attended the program as a rising junior, and is currently participating in the program's second year.

"Teaching is one of my favorite ways to give back and is such an easy way to serve your community. You can learn a lot from teaching as well."
~ Niyathi Kukkapalli

"You can see the pure joy and excitement in Niyathi's eyes when she talks about Boston University's summer PROMYS program," said Cheryl O'Donoghue, Aspire2STEAM.org CEO. "It's our profound pleasure to support Niyathi and other young women with EXPLORER scholarships, seeing their passion in STEAM take flight through participation in summer or afterschool programs."

Niyathi is currently exploring her interests in physics, math, and computer science and applying what she has learned. For example, with computer science, Niyathi created her first website, which helped her learn HTML and CSS. She then decided to learn Python and created games like Hangman and Tic Tac Toe, which made her interested in game development. When she gets the time, she plans to create an RPG using skills she gained from her cybersecurity certification. In her junior year, she participated in PACT (Program for Algorithmic and Combinatorial Thinking) at Princeton where she learned about theoretical computer science

and where she later became a Wolfram student ambassador to inform others about technology and Wolfram language.

Regarding mathematics, she regularly researches graph theory principles at a nearby university and collaborates with her peers on topics such as Ramanujan graphs. Currently, she is conducting number theory research about p-adics (an alternate number system) at PROMYS. Niyathi then takes what she has learned and shares it with others on her STEM blog, "Algebraic Arcanum," spotlighting what she has discovered and then further discussing great scientists' experiences as well. Niyathi also writes for her school newspaper and creates posts for Amino Labs, an MIT developed biotech company. She is internationally and nationally acclaimed in mathematics, where she was recently named a Spirit of Ramanujan Talent Search Winner and a World Science Scholar. She participates in competitions like AIME, USA Mathematical Talent Search, Stanford Math Tournament, among others.

Niyathi's interest in physics stemmed from watching physics lectures and reading textbooks, her favorite being "Physics" by Resnick, Halliday, and Krane. In one instance, while watching a Veritasium video (which directly translates to "element of truth" and features scientific experiments combining multiple scientific disciplines), Niyathi came to the realization that the topic featured in the video hadn't been researched further in centuries. Niyathi took it upon herself to set up her own experiments to investigate some of the unanswered questions in physics. "I decided to experiment with the properties of a pendulum and see how that changed the synchronization time of the pendulums," said Niyathi. She's looking at a peer review publication right now, and has presented at many fairs and talks. "Overall, there's still so much of science I have yet to see and can't wait to experience it firsthand."

In her free time, Niyathi loves to practice archery

When Niyathi is not expanding her mathematics, physics, and computer science knowledge, she can be found teaching. Through Math4All, a nonprofit promoting math-centered critical thinking, she helps organize free classes for young aspiring mathematicians. She also tutors at school and on Upchieve where she is certified in over 15 subjects.

Seeing her students achieve success is very rewarding for Niyathi and reminds her how her love for the sciences reaches far beyond herself. "Teaching is one of my favorite ways to give back and is such an easy way to serve your community," explained Niyathi. "You can learn a lot from teaching as well."

In the future, Niyathi desires to continue to be a mentor to others as she works towards a PhD in one or a combination of all her passions—math, physics, and computer science. Whether it's being a teaching assistant (TA) or taking on a different role, Niyathi wishes to be a part of the same experiences that once inspired her.

Outside of academia, Niyathi has shown a special talent for the visual arts and has created numerous artistic works. She sees art as an outlet that soothes her, helping her to balance out the stressors that come with studying and excelling in complex subjects. "I love to draw still life or landscapes," said Niyathi. "Art just calms me down and helps me focus my attention." Niyathi's artwork has been published in books and is nationally recognized. She received the Scholastic Art Silver Key (a regional award for self-portraits), as well as an award from the Constitution Poster Contest (a national contest for the portrayal of the Constitution). Niyathi just started to play archery as well, which she finds exciting.

About Aspire2STEAM

Established in 2018, Aspire2STEAM.org is a charitable 501(c)(3) nonprofit organization, which has earned Guidestar's Gold Seal for integrity, transparency, and accountability. Aspire2STEAM provides educational scholarships and mentoring to young women and girls who are working hard—aspiring—to achieve careers that require education in science, tech, engineering, the arts, or math. Aspire2STEAM is committed to helping women and girls with a hand up over the incredible barriers of student debt and rising education costs, and the real, ever-present opportunity barriers that keep them out of most male-dominated industries.

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