Scientist-in-Residence at Elizabeth, NJ

2023 - 2024

Overview:

Education programs at The New York Academy of Sciences are committed to closing the STEM opportunity gap for students traditionally underserved by education systems. We do this through multiple avenues, including increasing access to high quality STEM instruction, creating opportunities for students to build a STEM identity through access to diverse mentors and educators, and providing students with authentic STEM experiences.

Scientist-in-Residence (SIR) was developed in 2012 with the NYC Department of Education to actively harness NYC's extraordinary STEM resources and create a transformational STEM experience for its youth. This program matches scientists with a partner teacher and equips them to work together to design a unique curriculum which taps their own areas of expertise. These scientists work with students directly to implement their project and provide mentorship to their classes. SIR represents a pathway to support educators and to inspire and prepare the next generation – regardless of demographics, resources, or location – to become tomorrow's workforce and STEM leaders.

After over a decade of programing success in NYC, the Academy, with funding from The Mushett Family Foundation, expanded the Scientist-in-Residence program to Elizabeth, New Jersey. This represents an important point of growth for the program, and we hope to deliver the same level of service and opportunity to NJ students that we have within the five boroughs during our program's history.

Focus on Partnership Building:

During Fall 2023, the Academy focused on building and fostering a partnership with Elizabeth Public Schools (EPS). This included pitching the program to Mayor Bollwage and a series of scoping calls with EPS Superintendent Olga Hugelmeyer and her team. The SIR program was presented to the EPS Board of Education by Solmon Victor, Supervisor of K-12 Science, on behalf of the Academy, in January 2024.

Following approval by the EPS Board, an informational session was held for administrators and teachers of target schools a few weeks later. By February 2024, participating principles had identified interested educators and program staff began setting up introductory calls between teachers and scientists.

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SIR Participants:

For the Spring 2024, we placed four Scientists into classrooms in Elizabeth Public Schools (EPS):

Scientist	Organization	Expertise	Teacher	School	Grade
Y. O.	NJIT	Electrical Engineering	A. G.	Jerome Dunn Academy- School #8	Grade 5
M. V.	NJIT	Programming, Electronics and Embedded Systems	L. A.	Jerome Dunn Academy- School #8	Grade 4
P. B.	NJIT	Signals, Systems and Intelligent Sensing	J. F.	Nicholas La Corte Peterstown- School #3	Grade 3
J. C.	Kean University	Coastal Geology	J. C.	Nicholas La Corte Peterstown- School #3	Grade 3

Participants attended an onboarding session with program staff to orient them to the program and kick-off their partnership. They were provided scaffolded documents to help them set up their collaboration and brainstorm project ideas.

Communication with program staff throughout the semester was primarily done via email, with one additional virtual check-in scheduled halfway through the semester. This check-in represented an opportunity for staff to assess program progress, address participants' questions or concerns, and begin end of program planning.

In June 2024, all classes held classroom celebrations to recognize the students' work and officially close out the program. Educators were offered tri-fold boards so that their students could create displays that showcased their learning throughout the program and lunch and prizes were provided. Academy staff was present whenever possible.

Impact:

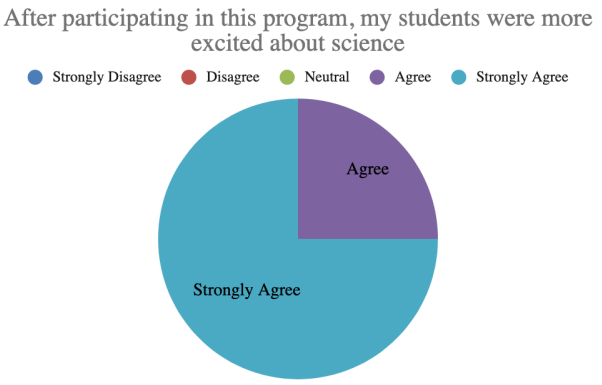
Through SIR NJ, students met scientists who shared their love of STEM and their own career journeys. Students engaged in hands-on activities that allowed them to find joy in scientific thinking, and to see

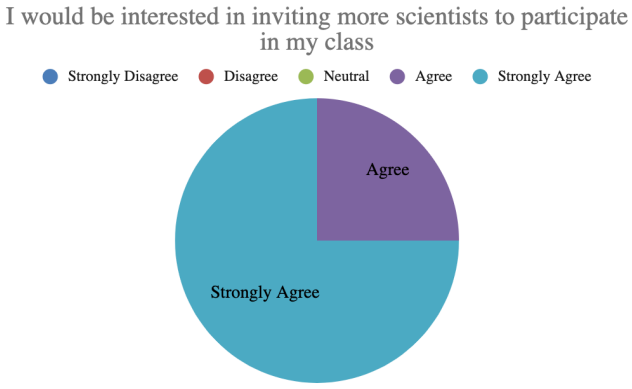
themselves as capable science thinkers and learners. In one classroom, for example, students went beyond traditional textbook learning and got to build robots while learning about what it means to be an electrical engineer. Another third grade class was able to incorporate a field trip to Sandy Hook to take part in their own "field work" and see signs of shoreline erosion for themselves.

Importantly, this program also increased teachers' ability to incorporate hands-on activities into their lessons. When asked how they benefited from the program, one teacher responded:

> *"I was able to expand my knowledge about robotics, facilitate fun and interesting lessons and activities for my students… This program provided a great opportunity for me to demonstrate good planning, time management and integrating new ideas into our science curriculum. I don't normally have a budget for materials. So this was a good learning experience for me on how to best use resources and manage resources so that every student had all the materials they needed to get the most out of the program."*

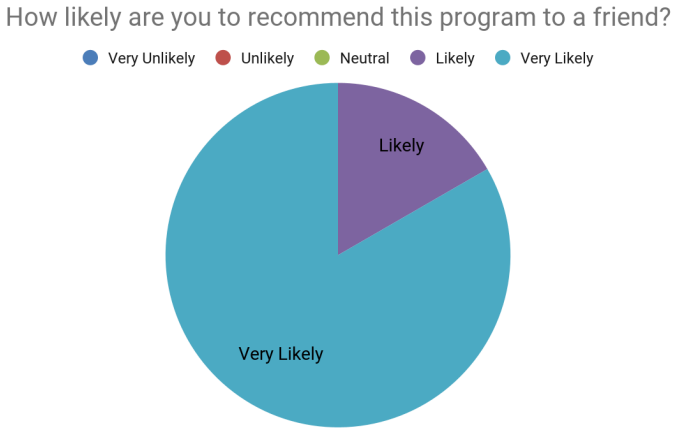
Additionally, after the program, 75% of teachers strongly agreed that their students were more excited about science and were interested in bringing more scientists into their classroom.





In addition to providing students with unique and engaging STEM experiences, the SIR program also aims to create opportunities for scientists to develop their communication skills with lay audiences. After participating in our program, 100% of scientists felt they were more confident in their ability to teach, communicate, and mentor elementary school students.

Finally, 83% of surveyed participants would be very likely to recommend this program to a friend. These survey results show the need from programs like Scientist-in-Residence in Elizabeth Public Schools, and support our plan to continue this type of program.



Testimonials

"I learned new hands-on activities to engage my students during science." *-SIR NJ Teacher, 2024*

"I really enjoyed the experience and I feel my students felt the same way. Some students were so excited about the robots that they ordered the kits so they could make more robots at home. To me that means, they really were fully engaged in the program. Thank you! *-SIR NJ Teacher, 2024*

"Engaging with k12 students and local schools gave me a better understanding of undergrad students in my university." *-SIR NJ Scientist, 2024*

"I feel it is of importance to train younger students to allow them to be aware of critical environmental issues. I have a plan to work with education professionals to further this effort." *-SIR NJ Scientist, 2024*

"It was a very nice experience with the SIR program this spring. The highlight was the field trip to Sandy Hook. Students will have a long lasting memory about this trip. I am planning to have more trips in the future." *-SIR NJ Scientist, 2024*

Next Steps:

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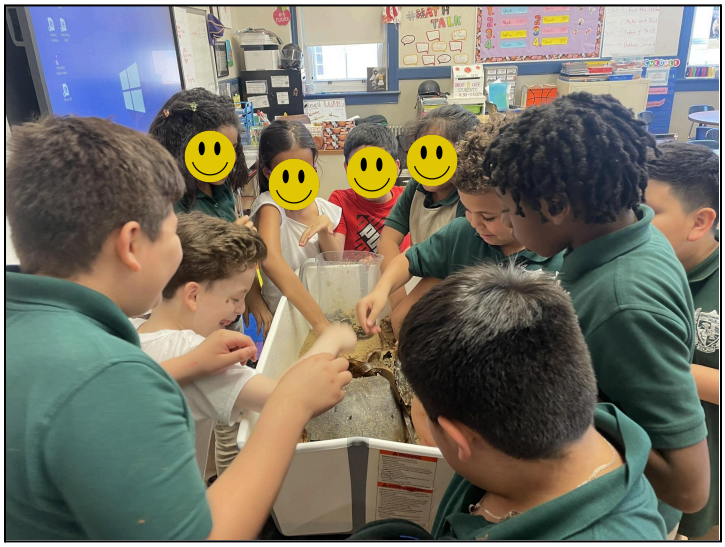
For the 2024-25 school year, we plan to place 5 scientists in EPS classrooms for an extended, year-long partnership. We anticipate continued placements at schools #3 and #8, while also adding additional elementary schools in the district, with a focus on grades 2-5.

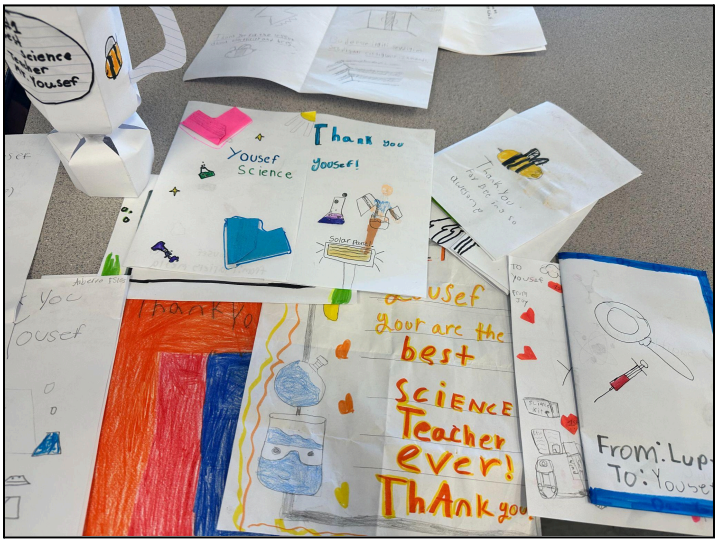
Instead of the condensed semester-long program we utilized for this pilot, next year will be run in a similar format to SIR NYC, where teachers and scientists will work together throughout the 10 month school year. Orientation will be held in September, along with designated check-ins (both full cohort and individual) taking place in the subsequent months.

Similar to this past year, we will also plan a culminating event for students that allows them to showcase what they've learned and give us an opportunity to celebrate their accomplishments, along with the hard work of our participating scientists and educators.

SIR in Action:

Check out the following photos to see our program in action:





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