

# 2024-25 STEM CITY Annual Report



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# 01 Introduction

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 expanding the availability of high-quality science instruction, providing students with authentic STEM experiences, and creating opportunities for students to build their own STEM identity through access to diverse mentors and educators.

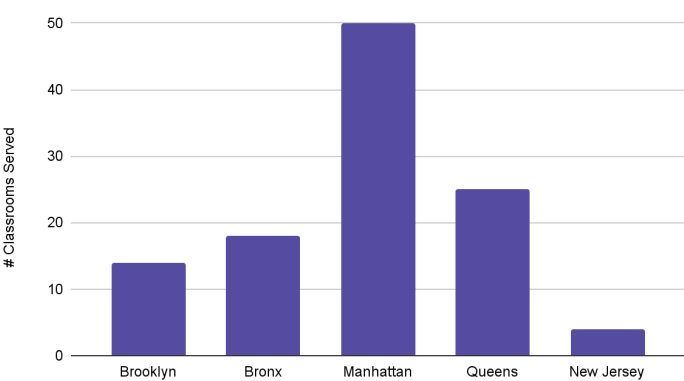
Since 2010, the Academy’s STEM City programs have placed over **2,000 scientists into 1,200 K-12 classrooms** in the greater NYC area. Our flagship programs, Scientist in Residence and the Afterschool STEM Mentoring program, support students both in day school and afterschool settings to help them capture the joy of learning. Scientists are recruited from our network of members as well as community partners, including universities, research institutes, and private organizations, and placed in classrooms to provide mentorship, share their own STEM journey, and help guide students in inquiry-based experimentation. During the 2024-25 year, STEM City placed 161 scientists in 111 classrooms throughout NY and NJ. These placements represent over **82,000 hours of STEM learning for students**, from primarily underserved schools, with **79% of participating schools located in NYC-based Environmental Justice or potential-EJ communities**, as designated by the NYC Mayoral Office.

### Overview of 2024-25 STEM City Impact Data

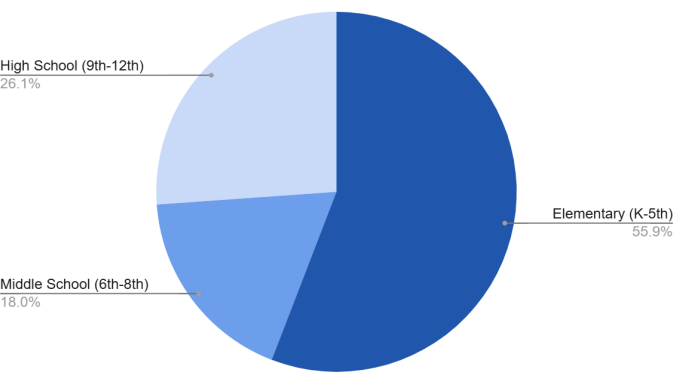
	Scientists Engaged	Classrooms Served	Students Impacted*	Learning Hours**
The Afterschool STEM Mentoring Program	104	60	1,200	12,000
Scientist in Residence (NY and NJ)	57	51	5,840	70,080
<b>Total</b>	<b>161</b>	<b>111</b>	<b>7,040</b>	<b>82,080</b>

*\*Estimated based on average class size; \*\*Estimated based on minimum time scientists are in the classroom*

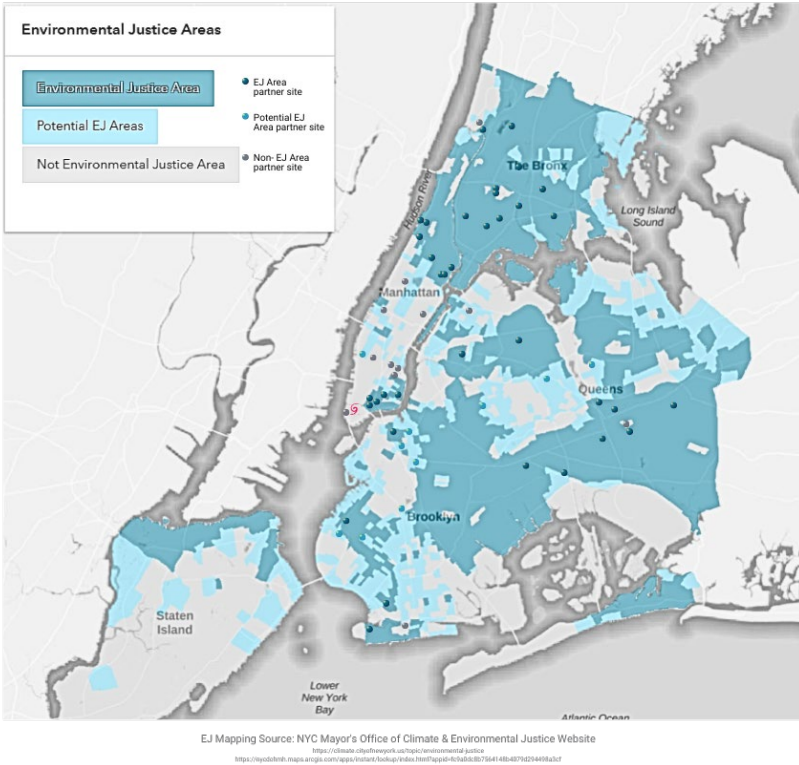
Location of STEM City Classrooms



STEM City Classrooms by Grade



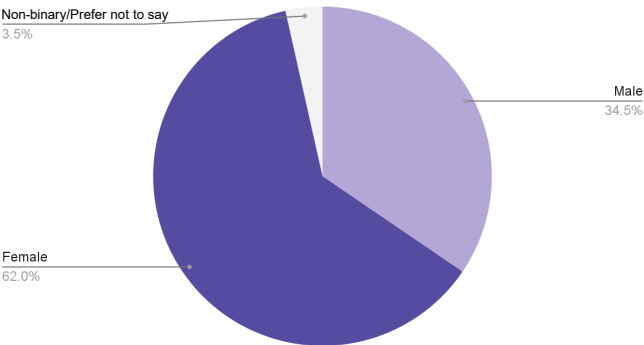
The New York Academy of Sciences  
STEM City Sites SY '24-'25



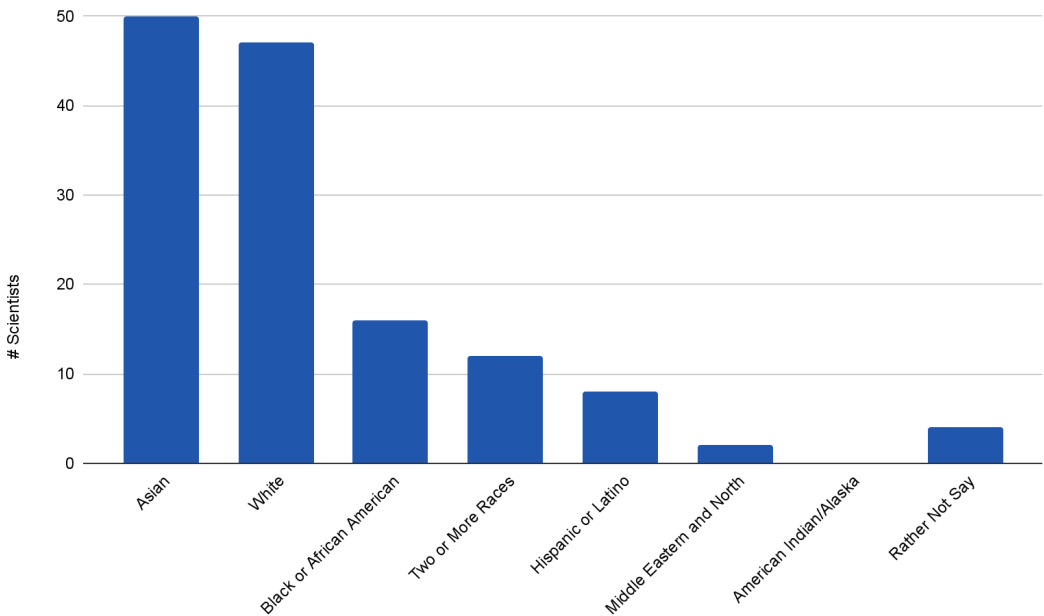
Our programs are committed to fostering diversity, equity, and inclusion across all aspects of our work, including within the scientists who participate. During the 2024-25 year, **62% of our volunteer scientists identified as female**, and **66.2% identified as Black, Indigenous, or People of Color (BIPOC)**. These numbers reflect our ongoing efforts to build a community that represents the populations it serves and amplifies the diverse voices and perspectives essential to scientific engagement and education.

STEM City programming would be impossible without the amazing scientists who volunteer their time and energy to mentor and teach today’s youth. Their passion and expertise transform every experience into something extraordinary for our participants. Whether they are leading hands-on experiments, planning lessons for the classroom, or sharing their own career journeys, these volunteers bring science to life in ways that inspire curiosity and build confidence. Their commitment not only strengthens our programming, but builds bridges between communities and the scientific world, making STEM more accessible, inclusive, and exciting for everyone involved.

Gender Identity of Mentor Scientists



Self-Declared Ethnicity of Mentor Scientists



## 02 The Afterschool STEM Mentoring Program

The Afterschool STEM Mentoring Program (ASMP) was founded in 2010 in partnership with the Department of Youth and Community Development (DYCD) with the goal of providing K-8 students with hands-on, inquiry-driven STEM learning. We continue to work closely with the DYCD to identify partner community-based organizations and to ensure our programming is aligned with NYC education goals. Through ASMP, scientists are recruited and placed at partner sites, including schools, libraries and community centers, where they deliver ten hour-long lessons that cover a variety of STEM topics.

Since Spring 2024, the New York Academy of Sciences has partnered with the League of Young Inventors to create a custom curriculum that allows students to experience the joy of hands-on learning in a low stakes environment that emphasizes exploration and critical thinking. During the 2024-25 school year, the Academy placed scientists in 60 afterschool classrooms around NYC, and offered four learning units:



Fall 2024 Curriculum:

- **Floating Boats** (grades 1-3): In this unit, students solve an engineering challenge: redesigning a toy boat that sinks when carrying weighted figurines. Through hands-on experiments with materials like clay and paper, they explore concepts of buoyancy, density, gravity, and how shape affects flotation. The unit culminates in a collaborative project where students design, test, and refine their boats, building problem-solving and teamwork skills.
- **Paddle Boats** (grades 4-7): Students tackle the problem of a toy paddle boat that doesn't travel far. They explore concepts like Newton's third law, energy transformation, and buoyancy, while building and testing paddle boats made from everyday materials. The unit ends with a full engineering cycle, including designing, testing, refining, and sharing their solutions, thereby strengthening critical thinking, collaboration, and innovation.

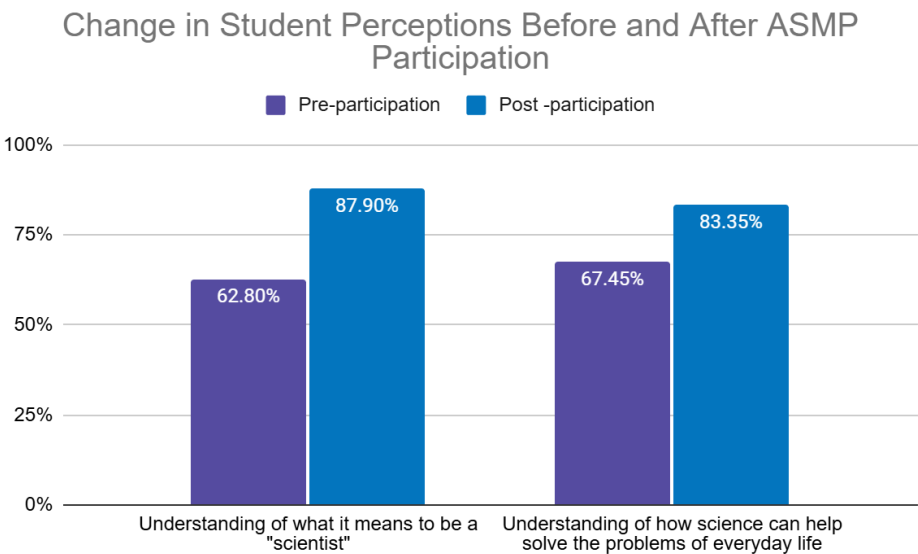


Spring 2025 Curriculum:

- **Neighborhoods** (grades K-2): Students act as urban planners, designing and building 3D models of spaces to improve their local neighborhoods. They'll explore challenges faced by communities and create thoughtful solutions that meet people's needs and enhance the environment.
- **Building Bridges** (grades 3-7): Students delve into engineering principles by designing, testing, and refining bridge prototypes. They'll investigate tension and compression, explore the strengths of different shapes, and learn how real-world constraints influence bridge construction.

Impact:

Our afterschool STEM mentoring program continues to make a meaningful impact on students' understanding of science and its relevance to their lives. Through hands-on activities, mentorship from real scientists, and





engaging discussions, participants showed a **25.1-point increase in their understanding of what it means to be a scientist**. This growth reflects a deeper appreciation for the scientific process, and the diverse roles scientists play in society. Additionally, students experienced a **15.9-point increase in their understanding of how science can help solve everyday problems**, highlighting the program's success in connecting STEM concepts to real-world applications. These outcomes demonstrate the power of mentorship and experiential learning in shaping the next generation of critical thinkers and problem solvers.

## 03 Scientist-in-Residence

Scientist-in-Residence (SIR) was founded in 2012 in partnership with the NYC Department of Education, and pairs teachers with STEM professionals to bring an inquiry-based project to life in the classroom. For the 2024-2025 school year, the Academy worked with 50 classrooms throughout New York City and provided structured support to provide participants with the tools needed to create and implement a 10-session project with students.

Since 2023, the Academy has collaborated with the nonprofit STEMteachersNYC to enhance support for SIR pairs through educator-led workshops. These sessions have focused on strengthening core teaching practices, including inquiry-based learning, developing testable questions, and preparing students for public presentations. In addition to these foundational topics, participants were offered optional, subject-specific enrichment opportunities, such as life science workshops and journal clubs, to deepen their content knowledge and create pathways for translating science into classrooms.

In May 2025, the Academy hosted its annual Student Showcase, where over 240 students from our program came together to present their yearlong scientific investigations. This event was not only a celebration of STEM learning, but also a chance for students to connect with their peers and hone their science communication skills. Special guest speakers included Seema Kumar, CEO of Cure; Council Member Rita Joseph; Roy Nachum, Co-Founder of Mercer Labs; Cindy Lawrence, Executive Director of MoMath; Magdia DeJesus from Pfizer School of Science; Will Lenihan, Curator at Brooklyn Botanic Garden; and Susanna Ling, Cure; all of whom shared powerful messages of encouragement and inspiration. The event fostered a vibrant and supportive atmosphere, with mentors, teachers, and community members in attendance to support our students and engage with their projects.

### Example Projects:

- **Sleep and Well Being:** Students learned to collect and analyze data regarding their sleep patterns and compared their personal data with their classmates



*(Research Assistant at New York State Psychiatric Institute paired with 4th Grade - General Science class in Brooklyn)*

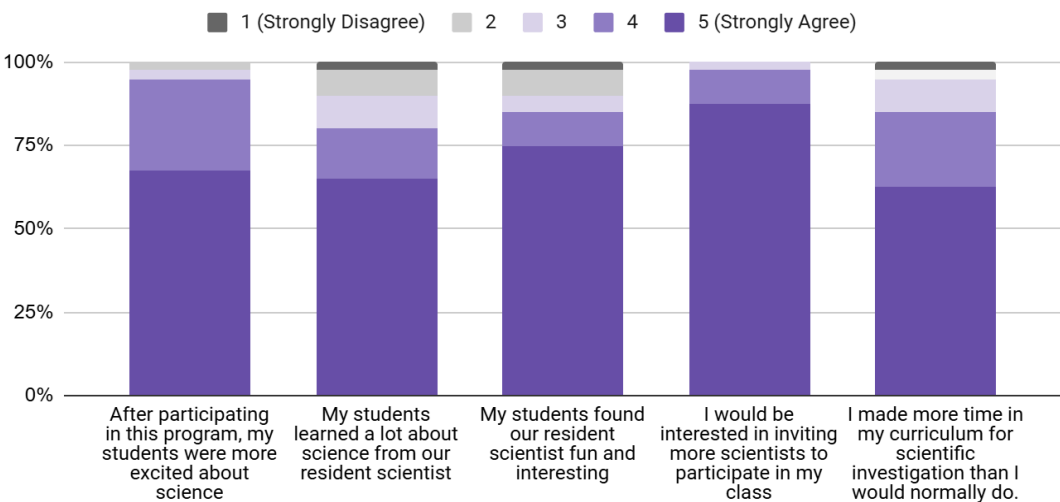
- **Climate Change and New York City:** Students studied climate change and climate solutions as it related to their own experience, working in groups to study a topic that most interests them *(Columbia University Lamont-Doherty Earth Observatory Associate Research Scientist paired with a 5th grade General Science class in Manhattan)*
- **Life on Other Planets:** Students simulated exoplanets to see whether life (represented by duckweed) was possible under different conditions *(NASA Postdoctoral Fellow paired with HS Earth Science class in Manhattan)*
- **Planaria and the conditions required for Tissue Regeneration:** students experimented with planaria worms in order to understand and design solutions to medical problems *(Postdoctoral Research Scientist at Columbia University paired with HS Biology class in Manhattan)*
- **AI Tools:** Students used Artificial Intelligence tools such as neural networks to explore a scientific question or build a tool *(Computer Science STEM Professional paired with 11th-12th grade Experimental Science class in Manhattan)*



**Impact:**

Our Scientist-in-Residence program is driving transformative change in classrooms by connecting educators and students with practicing scientists. As a result of the program, **interest in teaching at the K–12 level increased by 52%**, underscoring its role in inspiring future educators and strengthening the STEM teacher pipeline. Teachers also reported powerful shifts in student engagement, with **95% saying their students were more excited about science** after participating and **85% of teachers saying they dedicated more time to scientific investigations than they normally would**. In this way, SIR not only enriches engagement but also deepens the

Educator Perceptions Post-Participation





integration of inquiry-based learning. These outcomes highlight the program’s success in fostering authentic scientific experiences and cultivating a culture of curiosity and exploration in schools.

### Anthem Award Winner

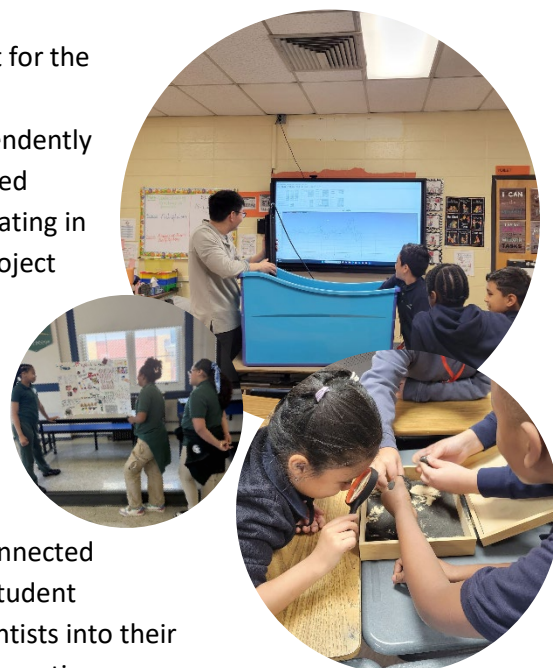


The Scientist-in-Residence program was honored to be named a **Bronze Winner at the 4th Annual [Anthem Awards](#)** in the category of Education, Art & Culture and Community Engagement. SIR was selected from over 2,300 entries submitted from 34 countries worldwide and was recognized for making learning more effective and accessible to students of all backgrounds. This recognition affirms SIR’s role in transforming science education by connecting classrooms with real-world scientists, as well as the program’s commitment to equity, innovation, and empowering educators and students alike.

## Scientist-in-Residence at Elizabeth, NJ

In early 2024, the Academy launched a satellite program of Scientist-in-Residence in Elizabeth, New Jersey. After a successful pilot, recruitment for the second NJ cohort began in Fall 2024, with a mix of returning and new participants. Ultimately, four scientist-teacher pairs collaborated independently throughout the school year, supported by structured check-ins and shared planning resources. Each pair completed ten classroom sessions, culminating in celebratory events where students showcased their learning through project displays and presentations. These celebrations not only recognized student achievement but also reinforced the program’s emphasis on hands-on, inquiry-driven STEM education.

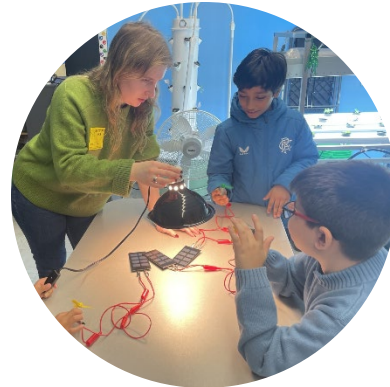
The impact of SIR NJ was evident in both student engagement and educator feedback. Students participated in immersive activities—from building coastal erosion models to touring university labs—that connected classroom learning to real-world science. Teachers reported increased student excitement about STEM and a strong desire to continue integrating scientists into their classrooms. Scientists also found the experience professionally enriching, noting improvements in teaching, public speaking, and community connection.



“Engaging with local K–12 students helped me **improve my teaching skills and better understand the community**. Meanwhile, I also taught another 400-level college course. Teaching 5th graders helped me gain new insights into how to better support my college students.”

*-SIR NJ Scientist, 2025*

“The scientist was excellent at developing and delivering lessons that directly aligned with our learning standards. For example, the hands-on sessions with snap circuits were a huge hit and memorable. The excitement and engagement from my students during the scientist's visit were palpable, and **it reinforced the value of bringing real-world scientific expertise into the classroom.** I'm very much looking forward to my students participating in the program again next year.”  
-SIR NJ Teacher, 2025



With **100% of educators reporting that their students were more excited about science after participating in SIR NJ** and **79% of participants likely to recommend the program**, SIR NJ is proving to be a powerful model for STEM engagement. By fostering authentic relationships between scientists and classrooms, the program not only inspires young learners to see themselves in STEM but also strengthens the broader educational ecosystem.

## 04 Additional Programming

### AI in Education Pilot

During the 2024-2025 school year, the Academy received pilot funds to incentivize teachers to increase their use of GenAI tools in their classrooms. The pilot included a cross-sector convening, funds for Scientist-in-Residence educators to integrate AI in their projects, and coaching from experts and staff.

In January 2025, the Academy put out a call to its SIR teachers asking them to think about ways that they might incorporate AI into their classrooms. There was overwhelming interest, not only from educators within SIR, but also from colleagues and program alumni who were hungry to find ways to incorporate AI into their teaching practices. In response, the Academy opened the program to any NYC educator who was interested in this type of work.

#### Breakdown of AI Pilot Respondents:

- 25 educators indicated interest in participating, representing:
  - 8 schools in Manhattan, 6 in Brooklyn, 6 in the Bronx, 4 in Queens, and 1 in NJ
  - 6 teaching at the elementary level and 17 teaching high school
- 46% of respondents have been teaching for 12 or more years
- 31% say they have never incorporated AI into their teaching, while 35% have used AI in their classroom "a few times" already

The purpose of this pilot was to understand how our educators would like to enhance their existing teaching with AI tools and to create a sandbox environment where they could experiment with

support from the Academy team. At the conclusion, participants created and shared a case study report that detailed their experience in the program. The diverse experiences and implementations from participants serve as valuable exemplars for other educators looking to integrate AI in their own classrooms.

### Example Final Projects:

- **AI Literacy & Writing Confidence-** An educator at New Design High School in Manhattan, led a classroom initiative focused on improving students' confidence in writing revisions and research skills using AI tools like Perplexity. Despite limited access due to school firewalls, students learned to prompt effectively, resulting in stronger citation practices and increased lateral searching. The project emphasized critical engagement with AI, helping students confront challenges like plagiarism and prompting fatigue, while fostering agency and deeper understanding of their own learning gaps.
- **AI as a Feedback Partner-** A teacher at the High School of Environmental Sciences in Manhattan used AI as a feedback partner in her ICT classroom to address the challenge of providing timely, high-quality feedback. Students submitted drafts along with rubrics to receive AI-generated scores and suggestions, which helped them view AI as a useful but limited tool rather than a replacement for critical thinking. While the experience was generally positive, it highlighted issues like rubric clarity and the risk of over-reliance, reinforcing the importance of teaching students how to use AI responsibly.
- **The Intersection of Art and AI-** An art teacher at Metropolitan Soundview High School in the Bronx integrated a wide range of AI tools into her 11th and 12th grade classes to enhance creativity and prepare students for a tech-driven future. By focusing on foundational AI skills like prompt engineering and ethics, she fostered deep engagement in her classroom, with 91% of students reporting increased confidence and 94% believing AI would be part of their future careers. Her approach highlights the importance of AI literacy not just for students, but for educators as well, as art and education evolve alongside technology.

## Family Science Nights

Each year, the Academy hosts Family Science events throughout NYC. Each event engages students in short, hands-on stations, where they can learn exciting science concepts and interact with passionate scientists. During the 2024-25 school year, the Academy hosted four Family Science events, which reached over **500 students** and their families, and represented over **900 learning hours**. This year's events were made possible through collaborations with partners including Icahn School of Medicine, Queens Public Library and Hudson River Park. Additional funding and support was generously provided by the NSF-funded ACRES project, which facilitated additional professional development for mentors.



Academy staff and volunteers led hand-on activities, including:

- Strawberry DNA extraction
- Electromyography recordings
- Building graphite circuits
- Fingerprint forensics
- UV cyanotype printmaking

Event partners also led unique activities meant to inspire students and give them glimpses into different scientific fields:

- Demo and explanation of auscultation during medical exams
- How to read pathology slides
- Virtual reality surgery
- Planetarium Show: Earth's Place in Space
- Designing aqueduct activity



Survey results highlighted the success of these efforts: **100% of mentors felt more confident engaging youth, and 94% of students reported increased excitement about science.** Participants also expressed a strong sense of community and interest in future events. Looking ahead, NYAS plans to expand its public-facing family science programming, deepen university partnerships, and continue developing mentor training focused on equity and communication. These initiatives align closely with NSF priorities to broaden participation in STEM, build mentorship pipelines, and strengthen science communication and community engagement.

"I loved talking to a real scientist—it made me think I could do that too, and they shared insight into college and medical school applications, which has always felt so intimidating. They encouraged me to apply for a summer lab experience!"

— *11th grade FSN attendee, 2025*

"This was an incredible celebration of science and community. My daughter is so excited to take her model bridge home for further testing!"

— *FSN Parent attendee, 2025*

"The workshop helped me think about how to connect my research to real lives and future generations impacted by the studies of today."

— *FSN Scientist mentor, 2025*



## Mentor Meet-ups

Mentor meet-ups are informal, yet purposeful, opportunities for our volunteers to build relationships and strengthen their professional networks within the Academy community. These events are open to scientists and educators who are currently active in our education programs. In February, we hosted a mentor meet-up at Other Half Brewery in Brooklyn with the goal of fostering connection and community building among our mentor cohort.

The event featured structured and unstructured networking opportunities in a relaxed setting. Attendees enjoyed complimentary snacks and drinks, while taking part in a science/NYC themed trivia game, which sparked friendly competition and meaningful conversations. The evening offered mentors a chance to unwind, deepen relationships, and reinforce the collaborative spirit that underpins our programs.



## 05 Progress and Next Steps

Over the past year, our STEM City programs have made progress in advancing equitable access to STEM education, while laying the foundation for long-term sustainability and impact. A central focus has been diversifying our mentor pool to better reflect the backgrounds and experiences of the students we serve. By actively recruiting scientists and educators from historically underrepresented groups, we are working to ensure that students see themselves reflected in STEM and are supported by mentors who bring a wide range of perspectives and expertise.

Data continues to play a critical role in shaping the direction and effectiveness of our programs. This year, we engaged an external evaluator to assess [the impact of our Scientist-in-Residence program](#) and provide actionable insights into areas of strength and growth. The evaluation has helped us better understand the needs of our participants, and has reinforced the importance of using data to guide program development. Moving forward, we will continue to collect and analyze feedback from our scientists, educators, and students to refine our approach and ensure our programs remain responsive and inclusive. By grounding our work in evidence and community input, we aim to prepare students not only for academic success, but for meaningful futures as part of the broader STEM ecosystem.





In parallel with our internal program development, we hope to continue to expand our public-facing initiatives to deepen community engagement and broaden access to STEM learning. This year, we increased the number of Family Science Nights that are open to the public, creating hands-on experiences where families can explore science together and connect with local STEM professionals. These events have become vital entry points for engaging new audiences and building trust within the communities we serve. Additionally, we have begun the first steps in developing a STEM lesson library that will offer high-quality, standards-aligned resources to educators, families, and community organizations. By making these materials freely available, we aim to empower a wider audience to participate in meaningful science learning.



As we look ahead, we remain committed to scaling our impact through strategic partnerships, data-informed innovation, and community-driven programming. With continued support from our funders, we are confident in our ability to build a more inclusive STEM ecosystem that not only inspires curiosity, but also creates lasting pathways to opportunity for all learners.




## 06 Thank You

STEM City programming is provided free of cost to our schools and the students we serve. This work would not be possible without support from our amazing donors and partners:

Armen Avanesians Foundation  
Glenn W. Bailey Foundation  
Fred J. Brotherton Charitable Foundation  
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Cognizant  
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Cure  
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Tandon Family Foundation  
US ORT Operations  
Jeremy M. and Joyce E. Wertheimer Foundation

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