



New York STEM City Initiative

2023 - 2024 Update

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 both in and out of school, creating opportunities for students to build a STEM identity through access to diverse mentors and educators, and providing students with authentic STEM experiences.

The Afterschool STEM Mentoring Program and Scientist-in-Residence are two programs within our New York STEM City portfolio, which actively harness NYC's extraordinary STEM resources and enlist them to be part of transformational STEM experiences for its youth. These programs represent a pathway to equip educators and to inspire and prepare the next generation – regardless of demographics, resources, or location – to become tomorrow's workforce and STEM leaders.

The Academy launched the Afterschool STEM Mentoring Program (ASMP) in 2010 in partnership with the NYC Department of Youth and Community Development, and places scientists into after school programs around the city, equipped with a ten week curriculum, which they teach to students over the course of a semester. Its sister program, Scientist-in-Residence was developed in 2012 with the Department of Education to match scientists with a partner teacher who work together with to design a unique curriculum which taps their own areas of expertise. These scientists work with students throughout the year to implement their project and provide mentorship to their classes. Both programs seek to inspire students to find joy in STEM, and to see themselves as capable science thinkers and learners.

Impact during the 2023 - 2024 year:

Program	Scientists Placed	Classrooms Served	Students Impacted*
The Afterschool STEM Mentoring Program	112	62	1240
Scientist-in-Residence	50	50	6000
Total	162	112	7240

**estimated*



Curriculum: The Afterschool STEM Mentoring Program

During the 2023-24 school year, The Academy ran two new 10-week curricula for our Afterschool STEM Mentoring Program. The first, called “Collaborative Communities”, centered on how humans live in collaboration with the living organisms that share our spaces, particularly in urban environments. Activities in this unit included building insect hotels and a living wall, learning about and designing a composter, and experimenting with different water drainage systems using sustainable materials.

The second “Rolling Marble Runs”, took a toy engineering perspective and tasked students to design and build a marble run apparatus that kept a ball rolling for more than five seconds. Students learned concepts related to inclined planes, friction and gravity, and tapped into their creative sides to collaboratively create their marble run masterpieces. The design process, as well as troubleshooting and iterating, were key skills developed during these ten weeks.

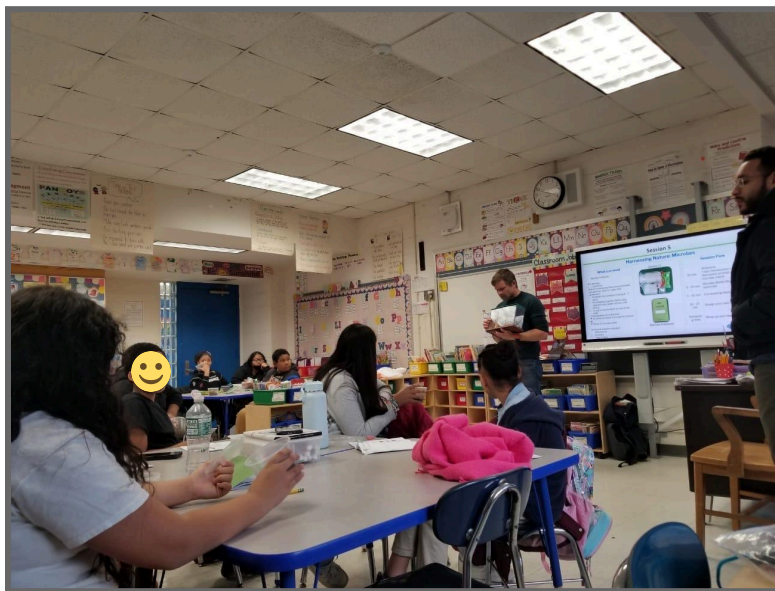
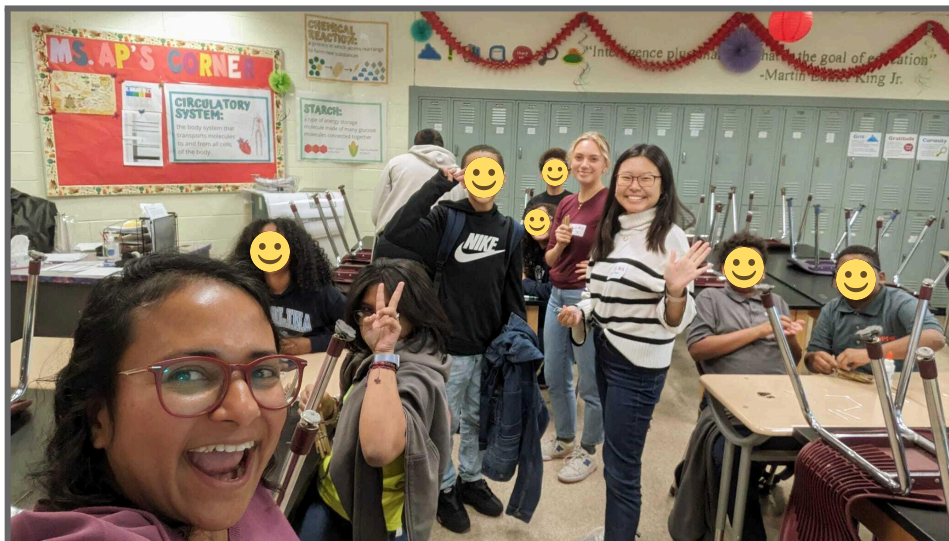
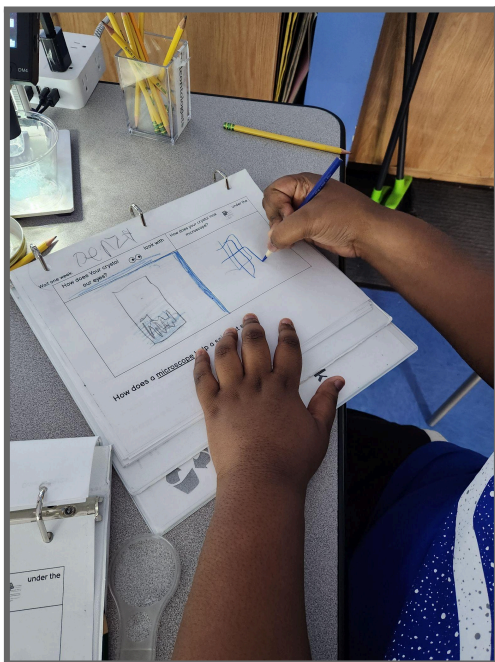
Projects: Scientist-in-Residence

Projects from this year’s cohort, include:

- **3rd-5th grade, General Science:** The students created their own crystals after learning about chemicals in everyday life and what factors influence crystal growth. They had a background on crystal lattice structures that helped in their manipulating the structures of the twisted crystals they created.
- **5th grade, General Science:** Students learned about interdependent relationships in ecosystems. They were exposed to what happens to an organism when its surroundings are polluted and developed ideas about preventing pollution after a session on restoration. They then did their project on bacteria found in their bodies to demonstrate ecosystems at the bacterial level.
- **6th-8th grade, General Science:** Students investigated the factors that influence the speed and efficiency of planaria regeneration. They were introduced to model organisms planaria and hydra and the implications of regeneration on stem cell research.
- **10th-12th grade, Chemistry:** Students explored the different contamination of toxins in water sources. They learned about the reactivity of metals and the solubility and conductivity of salts. They tested the Hudson River water for drinkability and compared it to their school drinking water.
- **12th grade, AP Physics:** Students investigated patches of the night sky to look for possible new planets or brown dwarves. They learned about gravity, orbits, and the different types of stellar bodies to help them make sense of their observations.

STEM City in Action:







**The New York
Academy of Sciences**

New York STEM City Locations:

Scientist in Residence and Afterschool STEM Mentoring Program locations for the 2023-24 school year:



The New York Academy of Sciences
115 Broadway, Fl 8
New York, NY 10006