



Students in our Afterschool STEM Mentoring program may choose from among the curriculum options listed below. All are hands-on, dynamic, lessons designed to take advantage of the resources and technologies available in participating afterschool locations. After months of partnership and collaboration with mentors and their peers, students present a capstone project to showcase new knowledge.

### **STEM Bonanza**

The STEM Bonanza is an opportunity for students and mentors to share a project or lesson with parents, peers, and other mentors. The event, which concludes each year's Afterschool Mentoring Program session, inspires leadership and a sense of pride and accomplishment for students and mentors, and allows students to show their families the result of their hard work during the school year. To find out how you can participate, email us at [asmp@nyas.org](mailto:asmp@nyas.org).

### **Hack Your Garden**

The primary goal of this program is to teach participants and site staff the basics of computer coding. By incorporating gardening with coding, the program aims to counter the preconception that coding is an activity that is sedentary and only to be done indoors. Students will be introduced to basic computer programming as well as how programs work via computer-less programming activities in order to start from a common base. Then staff and participants will utilize simple sensors in order to monitor garden health and activity. Ultimately participants and sites will use what they have learned to solve a real world problem in their communities that can be addressed through coding. Front line staff are the target audience and no coding experience is needed. What is most important is that the staff member who has been selected is able to commit to attending the three trainings as well as the culminating event. To cover the expenses to sites **the Academy is offering an \$800 stipend** to mentors who complete at least 15 site visits.

### **Oysters and Restoration Ecology**

Aimed at restoring one billion live oysters to New York Harbor, the [Oyster Restoration Ecology project](#) is a hands-on experimental and educational program that engages

thousands of students in the New York City area. From Oyster dissection and anatomy to modeling the effects of runoff and growing live oysters, students become active participants in restoring one of New York's vital waterways.

## **Innovation**

The Global STEM Alliance (GSA) of the New York Academy of Sciences has developed an Innovation Curriculum to engage teens and young adults in real-world problem solving. This unique offering provides opportunities for students to build STEM content knowledge and 21st-century skills through collaborative inquiry-based learning that can be taught in the classroom or club settings.

## **Brain 101**

Brain 101 is an immersive journey through the human brain. Students learn about neurons by recording electrical impulses from insects and constructing neuron models, then move into a hands-on dissection and modeling of a sheep's brain. Additional units of study include lessons on the sensory and motor systems, as well as memory, learning, and sleep.

## **Life Sciences 101**

This lab-based program helps students develop a basic understanding of biology, genetics, and the structure of cells.

## **Code Club**

[Code Club](#) is inspiring a new generation of computer coders around the globe by empowering volunteers to teach workshops for students ages 9-11. Students learn Scratch, HTML, and Python while designing games, building websites and creating animations.

## **Building 10<sup>x</sup> Solutions**

These workshops encourage students to devise solutions to humanity's most difficult problems through ideas and strategies that aren't just big—they're exponential. These [10<sup>x</sup> workshops](#) tackle issues from climate change, urbanization and zero waste initiatives.

## **Forensics**

A re-created crime scene is the setting for lessons in the forensics skills used in real-world criminal investigations. Students will learn about classic forensic lab techniques including DNA barcoding and fingerprint identification.

## **Nutrition**

Students will explore how the nutrients found in food allow the body to grow and function. Through reflective journaling and free-choice activities, students gain a holistic appreciation of their food choices.

## **DIY STEM: Sports in Science, Football**

Developed in partnership with the Victor Cruz Foundation and the Boys and Girls Club of Patterson, NJ, this curriculum focuses on fundamental principles of physics and mechanics, including how Newton's Laws of Motion apply to the sport of football, and how weather conditions can impact a ball's speed and trajectory.