

LEARNING IN THE GARDEN ELEVEN LESSONS LEARNED FROM A MIDDLE SCHOOL PILOT PROGRAM

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After more than twenty years leading science programs for preschool and elementary students at the Arnold Arboretum of Harvard University, the pandemic offered a window of opportunity to build, plan, and fundraise for a new program serving middle school students in the Boston Public Schools. Modeled on Chicago's twenty-year-old summer experience Science First, our Arboretum Young Scientists (AYS) pilot taught us lessons that may be useful to others navigating the specific needs and challenges of this age group.

LESSON 1:

You can't get this done alone! A great program happens through cooperation. Two dedicated volunteer consultants who believed deeply in the vision helped design and fundraise for the program—AYS wouldn't have gotten off the ground without them.

LESSON 2:

Approach every aspect of programming with sensitivity to this audience and their needs. Ensure that the program connects with students culturally, emotionally, and intellectually. In the Boston Public Schools, 86% of students are black, indigenous, or persons of color (BIPOC). Enlisting the help of BIPOC educators to design curriculum and teach led to passionate and equally committed partners who shared our vision and introduced us to other BIPOC educators.

LESSON 3:

Staffing is everything. Middle school students must be served by people who know this age group and love them. Our program coordinator, lead, and assistant teachers were caring, adept, and attentive. They also knew how to respond to challenges that affect middle schoolers, such as emerging identities, conflicts with authority figures, and peer relationship behaviors that can lead to exclusion and bullying.

LESSON 4:

Connect with families as much as possible. Without the support of family members, you risk losing participants as the program goes on. Parents can also speak to how the students are responding to the program in ways which may



not be obvious to staff. Parents may also serve as a “whisper network” to promote the program to future participants and their families.

LESSON 5:

Prepare your institution. Middle school students are spirited and boisterous. Carefully consider how this will impact shared spaces and staff at your institution. Communicate with your colleagues beforehand about the program's predicted impact on the environment and provide clear instructions about how to bring up any issues that arise.

LESSON 6:

Prepare your guest instructors. Guest instructors may have standardized ways of offering an activity that may not be appropriate for middle schoolers. For example, college-level labs that give multiple directions up front can create confusion or anxiety for students. Go over the lesson plan in advance. Ask instructors to minimize talk time and get right into the activity.

LESSON 7:

Prepare for a failed activity. A pilot is a chance to experiment and learn what works—and what doesn't. When an activity failed to connect with the students, we reenergized the mood with games and scavenger hunts.

LESSON 8:

Listen to each student. Teachers built in time to talk one-on-one with each student. This allowed staff to build caring relationships, trust, and goodwill to call upon when behavior adjustments were needed.





Left: Students learn about the native painted turtles found in our ponds.
Above: Observing pollinator biodiversity in a meadow habitat
Photos: Bethany Versoy

LESSON 9:

Offer opportunities for everyone to share appreciation.

Our program coordinator developed daily gratitude practices with students. “Naturalist of the Day” was someone who had demonstrated respect, commitment, and perseverance—an honor intentionally bestowed on each student over the course of the program. At this time students and staff could also do shout outs to recognize a kindness, a favor, or even appreciation of humor. This way, everyone felt seen and valued.

LESSON 10:

Document with good photography. Great photos will help you tell your story, which will be important to families, funders, and your own institution.

LESSON 11:

Serve great food. Providing food is one more way to bring people together and show that you care.



Participant group photo at the top of Hemlock Hill. Photo: Bethany Versoy

In 2022, students expressed positive feedback through their willingness to try anything they were asked to do; their perfect attendance, not missing a single day of the four-week program; and the unanimous desire of all fourteen participants to return next summer. They also demonstrated growth in their deepening engagement in lessons and increased usage of their journals.

For example, a shy student who at first kept to himself found his curiosity stirred by tree labels and became fascinated with exploring the stories and family names of trees, an enthusiasm he shared with others.

Feedback from parents included the following notes:

“Theresa came home every day excited with things she learned about fungi, frogs, toads, and catfish, and also social navigation skills, such as how to get along with others with differences of opinions. Thank you for a much-needed program that fills a large gap (support of middle school students) and works to deconstruct racism for young BIPOC adults.”

“My son Antonio really enjoyed AYS and learned a lot about nature. He also got to make new friends and learned how to socialize more. He was very shy and attending AYS made him come out of his shell. Now he feels more confident, and ready for a new school.”

We learned so much about what works and what we could do better to take AYS to the next stage. We are inspired by the success of our 2022 Arboretum Young Scientists pilot—particularly the positive response of our middle schoolers, all of whom attended every day of the program and intend to return in 2023. We are energized by our progress and the great promise of delivering high-quality science programming for middle school students. We learned so much about what works well and what we can do to shepherd AYS to its next stage. It’s thrilling to envision how it will evolve in the years to come with this experience in hand and the strong organizational support we garnered this year. Looking back, I recognize that launching AYS was a great leap into the unknown—a bold experiment rewarded by a summer of rich experience for all. 🌿

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Celebrating everyone’s accomplishments on our final day.
Photo: Angela Rowlings