

TASC Teens Take on Science

by Hopi Noel Morton and Maryann Stimmer

The After-School Corporation (TASC) is a nonprofit organization that supports after-school programs in New York City schools and works to expand learning experiences beyond the traditional school day for all kids. An important part of TASC's mission is to enhance the quality of after-school programs. One vital way to do this is by developing new models for training the after-school workforce.

Many after-school programs hire high school students to work with younger kids, in part for budgetary reasons. Hiring older students is also part of the after-school culture; young people often graduate to staff positions in programs they attended while growing up, similar to camp counselors. An interesting finding from recent after-school program evaluations is that younger kids, in grades K–8, love to be around and learn from these high-school-aged staff members. Attendance is higher at elementary and middle school after-programs that employ high-school-aged staff.

and technology role models. An effective way to do this is to select high school kids (whom younger kids admire) with these interests, and to put them to work facilitating science inquiry.

With the guidance and support of the New York City Department of Youth and Community Development, TASC set out to enhance the amount and quality of science learning in K–8 after-school programs by capitalizing on younger kids' desire to learn from older kids. We decided to train high school students to become "apprentice" after-school educators in three areas: science, literacy, and sports. An important goal of the science initiative was to help high school students effectively engage all kinds of younger learners, including kids with disabilities, to create an atmosphere that says, "Science is for everyone."

We viewed the teens not as pieces of raw clay that needed to be molded into instructors, but as assets. They came from the same demographic backgrounds as their students; they were extra hands to help lower the ratio of students to instructors; they had time to help gather materials; and they were enthusiastic and engaging. As part of the TASC After-School Education Apprenticeship program, we also trained the adult staff of after-school programs to effectively manage these high-school-aged employees, and to make the most of their energy, knowledge, and interests.

Training

What does it take to make teens effective after-school apprentices? First, a significant amount of training. Teens were required to attend six training sessions over the course of four months. For science apprentices, thirty-six hours of their training was devoted to mastering the Afterschool Science Plus curriculum

At the Queens (New York) Botanical Gardens, high school apprentices helped kids collect plant specimens and record observations. Students are participating in the Flushing, New York, YMCA after-school program at PS 120, a project supported by TASC.

Role models

Research tells us that if we want to build younger kids' interest in science careers, it's important to connect them with science



they were expected to employ (or to assist adults in employing). They also learned about child development, about showing up on time and prepared to work, and about skills that would help them progress toward college and careers, i.e. writing letters and resumes and navigating the interview process. Once the teens received the core components of the science training (usually within two training sessions) they were placed in apprenticeships at TASC after-school programs in their communities.

Stipends were also important to these New York City teens, many of whom needed to earn income. They received stipends based on the number of hours they attended training sessions, and the number of hours they worked in programs.

Apprentices were expected to work at after-school programs once a week for twelve weeks. Many, however, apprenticed more frequently than once a week, and we found that to be a plus. Younger kids gained the most from their contact with teen role models in those programs where apprentices visited more than once a week for at least three months.

TASC's program officer for apprenticeships took charge of training logistics, placing teens in internships and supervising the TASC staff devoted to this program. She was also the liaison to the after-school program directors and staff. TASC's science manager took charge of the content of the science activities, training the teens to facilitate science inquiry and ensuring that the training addressed equity and inclusion of all children.

An opportunity for science

We selected a curriculum designed to help New York City students develop a broad view of "who does science." Afterschool Science Plus is an inquiry-based science program for use in after-school centers serving students in grades K–8. The "Plus" in this program consists of strategies that level the playing field for all students, such as: providing diverse role models, career connections, literacy connections, and lesson plans that involve family members in helping kids find materials at home.



When we think about the perfect setting for scientific exploration, we think about flexible blocks of time, the freedom to choose the questions for exploration, and the ability to deviate from the schedule of activities when that "teachable moment" occurs. In after-school we have all the ingredients: we create the daily schedule, and we can work from kids' questions and curiosity, not from the mandated curriculum. After-school provides the freedom and flexibility for learning experiences not possible during the day and the opportunity for experiential learning that supports academic achievement. Our goal was not to link the after-school science curriculum directly to the day-school curriculum, but rather to use after-school time to build kids' enthusiasm for science and develop their habits of inquiry.

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The After-School Corporation (TASC) is a nonprofit organization dedicated to giving all kids opportunities to grow through after-school and summer activities that support, educate, and inspire them. TASC's vision is that kids from all backgrounds will have access to the range of high quality activities beyond the school day that every family wants for their children: experiences that support their intellectual, creative, and healthy development and help them to be their best, in and out of school.

The value of young apprentices

The apprentices were not perfect instructors. They lacked experience in science. But by design, that did not matter a great deal. In training sessions, we modeled for the high school kids how they could encourage inquiry, help kids develop science questions, and then respond with a question of their own: "How can we find out together?" During their training sessions, the high school students did lots of the hands-on projects they would lead with, for example, kids mixing and experimenting with Ooblek. We encouraged the teens to play the part of younger kids, expressing questions as they occurred to them. ("How would this stuff change if you cooked it in a microwave?") We then modeled for them how they might respond to younger kids: "Perhaps you'd like to try it, and share your findings with your group?"

We had teens brainstorm how they might adapt lessons in the curriculum for children who were blind, who had difficulties with fine motor skills, or kids who couldn't sit still at 4 P.M. and asked a lot of questions.

Working and learning together

When we observed the apprentices at work with younger students, we found that indeed, they were all learning together. The younger kids saw the older kids exhibiting a fascina-

tion with science exploration, and they observed the older students modeling responsible behavior and teamwork.

Perhaps the greatest benefit to the younger kids was seeing people who looked just like them, who spoke their languages and were just a few years older, being science leaders. We think we broadened the vision, and perhaps the ambitions, of everyone involved, from kids to teens to after-school staff to day-school staff. And because of the disability trainings, we made the activities and environment more inclusive for the younger children who faced additional challenges. We observed that some younger kids with reputations for challenging behavior were among the most active and eager participants, asking many questions and becoming deeply absorbed in hands-on activities.

The high school students also benefited by learning more about science and their own capabilities. Apprentices took seriously the responsibility of monitoring one another. During feedback sessions with their trainers, apprentices reported that they had advised other apprentices to "watch their language" or "dress appropriately." They increased their readiness for college and gained confidence through their leadership training and successful work experiences with children.

In a survey, two-thirds said their experiences in the program made them want to work with children in the future.

Unequivocally, we found that children in after-school programs responded positively to both the science activities and the young staff members who assisted or led them. And by supplying after-school programs with an excellent science curriculum and trained staff, we believe we helped schools follow through on their intentions to offer science in after-school more frequently, and more effectively.

For more information, please visit the TASC Web site at <http://www.tascorp.org>.

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