

## Science Clubs, from pg 1

McCutcheon Elementary. “Most of the students in that fair are from more affluent schools, and they have the benefit of their parents being able to help them with their projects. Our two students come from low-income families with limited or no English being spoken at home. The [club] mentors helped push our students to higher levels of research and data collection, analysis, and interpretation so that they [could] compete.”

In 2013, Science Club was one of only two programs honored with the Afterschool STEM Impact Award from the Afterschool Alliance and the Noyce Foundation. “We really loved that Science Club, in addition to offering kids valuable science learning opportunities, provides a platform to improve the teaching and outreach skills of future professional scientists. Science Club commits to intensive training Northwestern graduate students as mentors for the after-school program,” says Melissa Ballard, STEM research associate at the Afterschool Alliance. In addition, the support mentors provide for science fair projects “really helps teachers by freeing up classroom time and allowing students much more individual attention,” she asserts.

At NSTA’s National Conference in Chicago, Kennedy and Ballard will be among the co-presenters of the After-School Science: What’s Possible With Partnerships session on March 14.

### Forming a Science Community

In Pennsylvania, Science Synergy, a student-run nonprofit based at Harrington High School in Bryn Mawr, brings science activities to inner-city schools in Philadelphia. In 2013, Samantha Davis recruited classmates at Harrington who are also active in extracurricular STEM activities to establish Science Synergy, which works with inner-city schools to develop “a science-loving community like that of Harrington,” says Davis. “The feeling of satisfaction and enlightenment I gain from learning science has inspired me to spread science enthusiasm to other people, especially to those who do not have the same resources and opportunities,” she explains.

The Harrington students contacted Meagan Hopkins-Doerr and Jeremiah White Jr.—program director and president/executive director, respectively—at iPraxis, a Philadelphia-based nonprofit “with a similar mission,” Davis relates. “They connected us to the Philadelphia schools that we have been targeting. Our model is to host Science Club Demo Days at the Philly schools to spread science interest and encourage participants to join the Science Synergy clubs. These clubs prepare students for the Science Synergy Invitational—a fun competition...tailored to the abilities of the middle school competitors.”

“Sam asked to share a proposal to work together,” says Hopkins-Doerr. “We weren’t expecting all that much

from a junior in high school..., [but] we were so impressed! Sam gave a great presentation on outreach, including [having] Harrington’s Science Club [hold science outreach events at Philadelphia schools].”

iPraxis agreed to provide support and some funding for Science Synergy in addition to what Harrington could provide, and they and the Harrington students met with teachers from Northwood Academy Charter School and Cook Wissahickon Elementary School, the K–8 pilot schools, to plan outreach events and after-school clubs that would help students in grades 6–8 prepare for the Science Synergy Invitational. Science Synergy “designed the science competition and the activities for the science club,” says Diane Powers, middle school science teacher at Cook Wissahickon. “Since Science Synergy created the activities [including] the material list and lesson plans [see <http://sciencesyn.weebly.com>], it made it easier for me to start the first science club at my school.”

The competition took place in June 2014 at the Community College of Philadelphia, with 59 middle school students competing and 35 Harrington students leading events such as Toothpick Egg Drop and Aluminum Foil Towers. “Last year, 29 of our students benefitted from their experience with [the competition],” notes Powers. “Many of last year’s students will participate again, and this year, we have many new sixth and seventh graders who want to join the club.”

“It has been a great addition to things we can offer our schools,” remarks Hopkins-Doerr. “Elementary students [at participating schools] have also been exposed to the chemistry, physics, and other demos during the science outreach.” This year, Science Synergy expanded its reach to two more schools, she reports, adding, “We’re hoping to have 100–120 students in this year’s competition.”

### Appealing to Diverse Interests

The S for Science Club at Nashwaaksis Middle School (NMS) in Fredericton, in Canada’s New Brunswick province, caters to many scientific interests. Students can join an Experiment Group, a

Physical Chemistry Research Group, a Sports Research Group, a Mathematical Medicine Research Group, or a Robotics Group—each with its own workshops, inquiry-based experiments and research projects, and field trips to places like the Atlantic Cancer Research Institute in Moncton or the Dalhousie University School of Medicine in Nova Scotia. S for Science also offers a Feature Films Group, which has produced four feature-length films with trailers and starring student actors. While the films include science fiction, club director Christopher Abbandonato requires students to research and understand the science behind the fiction.

This diversity has paid off. Since 2011, the club has grown from 25 to 160 students, says Abbandonato, who teaches French immersion math and science at NMS. When he founded the club, he recalls he “went class to class to convince students, ‘You’ll play the role of a scientist and be junior scientists.’ That got a lot of students interested.”

Though managing a large student club might seem daunting, Abbandonato maintains, “If I can organize a really good schedule, it flows very nicely.”

The club is funded by \$30 annual membership fees. In addition, Abbandonato does community fundraising activities and writes grant proposals. One grant has paid for a math and science education research assistant from St. Thomas University (STU) in Fredericton “to help out with workshops, publications, and big research projects,” he relates. (Abbandonato also teaches math part-time at STU in the Department of Science and Technology Studies/Mathematics.)

Abbandonato says he has leveraged relationships with universities and other local and international partners to obtain supplies and equipment, “get students involved in university lab settings and expose them to scientists” on field trips, and bring scientists to NMS. S for Science was “the first middle school group to run chemistry lab experiments at the University of New Brunswick,” he reports.

“I let the students know that now is the time to get experience in science and technology because you can get scholarships and studentships if you have experience,” he observes. ●

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