Establishing a partnership with a local museum is a great way to gain access to materials, facilities, and science expertise that might be unavailable at your school. The following description of a museum/school collaboration in New York City can serve as a model for developing your own partnership. Although this one focuses on astronomy, the basic principles can be applied to any field of study.

The Astronomy Discovery Lab at the New York Hall of Science provides middle school teachers with an opportunity to become more comfortable with astronomy concepts. Often teachers resort to verbal descriptions of phenomena such as sunspots and constellations, and as a result they lose their students’ attention along the way. If only teachers had the equipment needed to demonstrate these concepts, teaching astronomy would be so much easier. Through collaboration with a local museum, teachers can demonstrate difficult concepts and do so much more!

The partnership
During the Astronomy Discovery Lab training, teachers learn how to use and conduct lessons with computer technology, handheld spectrometers, star charts, telescopes, binoculars, and various mini-exhibits. Once trained, teachers may bring their classes to the museum or rent museum equipment for classroom use. The rental kit consists of a Meade LX-50 telescope, 12 high-quality binoculars, a laptop computer, and software programs, such as SkyGazer. Teachers also learn how to incorporate astronomy software programs and Internet sites into their curriculum. Activities modeled for teachers demonstrate how to use the Internet as both a research and an interactive learning tool. Although there are a number of valuable websites that teachers can use, the lab focuses on the NASA and the University of California at Berkeley Space Laboratory sites (www.nasa.gov and cse.ssi.berkeley.edu).

Whether teachers bring their classes to the museum or apply what they have learned in the classroom, they feel confident with the subject matter upon completing the Discovery Lab training. In addition, teachers are now intimately familiar with a place at the museum, making it easy to present students with a unique learning experience.

Success stories
Karen Low, a middle school teacher in New York City, brought her special-needs and bilingual students to the museum to build rockets and conduct experiments on whether the body length of a rocket influences how high it will travel. She started off her lesson by explaining how scientists first create a hypothesis and then make predictions. She also discussed terms such as control and variables. After spending the morning building their rockets, students launched them to test their predictions. Because her school has limited space, she was never able to do the lesson before. Now she can!

Irene Tufano brought her class to the museum to perform the Planet-in-a-Shoebox activity. The purpose of the activity is to get students thinking about why so much data on Venus is available even though no one has ever been there. After introducing the idea of radar, she instructed groups of students to build planet landscapes inside shoeboxes. After building their planet landscapes, students exchanged boxes, and each group then had to identify their mystery planet’s landscape without looking under the shoebox lid. Students used skewer sticks with colored bands, map grids, and computer software programs available at the museum to map their mystery planet’s surface. After removing the shoebox lid, students compared the landscape image produced by the software with the actual landscape inside their boxes. Irene concluded the activity with a discussion on how astronomers use data to find out about celestial bodies that can’t be visited. She was able to teach a hands-on, practical lesson in modeling museum collaboration.

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astronomy that incorporated multidisciplinary methods and constructivist ideas.

When Cheri Hauer wanted to teach astronomy in her classroom, she decided to rent a telescope and binoculars from the Hall of Science. She decided that having students use real devices to locate sunspots would hold their attention a lot longer than if she just showed them pictures of sunspots. After reviewing general safety procedures, Cheri distributed binoculars with solar filters and demonstrated how to use the LX-50 telescope, also equipped with a solar filter. As excited as the class was, it turned out that finding sunspots required quite a bit of patience.

The class quickly began to lose interest, so Cheri decided to let her students look at nearby buildings instead. Suddenly, their enthusiasm was back. Comments such as, “Why is that building upside down?” and “What's the difference between the little telescope [the finder scope] and the big telescope?” started popping up. This gave Cheri the opportunity to discuss how lenses bend light and why finder scopes are attached to telescopes. Even though the telescope was not used to look at sunspots as Cheri had originally intended, she was still able to facilitate learning based on her students’ questions.

Astronomical applications

After completing the Discovery Lab training, teachers were not only excited about getting certified, they were motivated to create an amateur astronomy club. The club, now 100 members strong, meets once a month to offer hands-on activities for children and parents. The Discovery Lab program is just one of many organizations nationwide that has made astronomy accessible to teachers and their students.

If you are interested in modeling your own museum partnership, contact the educational outreach office of a local museum to find out what programs are already in place. If you can't find a suitable program, draft a proposal outlining the benefits of such a program and work with your museum to bring it to life.

Note

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The cost for the five-day training institute is $500, and the equipment rental is $149 for the first day, $99 for the second day, and $49 for the third day.

Resources

• SkyGazer is available for $50 from Carina Software, 12919 Alcosta Blvd., Suite 7, San Ramon, CA 94583; (800) 493–8555.