

Partnering with Colleges and Universities and Campus-Based Scientists

Introduction

One of the greatest advantages of working in urban areas is access to multiple institutions of higher education. Urban areas are more likely to have a greater density of colleges and universities than other geographic areas. A land grant university (LGU) may or may not be nearby, but there are other institutions, including technical and community colleges that are eager to work with 4-H Science programs. Make connections with their science, engineering, technology and education departments *before* a need arises. It takes time to build these relationships, and many opportunities must be planned at least a semester in advance!

Another advantage to urban 4-H Science programming is that the proximity of youth to college/university campuses makes it relatively easy to provide on-campus experiences. Connecting youth to campuses not only enriches 4-H Science, but may also lead youth to picture themselves attending college in the future. The mystery is stripped away, and a college education may seem more accessible.

Opportunities abound on campuses for career exploration, Science Saturdays, summer workshops, conferences, camps, and so forth. Plan programs that will get youth into labs, provide opportunities to learn about and participate in on-going research and science activities, and allow them to make presentations (including poster sessions) to faculty, staff, graduate and undergraduate students. The key is to expose youth to ongoing science research *and* college life! The purpose of this chapter is to share promising practices to help develop and sustain successful 4-H Science programs in partnership with faculty, staff, and students at urban colleges and universities.

Promising Practices

The promising practices for *Partnering with Colleges and Universities and Campus-Based Scientists* are subdivided into four categories: (a) Program Planning and Evaluation, (b) Developing and Sustaining Partnerships, (c) Staffing, and (d) Training.

Program Planning and Evaluation

1. *Read the chapter 4-H Science Program Design – 4-H Science Checklist.* This chapter provides fundamental program planning and evaluation information required for successful 4-H Science programs. The information contained here is specific to working with colleges and universities and campus-based scientists to develop and deliver 4-H Science programs.
2. *Utilize college/university conference services for assistance in planning on-campus programs.* They are in the business of providing support for planning and logistics, and will assist in everything from food service to lodging. This is especially important if the program requires an overnight stay.





3. *Include on-campus Science Saturdays.* This is a relatively easy way to get youth to campus. Science Saturdays can supplement existing science programs.
4. *Tap into Collegiate 4-H to help facilitate on-campus programs.* Youth enjoy interacting with college students. Collegiate 4-H members may need service projects, and may be more than willing to help with science programs. If a Collegiate 4-H program does not exist on the campus, consider starting one.
5. *Arrange for urban youth to attend existing 4-H campus-based programs.* Allow urban youth to feel they are part of a greater community by including them in existing programs, activities, and events.
6. *Take advantage of resources developed or recommended by the University.* Universities are a wealth of resources (research, curricula, volunteers, scholarships, labs, etc.).

Developing and Sustaining Partnerships

1. *Read the Section Introduction to Partnerships, Resource Development, Program Growth and Sustainability.* This introduction contains critical “overarching principles” that are vital to developing and sustaining program partners. The information included here is specific to partnering with colleges/universities and campus-based scientists.
2. *Stay focused on 4-H Science program goals.* A “golden” opportunity to partner with campus scientists will align with goals, needs, and current programming agenda (see also 4-H Science Program Design – 4-H Science Checklist).
3. *Increase visibility of 4-H Science on campus.* The more people who know about 4-H science programs, the more likely to find the right partners. On-campus visibility will increase the pool of potential partners.
 - Attend relevant campus meetings and faculty-student mixers.
 - Create program fact sheets that can be readily shared with appropriate science faculty and staff.
 - Announce partnership opportunities and new program initiatives in campus and department newsletters.
 - Distribute announcements about new program developments (e.g., awards or recognition, new funding, major program accomplishments, youth successes, evaluation results, etc.).
4. *Join informal science education and/or STEM networks or coalitions hosted by universities.* These coalitions are often sponsored by the School or College of Education, and may provide opportunities to get sub-grants, cash support, and/or in-kind support for 4-H Science efforts.
5. *Locate a champion at the college or university.* Identify a faculty or staff member with similar interests to create a partnership. Universities can be daunting to engage with from the outside, but an inside source can provide much needed assistance, such as facilitating connections with his/her network. Potential connections and opportunities could be endless.
6. *Gain support from the dean’s office.* Create opportunities for the dean to recognize and support faculty who participated in 4-H Science programs during the year (e.g., wine and cheese reception, acknowledgment in campus newsletter or campus-wide faculty event, etc.).



7. *Know which projects will interest faculty and campus-based staff.* Get to know science faculty and staff. Look for intersections between faculty/staff interests and current (and projected) 4-H Science programming.
 - Develop relationships with relevant science departments, and ask for time to present at department meetings.
 - Attend campus and community presentations by science faculty/staff.
 - Read campus and department newsletters and blogs to learn about the work of faculty members.
 - Become familiar with journal articles and publications by faculty in areas related to 4-H Science programs.
 - Meet with faculty individually or in small groups to discuss their work and any potential for collaboration.
 - Invite faculty to visit current 4-H Science programs to familiarize them with the content and audience.
8. *Utilize college/university faculty, staff, and students as content rich volunteers.* They can serve in a variety of ways (e.g., skillathons, workshops, facilitators, judges, advisory board members, geocaches, engineering days, trainings, etc.). For more information see [Staffing with Content Rich Volunteers](#).
9. *Recruit campus science faculty and staff as mentors.* Campus faculty/staff can serve as mentors for independent youth science projects. They can support youth and their projects through electronic communication or face-to-face interactions/meetings.
10. *Look for opportunities to partner with faculty on grants with a K-12 outreach component.* More and more often, science and technology grants aimed at on-campus scientists also include a youth outreach component. Target scientists in fields that support current or projected 4-H Science programs, and develop relationships before grant announcements are released.
11. *Partner with faculty on curricula/program development.* This is especially effective when the 4-H Science program has identified a need in the field and can work with campus faculty to generate appropriate materials.
12. *Contact the person in the dean's office responsible for student recruitment and orientation programs.*
 - The recruitment officer may have university giveaways available for your participants, and will be more than willing to speak to the youth about the college or university.
 - Ask whether the college or university has a program that targets educationally and/or economically disadvantaged high school youth (see *Educational Opportunity Fund* in *Resources* below). Current college students in these programs may help facilitate 4-H campus-based programs and/or serve as mentors to the 4-H participants. They are a great resource to discuss admissions, financial aid, and other items with participants.
13. *Cultivate relationships with student groups/organizations.* Student groups/organizations often look for service opportunities in their community. Develop a working relationship with faculty/staff advisors, as they usually serve for multiple years and will offer better continuity than only working with the students.

Staffing

1. *Advertise on-campus for student interns and AmeriCorps Members.* They can provide staffing for afterschool, summer, and club programming. Students may need to fulfill university service-learning requirements, or they may need field experiences if they are in a teacher education program. Some students may just want to add experience to their resume. (See also [Staffing with Americorps Members](#)).
2. *Utilize college and university job placement resources.* All colleges and universities will have some kind of job placement service for students. Call or visit the office to learn how to best use this resource.
3. *Develop and mine relationships with graduate faculty.* Often, relationships with faculty can lead to interns (undergraduate and graduate students).

Training

1. *Read the chapter [Training Others to Deliver High Quality Science Programming](#).* This chapter provides an in-depth discussion of promising practices for training staff and volunteers. The promising practices contained here are geared specifically to working with college and university staff to deliver 4-H Science programs.
2. *Provide campus scientists with clear expectations for teaching/facilitating youth programs.* It is critical that campus-based scientists get the training and support needed to ensure successful interaction with youth audiences. Help them understand that a PowerPoint/lecture format in a large lecture hall will not win youth over to the sciences. Assist them in creating hands-on demonstrations and activities with a high degree of youth appeal.

Case Studies

Arnett – Engaging a Local, Non-LGU in 4-H Programming. Adventure Central is a partnership between Ohio State University (OSU) Extension 4-H and Five Rivers MetroParks. Due to its location in Dayton, Adventure Central’s primary university partner for programming efforts is the University of Dayton – not OSU, the LGU located 70 miles to the east. Leadership at Adventure Central has involved the University of Dayton in three ways.

- **Environmental Instrumentation Lab:** EIL is a capstone semester course designed to give University of Dayton science students hands-on experiences in the field using lab equipment and techniques to study current environmental issues. EIL students work with Adventure Central youth to assess the Wolf Creek watershed through water quality monitoring and discuss how the watershed relates to their lives. 4-H youth visit the University of Dayton to learn about college life and career opportunities. They tour a lab on campus, meet with professors, and create a presentation about their watershed findings and their learning experiences throughout the semester.
- **Neighborhood Schools Center:** Adventure Central partnered with the University of Dayton’s Fitz Center to provide leadership for an outreach afterschool program at Fairview Elementary, one of the Neighborhood School Center sites with Dayton Public Schools. About 30 college students worked with the Adventure Central afterschool program each year. They provided help with homework and science projects, and assisted a club of 10-12 youth over the academic year with weekly science activities.
- **River Leadership Curriculum:** This is a current student project to deliver an outreach educational program



regarding the Wolf Creek watershed that runs through the park at Adventure Central. It will be a collaborative process as part of a course at the University of Dayton that will yield staff development and youth programs in support of the summer day camp. –**Nate Arnett, The Ohio State University**

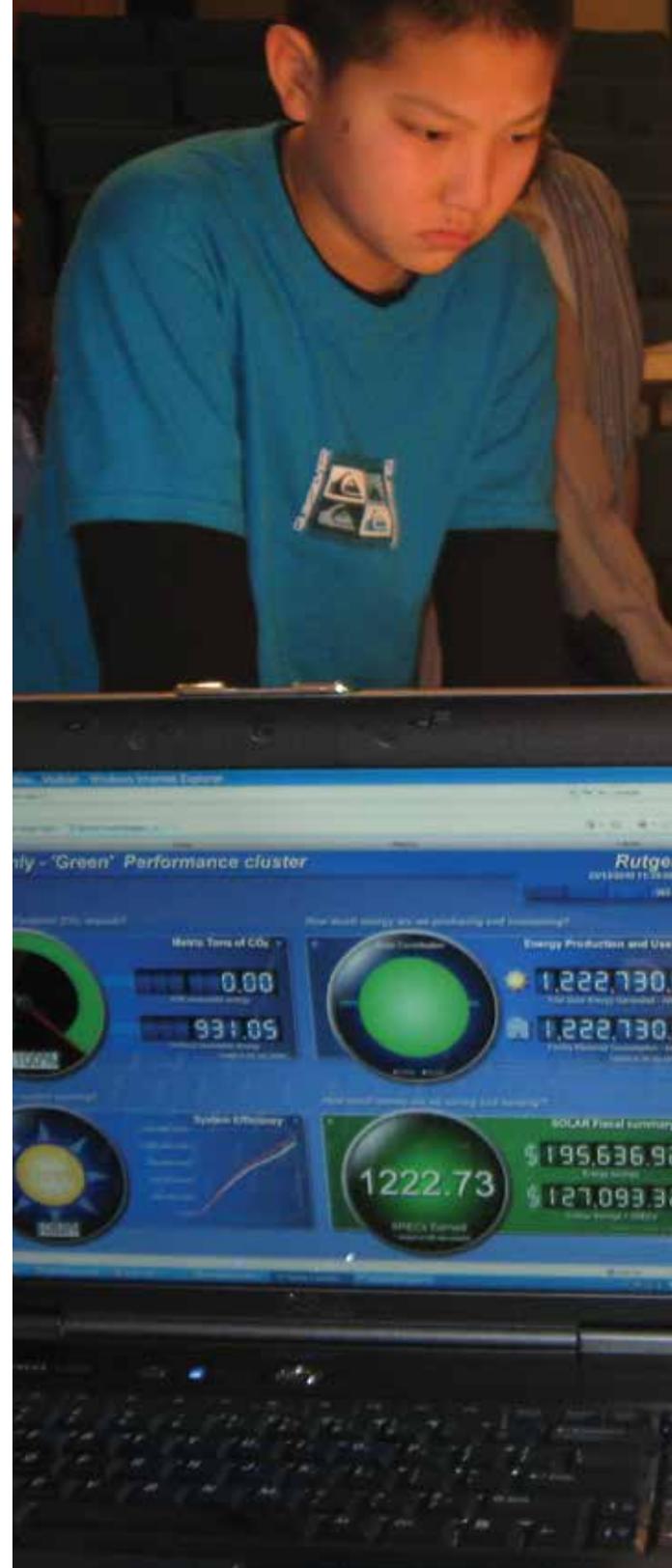
Davis-Manigaulte – Collaborating with Campus-Based Faculty to Develop 4-H Curricula. The College Achievement through Urban Science Exploration (CAUSE) project serves as a model partnership between 4-H and campus-based scientists. In collaboration with university faculty, 4-H has developed curricula such as *Grow with the Flow*, *Gardening in the City*, and most recently the draft curriculum for the CAUSE project. The curriculum development process for *Grow with the Flow* involved creating a project plan with a series of lessons based upon the core concepts of the project. 4-H worked with graduate students and Extension staff to identify sites throughout the state for piloting the curriculum (gathering feedback; modifying lessons; and proofing/editing by field staff, teachers, youth workers, and volunteers).

The CAUSE curriculum has been piloted once and is in the process of being revised during the second year of program implementation. Pre-post evaluation tools have been developed and are being administered as planned. A faculty advisor provided guidance and input to a graduate student throughout development of the initial version of the curriculum and provides ongoing input, communication, and encouragement for the students and overall project. The faculty advisor also serves as a resource – referring other faculty members and agency leaders to explore other projects that might be developed to build upon current 4-H Science initiatives. In addition, collaborating faculty have invited Extension faculty/staff to present joint workshops at state and national conferences. –**Jackie Davis-Manigaulte, Cornell University**

Martin – Partnering with a STEM Coalition and College of Engineering for Summer Camps. Summer programs using the *Engineering is Elementary*® (Museum of Science, Boston) curriculum are part of the Corridor STEM Initiative, in partnership with the K-12 Coordinator from the College of Engineering at the University of Iowa. The Corridor STEM Initiative (CSI) is aimed at engaging Iowans to help shift the culture and mindset around math, science and technology. The CSI program is sponsored by local businesses; the Grant Wood Area Education Agency; school districts; and colleges and universities, including Iowa State University Extension in Johnson County and the University of Iowa College of Engineering. In 2007, as a result of planning by the CSI out-of-school committee, the University of Iowa was awarded a \$25,000 grant through the Roy J. Carver Charitable Trust. The K-12 Coordinator and ISU Extension of Johnson County developed plans for *Engineering is Elementary* (EiE) programs.

ISU Extension science resources were combined with the EiE curriculum for the summer experiential science program. The *Engineering is Elementary* program goals are to: (a) increase youth's understanding of technology and engineering in everyday life, (b) teach youth to enhance and apply their knowledge in technology and engineering through hands-on experiments, (c) encourage youth to read books that enrich their understanding of these areas, (d) connect learning about these areas in summer programming with learning in the school setting, and (e) increase awareness among youth and their families about career opportunities in technology and engineering. The EiE science programs follow two formats: (a) three-hour weekly sessions for 10 days, or (b) two-hour weekly sessions for six weeks. The youth participants are 7- to 11-year-old youth; the target age is youth completing third and fourth grades. More than 300 youth have participated in the EiE camps during the last 3 years. –**Janet Martin, Iowa State University**

Ripberger – University Community Engages Youth on Campus. Since 2009, New Jersey 4-H has collaborated





with professors, staff, and students at the Rutgers School of Environmental and Biological Sciences to provide a weeklong residential science program for high school youth from urban communities throughout the state. Started with funds from an internal Extension grant, the Rutgers 4-H Summer Science Program was created to help address the underrepresentation of minority populations in the sciences. Through participation in the program, high school youth:

- Learn more about science, explore research occurring on campus, and gain a better understanding of opportunities available in science, engineering, and technology.
- Explore opportunities at Rutgers University, experience campus-life, and learn about post-secondary education.
- Prepare to serve as 4-H Science Ambassadors in their home communities. As a 4-H Science Ambassador, youth work with local 4-H staff to provide science programs to younger youth in afterschool and summer camp settings.

The State 4-H Science Agent, Janice McDonnell, recruits, trains, and recognizes the campus scientists for their role in the program. Faculty, staff, and students from the Equine Science Center, the Center for Remote Sensing and Spatial Analysis; the Institute of Marine and Coastal Sciences; and the Departments of Animal Sciences, Biochemistry, and Food Science have participated in the program's first two years. In addition to hands-on learning activities in a variety of sciences, youth get a feel for what it is like to live on campus. Mid-week, they also interact with an assistant dean and a panel of undergraduate and graduate students at an evening social. At the end of the week, youth work in teams to create and present posters about a science area of interest to administrators, faculty, family members, and other guests prior to a closing luncheon hosted by the school's dean. Currently, Tyco International, a corporation with youth achievement as part of its mission, is serving as the primary funding partner. –**Chad Ripberger, Rutgers University**

Resources

Educational Opportunity Fund (EOF) – The New Jersey EOF is one of the nation's most comprehensive and successful state-supported efforts to provide access to higher education for economically and educationally disadvantaged youth. The EOF assists low-income residents who are capable and motivated but lack adequate preparation for college study. Helping students succeed and graduate, the EOF supports a wide array of campus-based outreach and support services at institutions. Available at <http://www.nj.gov/highereducation/EOF/>.