

CLUES

COMMUNITIES OF LEARNING FOR URBAN ENVIRONMENTS & SCIENCE

IMPACTS, INDICATORS AND RESULTS

Goal: Increase underserved families' interest in, understanding of, and engagement with science through hands-on science experiences that speak to families' interests and are relevant to their lives.

YEAR 4 RESULTS

- Over the first four years, there were 16,225 documented visits to 19 large museum events, 33 museum workshops, and 327 community-based workshops.
- In the fourth year, significantly more families were knowledgeable about urban environmental topics after participating in CLUES. This gain was especially great for families who attended three or more events.
- Families enjoyed CLUES events and listed their top three reasons for participating were to do something as a family, to learn about science, and to have fun.
- On average, families showed a significant gain in their knowledge of the urban environmental topics addressed in CLUES educational events and workshops. The largest gains were in nutrition/healthy eating, recycling and neighborhood habitats, and inner city health issues.
- Frequent attendees (+3 events) made substantial gains in topics and were also significantly more likely to report awareness of environmental issues in their neighborhood than were infrequent attenders.

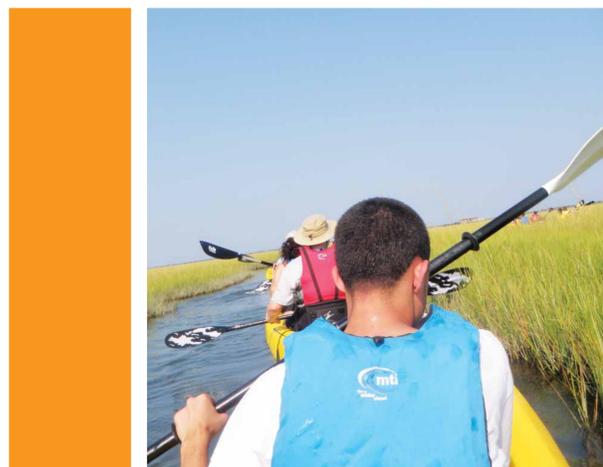
Goal 2: CLUES will build and support informal STEM leadership within underserved communities (CBOs), such that each CBO will have the capacity to continue developing and presenting STEM programs.

YEAR 4 RESULTS

- Apprentices made substantial gains in environmental science knowledge and improved their ISE skills; audiences agreed that they were skilled presenters and their workshops were well received.
- Apprentices made substantive gains in ISE skills, environmental science content knowledge, and skills at training and coaching others. These gains were especially notable for teaching hands-on skills and adjusting their training when things were not going as planned. Two-thirds say they *probably* or *definitely* will continue in ISE.
- Apprentices were particularly satisfied with working with museum staff to develop museum workshops for families, working with families, and their relationships with their CBOs. The majority were also satisfied with the PD sessions and cross-training opportunities.
- Apprentices felt that participating in CLUES led them to a better understanding of ISE, made them more confident of their ability to succeed in ISE, and led to a fuller exploration of their career goals.

PROJECT CHALLENGES

- Recruitment of families to workshops
- Time required to sufficiently train Apprentices
- Managing a Complex Network



THE PHILADELPHIA-CAMDEN INFORMAL SCIENCE EDUCATION COLLABORATIVE'S (PISEC) COMMUNITIES OF LEARNING FOR URBAN ENVIRONMENTS AND SCIENCE (CLUES) PROJECT

PISEC consists of 4 Philadelphia area museums: The Academy of Natural Sciences, The Franklin Institute Science Museum, the New Jersey Academy for Aquatic Sciences, and the Philadelphia Zoo along with 11 Community-based organizations.

CLUES will take a radically different approach by building capacity for STEM education within the community based organizations (CBOs) themselves. In addition, CLUES programs will focus not exclusively on youth but on whole families as learning units.

CLUES will strengthen the relationship between the audience served and informal science institutions. In addition, CLUES will empower local institutions and families to continue to build informal science programs within the communities themselves. Rather than simply providing learners with content, CLUES will enable these learners to explore options, develop curricula, and teach on their own.

- By providing STEM experiences for whole families, CLUES will not only impart content but will also build awareness that Science, Technology, Engineering, and Math learning can be enjoyed through interaction among multiple age groups.
- By providing STEM leadership training to adults, to serve as Apprentices, with proven dedication to the local community and CBO and existing instructional experience, CLUES will ensure continuing program leadership within each CBO.
- By locating STEM experiences at CBOs and in the community itself, as well as in museums, CLUES will expand opportunities for families to engage in STEM learning where they are most comfortable.
- By developing opportunities for STEM learning in the natural world (i.e., the local outdoor environment), CLUES will build on expressed CBO and family interests, while also supporting the important goal of helping to connect underserved families with the understanding necessary for conservation and environmental action on a local level.

PROJECT DELIVERABLES

- Workshops within CBOs and museums, annual museum events, and environmental projects in the community that engage thousands of underserved families in STEM content and connect them to their urban environments.
- A professional development/capacity-building program for Apprentices and Presenters chosen from the partner CBOs. Apprentices will develop relevant STEM learning experiences and actively mentor Presenters, who will conduct 2-hour hands-on science workshops for families.
- Evaluation and dissemination of impacts and learning outcomes for families, Apprentices, Presenters, CBOs, and museum staff; and dissemination of project findings to the informal science education field through conference presentations and publications.

ENGAGEMENT OF PRIMARY AUDIENCES

- Audience #1: Underserved Families:** CLUES programs will engage urban family groups in hands-on STEM events ranging from local workshops to specially designed museum events. Experiences are also held outdoors at local parks, green spaces and playgrounds, and support neighborhood involvement in environmental action and awareness.
- Audience #2: CBO Educators ("Apprentices" and "Presenters"):** CLUES identifies, cultivates and supports STEM leaders associated with local CBOs. These Apprentices, drawn in part from existing and up-and-coming CBO leadership, are adults with significant experience in teaching and leadership, enthusiasm for STEM education, and commitment to the local community and CBO.



THE CLUES PROJECT IS MADE POSSIBLE BY THE GENEROUS SUPPORT OF THE

