

COMMUNITY GRANTS PROGRAM



CASE STUDY

Ecology in Focus Program Empowers Students to Create Solutions to Pollution

The New York Hall of Science (NYSCI) was founded at the 1964-65 World's Fair and has since evolved into New York's center for interactive science. NYSCI offers a hands-on educational experience to half a million students, teachers, and families each year.

NYSCI serves local schools, families and underserved communities in the New York City area, offering an informal and hands-on learning experience through various products and services that use a "Design, Make, Play" method. This approach hopes to bring a positive perception around science, technology, engineering and math (STEM) related fields. NYSCI is situated in a highly diverse neighborhood and employs students from the community into the "Science Career Ladder Program" which contributes to diversity in careers in science and technology, on a national scale.

Challenge

NYSCI sought to develop a new program to educate middle and high school students from low-income and under-served families, in order to explore the causes of local pollution with the use of technology. NYSCI also aimed to increase knowledge and learning among these students by having them consider solutions to environmental problems, along with sharing the discovered pollution prevention solutions with the community.

Solution

With funding provided by the New York State Pollution Prevention Institute (NYSP2I) at the Rochester Institute of Technology (RIT), the NYSCI team created and piloted a program called "Ecology in Focus". This program utilized digital photography as a vehicle to help students engage the local community in regional environmental issues. Students were then encouraged to take a scientific approach to their findings and create awareness around their proposed solution among the community, resources, and technical education.

In a 35 hour, out-of-school workshop program, NYSCI's staff provided students ways to visually document how their neighborhoods might be affected by pollution.

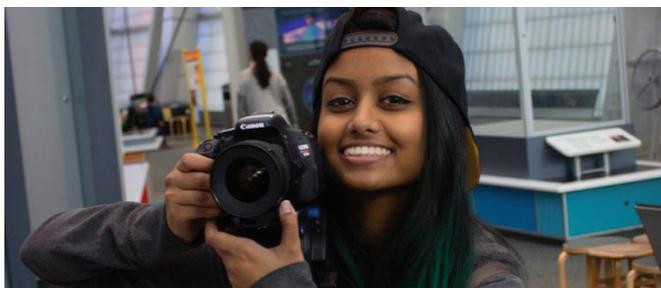


Photo Credit: NYSCI

CHALLENGE

- NYSCI aimed to increase awareness to environmental issues among students (ages 13-16) in hopes to share their implementations with their community

SOLUTION

- With funding from NYSP2I, NYSCI created the "Ecology in Focus" program, which utilized digital photography as a vehicle to help engage the community. Students were then encouraged to take a scientific approach to the issues along with informing local citizens about pollution

RESULTS

- 50 students captured pollutants in their community such as; household dumpings, litter contaminated waterways, car exhaust, soil pollution, etc.
- Students learned basic photography skills and image-editing software programs to design potential solutions to the environmental problems they had identified



CONTACT INFO

ANTHONY NEGRON
Manager of Digital Programming
718-699-0005 ext. 597
anegron@nysci.org

New York Hall of Science
47-01 111th Street
Corona, NY 11368

Results

The “Ecology in Focus” program was implemented in two separate programs, using the results from the first workshop to make improvements to the second. Fifty Students photographed how their neighborhoods were afflicted with pollution, from household dumping and car exhaust to contaminated waterways and soil pollution. The program focused mainly on documenting pollution that impacts climate (carbon dioxide) or impacts exacerbated by climate change (ground-level ozone, particulate matter).

After researching possible solutions to the environmental problems they identified, the students used open-source image-editing software to augment their photographs to demonstrate divergent solutions to the issues they documented.

The Ecology in Focus program resulted in many positive student outcomes. The results differed slightly from the first cohort to the second as the groups’ experiences changed with the changes in the curriculum, as seen in the table below. Overall, 100% of students indicated substantial increases in caring about the impacts of pollution on the local community and globally.

| Student Knowledge | Effects of Pollution | Causes of Pollution | Connection Between Pollution and Climate Change | Understanding of Renewable Energy Sources | Understanding Pros/Cons of Renewable Energy Sources |
|-------------------|----------------------|---------------------|---|---|---|
| Cohort 1 | +38% | +34% | +5.5% | +11% | +17% |
| Cohort 2 | +15% | +16% | +22% | +27% | +15% |

The students shared the results of their work in an exhibit at the New York Hall of Science, where they were viewed by the museums’ approximate 1380 visitors per day. The results has also been shared with the community and other Northeastern cities.

“There are almost 300 underground stations in NYC, and there is a great amount of electricity being squandered in order to light them. For my design, there will be mirrored bowl-like structures that collect sunlight and pipe them down “helio tubes”, which will light up the platform below.”



Andreas Psahos NYSCI Environmental Project

Resources

Website - www.nysci.org
Facebook - www.facebook.com/nysci
Instagram - www.instagram.com/nysci

TESTIMONIAL

“Thanks to the generous support of the New York State Pollution Prevention Institute, the New York Hall of Science (NYSCI) was able to develop and implement programs for our local community that aligns with NYSCI’s mission of nurturing a generation of passionate learners, critical thinkers, and active citizens through an approach we call Design-Make-Play.”

- Anthony Negrón,
Manager of Digital Programming
New York Hall of Science

NYSP2I PARTNERS

R·I·T

 Rensselaer



University at Buffalo
The State University of New York



New York Manufacturing Extension Partnership

Funding provided by the Environmental Protection Fund as administered by the New York State Department of Environmental Conservation.

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For more information please contact us:

111 Lomb Memorial Drive, Bldg. 78
Rochester, NY 14623

Tel: 585-475-2512
Web: nysp2i.rit.edu
E-mail: nysp2i@rit.edu

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Golisano Institute
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