

COMMUNITY GRANTS PROGRAM



CASE STUDY

Teachers and Students Become Stewards of NYC's Air-Quality through CELF's Citizen Science Program

The Children's Environmental Literacy Foundation (CELF) is a 501(c)3 nonprofit organization founded in 2003. CELF's mission is to make Education for Sustainability (EFS) an integral part of K-12 school curricula and culture to prepare current and future students to be active and responsible citizens of a sustainable world. CELF engages teachers, administrators, students and community leaders through professional development, consulting services, and experiential programs that have reached more than 13,000 teachers and administrators and 1 million students to date.

Nationally recognized as a leader in the field of EFS, CELF partners with departments of education including the NYC Department of Education (NYC DOE), Putnam Valley Central School District, Los Angeles Unified School District, among others. Awarded with membership to the Clinton Global Initiative in 2012, CELF's work with New York City Public Schools is recognized as a [CGI Commitment to Action Project](#).

Challenge

Air pollution surrounds us daily, but it is not always as apparent as other forms of pollution such as litter in the street. Despite improvements over the past decade, air pollution is still a significant threat. The World Health Organization estimates that 9 out of 10 people globally breathe air containing high levels of pollutants and that 7 million people die every year from exposure to fine particles in polluted air.

CELF's research-based learning experience allows students and teachers the opportunity to engage in personal and collective actions that affect their local neighborhoods and community health first-hand.

Solution

CELF developed a replicable citizen science program for grades 5-8. The pilot program focused on air quality data collection from schools in Manhattan and Brooklyn, New York. The Project provided training for middle school science and health teachers to engage students in citizen science projects that can inform public health interventions that promote healthy communities and student advocacy.

Students were provided with "AirBeam" air quality devices and mobile apps that were used for monitoring data. The Mount Sinai Transdisciplinary Center on Early Environmental Exposures at the Icahn School of Medicine and Region 2 Pediatric Environmental Health Specialty Unit (PEHSU) at Mount Sinai provided their research on the impact of air pollution on human health, specific causes and types of air pollution, and the most effective ways to reduce pollution. The City University of New York (CUNY) Law School Center for Urban Environmental Reform helped participants make connections between environmental issues and how public advocacy can lead to legislation resulting in a positive change.

CHALLENGE

- The World Health Organization estimates that 9 out of 10 people breathe the air containing high levels of pollutants and that 7 million people die every year from exposures to fine particles in polluted air.

SOLUTION

- Students were provided with "AirBeam" air quality devices and mobile apps used for monitoring data.
- Mount Sinai Health System provided research on the impact of air pollution on human health and CUNY Law School helped make connections on how public advocacy can lead to legislation change.

RESULTS

- CELF staff worked with professionals from Mount Sinai Transdisciplinary Center on Early Environmental Exposures at the Icahn School of Medicine and nine teachers to develop a citizen science unit that is easily integrated into existing curriculum as a place-based action research learning opportunity.
- The teachers and students are now trained in AirBeam and AirCasting technology platforms, engaging them as citizen scientists with their school communities.

15th ANNIVERSARY



ENVIRONMENTAL LITERACY

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TESTIMONIAL

Anthony Negron from the New York Hall of Science (a previous Community Grant recipient) was an integral part to the project as he trained the CELF staff in the AirBeam technology and digital AirCasting platform. Mr. Negron provided CELF with additional AirBeams to share with the school teams and provided support to the school teams as a resource.

Finally, students presented to their schools, community groups, and local governments with the goal of improving the health, environmental quality, and economic vitality of New York City communities.



Results

Nine teachers were selected and participated in a professional learning workshop in citizen science and air pollution with Mount Sinai environmental health professionals and CELF and received on-site support from CELF educators. Teachers considered their existing curriculum and class projects to identify relevant opportunities for integration of the citizen science unit. The syllabus was submitted to and approved as a “P-Credit” course by the New York City Department of Education After School Professional Development Program (“ASPDP”).

Student teams from each school analyzed and identified pollution hot spots and tried to connect them to specific sources. The school teams participated in a Student Symposium at CUNY Law School where they shared air quality citizen science data and outcomes.

Despite the success of the program, there were various challenges that will be avoided in future implementations. One example is that the AirBeam technology is only compatible with Android Devices. Additionally, teachers were very committed to the project, but were limited in time.

The curriculum developed was designed to be easily replicable and appealing as a fundable pilot to expand to additional schools in new markets. The project will be replicated in new markets where CELF has strong ties to school districts (Yonkers, Los Angeles, additional NYS schools), and CELF will continue to offer the project as an ongoing ASPDP course for New York City DOE teachers. The teachers and students are now trained in AirBeam and AirCasting technology platforms, which engage all as citizen scientists within their school communities.

Online Media:

- [Website](#)
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“As a grantee, CELF was able to design and implement a new STEAM professional learning program for middle school teachers to engage their students in citizen science in their own school communities. With New York State Pollution Prevention Institute (NYSP2I) funding and support, CELF successfully created a replicable and scalable project that enhances new NextGen Science Standards (NGSS) instructional practices and builds student knowledge and agency around the important issue of air pollution prevention. We deeply appreciate the opportunity to work with NYC teachers and their students afforded by NYSP2I funding and look forward to sharing the project with many more schools!”

– Katie Ginsberg
Executive Director

Children’s Environmental Literacy Foundation

NYSP2I PARTNERS

R·I·T

 Rensselaer



University at Buffalo

The State University of New York



New York Manufacturing Extension Partnership

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