



Climate & Urban  
Systems Partnership  
PHILADELPHIA

Community  
Partnerships for  
Climate Change  
Education

“We believe CUSP education is more effective because it functions first and foremost by meeting established communities where they are.”

- Kirtrina Baxter, Soil Generation

## *The Climate & Urban Systems Partnership*

Social science research shows that approaching climate change education through a global lens that emphasizes “doom and gloom” information does not motivate people to engage in the issue. Instead, this style of communication often leads to feelings of helplessness, fear, and/or guilt. The Climate and Urban Systems Partnership (CUSP) worked to address this challenge by making climate change education engaging and enjoyable.

The CUSP project united a diverse network of learning scientists, climate scientists, and informal education specialists with a single goal: bring high-quality climate change education to city residents. Led by The Franklin Institute in Philadelphia, PA, CUSP collaborators from four cities partnered with community-based organizations and experimented with novel forms of public engagement tailored to their unique urban setting, from co-designed art installations to tabling at block parties and cultural festivals.



PHILADELPHIA  
PA



PITTSBURGH  
PA



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CITY



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DC

## *Philly CUSP*

The Franklin Institute's own local partner network comprises nearly 90 organizations, including artists, city agencies, universities, and nonprofits.

To build network partners' capacity to discuss climate change and deliver impactful educational experiences, project managers hosted visiting speakers, facilitated climate change communications trainings, and offered festival programming opportunities.

Project managers also oversaw seven competitive rounds of mini-grant funding. Network partners were encouraged to implement CUSP's local, relevant, and solutions-focused approach to climate change education in new and experimental ways. Resulting projects encompassed the creativity and passion CUSP partners have for climate change education and included interactive art installations, compelling podcast episodes, and myriad hands-on community education opportunities each with their own authentic approach.

Herein we highlight the **38** collaborative projects that united more than **60** Philly CUSP partners and the new, lasting relationships they have forged.

To learn more, visit: [cuspproject.org/cities/philadelphia](https://cuspproject.org/cities/philadelphia)



*“[Our] incredible partnership was spurred through CUSP... and not only has this project increased collaboration among the partner organizations, but it has also laid the groundwork for additional climate change programming throughout the organizations’ activities.”*

*- Dr. Alison Kenner, Drexel University*



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*“...inspiring and empowering to the many who participated, giving them more confidence in their knowledge about climate change and an outlet to use their voice.”*

*– Dana Dentice, Pennsylvania Horticultural Society*



## *Spotlight*

# Climate & Healthy Homes

Over five consecutive years, six organizations explored how they could amplify one another's resources to deliver educational workshops that engaged the public on the relationship between health and a changing climate. The Climate & Healthy Homes project partners have forged lasting relationships that embody the true spirit of CUSP.

***“Participants left workshops feeling empowered.”***

***- Saleem Chapman, Clean Air Council***

## **The Climate & Healthy Homes collaboration**

was born in 2014 when the Clean Air Council (CAC), Drexel University, and the National Nurse-led Care Consortium (NNCC) sought to connect climate change with indoor air quality and human health. Through a series of educational workshops, partners explored these connections with expectant mothers and provided cost-effective solutions to maintaining healthy indoor air quality under a changing climate.

These core partners joined up again in 2015, this time with Philly-based production company GreenTreks, to train community leaders in delivering their novel workshop series. Participating leaders were equipped with the knowledge and engagement strategies to guide their own neighborhoods towards healthier indoor air quality.

In 2016, NNCC and Drexel University joined the Energy Coordinating Agency (ECA) and New Kensington Community Development Corporation to critically examine how healthy indoor air quality can be achieved while saving energy, water, and money. To extend programmatic reach and impact, this round of educational workshops targeted neighborhood energy counselors and helped build their capacity in areas of highest need.



Expectant mothers from the Philadelphia Nurse-Family Partnership learn how to make non-toxic household cleaners.

“We didn’t have this opportunity when we were in school.... Now we can learn how to make things better for ourselves and our community.”  
- Anne, a Healthy Homes participant.



Older adults participating in community asset mapping.



***“...the partner organizations [enabled] community educators who will go on to lead their own workshops and expand the reach of the project.”***

***- Dr. Alison Kenner, Drexel University***

The core Healthy Homes partners reunited again in 2017 alongside ECA, Philadelphia Department of Public Health, and Lutheran Liberty, a health and human services provider. Building off the success of previous collaborations, this expansive project team tailored the Healthy Homes experience for older adult audiences at drop-in community centers. Their innovative educational model enhanced nearly 100 older adults’ preparedness for extreme heat events and natural disasters.

In the following two years, these six partner organizations continued to strengthen their collaborative efforts. Workshop materials expanded to include mold and flood prevention in high-risk neighborhoods and were delivered in new regions of the city. Participating Philadelphians gained the knowledge, skills, and materials necessary for home repair, stormwater infrastructure installation, and emergency preparedness.



The Climate and Healthy Homes workshop series has reached hundreds of participants directly and countless others through ripples of community learning. The direct lines of communication established between Philadelphians, health care professionals, community social scientists, and neighborhood leaders and advocates lay the path towards greater community resiliency in the face of climate change.

Check out the workshop materials and explore how this collaboration is continuing, here: [ClimateReadyPhilly.org](https://ClimateReadyPhilly.org).

“The CUSP grants have allowed us, as a team, to do things that we wouldn’t have been able to do otherwise. We’ve been able to connect climate change, health impacts and home energy efficiency, and curate this information into [workshops] that connect the dots.”

– *Russell Zerbo*, Clean Air Council

## *Themes explored*

**Mini-grant projects link climate change science and solutions with a diverse range of themes and in a number of creative applications. These themes and applications are grouped into the following categories:**

### HEALTH

From rising heat indices to declining air quality, climate change has many, varied linkages to human health. These projects explore those impacts and help residents mitigate associated risks.

### ART

Art is an important form of climate change communication and can evoke strong emotions. These mini-grant projects utilized music, visual art, and performances to explore climate data and tell stories of personal relevance.

### URBAN SUSTAINABILITY

These educational efforts focused broadly on urban sustainability and explored the themes of energy usage and transitions, environmental health, and green infrastructure.

### YOUTH EDUCATION

Youth are at the center of addressing the climate crisis. These projects engaged youth & their family directly in different settings, from festival learning to student-led projects to career training for the green economy.

### TRAIN-THE-TRAINER

An effective professional development model, train-the-trainer workshops are intended to equip educators with the knowledge, skills, and abilities to train other educators. Each project leverages hands-on learning tactics proven to deliver exciting, memorable experiences.

### DIGITAL MEDIA

Digital products can be rapidly and widely disseminated, a crucial feature in enhancing the public discourse around climate change solutions. These projects resulted in notable digital media products, such as a short film or podcast.

# HEALTH

From rising heat indices to declining air quality, climate change has many, varied linkages to human health. These projects explore those impacts and help residents mitigate associated risks.

## Helping Older Adults Prepare for Climate Change

### Physicians for Social Responsibility

Physicians for Social Responsibility (PSR) enhanced its ongoing work around climate change and health with older adults. PSR updated written and online materials to help participants prepare for extreme weather emergencies, which included formatting changes tailored to older audiences. Working with CUSP climate scientists, PSR revised their existing Climate Change, Seniors & Emergency Preparedness workshops to include new content on local climate change impacts, which was then delivered at three community centers.

Check out a video of the project, here: [bit.ly/2J100dX](https://bit.ly/2J100dX)



Participants enjoying the Climate Change, Seniors & Emergency Preparedness workshop at St. Anne's Senior Center in the Port Richmond neighborhood.



### Preparing Patients for Climate Change

Drexel University College of Nursing, Physicians for Social Responsibility

Recognizing the special, trusting relationships physicians and care providers hold with their patients, project partners collaborated on a workshop to train practicing nurses, nursing faculty, and nursing students on addressing health impacts of severe weather. The Role of Nurses in Severe Weather workshop featured presenters from several local institutions—including Drexel University College of Nursing, University of Pennsylvania, and the Philadelphia Office of Emergency Management—to discuss the ways in which climate change is a public health crisis, the local resources available to city residents during severe weather, and how to broach the subject of climate change and emergency preparedness with patients.

### Helping Health Professionals Look Upstream

Drexel University, Physicians for Social Responsibility, Temple University, Thomas Jefferson University, University of Pennsylvania

Spearheaded by Physicians for Social Responsibility, this project leveraged CUSP mini-grant funding in order for four major universities in Philadelphia to design and deliver more climate change-related programming for students in medical school and public health programs. This programming was delivered via lectures at the schools and focused on helping the next generation of health professionals look ahead at the rise of climate change-related health impacts. Lectures also focused on communication skills and resources for health professionals to convey health risks and protective measures to climate change to their patients. As a result of the project, key faculty were identified at the respective schools who can now work on bringing even more content into their programs' curricula.

*“The project allowed my organization to build capacity around a new but related topic to our previous work. In addition, it helped establish new partnerships and relationships with other CUSP organizations.”*

- Erin Johnson, Drexel University

# ART

Art represents an important form of climate change communication and can evoke strong emotions. These mini-grant projects utilized various art forms, from the literary to the musical, to explore climate data and tell stories of personal relevance.



## **Watermark: An Aerial Impression**

**Artist Leslie Birch, Azavea, Philadelphia Water Department, The Schuylkill Center**

Artist Leslie Birch worked with project partners to prototype Watermark, a new game designed to raise awareness of the impacts of climate change on The Schuylkill River and prompt visitors to consider what the future might hold. In the game, visitors receive a mysterious letter from the future that puts them on a quest to discover the deep trenches stormwater has already cut into the landscape around The Schuylkill Center. Subsequent letters describe how these and other problems have been exacerbated by climate change and implore players to address these challenges. Birch tested the game during a temporary installation at The Schuylkill Center using aerial photographs, the results of which will inform a longer-form adventure game incorporating geocached letters around the Center.

## Art and Ambassadorship along Mill Creek

Mill Creek Farm, Overbrook Environmental Education Center, Philadelphia Water Department, The Schuylkill Center, The U.S. Forest Service

Project partners worked with middle and high school students to increase their understanding of urban waterways. Using the example of nearby Mill Creek, students explored the impact of climate change on heavy downpours, flooding, and water quality issues, and how to lessen those impacts. Students also participated in trips to Mill Creek Farm to learn how urban farms are approaching stormwater management. The project culminated in a student-led art installation, which celebrated and brought broader public awareness to the Mill Creek Farm's role in climate change preparedness.



Students in the Mill Creek community learn how to manage stormwater caused by climate change and increased heavy downpours.



*“Our project enabled us to reach and engage with new audiences that we hadn’t previously reached with climate change messaging.”*

– Camila Rivera-Tinsley, The Schuylkill Center



Students install The Threads of Mill Creek, a climate change-inspired artwork, outside Mill Creek Farm.

“I enjoyed exploring the question of ‘What does local, relevant, solutions-focused climate change art look like?’ and finding a fascinating constellation of artists to respond to that question. This was one of the most important art shows we have done here, our first exploring climate change.”

- Christina Catanese, The Schuylkill Center

## Climate Disrupted Art Festival & Show

Artist Joey Hartmann-Dow, Artist Leslie Birch,  
The Schuylkill Center

Project partners created an art festival entitled *Climate Disrupted*, as well as the art exhibit *Going Up: Climate Change + Philadelphia* at The Schuylkill Center. Project partners curated and contributed original works to these shows, incorporating visual art, music, performance and community education to foster conversations about what residents can do about climate change. Artist Leslie Birch worked directly with CUSP’s climate scientists to inform her work exploring the effect of climate change on local crops.



## Climate Change Book Club

Pennsylvania Horticultural Society, The Schuylkill Center

The Pennsylvania Horticultural Society and The Schuylkill Center launched a climate change-themed book club with their members. The club provided vetted climate change literature and a forum to discuss it in the context of local solutions. Participants reported an increased confidence in discussing these issues in their own communities.



The Climate Change Book Club discovers the secret world of trees.

*“We felt this project was inspiring and empowering to the many who participated, giving them more confidence in their knowledge about climate change and an outlet to use their voice.”*

– Dana Dentice, Pennsylvania Horticultural Society

## Climate Resiliency at FDR Park

Fairmount Park Conservancy, Friends of FDR Park, Let's Go Outdoors, Philadelphia Office of Sustainability, Philadelphia Parks & Recreation

Project partners engaged residents living around FDR Park on the park's role in preparing the community for climate change. Partners commissioned a temporary art installation, which incorporated maps of the park from four different centuries and highlighted the park's historical role as a tidal wetland. The sculpture was unveiled at a special family-friendly public event where the artist spoke to visitors about the piece and local educators provided interactive programming based on the artwork. The project was also a component of the park's overarching master plan, and served as a jumping-off point to talk with community members about if and how park restorations should take climate change into consideration.



Visitors at the artwork's public unveiling.

# URBAN SUSTAINABILITY

These educational efforts focused broadly on urban sustainability and explored the themes of energy usage and transitions, environmental health, and green infrastructure.



An urban farmer in Philadelphia connecting urban agriculture to climate change solutions.

## Issues of Community-Managed Green Space = Issues of Climate Change

### Soil Generation

Soil Generation describes itself as a “Black & Brown-led coalition of gardeners, farmers, individuals, and community-based organizations working to ensure people of color regain community control of land and food, to secure access to the resources necessary to determine how the land is used, address community health concerns, grow food and improve the environment.” Through this mini-grant, Soil Generation bolstered their existing train-the-trainer workshops and Resource Guidebook for Philadelphia Community Gardens with climate change data and solutions, helping them work towards their ultimate goal of achieving a “People’s Agroecology.”

***“These people are more at the ready to implement climate change solutions.”***

**- Kirtrina Baxter, Soil Generation**



PHS partners facilitate ask “Can Trees Save Sadie’s Block Party?” at a community festival

### Creating a Table Top Activity to Connect Urban Forests to Climate Change Solutions

Pennsylvania Horticultural Society (PHS), USDA Forest Service

Project partners collectively designed a hands-on tabletop activity that illustrates the role trees play in preparing residents for a hotter/wetter city. Leveraging the special role that block parties play in Philadelphia’s culture, the activity challenges city residents to experiment with block-level solutions to make summertime temperatures more bearable and *Save Sadie’s Block Party!*

### Community Climate Change Connectors

Pennsylvania Horticultural Society, Philadelphia Water Department, Susquehanna Clean Up/ Pick Up

Led by the Susquehanna Clean Up/Pick Up, project collaborators designed a multi-faceted approach to reach community residents, students, and educators in North Philadelphia. Programming included a STEM summer camp for youth; a luncheon for principals of several North Philadelphia schools to discuss integration of climate change into students’ learning; and community workshops on stormwater management with the Philadelphia Water Department.



Participants in the Community Climate Change Connectors summer camp.

***“We did this project to expand the conversation of STEM and climate change to an urban audience not being reached through traditional sources.”***

***– Judith Robinson, Susquehanna Clean Up/ Pick Up***

## CUSP Transportation Working Group

Clean Air Council, Green Philly, Office of Transportation and Infrastructure Systems, SEPTA

Project partners collaborated to develop two interactive educational activities to help residents explore how travel decisions can reduce a person's carbon footprint, as well as lead to cleaner air, healthier communities, and safer streets. One activity was a spin wheel containing bilingual, thought-provoking questions about climate change and transportation.

The second activity was a Safe Streets activity where visitors were able to explore how different street infrastructure (protected bike lanes, curb bump-outs, etc.) could calm traffic, as well as promote vehicle-free travel in the city.

Residents answering questions on the spin wheel at the Asociación de Puertorriqueños en Marcha's Harvest Fest.



Visitors using the *Safe Streets* activity at a community event.



An educator uses the *Living Shoreline* display to prompt conversation at Pennsylvania Coast Day.

## Living Shoreline

Partnership for the Delaware Estuary

Living shorelines are a viable solution to adapting to rising sea levels. The Partnership for the Delaware Estuary created a portable, tabletop display showcasing what living shorelines are, how they work, and how they provide protection from the local impacts of climate change. The display is now used at community events and helps educators discuss rising water levels in the Delaware River, increases in storm surge, and the many positive benefits that living shorelines have on nature and communities.

*“Overall, one of the best things to come out of this project was that it allowed us to rethink how we engage the public.”*

– Will Fraser, Clean Air Council



*“People leave our sessions feeling upbeat and sure that effective solutions are within reach, and that usually makes them want to be part of implementing such solutions.”*

– Sadie Francis, BioPhilly

## Trees to the Rescue

Boyer Sudduth Environmental Consultants, Haverford College, John Heinz National Wildlife Refuge, Student Conservation Association (SCA)

20 SCA students from throughout southwest Philadelphia participated in four workshops at the Haverford Arboretum where they learned about the carbon cycle and tree anatomy, participated in field work to identify trees and estimate carbon sequestration, gained knowledge about the role of urban trees in climate change adaptation, and presented their findings.

The workshop allowed partners to co-create lessons that replace previously ad-hoc efforts and will inform ongoing climate change programming at SCA and Haverford Arboretum.

*“We used the CUSP grant to introduce these students to the environmental education missing from most high school curricula. It produced a level of engagement that I had never seen in my own high school classes.”*

– Rania Fitzpatrick, Haverford Arboretum

## Biophilic Solutions to Urban Heat Islands

BioPhilly; Jefferson University; Philadelphia Office of Sustainability; Drexel University; Roofmeadow; Biophilic Cities Global Network

The Green Air Conditioning & Carbon Sponges: Biophilic Solutions to Urban Heat Islands Conference featured presentations and cross-disciplinary discussions from 16 different organizations. The event’s theme centered on emerging opportunities and challenges surrounding the use of nature-based designs as a solution to the heat island effect.



More than 130 attendees joined the discussion on nature-based design, including public health experts, architects, and engineers.

## Green Economy Chat 'n Chews

Centennial Parkside CDC, in•site collaborative, Ebony Suns Enterprises, LLC, Pennsylvanians Organized to Witness Empower and Rebuild (POWER), Drexel University Lindy Institute for Urban Innovation, Philadelphia Energy Authority, Philly Climate Works

Centennial Parkside CDC led the organization of three Green Economy Chat 'n Chews, small gatherings of 20-30 residents during which different aspects of the green economy were discussed. These discussions seeded collaborative projects at a culminating dinner event with over 100 residents.

PHOTO CREDIT: SULEXPHOTOS



Residents consider community solar for their neighborhood.

“This project provided space for conversations... where residents and facilitators were learning together. This created momentum towards building a community based business model founded on the concepts of the green economy.”

- Chris Spahr, Centennial Parkside CDC

## Community Climate Change and Clean Energy Day

Sierra Club, Ants on a Log, Neighborhood Advisory Committee at People's Emergency Center, The EAT (Everyone At the Table) Café

Partners fused musical and theatrical acts with storytelling activities to deliver a community education event on energy and climate change. Live performances supplemented a presentation by Philadelphia's Office of Sustainability on its Clean Energy Vision.



*“The musical was such an accessible and fun way for children of all ages and adults to engage in important environmental issues.”*

- Pratima Agrawal, Sierra Club



Community participants learn how home weatherization, energy efficiency, and climate change are interconnected.

## Energy Assistance for Working Families

Strawberry Mansion Neighborhood Action Center, Susquehanna Clean Up/Pick Up

Project leaders engaged more than 50 households in a series of energy efficiency workshops. Participants learned how to evaluate their home's energy efficiency and were equipped with the necessary materials to make improvements.



Attendees of “Climate Change & the Economy” pose in front of a mural at Hestonville Rain Garden, a former vacant lot that is now helping to revitalize the community.

## Social Dialogue for a Just Transition to a Low-Carbon Economy

Green Philly

Through this project, Green Philly further developed its ability to engage residents from across the city around diversity, inclusion, and climate change. The Social Dialogue event began with a walking tour of a formerly vacant lot in West Philadelphia, where a park and large rain garden now sit and are helping to revitalize a community by improving quality of life and creating jobs. Participants then convened at nearby Overbrook Education Center to discuss their impact of climate change education and job training and how to engage historically marginalized groups on these issues.

## Practical Solutions to Green Your Business

Boyer Sudduth Environmental Consulting, Chestnut Hill Business Association (CHBA), Sustainable Business Network of Greater Philadelphia

Twenty five small- and medium-sized business owners convened for a one day workshop to discuss practical solutions to reducing carbon emissions and waste. To support participants in documenting their positive social and environmental impact, the organizing partners developed and distributed a self-assessment survey, which will serve as a sustainability benchmark for a robust certification system moving forward.



Project partners challenge local business owners to answer, “How green is your business?”

***“This project provided the capital, organization, and access to the subject matter expertise that our Business Association needed in order to turn an ambitious goal into a robust and fully-developed program.”***

– Philip Dawson, CHBA

## YOUTH EDUCATION

Youth are at the center of addressing the climate crisis. These projects engaged youth participants directly in different settings, from festival learning to student-led projects to career training for the green economy.

### Climate Change Outreach at Rainbow de Colores

*Asociación Puertorriquenos en Marcha, Philadelphia Water Department, The Philadelphia Department of Public Health, The Schuylkill Center, Pennsylvania Horticultural Society, Philadelphia Water Department, Planet Philadelphia*

This strong partner collaboration lasted for three mini-grant rounds. The project partners first joined up in 2016 and arranged a summertime education program for residents living around Rainbow de Colores Park in North Philadelphia. Families explored climate change impacts playing out right in their own neighborhoods and youth participants learned how to assess water quality.



Youth assessing aquatic life during a trip to The Schuylkill Center.

In a subsequent mini-grant, this summer programming was expanded to include field trips to city drinking water plants, sewage treatment centers, green stormwater infrastructure features, and nearby rivers to assess water quality. At a field trip to a nearby urban farm, Planet Philadelphia radio program recorded and aired an interview; listen to it, here: [bit.ly/2FODba4](https://bit.ly/2FODba4).

In a final expansion of this project in 2017, after-school programming was offered throughout the year. New content explored the impact of transportation on environmental health. Students were trained in the PA Horticultural Society's Tree Tender program and completed a visioning activity on safer bicycle infrastructure, walkability, bus shelters, and green infrastructure that ultimately led to a full campaign for more planters in the park.

*“The most successful parts of this project were the meaningful interactions that we had with families about the ways that climate change has been increasingly impacting them throughout the neighborhood....everyone has a way to connect.”*

*– Iliana Domínguez-Franco, Asociación Puertorriqueños en Marcha*



Families at Rainbow de Colores Park learning about trees and climate change during a summer health fair.



Tree planting at Rainbow de Colores Park.

## Climate Camps

Awbury Arboretum, Let's Go Outdoors, Overbrook  
Environmental Education Center, Philadelphia Water Department

Climate Camps are fun, camp-like atmospheres that utilize hands-on activities to engage visitors of all ages in exciting, participatory climate change education. Project partners hosted two Climate Camps, reaching an estimated 100 residents.

The first Camp was a Climate Fun Zone at a community health fair in the Overbrook section of Philadelphia. The second camp was a Family "Climb-It" Day, at which families enjoyed free rock climbing and climate change programming at a local rock climbing gym.



Families get "into the climate zone!" and explore how climate change is affecting watersheds and fish habitats.

***"This exceeded our expectations. The hands-on activities kept individuals connected and focused on learning about climate change."***

***- Tarsha, Let's Go Outdoors***

## Connecting Climate Change to Local Solutions and Local Jobs

Energy Coordinating Agency, Philadelphia Water Department

Through this project, partners provided a series of seven workshops for students in Aspira charter high schools to learn about climate change, its local impacts, and the training and employment opportunities available to address climate change in Philadelphia. In addition to hands-on activities and a visit to local wastewater and drink water plants, students participated in workshops hosted by the Energy Coordinating Agency that provided an introduction to the types of training programs and job opportunities that exist around energy efficiency.



Students at Olney High School participate in hands-on activity to explore the local impacts of climate change.

## Climate Change in Hunting Park

Let's Go Outdoors, Pennsylvania Horticultural Society (PHS), Philadelphia Water Department (PWD), Temple University Center for Bioethics, Urban Health & Policy, The Lenfest Center

Let's Go Outdoors and PHS delivered a series of climate change and health workshops for elementary school students attending summer camp at The Lenfest Center in the Hunting Park neighborhood. Students completed a photovoice project—a participatory photography and storytelling exercise—that emphasized current environmental assets and challenges in the neighborhood, as well as areas for improvement.

The series culminated in a tree planting in Hunting Park and a community event at which neighborhood residents could view the student photovoice project and visit a community resource fair on local solutions to climate change.



Students contemplate their photovoice project.



Students plant trees in Hunting Park.

“Students became more familiar with their surrounding outdoor environment and felt empowered to take action, either to help expand current positive happenings or address current challenges.”

– Rachel Abbott, Let's Go Outdoors



Students at Mariana Bracetti Academy Charter School build the Climate Rover.

The Climate Rover's maiden voyage.



*“With the rover’s unique underwater perspective, Philadelphia students are making observations today that could prove valuable to researchers and problem-solvers.”*

*- Matthew Fritch, Philadelphia Water Department*

## Climate Rover

Fairmount Water Works, Mariana Bracetti Academy Charter School, Philadelphia Water Department

The Philadelphia Water Department and the Fairmount Water Works worked with 11<sup>th</sup> grade students at Mariana Bracetti Academy Charter School to build an underwater rover to assess the water quality of two local creeks, and explore the effects of climate change on local waterways. The rover and the data that it provides are new, valuable tools for project partners to explore solutions to climate change and engage communities.

## Community-Based Climate Change Education for Youth

Philadelphia Department of Parks & Recreation (PDPR), Penn State Extension Philadelphia Master Gardeners, Teen Leadership Corps (TLC) at Awbury Arboretum

Led by PDPR’s FarmPhilly team, in conjunction with teen leaders and experienced educators, project partners co-developed climate change lesson plans for an elementary student summer camp. The central theme of gardening was linked to surrounding environmental systems through interactive activities.

## Immersive Energy Education

Asociación Puertorriqueños en Marcha for Everyone, Bartram's Garden, Clean Air Council, Climate Dads, Energy Coordinating Agency, John Heinz Wildlife Refuge, Philadelphia Water Department

Intergenerational residents, families, children, and community leaders participated in a series of local field trips. At each destination, participants received interactive education on the topics of climate change, energy efficiency, and environmental quality. Locations included Fairmount Waterworks, Energy Coordinating Agency, Bartram's Garden, and John Heinz Wildlife Refuge.



Student participants tour the Energy Coordinating Agency.

*“Being able to make civic engagement fun for youth was by far our biggest accomplishment.”*

– Victoria Cubillos-Cañón, Asociación Puertorriqueños en Marcha for Everyone



Junior Solar Sprint students assemble their solar-powered car ahead of competition.

## Junior Solar Sprint Extension

Philadelphia Solar Energy Association (PSEA), Drexel University

PSEA developed, published, and distributed new teacher training materials for the Junior Solar Sprint, an annual effort to engage and excite Philadelphia students in solar technology through building solar-powered model cars. These materials include a Teacher's Guide, a Student's Guide, Powerpoint and video, and can be accessed at: [phillysolar.org](http://phillysolar.org).

## TRAIN-THE-TRAINER

An effective professional development model, train-the-trainer workshops are intended to equip educators with the knowledge, skills, and abilities to train other educators. Each project leverages hands-on informal education tactics proven to deliver sticky programming that's both exciting and memorable.

A Climate Leader tests stormwater pH.



### Climate Leaders

Community College of Philadelphia, Philadelphia Water Department, Schuylkill Center for Environmental Education, Urbanstead

Partners developed and piloted a program for college students to educate students in grades K-5 around the local impacts of and solutions to climate change. The project trained students from the Community College of Philadelphia on how to lead hands-on workshops around stormwater management and climate change.

These “Climate Leaders” then facilitated workshops with students in the Schuylkill Center for Environmental Education’s 2018 summer camp.

## Climate Mentors

GreenAllies, Green Building United, PennEnvironment, Sustainable Philadelphia Alliance of Regional Campuses, U.S. Fish and Wildlife Service, School District of Philadelphia

Project partners piloted an innovative Climate Mentor program, a train-the-trainer model for college students to work with middle and high school students at participating National Wildlife Federation Eco-Schools.

Between 2016–2017, project leaders trained 39 Climate Mentors from 11 Philadelphia-area colleges to assist student-led projects at 13 local Eco-Schools. Example projects include a cafeteria food waste recovery program, a rain garden installation, a plan to power pathway lighting with solar panels, and a state-wide gathering of student government leaders to discuss renewable energy.

*“The mini-grant allowed my organization to expand the diversity of our programming and explore ambitious initiatives. We have been able to leverage the success of that work into additional funding.”*

– Ken Hamilton, GreenAllies



College students participate in the Climate Mentors Summit.

## Tools for Climate Change Education in the Classroom

Green Building United, GreenTreks Network

Teachers from the Philadelphia Education Fund's Math & Science Coalition learned how to incorporate hands-on climate change education in the classroom. One participating teacher even went on to host a climate change-themed K-8 school assembly at Chester A. Arthur School with the support of the project partners! GreenTreks Network created an online resource devoted to stormwater management and climate change education: [greentreks.tv](http://greentreks.tv).



Students measure temperatures around the schoolyard during a climate change-themed assembly at Chester A. Arthur School.



Teachers participating in hands-on climate change education.

“This was very hands on, which ended up being EXACTLY what was needed to get both the adult students and children excited.”

– Lisa, Urbanstead

## Climate Ready Teachers

Boyer Sudduth Environmental Consultants, National Wildlife Federation, School District of Philadelphia

To support the goals of the School District of Philadelphia's GreenFutures sustainability plan, project partners developed a first-of-its-kind teacher training. Interdisciplinary cohorts of middle and high school teachers were equipped with new knowledge of the science of climate change, gained access to interactive activities for their classrooms, and were enrolled in the National Wildlife Federation's Eco-Schools program.

In a summer 2018 expansion to a three-day workshop, teachers explored these topics further and learned how to implement project-based learning around climate change solutions in their classrooms. Participants visited the Philadelphia Water Works and Museum of Art, where curators demonstrated interdisciplinary connections of climate change.



Teachers use the CUSP House of Holes to explore home insulation and energy usage.

## Teaching Bright Ideas about Energy to Teachers

Boyer Sudduth Environmental Consultants, National Wildlife Federation, PA Department of Environmental Protection, School District of Philadelphia

The Climate Ready Teachers team was back at it in 2019, this time in collaboration with the PA Department of Environmental Protection. Teacher training materials expanded to address energy efficiency and conservation, more hands-on activities, and cost effective tools to implement classroom sustainability solutions.

*“We received very positive feedback from both attendees and partners who commented on the effectiveness and variety of training materials and the diversity (racial, gender, subject matter expertise) of attendees.*

*- Holly Gallagher, National Wildlife Federation*

## DIGITAL MEDIA

Digital products can be rapidly and widely disseminated, a crucial feature in enhancing the public discourse around climate change solutions. These projects resulted in notable digital media products, such as a short film or podcast.

### Imagining Philadelphia's Energy Futures

Citizens Climate Lobby, Energy Coordinating Agency, Planet Philadelphia, The Science History Institute, PennEnvironment, PennFuture

In the first phase of Imagining Philadelphia's Energy Futures, project partners recorded oral histories of a small and diverse set of city residents who shared their visions of Philadelphia's energy production and use 50, 125, and 300 years into the future. The Science History Institute featured the oral histories at a science storytelling workshop, where participants also played the Situation Lab's *The Thing from the Future*.

The project website, which includes the recorded oral histories, can be found at: [www.sciencehistory.org/imagining-philadelphias-energy-futures](http://www.sciencehistory.org/imagining-philadelphias-energy-futures).



Participants imagine how energy usage could look different in a future Philadelphia.



## Clean Energy Future

[PennEnvironment](#), [Mangrove Media](#)

Partners co-created a video that highlighted a crew of local solar installers and solar industry career opportunities in Pennsylvania. The video offered viewers a glimpse of the crew's diversity, technical skill, and the pride they take in their work, all while demonstrating the growth potential of the solar industry. It was distributed to over 10,000 people. This project allowed partners to explore the potential of workforce development videos for recruitment, as well as to assess the demand for future videos that would highlight more aspects of clean energy across the state.

Check out the video, here: [vimeo.com/274087079](https://vimeo.com/274087079)

*“We developed a video that clearly demonstrates the opportunity for clean energy jobs in Pennsylvania to tackle climate change. Our characters had depth and showed how individuals who are often left out of the current economy can find good paying jobs in clean energy.”*

– David Masur, PennEnvironment

CUSP Senior Program Manager Richard Johnson is interviewed for City Rising Season 1.



## CUSP Audio

[GreenPhilly](#), [The GREEN Program](#)

The City Rising podcast explores how cities across the US are tackling climate change. In its inaugural season, hosts interviewed city leaders about furthering climate change mitigation and adaption, such as waste management, climate change education, energy policy, and green infrastructure. The podcast is available at: [greenphillyblog.com/podcast](https://greenphillyblog.com/podcast).

## Socially Just Climate Futures

Pennsylvania Horticultural Society, Philadelphia Department of Public Health, Planet Philadelphia, Temple University

Undergraduate students in Temple University's Geography of Hazards course produced a four-episode podcast on climate change in Philadelphia. In partnership with local community groups, students explored climate adaptation with green infrastructure, food insecurity, and climate change migration using the lenses of equity and social justice.

The podcast is available to listen to at:  
[planetphiladelphia.com/cusp-projects](http://planetphiladelphia.com/cusp-projects).

“This project did more to engage my students in climate change than any other assignment I have done in an undergraduate course.”

- *Hamil Pearsall*, Temple University



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The CUSP project was made possible through National Science Foundation Award #1239782.