

# Greenpoint Eco-Schools Sustainability Toolkit







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Student tracks plant growth in classroom hydroponic farm.

## Creating a Legacy of Sustainability

During four school years, the Greenpoint Eco-Schools program aimed to create a legacy of sustainability in four schools in the Greenpoint, Brooklyn community.

We worked to connect students to their local environment and teach them about natural systems and concepts of interdependence and—invariably—human impacts on the environment. Students learned about the history of environmental pollution in Greenpoint and were asked to envision, and design solutions for, a cleaner, greener, and more connected Greenpoint for both humans and wildlife alike. We helped create systems for reducing waste and energy use in their school buildings, reducing air and water pollution in their neighborhoods, caring for street trees, and creating habitat for wildlife. Most importantly, we worked to instill a love of nature and a conservation ethic in Greenpoint's children, to connect them to their community and to help them understand that they have the ability to shape a just, sustainable future for themselves and all living things. Thank you to the countless individuals who collaborated with us during the Greenpoint Eco-Schools program—Principals, teachers, staff members, families, partners, colleagues, and friends—we are deeply grateful for your support. This Toolkit shares stories, results, and tips from the Greenpoint Eco-Schools program—we hope you find it a useful tool on your community's pathway to sustainability.

### THE GREENPOINT ECO-SCHOOLS TEAM



EMILY FANO



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FOREWORD

## Education for a Sustainable Future



By **Emily A. Fano**,  
Senior Education Manager,  
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New York City (NYC) is home to the largest urban school district in the country, with 1.1 million students and 95,000 teachers working in 1,850 schools. It's also home to 650 registered NYC Eco-Schools. Since 2012, the National Wildlife Federation (NWF) has worked across the five boroughs of NYC to engage K-12 students in innovative urban environmental education programs that connect them to the nature in their neighborhoods—from the bees nesting in sidewalk cracks to the whales in New York Harbor. We have nurtured student leaders who understand ecological systems and human impacts on the environment, and who are empowered to apply their knowledge to solve problems.

As a parent of two teenagers who attended NYC public schools from Kindergarten through high school, and as someone who has worked, for over a decade, to create environmentally sustainable schools and environmentally literate citizens, I'm thrilled to share NWF's Greenpoint Eco-Schools Toolkit with you.

This Toolkit offers practical advice for educators, administrators, and parents who want to learn how to create environmentally sustainable schools and—more importantly—provide meaningful educational experiences for students. The Toolkit tells the story of how the Greenpoint Eco-Schools program in Brooklyn succeeded in its efforts to build students' environmental literacy, connect them to nature, and prepare them for the challenges and careers of the 21st century. I'm so proud to have been a part of this very significant program whose results—if replicated—could have profound implications for our schools, our students, and our collective future.

**“I like being part of a Green Flag Eco-School because we learn about real things in the world and how to make a difference.”**

— **Jeremy Moore, Grade 5, P.S. 31**

NWF was given a tremendous opportunity to test a new model of whole-school sustainability in NYC through the program. With an initial \$1.4 million in funding from the Greenpoint Community Environmental Fund (GCEF), work began in 2015. Grant extensions and additional monies from the Newtown Creek Fund in 2017 brought the total investment to approximately \$2.75 million. The hallmark of the program was the placement of four full-time, paid “NWF Sustainability Coaches” in four schools: Ali Schuettinger at P.S. 31, Tina Wong at P.S. 34, Fran Agnone at P.S. 110 and Fai Walker at M.S. 126. Sarah Ward, an expert NWF project manager, supervised the Coaches and coordinated the program.

This Toolkit is a testament to the dramatic impact that the Coaches, led by Sarah, had on their four schools and the Greenpoint community from



Students observe red wiggler worms.

## INTRODUCTION

2015 to 2019. Most gratifying of all were the happy faces of the students, who told us they stopped using plastic, started composting at home, and loved seeing plankton under a microscope, crabs on the dock, and pollinators in the garden. They could also proudly explain what a CSO (combined sewer overflow) is. They learned to observe, think critically, ask questions, and make connections. The students proved to us, in the best possible way, that—in the words of Zoe Weil, author and pioneer in the humane education movement—the world truly does become what we teach.

It's because of our program's results, showcased here, that I believe it's time for every NYC school to have a full-time, paid Sustainability Coach/Coordinator.

Since 2009, all NYC public school principals have had to designate a Sustainability Coordinator each year. As far as we know, no other U.S. school district has created this unique, school-based role. However, it is currently an unpaid position held by a teacher (or an assistant principal, guidance counselor, gym teacher, librarian, etc.) who already has a full-time job and no additional time to take on new projects. Given the extensive list of tasks that Sustainability Coordinators are responsible for in their schools, with no funding and no allotted time, sustainability goals are often not being achieved. As a result, neither students nor school staff have the chance to learn about sustainability or take action to create environmentally sustainable schools.

If the City hopes to nurture a generation of citizens who are able to help New York achieve its ambitious goals (zero waste by 2030 and 80% reduction of greenhouse gas emissions by 2050), the role of a full-time, paid Sustainability Coach in every school is all the more critical.

Brooklyn Borough President Eric Adams proposed the idea of full-time, paid Sustainability Coordinators as an option in his report, *Supporting Sustainability in Schools: A Greener Path Forward* (April 2016). He stated that the funding should come from the City's budget, not the schools.

In 2003, the NYC Department of Education (NYCDOE), made a bold move, with the support of then Mayor Michael Bloomberg, when it invested \$43 million to place 1,200 full-time, paid Parent Coordinators in all of its elementary and middle schools and in some high schools. At the time, the idea



Students learn about NYC's combined sewer overflow system.

and the investment was not welcomed by all parents; however today, the Parent Coordinator is an integral part of every NYCDOE school.

An investment in full-time, paid Sustainability Coordinators would send a strong signal to other municipal leaders and school districts that, just as the City prioritized parent engagement in 2003, it is now prioritizing education for a sustainable future. We have advocated that the City fund an expanded pilot program to test the potential impact of NWF's model on a larger scale before committing funds system-wide.

In the meantime, we hope that the Greenpoint Eco-Schools Toolkit will serve as a lasting resource and inspiration for educators, administrators, parents—in Greenpoint and beyond—who may want to consider creating a Sustainability Coach position in their schools.

As in nature, our diversity and our collaboration has been our strength. My deepest thanks go out to the Greenpoint Eco-Schools team — Sarah, Ali, Tina, Fran, and Fai — and to NWF staff — Liz Soper, Curtis Fisher, Libby Johnson, Melissa Merriam, Amanda Mason, Kaila Drayton, Uri Tumurbaatar, and Anna Vecchio; to District 14 superintendent Alicja Winnicki and the Greenpoint Eco-Schools principals and assistant principals—Anna Cano-Amato and Dana Raciunas (P.S. 110); Mary Scarlato and LouAnn Gallo (P.S. 31); Carmen Asselta, Maria Loré, and Alain Beugoms (P.S. 34); and Maria Ortega and Amber Howes, Magnet Coordinator (M.S. 126); to our funders GCEF and Newtown Creek Fund; as well as to all the teachers, school staff, families, community members, and partner organizations who collaborated with us, worked so hard, and with whom we share our success.



## National Wildlife Federation's Eco-Schools USA



[Eco-Schools USA](#) is an education-for-sustainable-development program hosted by National Wildlife Federation (NWF) in the United States. Since 2009, the program has focused on greening existing school buildings and grounds, as well as developing curricula to improve students' scientific literacy and environmental stewardship. In addition to direct benefits for the local environment, the program helps to dramatically improve student skills in Science, Technology, Engineering, and Math (STEM).

The international Eco-Schools initiative was originally launched in 1994 as an outgrowth of the 1992 Rio Environmental Declaration. Twenty-five years later, the global Eco-Schools network encompasses more than 51,000 green schools in 68 nations. Its global coordinator, the Foundation for Environmental Education (FEE), is based in Denmark, and each participating nation has its own non-governmental organization operator.

With the support and guidance of the National Wildlife Federation (NWF), Eco-Schools USA has engaged pre-K through 12th-grade schools, as well as their communities, in a comprehensive, holistic program. Students, faculty, administrators, and community volunteers form teams to enhance environmental literacy and academic skills.

Eco-Schools USA now serves over 5,000 U.S. schools, 2.7 million students, and over 130,000 educators. There are 650 Eco-Schools in New York City alone, and the program is still growing. Roughly two-thirds of participating schools are in low-income urban areas and approximately 45% of participating students are from diverse racial and cultural backgrounds. Virtually every major urban center in the U.S. has active Eco-Schools.

Eco-Schools' comprehensive program follows a Seven Step Framework to investigate Pathways to Sustainability: Consumption and Waste, Energy, Water, Healthy Schools, Schoolyard Habitats, [and more](#). Teams of students, teachers, and administrators at each school choose a particular pathway to address. They assess the status of the issue, analyze their findings, and then create a plan of action to drive change and improve school sustainability. They continuously evaluate and monitor their work to ensure success.

**Eco-Schools USA now serves over 5,000 U.S. schools, 2.7 million students, and over 130,000 educators.**

**Virtually every major urban center in the U.S. has active Eco-Schools.**

With guidance from their teachers, students lead each step of the process. Teachers are instrumental in integrating the program into their existing curriculum; they help students to make connections beyond their classroom walls: with their neighborhoods, their cities, and with the world at large. The Seven Step Framework effectively promotes youth leadership and community service by engaging students from the outset, giving them ownership of their school's projects, and partnering with neighborhood organizations and volunteers.

NWF is a highly-respected developer of effective environmental educational programs. We have a proven track record of raising student achievement in every grade, as well as fostering youth leadership, environmental stewardship, and social equity. NWF believes that by working with students of all ages, we can create a ladder of learning from pre-K through high school. Within this framework, students explore and analyze many of the issues facing their communities, including pollinator conservation, invasive species, food systems, access to clean water, hunger abatement, and access to safe green space.

## ECO-SCHOOLS USA SEVEN STEPS



## Greenpoint, Brooklyn – A Long History of Profound Change

By **Geoffrey Cobb**

Greenpoint, one of the most dynamic areas in New York City, is located on the East River, just a ferry ride from Manhattan. Today the area is in a period of rapid transition. Old factories and warehouses are being demolished, as new waterfront skyscrapers climb upwards. Change in Greenpoint is everywhere, but then again, change is nothing new there. Greenpoint has a long history of change, and today's changes are the latest in a series of ecological, social, and economic changes that have continually and thoroughly transformed the area. In fact, Greenpoint history is one of change and constant reinvention.

Today Greenpoint is one of the most polluted areas on Earth, the legacy of the massive heavy industries that once called the area home. But once, Greenpoint was a pristine wilderness, with a diversity of native animal species. Greenpoint was the hunting ground of the Native American Keskachague tribe, who stalked deer, ducks, and other small game, while harvesting the abundant local shellfish. Greenpoint was once an estuary of beautiful meadows that flooded when the East River tide rose, forming miniature bays; but the meadows would one day disappear.

Greenpoint changed dramatically with the arrival of Europeans in 1645. The area got its name from a green spit of land that stuck out from Freeman Street into the East River. Dutch sailors used this Greenpoint as a landmark and the name stuck. The first European, Dirck Volckertszen, began the ecological changes by cutting stands of lumber that once defined the area. He and other farmers cleared the land to plant fields. Volckertszen also brought the first slave to the area in 1645, ushering in almost two centuries of local bondage. He also fought in a bloody war, in 1655, massacring local Native Americans and driving them out of North Brooklyn.



*Geoffrey Cobb is a Brooklyn high school history teacher and author of three books on local history: **Greenpoint's Forgotten Past**, **The King of Greenpoint**, and **The Rise and Fall of the Sugar King**. He also writes for the blog **Greenpointers**.*



Other Europeans followed Volckertszen, and soon the area became a farming community of five intermarried Huguenot refugees. With an interruption during the American Revolution, when British officers were billeted in local homes, the five ancestral Greenpoint families lived for about two centuries in blissful isolation.

In the late 1830s, Nezhiah Bliss, known as the "Patriarch of Greenpoint," bought acres of riverfront farmland and married the daughter of a local landowner. Bliss had his land surveyed and streets laid out, envisioning a shipbuilding community that was slow to materialize. Finally, shipbuilders, moving from Manhattan, arrived and the first Greenpoint ship was launched in 1851. Needing land, the shipbuilders filled in swampy areas and extended the East River shoreline, which by the start of the Civil War boasted a dozen local shipyards.

After the Civil War, shipbuilding faded and was replaced by five heavy industries, known as the "Five Black Arts," which included paper making, glass blowing, metal forging, porcelain production, and the biggest and most ecologically destructive, oil refining.

Charles Pratt, Brooklyn's richest man built the country's first modern oil refinery, the Astral Works, on the East River here in 1867. Soon, fifty refineries lined local shorelines, transforming Newtown Creek from a pristine tributary, teeming with aquatic life, into a toxic dead zone, reeking so intensely that Manhattanites began to complain about the noxious odors drifting across the river. Raw sewage also drained into Newtown Creek and Bushwick Creek, which once separated Greenpoint from Williamsburg. Bushwick Creek, in fact, became such an eyesore that it was covered over and filled in, disappearing except for a small basin at its mouth.

The "Black Arts" needed workers, and soon the fields that the first settlers once farmed became rows of houses for factory workers. Immigrants from Europe settled locally, including Irish, Polish, Slovak, Italians, Jews, Russians, and Germans. All of these immigrant groups left traces of their culture, which still help define the area today.

The conditions these immigrant factory workers lived and worked in were often shocking. North Brooklyn became the world's largest area for sugar refining, but the refineries

were veritable sweatshops where men often died on the job. Workers also often lived in crowded tenement houses lacking running water and sanitation, but Charles Pratt built the model "Astral Apartments" as a gift for the area's poor. The building, finished in 1883, boasted large sunny apartments with running water, a luxury few workers could afford at the time. The Huron Street baths, opened in 1901, offered the area's more humble residents the chance to bathe, something that was impossible in most tenements. In that same year State Senator Patrick McCarren succeeded in acquiring land for the area's first large park, which was renamed in his honor after his death in 1909.

The children of local immigrants went to area schools, learned English, and strove for the American dream. Growing up playing American games like stickball and basketball, they quickly integrated into American life. When America went to war, many young local men proudly served their country, falling on the fields of battle. A monument to the more than one hundred local men who died in World War I still graces McGolrick Park; Sergeant Dougherty Park honors a local World War II Medal of Honor winner.

After World War II, many local industries began to shut down, and many children of the factory workers left Greenpoint for the suburbs. In 1977, locals also learned that a multi-million gallon carcinogenic oil slick lurked beneath their neighborhood. With abandoned factories and houses, the area seemed to be in decline, but the cheap rents and available industrial spaces attracted a new breed of urban pioneers, artists and artisans who set up studios and workshops. With rezoning in 2005 and the re-opening of the East River ferry, the area became a prime destination for settlers from Manhattan, other states, and even other countries.

Today, Greenpoint faces a different challenge, one created by its own success. The desirability of the area has driven rents sky-high, forcing many long-time residents to move away. Local businesses have also had to close, driven out by costly rent increases. The gentrification that is occurring today, though, is just the latest in a long history of transformations that have shaped the history and culture of this dynamic area.

## Greenpoint Eco-Schools Program



By **Sarah Ward**,  
Project Manager

Funded by a grant from the Greenpoint Community Environmental Fund (GCEF), the National Wildlife Federation Greenpoint Eco-Schools program officially launched in September 2015 at four public schools—P.S. 31 Samuel F. Dupont, P.S. 34 Oliver H. Perry Elementary, P.S. 110 The Monitor School, and John Ericsson Middle School 126—in Greenpoint, Brooklyn. The Greenpoint Community Environmental Fund is a joint program of the New York State Office of the Attorney General and Department of Environmental Conservation; it was created with monies obtained through a settlement with ExxonMobil over its Greenpoint oil spill<sup>2</sup>, which left an estimated 17 to 30 million gallons of oil in the soil and groundwater of Greenpoint. With GCEF's substantial investment in the Greenpoint neighborhood, local organizations and residents have spearheaded waterfront restoration, public space enhancements, nature-based infrastructure, and environmental stewardship projects that have made lasting impacts on the environmental and public health of this community.

To counter Greenpoint's history of pollution and to create a legacy of sustainability in the schools and community, the Greenpoint Eco-Schools program brought together students, teachers, families, residents, and community partners. Together, we celebrated the neighborhood's natural resources, strengthened environmental leadership, and connected Greenpoint's children to nature in a way that was fully integrated into their education.

The cornerstone feature of the program were the National Wildlife Federation Sustainability Coaches who worked full-time at the four schools.

### » GREENPOINT ECO-SCHOOLS PROGRAM GOALS

Guided by the Eco-Schools USA Seven Step Framework and a whole-school approach to sustainability, the Greenpoint Eco-Schools program set forth an ambitious set of goals to green the culture, curriculum, and infrastructure of the four Greenpoint schools; 1,800 students and more than 150 staff members participated during each school year. Specifically, the program was designed to:

- » Increase student and staff environmental awareness, connection to nature, and understanding of key environmental science concepts
- » Increase student and staff participation in environmental and sustainability activities and events at school, home, and in the community
- » Increase student leadership and community involvement
- » Improve the Greenpoint environment and increase sustainability of school, homes, and the community
- » Strengthen the connection between Greenpoint schools and the community, and increase environmental awareness among all Greenpoint residents



Lesson with 1st graders at  
Kingsland Wildflowers' green roof.



In addition to promoting positive environmental behaviors, attitudes, and action, the program aimed to achieve measurable conservation results that aligned with the Eco-Schools USA Pathways to Sustainability: Consumption and Waste, Energy, Water, Healthy Schools, and Schoolyard Habitats. Our ultimate goal was to ensure that lasting changes, both structural and behavioral, were incorporated into the school culture to benefit generations of students and Greenpoint as a whole. Led by Eco-Action Teams (or Green Teams) composed of students, staff, and families—and anchored in curriculum—Greenpoint Eco-Schools and partners worked together to:

- » Reduce landfill waste by 25% or more in each school per year
- » Reduce energy use by 10% or more in each school per year
- » Reduce water use by 5% or more in each school per year
- » Reduce the use of toxic cleaners and improve indoor air quality in each school per year.
- » Increase or enhance green space on school grounds
- » Incorporate place-based learning and Education for Sustainability (EfS) as integrating concepts throughout cross-disciplinary curriculum and teaching methods

## Outcomes & Results

Thanks to the collaborative teams of students, teachers, families, and community partners, the four Greenpoint Eco-Schools have become outstanding models of school greening and sustainability. The following results highlight how each of the Greenpoint Eco-Schools took action to green their curriculum, culture, and infrastructure.

All four schools were recognized for their achievements and received Eco-Schools USA's highest award -the Green Flag- in May 2017. Because of this distinction, they are proud to call themselves a Green Flag Community.

### » ENERGY PATHWAY

To prevent energy loss due to “energy vampires”- appliances or electronics that continue to use energy when in sleep or off mode - student Green Teams posted reminders to turn off electronics and supplied classrooms with power strips and timers so that electronics will be powered off at the end of the school day. To reduce school building energy usage, Greenpoint Eco-Schools partner School Construction Authority installed energy-efficient lighting at P.S. 31 and P.S. 110 and upgraded boilers at P.S. 34 and MS 126.

<sup>1</sup> <http://gcefund.org/>

<sup>2</sup> <https://www.riverkeeper.org/campaigns/stop-polluters/newtown/>

## » CONSUMPTION & WASTE PATHWAY

With the support of their NWF Sustainability Coaches, Greenpoint Eco-Schools implemented organics collection, waste sorting systems, staff training, and student leadership positions to reduce overall consumption and prevent school waste from going to landfills. During 4 school years, the four Greenpoint schools diverted 555,779 pounds of waste from landfills.

WASTE TOTALS (LBS.)   SEPTEMBER 2015 – JUNE 2018				
SCHOOL	PAPER	MPG RECYCLING	ORGANICS	DIVERSION TOTALS
PS 31	23,685	14,400	106,848	144,933
PS 34	21,794	10,915	132,444	165,153
PS 110	48,016	31,320	87,444	166,780
MS 126 (cafeteria only)	1,440	25,801	51,672	78,913
<b>TOTALS</b>	<b>93,495</b>	<b>82,436</b>	<b>378,408</b>	<b>555,779 LBS.</b>

**During 4 school years, the four Greenpoint schools diverted 555,779 pounds of waste from landfills.**

## » WATER PATHWAY

By inspecting faucets and plumbing fixtures for leaks, student Green Teams prevented more than 100,000 gallons of water from being wasted each year. After finding leaks and calculating the annual water loss, students wrote letters to Custodial Engineers and Principals to request that the leaks be fixed. Additionally, Department of Environmental Protection installed low-flow toilets in all four schools; low-flow toilets use significantly less water per flush, approximately 1.5 gallons versus 3-5 gallons in the old toilets.

## » HEALTHY SCHOOLS PATHWAY

Over 160 indoor clean air plants and 110 green cleaners were distributed to classrooms in the Greenpoint Eco-Schools. To help spread the clean air message and remind cars and buses to turn off their engines in front of the school, Greenpoint Eco-Schools students participated in a No Idling Poster Contest; winning poster entries were made into signs and installed near the school entrances.

## » SCHOOLYARD HABITATS PATHWAY

Greenpoint Eco-Schools added over 15,000 square feet of green space and gardens to school grounds, as well as 1,500 square feet of community wildlife habitat in community gardens, playgrounds and parks. Comprised of trees, native wildflowers, grasses, and food crops, the gardens also provide valuable wildlife and pollinator habitat, stormwater management, and outdoor learning experiences for all 1,800 students and families. Students also engaged in tree stewardship, loosening compacted soil, planting and amending the soil, and creating signs urging neighbors to love their trees and keep the beds clean.

## Sustainability Coaches

As the schools' resident environmental experts, Sustainability Coaches worked full time to provide leadership and support to the individual schools on their paths to sustainability. They collaborated with teams of students, staff, families, and community partners to embed eco-friendly principles and practices into all aspects of the schools' operations, including student instruction and facilities management, as well as the schools' culture and values.





Sustainability coaches prepping for MASE park garden installation project.

This was no small task. A school is a complex ecosystem with a unique combination of structures, policies, and personalities; the job demanded an understanding of Earth science, interdisciplinary teaching methods, and human behavior. In partnership with their teams, the Coaches directed the program and ensured that their schools reached environmental targets and celebrated milestones, while sustainability education and actions were woven into the fabric of the school culture.

There was no typical day for a Sustainability Coach. They designed and led Eco-Schools workshops for teachers, coordinated field trips in the neighborhood, trained custodial and cafeteria staff on environmental best practices, and advised Principals on how to institutionalize place-based learning across all grades, among many other tasks. They were mentors, managers, and valued educational professionals who modeled eco-conscious behaviors and leadership at all times. Rooted in their personal commitments to education and equity— and gifted in finding the interconnections between society, the environment, and the economy—the Sustainability Coaches created an exemplary model of 21st century conservation leadership.

While the results and outcomes of the Greenpoint Eco-Schools program are a testament to the Sustainability Coaches' skills, the true value of their role is best measured by the collaborative communities they established at each of their schools. They built trusting, responsive relationships with dozens of staff members, community partners, and countless children and family members. These school communities learned that, together, they can make a difference for Greenpoint, and for the Earth— they are Greenpoint's present-day stewards and future leaders. The school communities have proven that a concerted response to one of the worst environmental disasters in U.S. history can yield one of the strongest networks of conservationists. Third-grader Veronica succinctly summed it up when she said, "Scary things may happen like oil spills, but we will always be together to fight them."



## Fai Walker

### Sustainability Coach at M.S. 126

Sustainability was not a destination—it was a process of awakening to the things that were important to me. Growing up in the South, I understood the economics of “always enough to share”; the steady mantra of the crickets and gentle waves breaking on the white sandy beaches of Sarasota, Florida, were the backdrop for laughter and magical thinking. I never imagined that the world could change so drastically and that the idyllic habitat of my childhood could be threatened by our collective folly. Sustainability was about identifying systems—natural systems and social systems—and all of their components, connecting the dots, and ultimately understanding my relationship to the system and how to improve or change it.

Working with teachers is an opportunity to share what I have learned about economics, the environment, and equity. Knowing their stories, understanding what is important to them and what draws them to working with students, helps me support them appropriately. I do a lot of asking, listening, and observing; I become familiar with the existing curriculum, including the terminology and programs that they use. And then I build bridges—from what they already know to new experiences, information, and environmentally-conscious behaviors and habits.

Most of the time, we don’t call what we are doing sustainability, although at schools we are always engaged in conversations and actions that at their root are about sustainability. We call it taking care of the place that we spend time in. We call it taking only what you need. We call it giving everyone a chance to participate. We call it empathy and kindness. We call it considering our actions. We call it critical thinking. We call it asking probing questions. We call it cleaning up after yourself. We call it sharing. We call it learning how to navigate the system. We call it creating allies. We call it advocacy. We call it many things and we take many actions. We create processes and systems that support our shared understanding of what it means to be in a community for six or more hours a day; then we hope like hell it will stick for a lifetime.







## Alison Schuettinger

### Sustainability Coach at P.S. 31

Having grown up spending summers on Martha's Vineyard beaches and falling in love with light, I am dedicated to exploring how we can reconnect with our true being, with each other, and with Nature. I am drawn to this work because sustainability is a way of being in the world and education is a way of sharing it with others. Ultimately, I believe the work of sustainability is one of justice and is a deeply spiritual, transformative lifelong journey. To help me become a better educator, I enrolled in an interfaith seminary while working as a Sustainability Coach.

I was able to build such strong relationships with staff and families at P.S. 31 because I listened to their concerns and established a foundation of trust to support their vision of sustainability. I did many things outside of our initial program goals and job description that evolved organically through the relationships and by addressing the needs of the school community. I'm honored to have had such an intimate and privileged role in a school over the course of four years.

One of the most significant impacts of my role and our program was creating new connections within the school and with the community. Parents now meet regularly with administration and custodial staff through the Green Wellness Committee. Teachers and families work together more closely to organize projects like a school garden or a mural. Teachers are connecting the students to more leadership positions and community service in the neighborhood. I believe our program has helped shed light on the possibility of a sustainable education—and that feels good.



## Tina Wong

**Sustainability Coach at P.S. 34**

Eight years ago, when I made a career change and transitioned from the corporate arena to the education/non-profit world, I didn't expect to land on sustainability. At first, I taught mostly about environmental responsibility; but as I learned and grew, I began to integrate economic viability and social equity into my teaching to make up the three pillars of sustainability.

Today, I help transform schools, from greening the infrastructure to re-designing curriculum. I teach, I facilitate, I coach. I advise, I counsel, and often, I learn. Collaborating with students, school staff, and families, I produce Eco-Fashion shows and throw Fairies and Gnomes garden parties! I make learning fun, but most importantly, I make it accessible. I consider the whole child, the whole person, when I teach and connect to place and nature whenever possible.

I value and build relationships, because communication is critical and collaboration is key. I lead without judgment. Ultimately, I drive culture change, because I hear it, I see it, and I feel it. I create memories and moments that I hope will shape a more environmentally conscious and socially equitable worldview for my students, the school staff, and the community.

It has been an amazing journey, being part of the P.S. 34 community. I am forever grateful for our time together and will cherish the memories for a lifetime.







## Fran Agnone

### Sustainability Coach at P.S. 110

I get energized when I find myself in quiet moments connecting to nature. From watching the mourning doves gather outside my winter bird feeder to getting caught up in the spectacle of spring leaves opening to reveal tender green growth, I display clear signs of what E.O. Wilson refers to as biophilia, or a love of life.

My dedication to sustainability stems from this love of the natural world and, by extension, the people who are sustained by its many gifts. It has been a great pleasure to become part of the P.S. 110 community over the course of the past four years; I am endlessly thankful for the openness and generosity students and grown-ups alike have shown me when they share what they love about the world.

The people and places of this project will stay with me forever as I move forward to the next part of my professional journey. I hope that my presence will still be felt by those I worked with closely at P.S. 110; may they continue to make choices in their life that allow space for building their own relationship with nature and practicing sustainability.





## ECO-ACTION TEAM

## Students

By **Sarah Ward**,  
Project Manager

An eco-spirit rings loud and clear at the Greenpoint Eco-Schools and you notice it as soon as you enter one of the school buildings. Brightly colored artwork made from upcycled plastic is displayed on the walls; student projects about neighborhood parks and wildlife hang from bulletin boards; and student leaders, known as a Waste Warriors, will remind you over the loudspeaker that recycling is required in all rooms and that paper should be dropped in the green waste bins after it's been used on both the front and back side.

To cultivate this conservation ethic, the Greenpoint Eco-Schools program intentionally fostered opportunities for students to learn and grow through classroom curricula, community exploration, and student-led action. The more students learned about the environment, the more motivated they were to behave as responsible stewards of their schools, their homes, and their community.

## Classroom Curricula

With the goals of increasing students' environmental literacy and awareness, Sustainability Coaches supported teachers in developing classroom-based lessons that used the [Eco-Schools USA Pathways](#) to Sustainability as foundational learning topics. Greenpoint students explored the Consumption and Waste, Energy, Water, Healthy Schools, and Schoolyard Habitats Pathways.

During hands-on scientific experiments and observations, as well as project-based lessons, our students examined the Earth's natural resources and cycles; they also studied the social systems that define and shape their lives. Greenpoint students learned ecology, geology, and engineering content in STEM classes. They read about water scarcity in English Language Arts; listened to traditional stories shared by an indigenous guest in Social Studies classes; and wrote and performed environmental anthems and protest songs in chorus class, among many other interdisciplinary experiences.

Over the past four years, we found that environmental and sustainability education embraces a child's gift for pursuing questions and natural curiosity. Pausing to wonder about the world around us is equally important as comprehending scientific information and concepts. Inquiry and experimentation help students develop the essential critical thinking skills required for identifying environmental issues and considering long-term solutions for the future, a crucial prerequisite for sustaining a healthy planet.



Paper recycling classroom monitors



Lesson on marine animals

## Community Connections

Beyond their classrooms, students investigated their school buildings and used Greenpoint as a laboratory for learning. They visited the school's boiler room with the Custodial Engineer to discover how the boiler functions like a mini power plant, using fuel, steam, and an intricate system of pipes to heat the school building. They took field trips to New York City's municipal recycling plant, and they also conducted water quality tests in Newtown Creek, their notoriously polluted local waterway. Known as [place-based education](#), these types of local experiences foster civic engagement and community stewardship. When children study the environment they interact with every day and co-navigate their learning, they are better able to understand the purpose of their studies. Most students perceive this immersive, inquiry-based educational approach as more relevant than traditional instructional practices.

When a 5th-grade student noticed litter in the streets, she questioned why there were no recycling bins in her local park. Determined to help her neighborhood stay clean, she brainstormed solutions to the problem and ultimately wrote a letter to her city council member with a suggestion: "Another solution or recommendation is to have more public trash cans and recycling bins so we don't litter."

Greenpoint's trees, parks, and community gardens inspired students to take an inventory of the wildlife that depend on this patchwork of green space for their habitat (food, water, shelter, and a place to raise their young). Fascinated by the biodiversity of the urban ecosystem, students designed a map that identified wildlife hotspots in their neighborhood and composed narratives written from the perspective of clever wildlife. The map features drawings of a dragonfly, red-tailed hawk, starlings, and the ubiquitous NYC pigeon. Here's an excerpt from Charlie the Chimney Swift's tale:


***"I am Charlie the Chimney Swift....We used to live in the hollows of large trees in the forest until humans cleared the forest for farmland. Now I live in chimneys, but my summer home is an air vent. I'm not much of a walker, because my passion is flying. I live my life on the fly. In fact, I never perch! Instead, I cling to vertical surfaces."***











**Pausing to wonder about the world around us is equally important as comprehending scientific information and concepts. Inquiry and experimentation help students develop the essential critical thinking skills required for... sustaining a healthy planet.**

From these examples, it's clear that inquiry-based learning leads to deeper student engagement with their studies and with the world around them. The Greenpoint Eco-Schools program provides the framework to allow students to move from observation to action. It encourages creative problem solving, both individually and as a group.

### **Student-Led Action**

Facilitated by a teacher or an administrator, a Green Team is a group of students (and often staff or family members) who follow the Eco-Schools framework and work together to analyze and solve environmental challenges at their school. They conduct audits, outline action plans, and monitor the school's progress over time. Especially important to note is that students direct the whole process: They oversee the work, develop protocols, manage teams, and handle problems. If you haven't been supervised by an impassioned young environmentalist lately, you should know that they are efficient troubleshooters and effective supervisors—they mean business.

At the Greenpoint Eco-Schools, Green Teams are known by a few names, such as Leaders of Change and DEAL Clubs (Drop Everything and Lead). Some of the groups, such as the Water Wizards and the Keepers of the Earth, chose names that correspond to the Eco-Schools USA Pathways of Sustainability topics, Water and Schoolyard Habitats, respectively. Green Teams help manage waste systems in the cafeteria, volunteer in the school garden, and more generally, keep an eye on the school's ecological footprint.

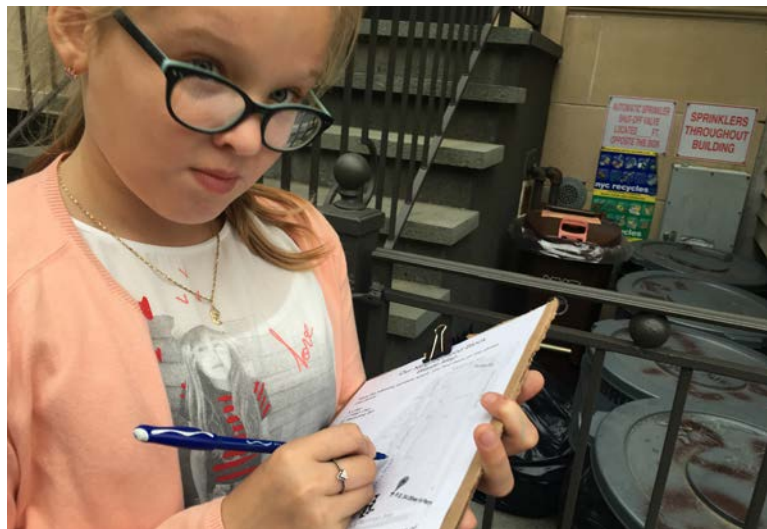
Armed with clipboards and a “Classroom Sustainability Checklist,” Green Team members inspect classrooms and grade them on their environmental habits. Posted in large print next to the room’s entrance, an “A+” indicates that a class is sorting their landfill and recycling waste into the correct bins, and powering off electronics at the end of each school day; a “C” means the class could use additional training or support, and the Green Teams provide solutions that have worked in other classrooms. Even the Principal’s office gets graded; unsurprisingly, the fear of getting a “bad grade” motivates these leaders to double-check their rooms and improve their own habits.

About this grading system, 5th-grader India said, “Teachers usually tell us what to do, but we can tell them ‘Hey, here’s something you can improve,’” and with a big grin crossing her face, she remarks, “We’re teaching teachers now.”

It’s a simple equation: environmental education + action = leadership. Greenpoint Eco-Schools leaders are paving the way for a better future.



(Top Left) Students build a 3D topographical map of their local watershed.



(Top Right) Student conducting an audit

 A hand-drawn chart titled "ROOM Teachers" showing sustainability grades for various rooms and teachers. The chart is organized into columns for different dates and rows for different rooms/teachers. Grades are written in various colors (red, blue, green) and some cells are crossed out with diagonal lines.

ROOM	Teachers	1/3	2/27	2/11	2/25	3/5	3/10	3/17	4/11
200	Fagjola	C	A	B	B	B	B	B	B
201	Wolff	C	B	B	B	B	B	B	B
203	Rosario	B	B	B	B	B	B	B	B
204	Spitz	C	B	B	B	B	B	B	B
205	Leistmgh	C	B	B	B	B	B	B	B
206	Lamonakis	B	B	B	B	B	B	B	B
207	Campbell	C	B	B	B	B	B	B	B
209	Filipowicz	B	B	B	B	B	B	B	B
218	Merced	B	B	B	B	B	B	B	B
227	Becker	B	B	B	B	B	B	B	B
228	Bromskine	B	B	B	B	B	B	B	B
229	Garcia	B	B	B	B	B	B	B	B
230	Tagaah	B	B	B	B	B	B	B	B
202	Tilly / Yee	B	B	B	B	B	B	B	B
236	Library	B	B	B	B	B	B	B	B
236A	Rodney	B	B	B	B	B	B	B	B
232	KRITEX	B	B	B	B	B	B	B	B

(Bottom Right) Classroom sustainability grades.



## SCHOOL STORIES

## P.S. 31: The Hydroponic Farm Stand

By **Alison Schuettinger**,  
Sustainability Coach at P.S. 31



On the first Friday of the month, P.S. 31 students carry wooden baskets overflowing with basil, lettuce, swiss chard, tomatoes, and other freshly picked veggies down four flights of stairs from the Green STEAM Lab to the schoolyard. They set up a table, topped with a red-and-white-checked tablecloth, and line up the baskets next to signs that advertise the colorful harvest for the Leaders of Change Hydroponic Farm Stand. Just in time for dismissal, students distribute the vegetables to parents picking up their kids from school. Two students work at the stand, bagging bunches of greens, tomatoes, and other produce for interested parents, in exchange for donations. The third student leader makes their way through the schoolyard, talking to families and passing out flyers to promote the stand.

**P.S. 31's Hydroponic Farm Stand is the joyous result of partnerships, grant funding, and collaboration between administration, teachers, custodial staff, families, and, most important of all, students.** They all share two common goals: fostering student leadership and growing healthy food. Inspired by the Eco-Schools focus on student leadership, the farm stand is fully operated by students. From seed to sales, students learn to grow produce hydroponically in the Green STEAM Lab, pick the harvest, and manage the stand on the first Friday of every month.

Hydroponics is a way of growing plants in a water-based, nutrient-rich solution instead of a soil-based growing medium. For one of their first lessons in the Green STEAM lab, the 3rd- through 5th-grade students sketched the basic circulation system of hydroponics components to understand how the water is recycled. Ms. Tesoriero, the Science Cluster teacher who teaches in the Green STEAM Lab, developed lessons using curriculum resources from [New York Sun Works](#), [Shelburne Farms](#), and [Engineering is Elementary \(EIE\)](#). After learning the principles of growing produce hydroponically, students are then able to apply their new knowledge and become "Hydro Helpers." These student leaders help to maintain the hydroponic systems. "Arianna, a 4th-grader, asked if she could be a Hydro Helper because it helps her think of what to write," said Mrs. Tesoriero. There is growing research that supports the academic growth of students when engaged with nature and positions of leadership.

Ms. Tesoriero instructs her class on hydroponic plants.





After children study and work in the Green STEAM Lab, many sign up for our Leaders of Change Club (P.S. 31's version of a Green Team), where students plan environmental action campaigns, as well as community service projects. Through the club, students eagerly apply to run the Hydroponic Farm Stand.

**All funds raised go directly to purchase maintenance supplies for the hydroponic systems. During the first year of the Hydroponics Farm Stand, the students raised over \$365!**

The farm stand is an example of increased student-driven Eco-Schools initiatives and environmental leadership across the school community. It's no surprise that all of the sustainability ideas from our Leaders of Change students have led to growing more plants and adding green space in and around the school!

It's clear that the Eco-Schools program has changed the culture of P.S. 31, as well as the other participating Greenpoint schools. The students have been empowered to implement new projects, such as the Hydroponics Farm Stand, because the school administrators, teachers, custodial staff, and parents supported their efforts. They made time for them by designating a consistent 45-minute period to Leaders of Change activities.

**Students have been co-leading and often inspiring the culture of sustainability at P.S. 31. The school's Eco-Chant, created by three 3rd-graders from Leaders of Change and repeated during assemblies and special events, says it best:**

**At P.S. 31 we reuse, reduce, and recycle every day.**

**Every day is Earth Day.**

**We care for living things.**

**Caring for living things can make a better future.**

**We are leaders and team players.**

**We are all in this together.**

**We stand globally and learn locally.**

**May everybody pass the word,  
now let there be Peace on Earth.**

**Joy to the trees, we shall Plant!**



*We are grateful to the following Partners for making the Hydroponic Farm Stand possible:*

*NY Sunworks provided the hydroponic systems, maintenance, and curriculum.*

*City at Work redesigned an outdated science classroom into a Green STEAM Lab.*

*Greenpoint Eco-School's Legacy Grant provided funding.*

## SCHOOL STORIES

## P.S. 34: Impact Projects

By **Tina Wong**,  
Sustainability Coach at P.S. 34



P.S. 34's front yard is a busy spot. During school hours, students engage in nature exploration, looking for insects or inspecting the leaves and flowers of growing plants; at lunchtime, teachers enjoy a quick bite on a bench; and when the school bell rings at the end of the day, families stop by to enjoy the green space or catch up with friends. This space is P.S. 34's student-designed Schoolyard Habitat. Envisioned by 4th- and 5th-grade students in their Green STEM School Impact Project unit, the space features an outdoor classroom, plants for pollinators and local wildlife, fruit trees, and plenty of seating throughout.

### Green STEM Class

STEM stands for Science, Technology, Engineering, and Mathematics; STEM education is an interdisciplinary, applied approach to solving problems and understanding how the world works. Green STEM, however, does this through a lens of environmental sustainability and within the context of students' own communities—students are challenged to understand and propose solutions for local issues, which makes the experience more relevant and inspiring.

At P.S. 34, all students participate in a weekly Green STEM class taught by Ms. Marshall. Kindergarten through 3rd-grade students study the Eco-Schools USA Pathways to Sustainability: Consumption & Waste, Energy, Water, Healthy Schools, Schoolyard Habitats, Sustainable Foods, and Biodiversity. When students enter the 4th and 5th grades, they use their foundational knowledge of environmental and sustainability subjects and create what the school calls, "Impact Projects."

*[You can read more about P.S. 34's Green STEM Program in the "School Stories" section on page 35.]*



Winning team from the garden design, School Impact Project.

## What are Impact Projects?

Impact Projects are units in P.S. 34's Green STEM Curriculum. Using a modified version of the [Eco-Schools USA Seven Step Framework](#), students work in small groups to closely examine places around them. They conduct audits to identify specific environmental problems or issues, and then propose or design green solutions.

P.S. 34's green curriculum follows the [Shelburne Farms Sustainable Schools Project's](#) Home to Globe - Developmental Continuum of Place model to reflect a child's ever-expanding sense of place.

Fourth-graders work on School Impact and Home Impact projects; in 5th grade, they turn their attention to Community Impact and finally, Global Impact projects; they end the year with an exploration of Climate Change.

## School Impact Projects

In addition to the front yard garden design project mentioned above, other projects have included water conservation campaigns as part of the Water Pathway, and non-toxic spray cleaner promotions and no-idling campaigns for the Healthy Schools Pathway.

During the 2017–2018 school year, 4th-graders India, Natalia, and Veronica conducted a campus-wide Schoolyard Habitats audit and discovered that their playground didn't have any plants. To address this issue, the students not only provided suggestions for the types of plants to add to the playground, but also created a fundraising campaign so they could purchase planters and soil to green their playground. Check out their pitch to their classmates:

***“Hello, students of P.S. 34! Without plants, our air becomes polluted and when the air is polluted, it affects our bodies in many ways. If we are sick, then we would have to go to doctors and miss school. Air pollution also affects the water and when that happens, all things suffer! Our plans to stop this is to plant EVERGREENS! We want to host a Plant Day where all classes go outside and take care of our green space. To do this, we will need planters in our Eckford Street playground. But we need YOUR help. We will be selling pencils and erasers to help raise money for these planters. Plants and trees will help us breathe, so do your part to help keep our school green.”***

India, Natalia, and Veronica presented their proposal to the Principal for approval, raised the funds, and now, there are new planters with evergreen shrubs and native plants in the school's playground!



Students India, Natalia, and Veronica (not pictured) ran a successful campaign to plant evergreen shrubs in their school's playground area.



India and Natalia assemble the planters for their playground's new shrubs.





**Through these Impact Projects, students grasp new concepts; they learn and follow the engineering design process; and they demonstrate their creativity as they propose or execute their solutions.**

## Community Impact Projects

During the final year of the Greenpoint Eco-Schools program, 5th-graders worked on a Community Impact Project that focused on their local waterway, Newtown Creek. The project was done in partnership with [Newtown Creek Alliance \(NCA\)](#); it culminated in a proposal for Manhattan Avenue Street End Park, one of two public access points to the Creek.

Students learned about the Creek's flora and fauna, New York City's watershed and sewer infrastructure, and indicators of healthy water and soil quality. The classes used [NCA's STEM Newtown Creek Urban Ecology Curriculum](#), developed in partnership with NWF.

Teachers took classes on a field trip to [NYC Department of Environmental Protection's Newtown Creek Nature Walk](#).

"I really liked our trip on the Nature Walk. We studied it in Ms. Wildermuth's class in ELA, but I wanted to find the invasive species that may be affecting native plants like the Tree of Heaven. I discovered so many different plants on the trip and sketched them in my notebook." —Moriah, 5th Grade

For their proposals, student groups had the option to focus on plant restoration, stormwater management, or soil and water quality improvements. In their groups of choice, students spent five more weeks researching and brainstorming ideas for improvements, as well as creating designs, and finally, presenting their proposals to NCA. Ms. Marshall will continue to share class proposals each year, keeping P.S. 34 involved in the ongoing improvements to the Creek.

Through these Impact Projects, students grasp new concepts; they learn and follow the engineering design process ; and they demonstrate their creativity as they propose or execute their solutions. In addition, while working in project teams, students learn important soft skills: collaboration, research, problem-solving, leadership, and presentation skills, all of which will help them succeed in middle school and beyond. Students realize that they can make real changes in their school, in their community, and ultimately, in the world.



Moriah sketches the plants around her.

SCHOOL STORIES

## P.S. 110: Sustainability Enrichment Classes

By **Fran Agnone**,  
Sustainability Coach at P.S. 110



It's one thing to encourage our students to throw away empty plastic bottles into the recycling bin. But we want to broaden their perspective by discussing the implications of living in a world full of plastic, rather than teaching them a single environmentally conscious behavior.

- » How much oil does it take to make a plastic water bottle?
- » What happens to plastic when it gets to the recycling plant?
- » What happens if it winds up in our waterways?

### Carving out Space for Enrichment Classes:

At P.S. 110, Assistant Principal Dana Raciunas created Enrichment Classes to explore questions like these. She allocated time so that “students and teachers could delve into a deeper, more comprehensive understanding of sustainability, beyond recycling and composting.” Or as stated by current 5th-grader Priscilla, “Enrichments are awesome because they teach us important stuff but make it fun.”

- » **Length of Enrichment:** One weekly class period is allotted for 8 to 10 weeks.
- » **Class size:** Class size ranges from 15 to 18 students and is reduced by scheduling elective teachers to lead enrichments.
- » **Preparation:** Teachers are not expected to be experts in the topics they teach, but should plan a path of investigation and a final product they can produce with students. They do not need a formal lesson plan.
- » **Community Share:** Typically, all students gather in the auditorium to present and celebrate their discoveries during the last session.

In an enrichment class called “Reducing Plastic,” 4th-grade teacher Nancy Levier and her students explored ways to reduce the impact of disposable plastic on wildlife in the ocean.

As an exercise, Ms. Levier gathered all the plastic in her home kitchen and shared a picture of her counter filled with plastic packaging. She and her class brainstormed ways she could reduce her own consumption. This led to her personal commitment to stop buying fruits and vegetables wrapped in plastic. Ms. Levier modeled an attitude and behavior that her students could bring to the supermarket with their families.

“I noticed there are a lot of plastic bags coming from our supermarkets. There are too many bags!” said 5th-grader Phoenix.

For their final project, the class decided to inspire others to reduce their consumption of plastic by gathering discarded plastic items from school waste bins and transforming them into beautiful pieces of art.



Students make observations during a  
“Tree Experts” Enrichment class.



## Sustainability Enrichment Classes at P.S. 110

### Music Activism: Can Music Change the World?

*Students create songs.*

### Running for Health Fitness Club

*Students set personal fitness goals.*

### Observing Nature with Sit Spots

*Students create nature notebooks.*

### Eating the Rainbow

*Students make posters encouraging healthy eating for the cafeteria.*

### What's Compost?

*Students tend the garden compost bin and create signs to educate visitors about the system.*

### How Do We Get to Zero Waste?

*Students make comics about zero waste choices.*

### ABCs of Sustainability

*Students create an alphabet book for Early Learners.*

### History of Our Neighborhood

*Students create and present a powerpoint about their community's history.*

### Tree Experts

*Students create a field guide of neighborhood trees.*

### What's with Cats in the City?

*Students create comics about the benefits and problems associated with feral cats.*

### Urban Nature Poetry

*Students write poems about nature in the city.*

### Student Blogging

*Students publish a student blog documenting the work of other enrichments and highlight other school-wide initiatives.*

### Birds Around Us

*Students create a field guide of native birds that migrate or live in our area.*

## M.S. 126: Water Wizards Create School Water Conservation Plan

By **Fai Walker**,  
Sustainability Coach at M.S. 126



The Water Wizards are M.S. 126's Eco-Schools Water Pathway Student Leadership Team. Many of its original members are now in high school. Their Eco-Code is "Saving water, one milliliter at a time." The Water Wizards are just one of the five Eco-Schools Student Leadership Teams at M.S. 126. Each team has an Eco-Code and works toward creating a culture of conservation at the school. The Water Wizards' objective is to create and monitor an action plan that will help students and teachers conserve water.

In the past three years, the Water Wizards have conducted water audits throughout the building; identified and calculated water leaks; and conducted water quality tests. They had the honor of presenting the results of their audits at Brooklyn Borough Hall and at district-level science fairs. Their crowning glory, however, was the rainwater catchment system they designed and built for the school garden. They learned from and collaborated with stormwater management experts to create a rainwater collection system that can hold up to 220 gallons of water. The system decreases the water usage for the school's outdoor classroom; it also provides year-round access to water for the garden. Because of their work, the students have been asked to host city-wide trainings for school and community gardeners to share their expertise on how to build a rain catchment system, impressive for middle-school students.

The Water Wizards team grew from six members to 22, and then settled down to a dedicated, enthusiastic group of 18 students. In the early days of the Greenpoint Eco-Schools program, visitors, students, teachers and parents would see signs over leaking water fountains or water faucets that read, “Did you know this water source wastes 22 gallons of water per day? That’s 8231 gallons per year!” The Wizards called for a meeting with the Custodial Engineer to see how the repairs were going. It was a true moment of accountability: they realized that their voices mattered. Proudly, the head engineer reported that some leaks had been repaired, although others were still pending. The Wizards informed him that there would be another audit and set expectations that all the repairs would be made by then.

The Wizards mean business. They are learning to decipher complicated water-testing reports and making sure water sources that tested poorly are labeled or put out of commission. Now that M.S. 126 has two new water bottle filling stations, the Wizards are counting the number of plastic bottles that have been diverted from landfills and testing the quality of the drinking water from the fountains. It seems their work is never done.

Looking back on the past four years, there were so many moving parts that contributed to the success and longevity of the Water Wizards:

- » Partnering with a committed and passionate teacher (Eco-Facilitator) to lead the club
- » Recruiting enthusiastic and focused Eco-Student Leaders
- » Developing and maintaining an alliance with school administration so that they appreciate and understand the time needed to implement the Eco-Schools Seven Step Framework
- » Cultivating a collaborative relationship with the custodial staff so they can help students navigate the school bureaucracy regarding its water system, infrastructure, and repairs

All of the five Eco-Schools Green Teams have taken on lives of their own. Originally, they met once per month; then Eco-Facilitators and Eco-Student Leaders petitioned to increase meetings to every other week. The effect of the program on student engagement and learning has exceeded expectations. As one Water Wizard put it, “I’ve learned more about reading data and understanding how the school water system is maintained than I ever imagined. I mean, I knew I would have fun, but I hadn’t expected to learn so much. I feel very adult. Like what I know and do makes a difference.” And indeed it does.

The Water Wizards at M.S. 126 installed a water catchment system that can hold up to 220 gallons of rainwater.





## ECO-ACTION TEAM

## Teachers

By **Sarah Ward**,  
Project Manager

**Nature-based teaching strategies encourage students to understand how all types of life on the planet — people, plants, wildlife, and their habitats — are interdependent.**

At the outset of our program, teachers and Assistant Principals volunteered to collaborate with their school's Sustainability Coach to advance sustainability initiatives at their school. Known as Eco-Schools Teacher Teams, these educators were instrumental to the success of the Greenpoint Eco-Schools program.

Motivated by their own passions for nature, well-being, and community activism—as well as a whole child approach to education<sup>3</sup>—the Teacher Teams worked with Sustainability Coaches to infuse conservation themes and activities into their existing curricula. They also adopted teaching strategies that allowed students to learn first-hand about Greenpoint's gardens and urban wildlife, as well as the neighborhood's environmental challenges.

As trusted colleagues, Coaches led professional development workshops to support teachers' growth as leaders. They also met with them regularly to review instructional plans, co-teach classroom lessons, and coordinate visits from scientists, naturalists, and community activists who introduced children to careers in the environmental and STEM fields.

By reflecting on their professional practices and committing to their development as leaders, our Teacher Teams ensured that sustainability education would evolve and endure at their school. Future Greenpoint students will be able to discover their community and become its stewards.



Teachers canoe on Newtown Creek during a professional development workshop.



Teachers at P.S. 34 meet with Sustainability Coach Tina Wong to review instructional plans and teaching strategies.

<sup>3</sup> Educating the whole child — mind, body, and spirit — is a proven approach to develop youth's skills, values, and knowledge in all subjects, including sustainability.

## Curriculum

As we designed the Greenpoint Eco-Schools program, we knew—as all educators implicitly understand—that environmentally-conscious behaviors must be reinforced by education. Without proper context, eco-friendly practices simply become another set of rules. Step #5 of the Eco-Schools framework—Link to Existing Curriculum—prompts educators to bring these lessons into their classrooms.

To strengthen these educational intentions, Greenpoint teachers integrated sustainability-themed activities into their Science, STEM, Social Studies, and English Language Arts classes. Because the teacher teams taught a range of disciplines across grade levels, all 1,800 students in our schools (from Kindergarten to 8th grades) learned about environmental topics such as waste, water, energy, and biodiversity during each school year.

Community-based studies (also known as place-based learning), were a main feature of the Greenpoint Eco-Schools program. With field trips and projects in and around their schools, teachers connected students directly with their environment. They brought students to nearby parks, gardens, or simply around the block, to observe the diversity of nature in New York City. These types of learning experiences encourage students to understand how all types of life on the planet—people, plants, wildlife, and their habitats — are interdependent.



M.S. 126 Teacher Team

## Growing hearts and minds

Faced with issues such as climate change and pollution, Greenpoint teachers understood the importance and urgency of educating children about ecological relationships and environmental responsibility. Teaching students about the inherent value of nature also encourages them to practice empathy and engage in civic action—powerful lessons that will last throughout their lifetimes.

When working together to draft a sustainability mission statement, the P.S. 110 Teacher Team realized their school mission—“Growing Hearts and Minds”—summed up exactly how they wanted to approach sustainability education. It’s no understatement to claim that Greenpoint Eco-Schools teachers have grown the hearts and minds of Greenpoint’s children. They inspired a love of nature and gave students the tools to create a more fair and just world.

Sheri Sankner, a P.S. 31 teacher, reminds us how important it is for teachers to nurture young hearts and minds, and how a passionate teacher can expand a child’s thinking and empower them to make a difference.

***“It is vital that we teach children about sustainability, environmental responsibility, and equity. We need to help broaden their scope of the world. Children need to understand that they are members of many communities in their lifetime, from their families all the way up to planet Earth. They need to know and see that their understanding and their direct actions can make a real, positive change in the world. They are never too young to feel that they can’t make a significant difference. It is our job as teachers to help them grow and develop into leaders of change.”***



## SCHOOL STORIES

# M.S. 126: Transforming a Garden

By **Fai Walker**,  
Sustainability Coach at M.S. 126



Planting flowers in the school garden.

Amber Howes, M.S. 126's Magnet Coordinator and chairperson of the science department, was clear from the beginning that she did not want the garden to be just for the science teachers. "I want all of the teachers to use it, no matter what subject they teach."

In 2015, M.S. 126 started its garden with one visionary administrator (Amber Howes), two science teachers, and nine students in the Eco-Schools Green STEM Afterschool Club. Three years later, the garden morphed into an outdoor classroom; more than forty people from Grow NYC and Citizens Committee have committed to its continuation.

Teachers began asking if they could use the garden for their classes. During its first year, the science teacher used the garden to illustrate decomposition, and examine the soil's micro- and macro-organisms. The art teacher had students sketch flowers and vegetables. The yoga students brought their mats to the garden and performed asanas and meditations. In the second year, students worked with a local permaculturist to re-imagine the outdoor space. The design included eleven raised beds, nine pocket planters along the fence, a pollinator garden, a bird bath, three picnic tables, an assortment of benches, a weather station, and a pergola.

Amber and I realized we needed a governing committee to establish garden protocols, schedule classes, establish a garden maintenance list, and create a crop plan. We were thrilled when six educators from different content areas volunteered to be on the Garden Committee. They all joined for different reasons. However, they all had one thing in common: they wanted to learn more about gardening. So we allocated professional development money for members to attend gardening workshops during and after school hours, as well as on weekends. Committee members shared what they learned with M.S. 126 staff during weekly professional development sessions.

During summer sessions, M.S. 126 started collaborating with a community organization housed at the school to provide a summer gardening and cooking program. The tomatoes, kale, scallions, eggplant, basil, sage, and peppers are harvested, prepared and served in the school cafeteria.

***“My Mama and Papa in Poland made sure that we had a garden. Every weekend we would travel to our garden. It’s my fondest childhood memory, even though I wasn’t much of a gardener at the time.” —Ms. Glowacki, bilingual teacher***

***“My grandfather used to garden. I would watch him. I always wanted to learn how to garden but never did. I am changing the way that I eat and I need to know more about what I eat.” —Ms. Hardy, special education paraprofessional***

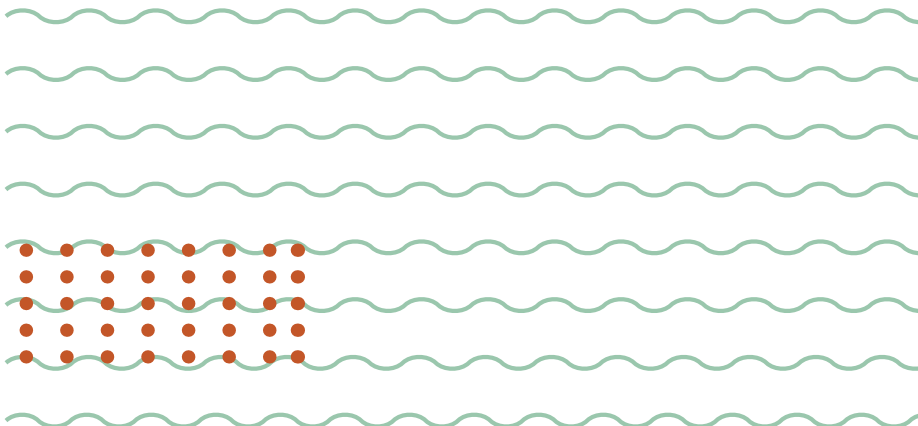
***“I volunteered because I just wanted to know more. I thought Eco-Schools Pathways to Sustainability were a great way to bring environmental awareness into the classroom. It’s more than just going outside. It’s awareness of the parts of plants that we eat. It’s learning about germination and observing how plants grow.” —Ms. Gilhuys, special education Social Studies teacher***

School gardens require commitment, coordination, and consistent effort. It’s been four years since my first conversation with Ms. Howes. The garden/ outdoor classroom has been transformed into an extraordinary space for learning and enjoyment, thanks to the partnership between the school and community partners.

A few weeks ago Amber was beaming; she had just been out in the garden with a 7th-grade English class. “You should have seen them. Everyone was engaged. Even the student who never participates was helping everyone! See, this is what I was talking about.”



Teachers and students celebrate their hard work after a garden volunteer event.





## SCHOOL STORIES

# P.S. 34: Green STEM Program

By **Tina Wong**,  
Sustainability Coach at P.S. 34



*“It has been very exciting planning a hands-on curriculum that is engaging for all of the students from kindergarten through 5th grade. We identify real problems that face our school, community, country and world. We design, test, and redesign solutions to address these problems to help make real change in our world. NWF’s Greenpoint Eco-Schools program has changed the way I teach.”*

**—Jeanne Marshall, Green STEM Teacher, P.S. 34**

Walking into the classroom, you see students engaged in activities, you hear thoughtful conversations and questions, you feel students’ excitement, and you smell all the tomatoes and herbs that are being grown in the classroom throughout the year. Ms. Marshall circulates around the room as students work in groups. Welcome to the Green STEM lab!

## Developing a Green STEM program

In 2015, Principal Asselta at P.S. 34 was going to create a new STEM (Science, Technology, Engineering, and Mathematics) program. Because the Greenpoint Eco-Schools program was starting simultaneously, we saw an opportunity to infuse the traditional STEM curriculum with a focus on sustainability.

As Sustainability Coach, I worked with Jeanne Marshall, the experienced teacher assigned to the new STEM class to launch the new program. Ms. Marshall has always had a “reuse or repurpose” mindset. I recall her telling me about a chest she stripped and repainted for her nursery at home. She was also eager to shift to a project-based teaching approach—students learn by doing, by exploring, by collaborating. This new class gave her the chance to bring STEM’s “imagine, design, and build” process to her classroom, while instilling the values of sustainability.

To design the year-long curricula for Kindergarten to 5th grades, we selected our program’s five [Eco-Schools Pathways](#) as foundational topics: Consumption & Waste, Water, Energy, Healthy Schools, and Schoolyard Habitats. From there, we selected lessons and activities from a variety of STEM and environmental education resources [see “Resources” on the next page]. “Even though we have these resources, I still have to differentiate the materials and create worksheets and assessments,” said Ms. Marshall. During the inaugural year, we spent approximately one prep period each week working together to refine the curriculum and lesson plans, as well as customizing them to fit the needs of students.

All K-5 students attend Green Stem classes once a week. Each grade level in the program has a different focus. Following the Cultivating Joy & Wonder curriculum, Kindergarten students explore biodiversity by studying plant as well as human diversity in the school’s outdoor classroom. Holding classes in the front yard garden helps our youngest learners fall in love with nature as we encourage their curiosity. First- and 2nd-grade students learn key science concepts through creative activities and challenges. In the Water

Kindergarteners participate in a clay boat challenge in Green STEM class.



unit, students play the Water Cycle Mingle game, which uses movement to teach the stages of the water cycle.

Third-graders spend a year learning about food systems in the Sustainable Foods curriculum. Working with hydroponic growing systems in the Green STEM lab, they compare and contrast the differences between cultivating vegetables in mineral-infused water, without soil, and growing plants in soil, the traditional method. As they build their scientific knowledge, they also learn about food deserts and food equity. They research how these social issues have come to exist in New York City and elsewhere. Ms. Marshall explains how hydroponics can be a solution to food scarcity. For their final unit, the children collect materials to build their own small-scale hydroponic system. Following the engineering design process, students spend the last eight weeks of class building their system with materials provided in the lab, as well as any discarded items they collect for upcycling. In Greenpoint, we also have the opportunity to visit a large-scale hydroponic farm, [Gotham Greens](#), to see how this technique of growing vegetables without soil can strengthen the local food system.

My favorite units are the 4th- and 5th-grade Impact Projects in the Green STEM program. Working in groups, students conduct audits to identify real-world problems; then they create an action plan to help solve the problems, changing things to make them better, greener, or healthier. They start locally—in the school, then at home, then eventually expanding to their neighborhood. Finally, they examine global issues and come up with solutions. To learn more about Impact Projects, read the “P.S. 34: Impact Projects” essay on page 26.

## **I am thrilled that the administration, families—and most important of all, the students—have embraced the Green STEM program.**

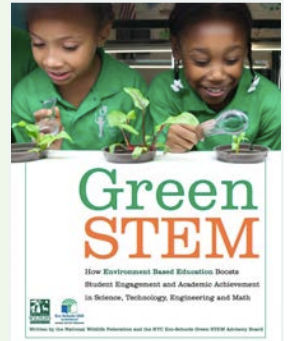
Because every K–5 student attends Green STEM class, I knew it would have the most reach. I’m pleased that the program will continue after my time at the school ends. Ms. Marshall’s enthusiasm, skillset, and confidence is a large part of why the program was so successful; she jumped in with both feet and really owned the program. She continually makes improvements to each unit and adds new materials to enhance learning. Ms. Marshall is truly an exemplary educator and it has been an honor to work alongside her these last few years.

## **GREEN STEM**

*Green STEM infuses traditional Science, Technology, Engineering, and Math lessons with environmental content.*

*Research shows that students are more motivated to learn when their studies are attached to a greater purpose like*

*improving the natural world. Check out tips from practitioners in the [Green STEM Guidebook](#) available for download from the [National Wildlife Federation](#) website.*



## **RESOURCES / SUPPLEMENTAL MATERIAL**

Schools can adapt a similar program by embedding sustainability themes one unit at a time to eventually build a full Green STEM curriculum. Resources used to develop P.S. 34’s Green STEM Program include: [NWF Eco-Schools USA](#); [Solar One Green Design Lab Curriculum](#); [NYC Department of Sanitation Reduce, Reuse, Recycle](#); [Shelburne Farms’ Cultivating Joy & Wonder Curriculum](#); [GrowNYC Seed to Plate Curriculum](#); [Cooper Hewitt K-12 Design In The Classroom](#); [PBS Design Squad](#); [New York Sun Works](#); [DSNY RR Resource Guide](#); and [Project WET](#).



## SCHOOL STORIES

# P.S. 110: Pre-K Teachers Introduce Sustainability

By **Fran Agnone**,  
Sustainability Coach at P.S. 110



Four-year-olds are wiggly creatures. They can sit still for only so long before their curiosity and energy impels them to explore in a new direction. Pre-K teachers are amazingly inventive when it comes to meeting the needs of these young learners. At the beginning of the Greenpoint Eco-Schools program, pre-K teachers asked themselves: how can we instill values of sustainability in our teaching practices? It was not an easy question to answer, but an important one for them to pursue together.

The Pre-K Team at P.S. 110 tailored the curriculum to build connections to nature and outdoor learning, while also instituting “green” classroom practices. Teacher Aida Cruz reflects, “We are starting the movement of sustainability at an early age; we hope that in making them ecologically responsible and aware citizens today, they can understand how their actions have an impact on the environment in the future.”

The following examples show what teaching sustainability to early learners looks like at P.S. 110. We hope that they may serve as inspirational jumping-off points for others.

- » **Stop and notice small things:** As Melissa Ferraris’ class walked by the schoolyard garden, an observant student noticed a garden snail. This encounter awed her classmates and convinced Melissa to dig deeper. She found a book about snails for a read-a-loud and created a snail terrarium in her classroom. Children used a spray bottle to moisten the habitat and added small amounts of cucumber slices and lettuce to feed their hungry friends. This small project helped to instill a deeper appreciation of all living creatures.
- » **Collect loose parts for free play:** By collecting seashells, wine corks, dried tree leaves and other easy-to-come-by bulk items made of natural materials, Nancy Pignatelli created activity stations where her students could use imaginative play to figure out how these parts work together. A seashell as a telephone? A mosaic of fall leaves and acorns? Anything is possible. “We witnessed some amazing creativity when they were left to their own devices,” reflected Ms. Pignatelli.
- » **Feed the worms your banana peel:** Pre-K parents often endlessly question their children to find out what happened at school each day. So it must be a good story if it makes its way out of the classroom and into a parent’s ear. The story goes that Ms. Pignatelli threw out her banana peel in the landfill bin. Students were watching and they shared their concern: Why aren’t you feeding it to the worms? Ms. Pignatelli had just set up a small worm compost bin in her classroom a few weeks before. She quickly corrected herself and had students help her place the peel in the compost bin.



A collection of loose parts for creative play.

**“We are starting the movement of sustainability at an early age; we hope that in making them ecologically responsible and aware citizens today, they can understand how their actions have an impact on the environment in the future.”**

- » **Experiment with outdoor play:** In early childhood education, play is learning! The Pre-K Team has committed to find new ways to engage students in outdoor learning. Danielle Dontas created an instant play feature by laying five bricks flat on the ground in a single line to create a low-risk balancing challenge for students to practice walking across.
- » **Ask families to contribute eco-friendly supplies:** When requesting supplies from families for their classrooms, teachers added the following note: “Please keep in mind that we are a GREEN school; therefore, all cleaning supplies must be “green” in nature. Some examples of environmentally friendly brands are provided below; if there are any questions, please let us know.”
- » **Create new plants from the old:** Most indoor plants are easy to propagate through cuttings or by dividing roots. Students can watch the offshoots grow over time. Pre-K Teacher Aida Cruz plans to create enough cuttings to send a new plant home with each student at the end of the year.
- » **Make a materials library:** The Pre-K Team set up a storage system to house a variety of loose parts from recycled and natural materials. The storage trays provided easy access and helped teachers rotate materials as units of study and seasons change.

By making a commitment to promote nature bonding and sustainable classroom practices, the Pre-K Teacher Team keeps finding connections for those wiggly little folks to foster an understanding of how to be good stewards at any age.



Pre-K students go outside to draw their surroundings.



SCHOOL STORIES

## P.S. 31: Nature-Based Learning

By **Alison Schuettinger**,  
Sustainability Coach at P.S. 31



There has been a growing culture, and incorporation of curriculum, around nature-based learning at P.S. 31, bringing the teachers, families, and staff closer to their environment and to each other. As a Sustainability Coach, my focus these past four years has been to implement the Eco-Schools USA Seven Step Framework to connect the school community with the teachings of nature and place. We discovered that the curriculum is an important entryway into building a culture of sustainability. The Eco-Schools Pathway Schoolyard Habitats brings nature into the classroom or takes the kids outside to the school garden and the neighborhood; even a walk around your city block can produce fascinating observations and playful explorations!

Through individual curriculum coaching, professional development workshops, nature walks, field trips, and co-teaching, the Eco-Schools program has helped all of the P.S. 31 teachers lead nature based learning opportunities. The most popular lesson across the grades has been the Neighborhood Nature Walk, initially led by myself or a guest naturalist. We tailored each walk to the specific grade, unit of study, and season of the year. In addition to the Neighborhood Nature Walks, all pre-K and Kindergarten classes have also visited the local community garden. Many classes have used the school's Garden of Happiness, the schoolyard, and nearby parks as outdoor classrooms.

We adopted the practice of Neighborhood Nature Walks from the Shelburne Farms Cultivating Joy and Wonder curriculum. Even in an urban environment, directly outside the school door and around the perimeter of the building, there are complex systems of nature present and interesting interactions with the man-made environment. Our students and teachers have explored the ecosystems within street tree beds, watched sparrows and pigeons on the sidewalk, played with the helicopter seeds falling from maple trees, and investigated the bottoms of leaves showing the tracks of aphids. Nature-based learning and play is a way to engage kids' natural wonder and curiosity about the world.

There are plenty of ways to explore nature in the classroom as well. Surrounded by three hydroponic systems and countless soil based plants, most classes in the Green STEAM Lab begin with a minute of mindfulness meditation to waterfall sounds and intentional breathing. When you sit in the lab, there is a feeling of infinite possibility and enthusiasm around learning, grounded in principles of mutual respect and care.

Mrs. Tesoriero, our Green STEAM Lab teacher, starts every unit by providing a space for kids to ask questions. “The Wonder Wall is where we post questions. As we progress through the unit and learn, we’ll post the answers. Questions are what guides my lessons. **Letting students create their own investigations is the best way to develop critical minds and problem solving skills.**”

Nature-based learning requires that teachers design lessons around inquiry, curiosity, observation, and play. This can be a shift in the culture of teaching from expert to facilitator. I’ve observed Mrs. Tesoriero’s facilitating investigations with worms and carrot stems, as well as hands-on projects like making hummus or designing Zen gardens—all led by students’ own curiosity about plants and natural cycles. “Making observations about parts of plants, insects, researching and creating investigations keeps students engaged while sharpening their critical thinking skills.”

**Nature-based learning requires that teachers design lessons around inquiry, curiosity, observation, and play.**



Students care for plants during a lesson at a community garden.



## ECO-ACTION TEAM

## Families

By **Sarah Ward**,  
Project Manager

Going green wasn't just for Greenpoint's children—families were the secret ingredient in the Greenpoint Eco-Schools comprehensive school sustainability program. They were tireless champions, go-getters, and teammates who actively supported their children's education and helped us build a culture of environmental responsibility at the schools, at home, and in the community.

We designed the program with opportunities for families to learn together, to explore Greenpoint together, and to practice stewardship together. These intergenerational experiences encouraged parents, grandparents, and other family members to affirm their conservation values and share memories from their own childhoods—often in Greenpoint—of spending time in nature or exploring their neighborhood.

Moreover, because sustainability doesn't stop when school is over, Greenpoint Eco-Schools students often became teachers when they left their classrooms and instructed their families on how to practice conservation at home. Two parents described the new measures implemented in their households:

*“My boys have banned plastic water bottles and plastic bags from our house! They are conscious about idling cars and litter and energy consumption. We also do a compost pickup, requested and maintain two street trees, and participated in a McCarren Park litter clean-up.”*

—Jane Lea (Henry and Jake's mom)

*“Philip is such an environmentalist since [the Greenpoint Eco-Schools program]. He won't take a lunch to school unless it is packed in reusable containers. If I pack him something in a snack bag, he brings back the empty bag to make sure we use it again. He takes his glass or stainless steel water bottles everywhere he goes. He loves to create things from cardboard and tells me he does not need to buy things; he can make them and save the environment. I could go on and on with examples but the bottom line is that I have a child that truly cares about the environment and I am proud and thankful for this.”*

—John Liew (Philip's dad)



Families gear up during a Family Field Trip to the local wastewater treatment center.

**They were tireless  
champions, go-getters,  
and teammates who  
actively supported their  
children's education...**



Families look for birds during a trip to Kingsland Wildflowers green roof.

## **Below are additional ways that the Greenpoint Eco-Schools program engaged and partnered with families.**

### **» FAMILY GREEN TEAMS**

In order to understand families' environmental concerns and join forces on shared stewardship goals, Sustainability Coaches partnered with Parent Teacher Associations (PTAs) and formed Parent Green Teams. Among many other collaborations, the Coaches and parent groups established zero waste policies for family events; pursued grants to build outdoor composting bins and vertical garden systems; and expanded school gardens, which became lush with flowering trees, fruit-bearing shrubs, and native wildflowers.

### **» FAMILY WORKSHOPS**

Vermicomposting (using worms to compost food and plant waste), indoor air quality, green cleaners, upcycling, Greenpoint's industrial and ecological history—these were just a few of the topics that families explored during eco-family workshops at the Greenpoint schools. Both fun and educational, family workshops allowed parents, grandparents, brothers, sisters, and friends to discover something new about the natural world or their city.

### **» COMMUNITY FIELD TRIPS AND STEWARDSHIP**

Why should children be the only ones who take field trips? In order to connect school families to Greenpoint's natural resources and improve its environmental health, the NWF Greenpoint Eco-Schools team, with the help of dozens of community partners, organized family field trips and stewardship events. Together, families investigated and cared for the parks, gardens, and waterways that grow and flow in North Brooklyn. [Read more about these Greenpoint-based adventures in "Eco-Family Field Trips" on page 43.

### **» VOLUNTEERS**

Finally, these fierce family advocates knew that school greening projects required both planning and labor—families were indispensable volunteers who watered and weeded the vegetable beds during summer break; supervised recess and nature-based classes in the school garden; and managed Soil Cycle, the community composting system that keeps food scraps out of the landfill and distributes nutrient-rich compost to residents and gardeners throughout the neighborhood. One civic-minded parent even organized a rally on the steps of City Hall, where children expressed their hopes for a clean energy future and demanded that political leaders respond to the climate crisis with urgency.



Grandfather and grandson planting bulbs in a neighborhood park.



## Eco-Family Field Trips

By **Fai Walker**,  
Sustainability Coach at M.S. 126



Engaging and educating our school families and the Greenpoint community was at the heart of the Greenpoint Eco-Schools program. Sustainability Coaches organized events and activities for families to experience and take care of Greenpoint’s environmental resources. Known as “Eco-Family Field Trips,” these outings gave families the opportunity to see their neighborhood in a whole new light.

To explore the Water and the Consumption and Waste Pathways locally, families traveled to the DEP Newtown Creek Wastewater Treatment Plant and SIMS Municipal Recycling Plant. Families learned where their wastewater goes when they flush the toilet and where our metals, glass, and plastics go when we put them in the blue recycling bin.

Families also visited local parks —McGolrick Park, McCarren Park, and American Playground—to mulch tree beds, plant flowers, install raised beds, identify birds, and participate in scavenger hunts. At neighboring community gardens, such as Franklin Street, Java Street, and Lentol Garden, families learned soil-safety tips in workshops and planted flowers and shrubs. They also explored the grounds and found out how they can become members of the gardens.

Trips to the North Brooklyn Community Boathouse were always a favorite. Family members of all ages piled into skinny canoes and paddled their way across Newtown Creek. Surrounded by the Manhattan skyline and busy industrial shorelines of Brooklyn and Queens, they learned about the creek’s history and evolution. Despite Newtown Creek’s notorious legacy of pollution, aquatic wildlife species—birds, fish, crabs, and more—are returning to the waterway, to the delight of our Greenpoint Eco-Schools families.

Families paddle down Newtown Creek.



After one of these outings, parent Sarah Stansbury (Izzy's mom) remarked:

***“Between city living and screen time, it’s the kind of learning that feels rare these days. It was great to see the kids getting so much hands-on experience and seeing their natural curiosity sparked. In addition, it was great to discover these things in our own backyard. It will certainly make the kids look at their city and neighborhood differently. Izzy just told me that one of her favorite parts was seeing a giant crab on one of the pilings near the boat launch. Now she knows that crabs live in NYC too.”***

Beyond the Greenpoint neighborhood, parents accompanied students on field trips to the NYC watershed in Croton, NY; they sailed on the Hudson River to study New York waterways and aquatic life; and they volunteered at an e-waste warehouse to learn where electronics go when they no longer serve our needs. Most of these experiences were not only new to students but to parents as well. The sheer awe and wonder of families learning together can be breathtaking.

During the four years of the Greenpoint Eco-Schools program, we connected families to our city’s natural and human-made resources; these experiences deepened families’ understanding of sustainability and encouraged new habits and behaviors. Greenpoint families will know what to do if there is lead in their backyard soil, they’ll know what critters live in Newtown Creek, they’ll know that their community has changed remarkably over time, and most importantly, they’ll know that they are the neighborhood’s environmental advocates and stewards.



Jared, a P.S. 34 student, and his mom, Desiree.

**“When families connect with the outdoors, they’re doing more than strengthening bonds with one another—they’re forming lasting bonds with our natural world. Through our educational programs and other experiences, the National Wildlife Federation creates ways for kids and families to experience nature and become empowered stewards of our environment.”**

**—Eco-Schools USA**

## P.S. 34: Eco-Fashion Show

By **Alina Calovic**,  
Vivienne's mother

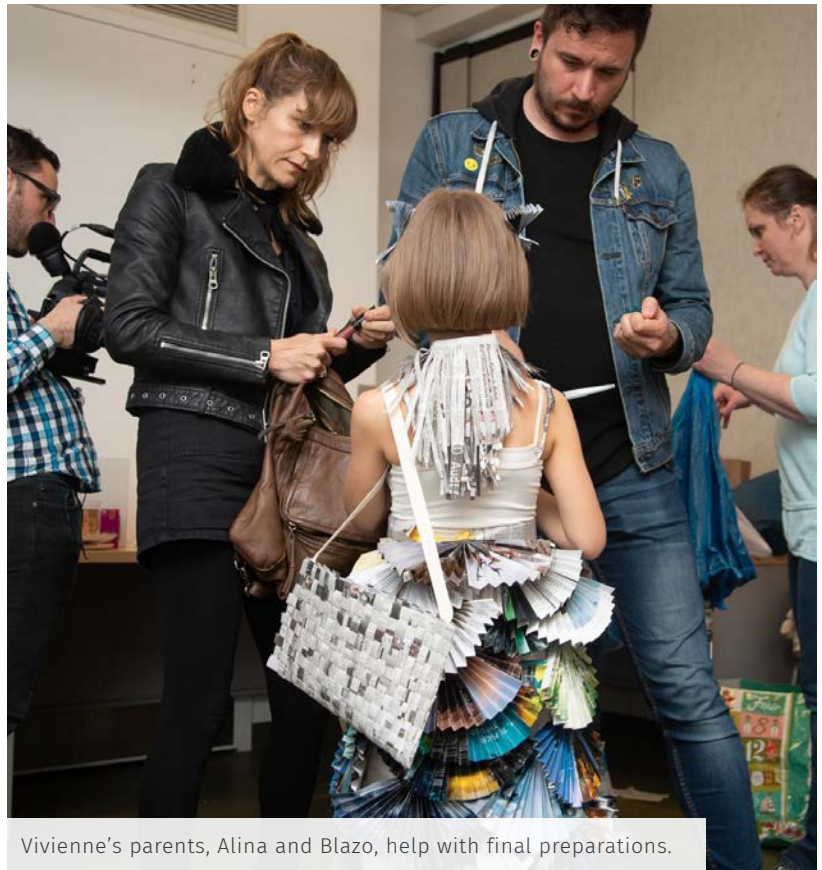
Introduction by **Tina Wong**,  
Sustainability Coach at P.S. 34

In September 2016, Ms. Asselta, the principal at P.S. 34, approached me and shared that her daughter's high school has a fashion show they do each year that involves using trash to create clothing. She wondered if we could organize one, too. After considering all of the logistics (who, what, when, where, and how), I agreed to help create and produce the event.

The Eco-Fashion Show project begins in January and is open to all students, from pre-K to 5th-graders. Students work with their families to design and fabricate outfits using materials destined for the trash, a.k.a "upcycling." The main objective of the show is to raise awareness of the environmental impacts of consumption and waste. In addition, the goal for the show (and the time leading up to it) is to provide an opportunity for creativity, collaboration, and conservation. In April, usually at the culmination of the school's Earth Week celebration, we throw a big bash where all the designs are showcased in a runway show! Each year, there is a new theme for the collection. For [Year One](#), it was Greenpoint's Past, Present and Future. The [second-year](#) collection was based on [Eco-Schools USA Pathways to Sustainable Development](#): Water, Energy, Gardens (Schoolyard Habitats), and Consumption & Waste. For [Year Three](#), the theme was wildlife. This has been a truly fun and successful event, and will continue after the Greenpoint Eco-Schools program ends.



Khloe dressed as a doe.



Vivienne's parents, Alina and Blazo, help with final preparations.



Alina Calovic, a parent who's participated each year, recounts her experience:

The Eco-Fashion Show is the highlight of the year for our family. We love to work together to think about what materials we can use to make an outfit—we are allowed total creative freedom. I especially love the dialogue leading up to our chosen topic and final narrative. It's such a great way for a family to really think about waste, reusing and recycling materials, and even perhaps cutting down on our consumption, our own waste we make each day.

The workshops leading up to the show are so informative and hands on. Tina has really done such an amazing job with organizing and timing the workshops so that parents have the support they need. Some of the workshops include guests that can further help with the execution of your outfit. It was very helpful to have the folks from Material for the Arts come to speak and show what kinds of materials can be used and how to use them.

Vivienne, my 8-year-old daughter, is always so proud to work on her outfit. The final days leading up to the show, she cannot contain her excitement. She feels very happy and fortunate to be a part of such a special event. And if you see her strut down the runway, you'd see how proud and happy she is.

The day of the show, children are taken to the event space to practice their walk down the runway. The event space is in the community and is perfect. Everything about the show makes it feel like a real fashion show. There are actual models who are there to assist, there's a mocktail hour, there's music, photographers, and even a swag bag—all of this adds so much to the experience. Vivienne says that it made her feel like a real model.

She also loves that she can spend time with her fellow schoolmates the day of the show and share the excitement of this day. When parents arrive, we help our little ones get into their outfits. We have an introduction from Tina and the show begins. Everyone there is so enthusiastic as they walk down the runway. Each student has a chance to explain the concept underlying their fashion creation and how it relates to the earth. It's interesting to see each outfit and hear about where they get their inspiration.

And finally, the event always ends with a gigantic group photo and cake! The Eco-Fashion Show has become something that my family and I look forward to each year. Thank you for the amazing experience!

Third-grade student **Vivienne Calovic** was a peacock spider, an animal first discovered in Australia in 2011. She said she was also nervous before the fashion show, but in the end, "it was kind of easy." Her favorite part was the finale. "We all get to put on our costumes and show them off together," she said.

Blazo Calovic, Vivienne's father and a Greenpoint resident, said the Eco-Fashion Show is an opportunity for parents to be creative with their kids. "She always gets excited when she gets home and she knows we're going to be working on it," he said. "It's always nice when it comes up every year because you know you're going to be doing something together." Calovic said his daughter was nervous the first year, but in her third year, he could tell she gained more confidence. "It was fun seeing her come out of her shell," he said. "She's learned a lot, especially with this one because it's about animals. "It's been a great opportunity to do something with your kids that brings you closer to them," Calovic added. "The day-to-day doesn't allow for this kind of stuff, so it's nice these kinds of things come up."

Read more on the NWF Blog: [Fashion and Fun for A Wildlife-Friendly Future](#)

Vivienne dressed as a peacock spider.





**“It’s been a great opportunity to do something with your kids that brings you closer to them.”**



## Community Partnerships and Stewardship

By **Sarah Ward**,  
Project Manager

On a school's pathway to sustainability, community involvement is essential. The community encompasses all the people, places, and everyday experiences that a child encounters. It's home, it's an ecosystem, it's culture, and it's the economy. The neighborhood is where a child first observes the diverse relationships that support all living things. When schools reinforce connections to their community, both the neighborhood and the school benefits.

In addition to school-based partnerships with teachers, administrators, and families, the Greenpoint Eco-Schools program collaborated with over 30 community partners, including city agencies, non-profits, and local organizations. We used the neighborhood as a resource for learning and improved its ecological health through stewardship. We collaborated with dozens of community partners, some of whom have worked for decades, to confront Greenpoint's most pernicious environmental issues. They shared their expertise with students, staff, and families; they modeled conservation action and values. We were so grateful to have this supportive network to galvanize our students, Greenpoint's next generation of community leaders and activists.

### Community Stewardship Projects

As part of our grant, we were fortunate to have funds specifically designated for community stewardship. Each school received \$5,000 to be used for a project that directly improved Greenpoint's environmental health and engaged school families and residents in service. Although grant funds help schools take action in their community, they are not always necessary if you leverage relationships and articulate shared goals with partners. The following stories recount how each of the four Eco-Schools took action to strengthen the Greenpoint community.



Families volunteer at American Playground garden installation project.



## » P.S. 31: RAINWATER HARVESTING

CSOs (combined sewer overflows) are a pervasive problem that harm the water quality of NYC's waterways. During dry weather, sewer pipes transport wastewater (from sinks, showers, toilets) from our buildings to a water treatment facility, where it's processed, cleaned, and released back into the water system. But during periods of heavy rainfall, the sewers must carry both the wastewater from our buildings and the stormwater runoff from our streets. The pipes can't contain this much volume; the system is designed to let the untreated mixture of rain, drain water, and sewage overflow into local bodies of water, including the East River and Newtown Creek, Greenpoint's borders. When P.S. 31 students and families learned that green infrastructure—green roofs, permeable surfaces, and rain barrels—could mitigate this problem, we collaborated with [61 Franklin Street Community Garden](#), just a few blocks from the school, to install a rainwater collection system. Comprised of three barrels that can store up to 600 gallons of rainwater, this green infrastructure system can prevent 2,500 gallons of stormwater from entering the NYC sewer system per year. The joint project has helped improve the health of our waterways, as well as all of the people and wildlife that depend on them.

## » P.S. 110: SOIL SAFETY

When P.S. 110 families learned that Greenpoint's soils contained high levels of lead contamination, they wanted to make sure caregivers knew about the issue—and most importantly—knew how to keep their children safe. We partnered with [Urban Soil Institute](#) and [North Brooklyn Neighbors](#) to expand their soil safety advocacy projects. To help families find out if their children were playing in lead-contaminated soils, we offered opportunities for soil testing. Families dropped off soil samples at the school. Urban Soil Institute tested them for heavy metals and mailed back the results. In addition, we hosted an event at a community garden, where scientists tested soil samples on site and shared results with guests within minutes. We also published an oversized postcard for families: Keeping Outdoor Play Safe: Simple Steps to Reduce Lead Exposure From Soil. With tips such as, "Remove your shoes before entering the apartment," the resource outlines best practices for minimizing exposure to lead from soil.

## » P.S. 34: INCREASING BIODIVERSITY

Students and families wanted to increase green space and biodiversity in the neighborhood. With the help of community partner [North Brooklyn Parks Alliance](#), they installed cedar benches and planters filled with native grasses and wildflowers at American Playground, a popular local park. At two feet tall, the planters are just the right size for children to run their hands through the long grasses or smell the minty leaves of the perennials growing inside. This green nook is a lush respite in a playground covered by asphalt. Butterflies and bees visit the seasonal blossoms for nectar, and caregivers sit on the benches while their children play on the swings and slides. Establishing a new stewardship tradition, P.S. 34 classes walk to the park every spring to check on the plants and spruce up the playground.

## » M.S. 126: RESTORING SOIL HEALTH

Due to the neighborhood's history of heavy industry and manufacturing, toxins seeped into Greenpoint's soils and have remained there for years. M.S. 126 students and families were interested in restoring the health of these soils by amending them with compost. Just before our program began, they received a grant from [Greenpoint Community Environmental Fund \(GCEF\)](#) to build three compost bins for the school campus. Known as Soil Cycle, this compost system features a network of pipes and pumps, powered by solar panels, that blast oxygen into the compost pile and accelerate decomposition. With our support, the school partnered with local Master Composters to expand the project so that family members and residents could drop off their food scraps weekly. It's a win-win for people and for the environment: residents help maintain the system and take finished compost back to their home gardens; otherwise, food waste would be dumped into landfills, where it produces methane, a powerful greenhouse gas. The school's compost was given a A+++ quality rating from the Brooklyn Botanic Garden and is distributed at all of the school's community events.

# Reflections From the Greenpoint Eco- Schools Principals

By Maria Ortega, Anna Cano-Amato,  
Carmen Asselta , and Mary Scarlato

*What impact has the Greenpoint Eco-Schools Program had on your school community?*

**Maria Ortega, M.S. 126 Principal:** The impact of the Greenpoint Eco-Schools program on the M.S. 126 community has been both intense and far-reaching. As a school for Engineering, our students must be on the forefront of scientific and ecological breakthroughs that will shape the future. The Eco-Schools Program has allowed our middle school students to not only understand such topics as sustainability and recycling, but also to become actively involved in these worldwide initiatives. Through the Eco-Schools programming efforts, students—and, by extension, families and neighborhoods—have been involved in all phases of ensuring that our conservation efforts will continue for years to come. All students are immersed in the program values and core beliefs, which drive our entire school population to be ecologically responsible. Finally, the Eco-Schools Program has galvanized all of our school stakeholders around one key issue: saving our planet.

**Anna Cano-Amato, P.S. 110 Principal:** As a result of the Greenpoint Eco-Schools program, our school's sustainability priorities grew slowly and with purpose. Fran's (Sustainability Coach at P.S. 110 ) quiet strength and passion for the work helped our entire school community come together—the Greening Committee, the Wellness Committee, the Eco-Schools Teacher Teams, and more. The whole program allowed student voices to shine in a really meaningful way. Of all of the many projects we undertook—Green Team classroom inspections or the No-Idling campaign or studying the Newtown Creek ecosystem—every single project allowed children to feel like they were taking ownership of their learning in terms of taking ownership of their environment. It allowed children to excel as leaders and as environmentalists.

**Carmen Asselta, P.S. 34 Principal:** The Greenpoint Eco-Schools Program has fostered a deep sense of awareness, responsibility, and stewardship for our Earth in all students and staff at PS 34. Their education has been enhanced with experiences that speak to the issues facing our environment and how they can make a real difference. Students have taken part in everything from recycling, planting and energy conservation to designing impact projects and participating in the Annual Eco-Fashion show that highlights how the fashion industry impacts our environment. We need programs such as Eco-Schools to help prepare our children for a lifetime of smart environmental decision-making that will help shape our world for generations to come.

**Mary Scarlato, P.S. 31 Principal:** The greatest impact that the program has had on our school is the development and empowerment of student leadership, as well as student ownership of learning and facilitation. Our Green Teams (Seedlings of Change, Leaders of Change, and Waste Warriors, have played a crucial role in evaluating the school's environmental impact and implementing solutions for issues such as classroom waste and electrical usage, in addition to greening the school grounds and promoting sustainability. By establishing the Parent Green Wellness Committee, family members also contributed to the initiatives. We also partnered with community groups to work together on neighborhood projects.



Principals Cano-Amato and Ortega



Principals Scarlato and Asselta



# Sustainability Tips for Green Teams and Educators

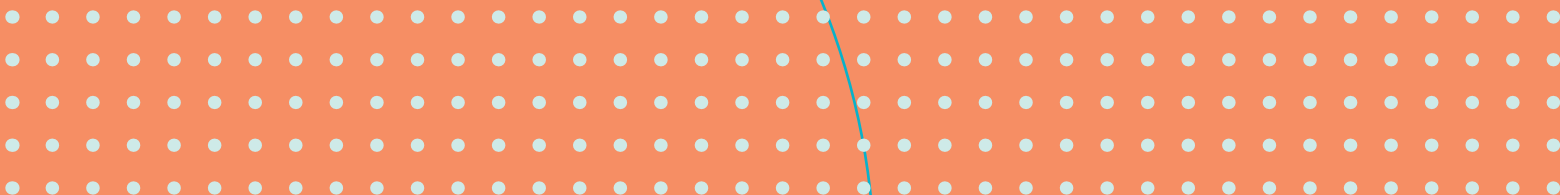
Whether you're a member of a student Green Team or a school professional, we've compiled best practices from the Greenpoint Eco-Schools program to guide your school on its Pathway to Sustainability.

## Green Team Tips

Focused on the five Eco-Schools Pathways to Sustainability that the Greenpoint Eco-Schools addressed — Consumption and Waste, Energy, Healthy Schools, Schoolyard Habitats, and Water — we hope the Green Team Tips will inspire you to take environmental action for your school and community.

## Educator Tips

With strategies for enhancing student learning and recommendations for maintaining school systems, the Educator Tips offer practical advice for teachers, Administrators, and school staff.







## GREEN TEAM TIPS

# Consumption and Waste Pathway

- » **Hire a student for the job!** Assign student leaders to help their classmates sort recycling and landfill waste in the cafeteria.
- » **Grade your teachers!** Inspect classroom waste bins to see if classes are sorting their waste correctly. The class gets an “A” if they separate recyclables properly.
- » **Stay hydrated responsibly.** Encourage students and teachers to carry reusable water bottles instead of disposable plastic bottles.
- » **Keep your community clean and green.** Organize a litter cleanup in the neighborhood.
- » **Take a trip!** Visit your city’s recycling center to find out where your school’s recyclables go when they leave the school.



(Top) Students sort their cafeteria waste into bins.

(Right) A student paints an organics bin.

(Far Right) A student refills her reusable water bottle at one of the refill stations.





GREEN TEAM TIPS

## Energy Pathway



- » **Say NO to energy vampires!** Post reminders to unplug electronics and appliances that continue to use electricity when plugged in.
- » **Distribute power strips and timers** to classrooms to automatically power "OFF" electronics at the end of the day.
- » **Take a "field trip" to the boiler room.** Invite custodial staff to speak to classes about how the school building consumes energy.
- » **Harness the power of the sun!** Add solar chargers to personal electronic devices for to charge them with free, renewable energy.
- » **Investigate electricity!** Arrange a visit to a local power plant to find out how electricity is generated and distributed in your city.



(Top) Energy Vampire" sign reminds teachers and students to turn off electronics.

(Above) Students at M.S. 126 visit the boiler room.

**"I have been teaching the subject of energy for five years and I never thought to take students to the power plant. It made it so real for my students. They actually got the chance to see how energy is generated. Even I learned something new."**

— STEVEN HOUSE, 6TH-GRADE SCIENCE TEACHER





GREEN TEAM TIPS

# Healthy Schools Pathway

- » **Clean with green!** Request green cleaning products on classroom materials list.
- » **Reduce plastic waste and save money!** Mix concentrated castile soaps with water and essential oils in reusable plastic spray bottles to create green classroom cleaners.
- » **Do it yourself!** Make your own DIY cleaning wipes with paper towels and non-toxic cleaning soaps, vinegar, and baking soda.
- » **Breathe easy!** Distribute plants to classrooms to improve indoor air quality by converting carbon dioxide to oxygen.
- » **Stay awake!** Open the windows to circulate fresh air and keep students alert.



(Top) Student artwork of clean air plants.

(Above) Winners of an anti-idling poster contest.

(Right 3) Students mix their own non-toxic green cleaner.

## All-Purpose Green Cleaner Recipe

*Add all ingredients to a reusable spray bottle, and shake to mix.*

- » 1 part water
- » 1 part vinegar
- » 15-20 drops of essential oil (try lemon, lavender, or peppermint)





GREEN TEAM TIPS

## Schoolyard Habitats Pathway



(Above) Students use their “owl eyes” to look for wildlife visiting the school garden.

(Right) A pollinator visits a flower in a Schoolyard Habitat.

- » **Watch for wildlife!** What species of mammals, birds, or insects visit or live in your school garden? Conduct a survey to find out.
- » **Make it official!** Certify your garden as a Schoolyard Habitat if it provides food, water, and shelter for wildlife.
- » **Feed the bees!** Plant nectar-rich flowers for pollinators, and keep bees, butterflies, and birds well-fed.
- » **Thank a tree!** Take care of the trees near your school to show your appreciation for the shade, habitat, clean air, and beauty they provide for the neighborhood.
- » **Find nature in your neighborhood!** Visit a local park or community garden to see what’s growing.

Create a haven for wildlife  
and certify it here:

[nwf.org/schoolyard](https://nwf.org/schoolyard)





GREEN TEAM TIPS

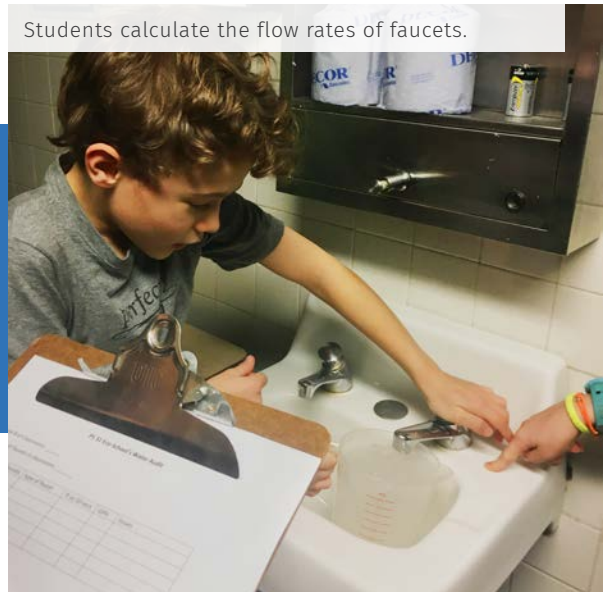
# Water Pathway

- » **Be on the lookout for leaks!** Did you know that one slowly-leaking faucet could waste more than 3,000 gallons of water per year? Work with the school's Custodial Engineer or Principal to make sure leaks get fixed.
- » **Calculate your water footprint!** Water is essential for all life —how much water do you use during a single day? Challenge yourself to conserve water at home.
- » **Where does your drinking water come from?** Find your watershed on a map—trace your tap water from its source to your sink.
- » **Save drinking water for drinking!** Collect rainwater in the garden and use it to keep plants happy and healthy.
- » **What happens to your school's wastewater after it's used?** Take a trip to your local wastewater treatment center to find out.

Ocean pollution lesson.



Students calculate the flow rates of faucets.





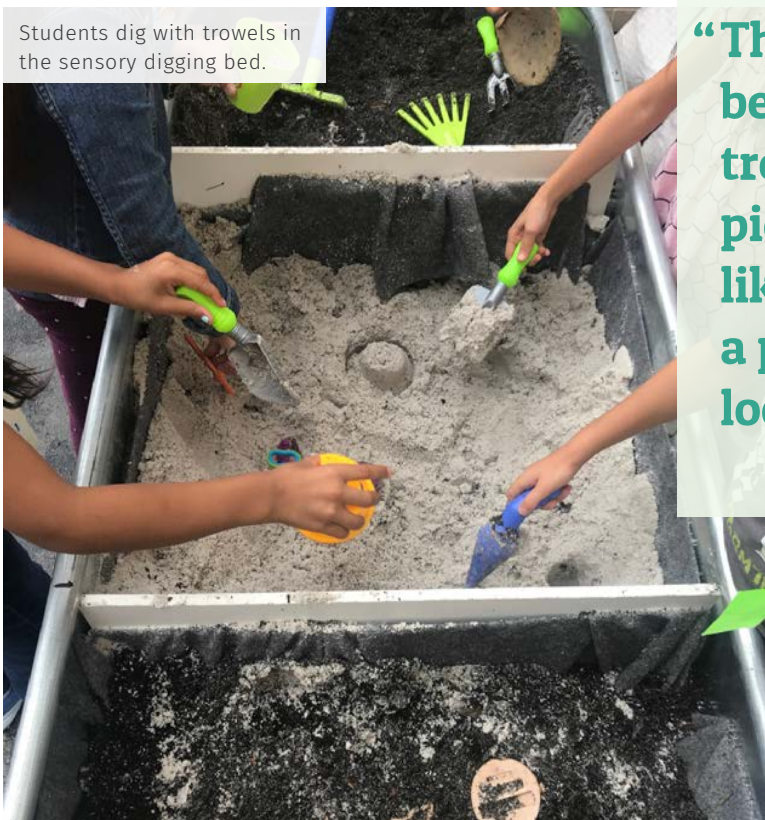
## EDUCATOR TIPS

# Outdoor Classrooms

Spending time outside in natural environments is proven to increase students' motivation to learn. Using the outdoors as a classroom gives students a change of scenery and re-energizes them, whether studying Art, Science, or English. Nearby parks and community gardens can serve as outdoor classrooms if the school grounds can't accommodate an entire class.

- » **Clipboards are desks-on-the-go!** Keep a classroom set of clipboards handy to make it easy to take notes outdoors.
- » **Bring students outside for independent tasks.** Quiet activities like reading and writing are perfect for the outdoor classroom.
- » **Record observations and collect data.** Study natural phenomena like plant life cycles or weather patterns. Students can create charts and graphs that show how plants or weather changed during the school year.
- » **Create a sensory digging area.** Fill up containers with a mixture of finished compost and sand. Add a rotating inventory of natural trinkets like sea shells, bark, and plant pods to help heighten the sense of discovery.

Students dig with trowels in the sensory digging bed.



**“The sandbox is really fun because you can search for treasures from plants like pieces of bark and leaves. I like them because they are a part of nature and I like looking at nature.”**

— JULIA, AGE 6





## EDUCATOR TIPS

# School Garden Maintenance



Community compost training  
with M.S. 126 families

**“I liked the cooking  
the best. I don’t  
really cook. I can  
make toast. My  
mom and dad cook  
at home. So for me  
the cooking was  
the best!”**

— ABIGAIL, GRADE 6

School gardens require commitment, coordination, and consistent effort. Whether growing edible crops or creating a wildlife habitat, here are some strategies for keeping green spaces well-tended throughout the year.

### » **Form a Garden Committee**

Recruit teaching staff, administrators, custodians, families, and students to care for the garden. Schedule meetings at least once a month to review maintenance plans, track progress, and celebrate seasonal highlights.

### » **Involve Students During the School Day**

Display garden tasks and create a calendar so classes can schedule time to help out in the garden. At M.S. 126, a student leadership team meets twice per month to water, weed, mulch, harvest compost, and start seedlings.

### » **Throw a Party**

Garden chores are fun if you plan creative events like P.S. 34’s “Garden Gnomes and Fairies” party. Children dress up as gnomes or fairies while they work with their grown-ups to weed, water, and spread mulch.

### » **Eat What You Grow**

Vegetables taste delicious when you’ve tended them from seed to harvest! Let students experiment with new recipes to encourage healthy eating habits. Schools can partner with programs like NYC’s free Garden to Cafe program, which provides a master chef to help students incorporate garden ingredients into the school cafeteria menu.

### » **Promote Community Composting**

Encourage families and staff to drop off food scraps in the garden’s compost system. In exchange for finished compost for their own gardens, participants volunteer to maintain the compost system and help organize work days in the school garden.

### » **Partner with Summer Programs**

In the summer, edible gardens are at the height of production; but even low maintenance native plants are at risk from extreme summer heat and drought. Camp groups and students enrolled in summer youth programs can take over garden chores, such as watering, weeding, and harvesting; both the gardens and the students will benefit!



## EDUCATOR TIPS

# Waste Infrastructure Improvements

To make it easy for everyone to form recycling habits, establish uniform systems with clear signage for all types of learners. It is key to train all members of the school community— staff and students—so that the systems can be institutionalized. Consider the following tips when assessing your school's waste systems.

- » **Establish Hallway Recycling Stations.** Promote proper waste disposal outside of classrooms. To lighten the burden on custodial staff, consider asking students to empty their classroom bins into the hallway stations at the end of the day.
- » **Invest in a Dual Bin Dolly.** With a wheeled platform that holds two garbage cans, this tool allows custodial staff to pour landfill waste in one container and recyclables in the other when they collect from classrooms.
- » **Paint the Sidewalk.** Use color-coded grids to organize waste streams on the sidewalk for pick-up—gray for landfill, green for paper, and blue for metals, glass, and plastics.



Painted curbside



Dual-bin dolly





Visit [nwf.org/ecoschools](https://nwf.org/ecoschools) to learn more and become part of the largest green schools program in the world!