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Elementary Division
Brooklyn Borough
& Citywide Winner

PS 32
Samuel Mills Sprole

2014 GOLDEN APPLE AWARDS

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2014 Golden Apple Awards
Contest Entry Judging Info

(This sheet prepared for judges' use by DSNY BWPRR)

ID Info: **14011**

School: PS 32 Samuel Mills Sprole
Grade Division LM
Borough: K

☐ **Golden Shovel Award contestant**
(for borough Master School Composter)

2014 Project Entries received for:

School Population: total # 425

	Core Group:	Total Participating:
☐ **TrashMasters! Super Recyclers**	30	425

Received:

☐ **TrashMasters! Reduce & Reuse Challenge**		

Received:

☑ **TrashMasters! Team Up to Clean Up**	30	425

PS 32 Community Garden — Received: 4/30/2014

In 2011, PS 32 transformed a concrete urban schoolyard, only 1-1/2 blocks from the Gowanus Canal (which USEPA designated as a Superfund cleanup site in 2010), into a learning garden. The school's diverse student population work together in the garden and learn about environmental science and stewardship, as well as nutrition and healthy eating, art, writing, math, social studies, history, with curriculum linked to the garden across grades. The space includes an edibles garden, sensory bed, native species garden, flower beds, and a Three Sisters garden with indigenous crops, has multiple raised beds, planters, rainwater harvesting, a 3-barrel composting system, and a greenhouse.

Prior Year Entries:
13:TU-part, GS-K

Current Prizes
14:SR-ru,TU-C

School Contact Information:

Phone: 718-222-6400
Address: 317 Hoyt St
Brooklyn 11231

Block&Lot: 3004370001
DOE Location: K032
DOE Bldg: K032

REQUIRED for Super Recyclers only:

Custodian: Arthur Cordner

Contest Coordinator: Francine Cuomo

Principal: Deborah Florio

Sustainability Coord: Francine Cuomo

Info Confirmed:

Printed: 6/18/2014

COVER PAGE

SCHOOL INFO

- PS 32
- Samuel Mills Sprole School
- 317 Hoyt Street, Brooklyn, NY 11231
- Phone: 718-222-6400
- Fax: 718-222-6405
- Principal: Deborah A. Florio, 718-222-6400, dflorio@schools.nyc.gov
- Contest Coordinator: Francine Cuomo, Business Manager, 718-222-6400, fcuomo@schools.nyc.gov
- School description:

PS 32 (http://www.ps32.org) is an elementary school serving an unusually diverse student body of 425 pre-K through 5th grade children, located one and a half blocks from Brooklyn's Gowanus Canal. As well as being the zoned school for part of the neighborhood that includes the New York City Housing Authority's Gowanus Houses, PS 32 serves children beyond its zone. Our highly esteemed District 15 NEST Autism Spectrum Disorder program is a model for educating high-performing children on the Autism Spectrum, our Integrated Co-Teaching program enables typically developing children and those with special needs to learn side by side, and our new District 15 Gifted & Talented program further enables PS 32 to meet the needs of diverse children. In recent years its teachers, administration, and parents have worked together to create an award-winning library and garden. Since 2011 the PS 32 Community Garden has become an essential learning and community-building resource where its diverse students come together to work and learn, as well as a unique part of New York City's Gowanus area clean up, beautification, and revitalization.

CONTEST ENTRY INFO

- Borough: BROOKLYN
- Grade Division: ELEMENTARY
- Contest Entry Title (10 words or less) PS 32 COMMUNITY GARDEN
- Contest Entry Summary:

In 2011 the PS 32 Community Garden was created in a concrete urban schoolyard one and a half blocks from the Gowanus Canal, which was designated a Superfund clean up site by the U.S. Environmental Protection Agency in 2010. Thanks to dedicated parents, teachers, and administrators who envisioned the garden as a hands-on, collaborative learning resource that would deepen PS 32's engagement with environmental issues, as well as grants and other support, it now exists as a beautiful green environment serving as such a resource. It is also a community-building resource for the school's unusually diverse students, who work together in the garden and learn about environmental science and stewardship, as well as nutrition and healthy eating, art, writing, math, social studies, history and more thanks to a curriculum linked to the garden across grades. A unique part of New York City's Gowanus area clean up, beautification, and revitalization that directly benefits neighborhood children, the PS 32 Community Garden has strengthened our school community and raised awareness of the wider world and its environmental challenges.

STUDENT INVOLVEMENT

- Student Participation: Core Group #_30____
- Student Participation: Total #_425____
- School Population: Total #__425___

CLEAN UP AND GARDENING PROJECTS

IMPLEMENTATION

WHY THIS?

During the 2010-11 school year, soon after the Gowanus Canal was added to the U.S. Environmental Protection Agency's Superfund National Priorities List, a Green Committee was formed within the PS 32 Parent Teacher Association (PTA) and meetings were held with the administration to determine what could be done to deepen our school's engagement with environmental issues as well as provide hands-on, collaborative learning on multiple subjects across grades. They were to include nutrition and agriculture, since healthy eating and understanding how food is grown is of special relevance to students from a census tract with limited access to fresh produce and heavy reliance on Food Stamps and the Supplemental Nutrition Assistance Program. The Green Committee also articulated the need for green space in an entirely concrete urban schoolyard and a therapeutic environment offering tactile, collaborative experiences for students on the Autism Spectrum.

A garden, it seemed, could meet these needs and interests.

WHAT WE DID

Principal Florio wholeheartedly embraced the vision taking shape;
she believed, among other things, that a garden could tie into New York State curriculum mandates on every grade so that each student could benefit. Once the idea of a garden was approved, she assigned teachers to formalize two such units of study in each grade, including Science and Social Studies. Eventually, with her guidance a spiraling curriculum for pre-K through 5th grade was written to satisfy New York State mandates while allowing children to have the kinds of hands-on learning experiences in the garden we envisioned. Along other lines, parents registered with Grow to Learn and received guidance and funding from Grow NYC, as well as PTA funding for three sub-irrigated raised beds that were four by eight feet each. These inaugural beds were built on the concrete schoolyard behind the main school building.

Garden Committee parent volunteers Gary Powell and Bess Hauser were recruited to launch the garden in 2011, and have coordinated and overseen operations since then. They have worked alongside and guided student gardeners, giving over ten to fourteen hours weekly to garden activities during planting and harvest. Their dedication and expertise have been central to its success. Gary has studied gardening, rainwater harvesting, and composting at Cornell University, Edible Schoolyard NYC, Bionutrient Food Association, and Green Thumb. In addition to fundraising, Bess coordinates with teachers and staff throughout the year to maximize student participation in all activities including planting, pruning, watering, fertilizing, and harvesting.

The creation of a green environment where there was once only concrete gave great pride and joy to the PS 32 community, and a new sense of engagement with environmental issues relevant to local clean up, beautification, and revitalization. The garden's first harvest was eaten and greatly enjoyed by students who in many cases had little prior exposure to fresh produce. Since then the garden has expanded as support and appreciation for it has grown; more than a half dozen raised beds have been added, along with numerous planters, a rainwater harvesting system, a three-barrel composting system, a tool shed, and a greenhouse. Our urban garden is an edibles garden supplemented by a sensory bed, a native species bed, and flowerbeds.

We have been able to grow broccoli, cauliflower, green peppers, celery, tomatoes, eggplant, beans, lettuce, kale, spinach, parsley, basil, lemon balm, potatoes, strawberries, succulents, flower bulbs, sunflowers, and more. Students have nurtured and watered its plants, harvested

and eaten its produce, benefitted from the therapeutic value of its sensory garden, dissected and logged journal entries on its bulbs, and learned how rainwater harvesting, composting, and the green infrastructure of its sub-irrigated beds impact the local environment in beneficial ways. It is a green space beloved by the children and community of PS 32.

PROJECT PLANNING (Objectives and Organization)

Our curricular objectives have in many ways anchored the planning process. As mentioned, when the idea of a garden was approved, Principal Florio assigned teachers to develop a curriculum of New York State mandated studies in Science and Social Studies with numerous linkages to the garden across grades. In 2012-13 we used a new enrichment model through which each grade chose one New York State Science mandate with such linkages, to be taught every Friday. For example, to this end students might use a dissecting microscope to analyze bulbs and life forms found in the garden and compost system, or study the reservoir capacities of sub-irrigated garden beds. These exciting new linkages dramatically increased garden usage, much to the delight of students, and sparked requests for expansion.

These developments required organizational skills and effective communication between teachers, administrators, and parents. We began with one staff member assigned to coordinate with parents on the Garden Committee, yet later enlisted one teacher per grade to meet with the Garden Committee four times per year. We have thus distributed responsibility for coordinating garden activities more widely to staff members so we could better accommodate the needs and ideas of each grade. Presently we are creating a calendar of class activities in the garden that teachers can use to plan, and have assigned particular crops to grades so that a grade may grow the same crop each year, with more challenging projects entrusted to upper grades. We hope this will make it easier for teachers to develop and reuse lessons based on their specific crops that may be elaborated and deepened over time.

STUDENT INVOLVEMENT AND EDUCATIONAL COMPONENTS

Student involvement and educational components have been closely interrelated; as we have achieved curricular goals and the garden has become integrated into learning and daily life at school, students' ongoing engagement with it over time has served as a strong educational scaffolding.

The first time a class plants in or visits the garden, a Garden Committee member gives students an extensive tour introducing our garden systems, including sub-irrigation, rainwater harvesting and composting systems. Students are asked where rainwater would go if we didn't harvest it and reminded that water is absorbed by soil in our beds, while importance of the green infrastructure on the local environment is emphasized. Students are also introduced to the importance of water conservation by way of our sub-irrigated garden beds preventing water loss and evaporation that would occur by conventional top watering. As students are promoted to higher grades, they acquire a deepening understanding of these concepts and an awareness of how our garden environment connects with the local environment and the wider world.

In 2nd grade, our Science teacher formally introduces the students to the Gowanus Canal Watershed in which many live and all attend school. They study natural resources, erosion and weathering, and students come to better understand the value of our green infrastructure to our neighborhood. This year, 2nd graders studied erosion in a hands-on project and were amazed that it took five children to pull an eggplant out of its bed! Students learn cover cropping, which enriches soil naturally while preventing erosion and, just as importantly, prolongs greater absorption of storm water and keeps it out of the combined sewer system and, ultimately, the Gowanus Canal a block and a half downhill from our school.

In 4th grade students do walking tours of the canal while reading texts about Combined Sewer Overflows (CSOs) and other relevant environmental issues. In the same year, students study how human societies impact eco-systems at global and other scales, a topic extending into 5th grade. As mentioned below, Gowanus Canal Conservancy (GCC) invited PS32 to work with GCC's curriculum developer to create STEM curriculum focusing on the Gowanus Canal Watershed for grades 5-8. Our 5th grade teachers are currently helping to develop lessons satisfying the NY State Science Mandate on Ecology using the Watershed as a focus. The PS 32 community was very excited about this opportunity, since it will result in improved understanding of an urban watershed and PS32's impact on it.

For the past two years, PS32 has received a CASA grant from NYC Council Member Brad Lander, which has funded a partnership with Brooklyn Historical Society. This has yielded a free afterschool program for 4th and 5th graders, which meets once a week for 10 weeks. Their curriculum has focused on the history and architecture of the Watershed area and involved numerous walking trips around the canal. Understanding the historical influences of the canal helps students understand the causes of pollution and why environmental stewardship is of critical importance.

Many student-driven projects reflect these ideas and values, which have become an integral part of the learning process at PS 32. For instance, at the 2014 PS 32 Science Fair, one student conducted a horticultural experiment that involved watering plans with water from the Gowanus Canal, while another studied and evaluated the green infrastructure of the new Whole Foods store complex and its impact on the Gowanus Canal ecology.

While environmental science and stewardship are of special interest, the PS 32 Community Garden is a learning resource for multiple subjects. Students across grades regularly observe life forms in the garden to inform drawings, paintings, and sketches in observation notebooks, as well as poetic writing, for Art and Writing projects. Students are often asked to respond to critical thinking questions after garden visits, for instance in relation to what is happening in the garden at a particular time or how complex garden systems and processes interrelate in time and space. The garden is often a learning resource for History and Social Studies, for instance when 3rd grade students studying Native American history and culture plant and harvest a Three Sisters garden with indigenous crops they harvest in 4th grade. Math is engaged frequently by students across grades, for instance when they deal with areas and quantities of soil needed to fill beds and planters, or when they extrapolate how much water the added soil will absorb. Students calculate the amount of liquid that rainwater harvesting tanks collect and retain from our local sewer system, weigh crops grown each season, and record plant growth in charts and other formats. In every grade, PS32 students measure the capacity of the reservoirs in the different sub-irrigated garden beds so their understanding deepens over time.

Our ASD Nest program uses our sensory garden for small group sessions focusing on collaborative group work and the development of social skills; the entire community benefits from its therapeutic, as well as educational and aesthetic value.

A newly approved afterschool program offering classes in the garden will bring together the diverse children of PS 32, who will work together across many kinds of differences in their garden, towards the shared goal of helping it grow.

Along other lines, students have actively influenced and shaped many parts of the garden, which they have come to feel pride in and ownership of. Inside, they vote on what types of plants to grow with their grow lights and outside, we have adjusted plans according to their expressed interests. One request was strawberries, and the Garden Committee responded by having a Saturday Workshop in 2013 for students to build their own sub-irrigated planters for strawberries which, upon completion, where hung in our garden space. They were so popular that this year a K class requested to plant more! They recently expanded our “plot”, and a 5th grade class requested to try them in their classroom so they could see if there were differences in the health

of the plants indoors and outdoors and if so, why.

When our sensory garden was first planted in 2012, students who regularly meet with Speech and Occupational Therapists were assigned space in beds and chose the plants that were used. Most of those are perennials so those students get to see their choices bloom each year!

Thanks to the strength of teaching on our composting program, there has been much enthusiasm from students about expanding it and increasing participation. This year, 3rd graders, who studied compost last year, have pushed their teacher to be allowed to gather scraps from the cafeteria. Many projects in the garden are planned and researched by students. For example, this year the 3rd grade will plant a native pollinator bed. Students are researching native and non-native species and proposing specific plants for the bed. Our parent garden coordinator is communicating with students and proposing questions about their research to help guide plant choices for the bed.

In these ways, PS 32 students are not simply visitors to the garden but active learners who shape it.

PROMOTION

The PS 32 Community Garden's green infrastructure was recently featured in the Trust for Public Land's newsletter (http://us7.campaign-archive1.com/?u=fc48d8eb2702de72bd5c2b194&id=e0d94bfb6a&e=5a0d52f38a), as well as profiled as "Garden of the Month" by Grow to Learn NYC as a successful start-up garden (http://www.ps32.org/wp-content/uploads/2012/gtl_files/gtl.html).

Our garden has thrived with the help of events celebrating and promoting it. Our annual Garden Day is a well-attended fall celebration engaging a diversity of PS 32 families and neighbors, including siblings of all ages, parents, and grandparents. During Garden Day students have presented on rainwater harvesting, composting, and other practices, the Gowanus Canal Conservancy has presented on environmental stewardship and gardening practices, and families have enjoyed pumpkin painting, scarecrow making, and garden-focused arts and crafts.
Other high points of the year include Garden to Café Days, discussed below, which are highly anticipated by children and other community members who sample the fruits of their labors in the school cafeteria at this event. A promising new initiative is our Early Bird Fridays Garden Club inviting families to work in the garden before school begins. We hope it will engage new families and encourage parents and children to work together in the garden.

These and other garden-related events are publicized on school e-mail and call lists, as well as flyers and handouts on school grounds and in backpacks. PS 32's Garden Newsletter has been another useful point of connection with the PS 32 community (http://www.ps32.org/parents/single-subject-newsletters/garden-newsletter/) in the garden's first years, as it has become established.

PS 32's GARDEN PAGE WITH LINK TO PHOTO GALLERY:
http://www.ps32.org/programs/academic/garden/

COLLABORATION

PS 32 has been invited by the Gowanus Canal Conservancy (GCC), the non profit organization serving as environmental steward for the Gowanus Canal Watershed, to be the only elementary school partner in GCC's 2014-2015 pilot Science Technology Engineering Mathematics (STEM) education program (its two other partner schools are middle schools). To this end, 5th grade teachers and their classes will become familiar with and help develop a program curriculum focused on environmental challenges related to the Watershed. Principal Florio and other committee members are excited about this opportunity, which will help our students better understand the relation between their work in the PS32 Community Garden with environmental challenges of the local community and wider world beyond the schoolyard. For instance, they will learn about the local environmental impacts of rainwater absorption by our garden beds, as well as those of our rain harvesting system, which can collect almost 700 gallons of rainfall, diverting it from sewer systems to reduce Combined Sewer Overflows into the canal.

This partnership has grown over the past three years, as GCC has generously hosted field trips to their composting sites, overseen gardening presentations to our school community at our annual Garden Day event, and donated over 500 pounds of compost to enhance raised beds.

PS 32 is a member of the Greenbridge Alliance of the Brooklyn Botanical Garden (BBG) and has received helpful support and guidance from BBG when requested. In October 2013, BBG donated supplies and labor to build a three-bin system greatly enhancing school composting efforts, and our therapy staff is currently anticipating professional development events with BBG in late May to inform work in the sensory garden with students, including those on the Autism Spectrum.

We have participated in Garden to Café Day sponsored by NYC's School Food twice per year, preparing and serving all our students with PS 32 garden produce in our cafeteria during lunch, supplemented by green market produce as needed. These events have been highly successful, and students and other community members eagerly await our upcoming Garden to Café Day set for late May. We have worked with school chef Edward George to find recipes that excite our students and hope this year to highlight our potatoes and strawberries.

Since 2011, when Grow NYC guided the creation of our inaugural beds, advised on how to best support our teachers' introduction of garden-centered curricula, and provided grants ($2000), we have advised and supported their partner schools' start-up gardens.
In 2011 we also received support form Brown Rudnick LLP ($2000), and in the next year we received further support from Grow NYC ($2000) as well as the Citizens Committee of NYC ($1250) and Lowe's Tool Box For Education ($5000). In 2013 we received a Golden Shovel Award from NYC WasteLess/New York Department of Sanitation for composting practices ($1000).

These grants and alliances have enabled the PS 32 Community Garden to take root and thrive.

PROJECT ANALYSIS

WHAT WORKED, WHAT DID NOT WORK, AND MEASURING SUCCESS

We have successfully engaged K-5 students in our garden, a beloved learning and community-building resource central to school life that is by now seamlessly linked with the school curriculum across grades. It is hard to imagine our urban schoolyard without it. Each year the students remember exactly what and where they have planted, what they have eaten from the garden, the worms they have held, the flowers that have blossomed under their watch, the herbs they have smelled, and more. They recall life and water cycles, soil and erosion concepts, and other

processes observed in our garden environment whose connection to larger scale processes in the global environment spark curiosity and concern. Our students have come to relate environmental stewardship in the garden to that in the wider world, particularly the Gowanus Canal Watershed one and a half blocks downhill from PS 32. Science Fair projects conceived independently by students to investigate the impacts of canal water on healthy plants, as well as a commercial development on the canal, suggest that PS 32's many interconnections to the Watershed have inspired many engagements with these issues.

Though difficult to measure, one of the signs of our garden's success is the sense of pride and ownership students of all ages regularly express about it in daily life. One student talked about Garden to Café Day, when produce from our garden is served in the cafeteria during lunch: "I really like the idea of a salad bar, especially if I can grow some of the food, because I would know it was my food, and I would be proud tasting it." ("Featured Garden of the Month: PS 32," Grow to Learn NYC June 2012, http://www.ps32.org/wp-content/uploads/2012/gtl_files/gtl.html) This kind of pride and self-respect students feel as they acquire a new connectedness to the food they eat is a happy surprise for students who in many cases have had little prior exposure or access to fresh produce.

One of the greatest challenges remains the difficulty of securing enough parent volunteers, and the departure of the two most important Garden Committee members in the near future, now that their children have completed elementary school at PS 32. We are working to overcome what seem to be the main obstacles, time and confidence, by offering an Early Bird Gardening Club enabling working parents to participate alongside their children before school and to learn about our garden systems and their student's garden projects. We are also discussing how funds could be raised to hire a Garden Coordinator so that shortages of volunteer labor do not harm garden operations at our small school.

We frequently encounter problems related to a lack of space and are trying to determine the best garden size for our population. While it is difficult for grades with 100 or more students to engage each one in their assigned class bed, we presently lack the volunteer power to maintain a larger garden. We try to compensate by adding smaller projects like our strawberry bed, a sunflower pot, and a bean teepee so that all students can get their hands dirty and experience the garden in meaningful ways.

APPLICABILITY TO OTHER SCHOOLS

Writing the garden into the curriculum is a chief reason for its success, and a strategy other schools should consider when creating a schoolyard garden. Making teachers feel like gardening deepens their existing lessons rather than adding new work for them was useful. We were happy to start with only three beds and expand later, to match growing enthusiasm, rather than overwhelming teachers and volunteers with empty beds to be filled right out of the gate. Standardizing a basic planting plan for each grade that teachers can use every year has been a popular recent addition.

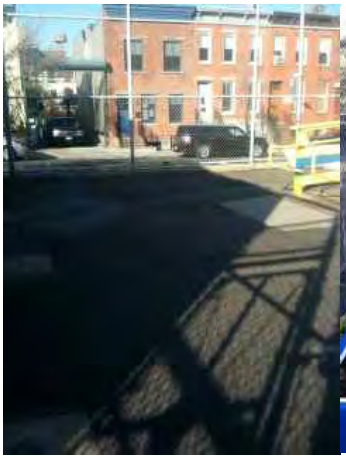
Our connections with the Gowanus Canal Watershed, and now, our partnership with the Gowanus Canal Conservancy, make ours a unique urban garden in many ways, yet the special attention we have given to environmental process like the water cycle, and how it impacts environmental issues like flooding and pollution, are available to all schools no matter how far they be from a Superfund site. As it turns out, what may have been considered an "undesirable" feature of real estate to some has opened up a world of inquiry and hope that the students can actively make the world a better place in their garden and the wider world beyond it.

FUTURE PROJECTS

Two projects we would like to undertake in the near future include a large vine wall as well as the creation of a garden area for tube planters. The former would be a large area (at least ten foot by twenty or more feet) planted along the fence between the street and our garden area to serve as a windshield for our crops, as well as a pollution reducer. We would like students to learn about how plants process carbon dioxide and how our vines might help clean exhaust emitted by passing cars before it reaches our yard. The tube planters would be planted with native grasses and placed around areas of our buildings where flooding frequently occurs, as well as around the storm drains, creating one last chance for storm water absorption before runoff travels into the NYC sewer system and downhill to the Watershed.

We are very eager to see what new directions our new partnership with the Gowanus Canal Conservancy, and their deeper engagement with canal clean up, beautification, and revitalization, might spark in our garden to inspire future projects!

PHOTOS



Our concrete schoolyard before the garden was created, 2011. Our inaugural beds, 2011.



A “Three Sisters” Garden planted with Native American crops by 3rd Graders, then harvested by the same children when they are 4th Graders studying native history, culture, and agriculture, 2013.

Strawberry patch requested by students and created the following growing season, 2013.

Installing components of our rainwater harvesting system, 2012.