

TrashMasters!™
Team **Up** to Clean **Up**



Elementary Division
Brooklyn Borough
& Citywide Winner

PS 107
John W Kimball
Learning Center

2013 GOLDEN APPLE AWARDS

This certificate is awarded with the sincere appreciation and esteem
of a grateful Department and City in recognition of your school's efforts to help make New York City shine.



City of New York
Department of Sanitation
Bureau of Waste Prevention, Reuse and Recycling
nyc.gov/wasteless



2013 Golden Apple Awards Contest Entry Judging Info

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



ID Info: 13036
School: PS 107 John W Kimball Learning Center
Grade Division: LM
Borough: K

Golden Shovel Award contestant
(for borough Master School Composter)

2013 Project Entries received for:

School Population: total # 590

Core Group: **Total Participating:**

TrashMasters! Super Recyclers

Received:

TrashMasters! Reduce & Reuse Challenge

Received:

TrashMasters! Team Up to Clean Up

150

350

The PS 107 Sunshine Garden

Received: 5/2/2013

Established in 2007, the PS 107 Sunshine Garden (an edible garden) enhances over 300 K-5th graders' scientific, nutritional, and environmental knowledge, skills, and practices. The garden addresses several needs: the absence of green space on school grounds; educating children about the origin of the food they eat, as well as the particular value of fresh produce in their diets; bringing students more hands-on learning and into the outdoors; and moving toward a healthier, less-processed food-oriented school lunch program. PS 107 teachers across grades engage students in gardening activities and related classwork. Students start seeds in the classroom; sow, plant, and harvest an array of produce; help maintain the garden; and work on garden-related projects in the classroom including studying plant life and making salads from garden produce.

Prior Year Entries:

13:TU-C

Current Prizes

13:TU-C

School Contact Information:

Phone: 718-499-2054
Address: 1301 8 AVENUE
Brooklyn 11215
Block&Lot: 3011010001
DOE Location: K107
DOE Bldg: K107

Contest Coordinator: Steve Tomsik

Principal: Eve Litwack

Sustainability Coord: Steven Tomsik

REQUIRED for Super Recyclers only:

Custodian: Frank Lombardo

Info Confirmed: 5/22/2013

Printed: 6/26/2013

COVER PAGE (CLEANUP/GARDENING PROJECT)

School Number: P.S. 107
Official School Name: John W. Kimball Learning Center
Street Address, City, Zip: 1301 8th Avenue, Brooklyn. NY 11215
Phone #: 718-499-2054 **Fax #:** 718- 499-4019

Principal: Eve Litwack; 718-499-2054; ELitwac@schools.nyc.gov

Contest Coordinator: Steve Tomsik, grades 3-5 science teacher and co-teacher garden coordinator; steventomsik@gmail.com; 718-499-2054

School description P.S. 107 (<http://ps107.org/>) is a historic Park Slope, Brooklyn neighborhood school—of 570 Pre-K-5th grade students—that strives to develop responsible, independent and enthusiastic thinkers who enjoy the process of learning and have a genuine respect for diversity. Our standards-based instruction is centered on the workshop model for balanced literacy and mathematics, which encourages students to think creatively and take responsibility for their own learning. Our students work cooperatively in heterogeneous classrooms, supported by an individualized approach to teaching and learning. In every grade, students publish written works and develop projects in math, science and social studies that demonstrate their understanding of the world around them. The arts are integrated into this curriculum, both as distinct disciplines of study and as vehicles for nurturing students' observation and communication skills. P.S. 107 is strongly committed to involving parents as educational partners and serving as a resource to the immediate community.

Borough Brooklyn **Grade Division:** Elementary
Contest Entry Title: The PS 107 Sunshine Garden

Contest Entry Summary Established in 2007, the PS 107 Sunshine Garden (an edible garden) enhances over 300 K-5th graders' scientific, nutritional, and environmental knowledge, skills, and practices. The garden addresses several needs: the absence of green space on school grounds; educating children about the origin of the food they eat, as well as the particular value of fresh produce in their diets; bringing students more hands-on learning and into the outdoors; and moving toward a healthier, less-processed food-oriented school lunch program.

The garden sits on the north side of the school building in a small courtyard. It is comprised of 19 Earth Boxes, several half-whiskey barrel planters, a medium sized cedar box, a 9' self watering planer, a raised bed that sits in front of the school, and the original six handmade raised beds, and a large planter in front of the school.

Our gardeners are K-5 students. P.S. 107 teachers across grades have enlisted their classes in gardening activities (topping the list planting an array of produce from eggplant to herbs to edible flowers to raspberries, among many others). Students start seeds in the classroom; sow, plant, and harvest produce; they help maintain the garden – watering, composting, turning soil; work on garden-related projects in the classroom including making salads from garden produce.

Student Participation: Core Group #: 150 **Student Participation: Total:** 350
School Population: Total #: 570

PROJECT NARRATIVE: IMPLEMENTATION

Why this project?

The Sunshine Garden, featured in Michelle Obama's book, *American Grown* (and as part of the book's release, P.S. 107 students joined the First Lady on *Good Morning America*) was established in 2008, to nurture students' science knowledge/skills; promotes environmental awareness and stewardship; sparks plant discovery/agricultural literacy; and encourages healthy eating. It is made up of Earth Boxes, a variety of planters, a raised bed that sits in front of the school, and six large handmade raised beds.

The garden has successfully heightened student understanding of food origins and the value of freshly grown produce; improved the way students eat at home and in school; shifted students from a science curriculum lacking in project-based learning into experiential, collaborative, hands-on learning; and provided a green space on school grounds.

P.S. 107 teachers across grades have enlisted their classes in gardening activities (topping the list planting an array of produce from eggplant to herbs to edible flowers to raspberries, among many others); several of them have built the garden into their daily teaching. Some have AeroGrow gardens to introduce students to hydroponics. Overall, students have a deeper appreciation for gardening's role in and impact on greening the environment. (The garden was also the basis for a substantial school lunch improvement effort.)

The Sunshine Garden is viewed as a model of urban school gardening. Public officials, environmental and gardening organizations, the press, among others, have praised and publicized our efforts. *The Daily News* cited the garden among 15 reasons Brooklyn can't be beat! In 2009, the Sunshine Garden was named PTO Today Parent Group of the Year for Outstanding Job on a Completed Major Project.

What did you do?

Project Planning Between 2007 and 2009, from inception to implementation, there was an extensive amount of strategic garden planning and promotion to meet our basic purpose (less objectives but goals) and that was to develop an edible garden that would ground students in their understanding of food's origins, immerse them in hands-on gardening, enhance students' scientific knowledge and skills through gardening (life sciences, for example), establish a garden that would beautify a 100% concrete space while also contributing to the environmental health of the surrounding community, and build students' appreciation for and participation in environmental stewardship.

The following breaks down those steps, along with an additional section on what we have done each year to make the garden sustainable and embedded in the school community/culture.

The Sunshine Garden emerged as a fancy of a parent who is also a master gardener. She believed that students would benefit from a fruit and vegetable garden in several ways. They would appreciate the origin of food (which is *not* the supermarket); relish the opportunity to grow food that they could then eat; become immersed in science and the environment through gardening; and basically gain a love for gardening through their hands-on experience. And of course, the garden would beautify the concrete small schoolyard where not a stitch of green existed! That garden idea stuck with the 2007-2008 PTA Science Committee Chair, who set out that spring to move the concept forward. The Garden Committee was created at the start of the 2008-2009 school year.

The garden's startup and implementation, headed by the committee chair, involved the following strategic step:

In the fall/early winter of 2008:

- Securing the pro-bono services of a garden designer. We found Bryan Quinn of One Nature Design (<http://www.onenaturedesign.com>) who eagerly came on board. He surveyed the space, conducted a shade study, recommended plant varieties, and offered several design variations (the final one included in the attached PowerPoint presentation).
- Convening a small planning team — three parents, including the mother whose edible garden vision jumpstarted the effort, Steve Tomsik, and Bryan Quinn. This was the core group during the garden's early development stages.
- Pitching the garden to the PTA board, to the custodian (not only for approval but to make sure all was structurally/legally doable), and then to the school administration (the latter was done after a final visual rendition of the proposed garden was ready; the visual helped convince the administrators to move ahead with Phase I).
- Forming a parent volunteer committee, which is a fine mix of 20 incredibly active and committed parents, each of whom brings a unique expertise, from gardening to marketing to event planning to community outreach
- Working closely with the science teachers to address the science standards, curriculum, and scope and sequence
- Working closely with the lead custodian on all issues related to construction, safety, tool/space access on construction dates, permits, etc.
- Partnering with a community carpenter to lead (pro bono) the construction of the planters
- Presenting ongoing reports/updates on the garden to the PTA via e-mail announcements and at monthly meetings (the garden's success drew — and continues to draw — additional committee members)
- Locating community vendors willing to provide construction and gardening materials at a discount (i.e., a local lumber company greatly discounted the recycled plastic lumber for the planters)
- Convening a series of committee meetings to discuss garden construction plans and needs, as well as to delegate specific member roles/tasks
- Constructing the planters in November 2008 (it rained on the designated day, so a smaller team began building the beds in the carpenter's basement; over the course of a week, volunteers worked with the carpenter in the evenings to complete the planters)

- Mounting the planters in December 2008 and then partially filling them with soil (another tough day; it was unusually cold, about 20 degrees, but the committee volunteers were out in full force) Students participated.
- Securing funds and other support
- Creating a Sunshine Garden website to publicize garden progress, funding received, partners, donors, etc.

In the late winter/spring of 2009:

- Convening several committee meetings to prepare for the garden's first planting
- Assigning fundraising, community outreach, vendor solicitation, the development of planting schedules and plant grids, and related tasks to committee members
- Working with science teachers to determine how the garden fits curriculum and material/learning materials they require
- Convening the committee and other volunteers for a February gardening day (building an additional planter, mounting a trellis, filling the planters with soil and compost...and yet another cold, windy day) Students participated.
- Providing teachers and students with seeds and starter plants
- Running a garden-naming contest (there were over 140 student entries)
- Running a garden launch in April, during National Gardening Month (tables set up outside the school at the end of April with materials/displays introducing the garden, free seed packets, food tastings of the produce growing in the garden, student/parent created recipes using garden ingredients, and a \$1 raffle)
- Passing on garden tasks to science teachers and their students
- Overseeing garden needs (hose, seeds, earth worms, etc.)
- **Glowing** about the student/teacher garden usage (the students planted everything!)
- Ongoing fundraising and community outreach to develop partners, including Wellness in the Schools, toward enriched nutrition and related activities
- Establishing the Nutrition Sub-Committee
- Running an annual fundraising plant sale and garden cafe
- Planning/preparing for next year's garden expansion
- Arranging summer garden maintenance logistics

Once the garden was established, we moved year-by-year to address unexpected challenges (the school experienced two years of back-to-back construction, which essentially had scaffolding over the garden. We gardened despite this, with some failure, but did manage to keep the garden alive, especially via seed starting under grow lights in the classroom) and plan for long-term sustainability. Two years ago, K-2 teachers participated in Gardening 101 professional development with a garden educator who helped teachers become grounded in gardening basics so they could feel comfortable starting and sowing seeds, harvesting them with their students, and being able to build gardening into learning and teaching. Each year, the committee raised funds to sustain the garden, and also partnered with the PTA on larger programming that would further the garden's permanent placement in the school.

Now, there is a permanent infrastructure in place that has two teachers acting as garden coordinators who assist their peers around gardening, and work closely with the garden committee toward oversight and continuation. In addition, one of the current garden committee co-chairs will stay on next year (his daughter is graduating this year) to assist,

on a consultative basis, the teachers and new garden committee chair to ensure the garden's sustainability over the years to come.

Goals

Bolster students' plant discovery, science knowledge, and scientific inquiry process skills Teachers across grades have used the garden to supplement science standards and study units, explore environmental issues and food systems, and enhance nutrition education. Typically, students spend as much as 50% of their garden time on student-led investigations and hands-on activities, and up to 20% of their time on independent science learning. They demonstrate enhanced nutritional and environmental attitudes and community spirit. For example, students have:

- Examined the amounts of fat and sugar in foods
- Delved into food groups and the nutritional value of fruit and vegetables Studied the Native American Three Sisters and plant their seeds in the garden. Documented plant growth
- Observed how water, air, and weather interact with plants. •Explored environmental issues that challenge natural urban environments/gardens Completed garden-centered inquiry projects Students experimented with extended season gardening. Students have also planted daffodil and tulip bulbs.

Several teachers have AeroGrow gardens to introduce students to hydroponic and the pleasure of year-round indoor gardening.

Enhance student awareness of and appreciation for healthy eating

The Sunshine Garden is an edible garden, with a primary focus on learning, along with an emphasis on food production. We have grown dozens of varieties of produce, including: tomatoes, eggplants, peppers, tomatillos, ground cherries, corn, sorghum, basil, mint, chard, beets, spinach, arugula, mustard greens, water cress, lettuce, kale, collards, kohlrabi, carrots, turnips, radishes, peas, fava beans, bush and pole beans, cucumbers, gourds, cantaloupe, fennel, dill, parsley, cilantro, garlic, leeks, chives, stevia, potatoes, sweet potatoes, amaranth, salvia, marigolds, sunflowers, nasturtiums, blueberries, josta berries, raspberries, strawberries, and more.

The goal is to have students eat these vegetables...which they do in various ways: In the salad bar, mostly as tastings, when available; in the classroom, where students will usually make a class salad with garden produce; at home, when the children bring what they have grown to their families; and right in the garden, as children harvest and taste food that is often new to them.

Students who sow, plant, and harvest in the garden build and make new connections to the food production process. Every child who harvests – and each time that happens – is excited by what has grown and willing to eat it raw in the garden. The vast plant diversity teaches students, faculty, parents, and neighbors about the sources of many familiar and less familiar foods. The planting schedule highlights the proper seasonality of local produce. •Each year, the Wellness Committee sponsors Nutrition Detectives Week, which engages students in a weeklong celebration of healthy eating. Built into that are gardening activities, and field trips to local greenmarkets and gardens. In 2011,

classes visited two local greenmarkets, Added Value (a youth-led farm in Red Hook, Brooklyn), the Eagle Top Rooftop farm, and the local 6/15 Green Community Garden. An important part of Nutrition Detectives Week is the students becoming food detectives: Classes received clues about nutrition and then came up with the answer, which they placed on a giant puzzle located near the cafeteria to form a complete response.

In October 2009, we sponsored our first Harvest Day, a program of the Garden to School Café program of the NYC DOE's SchoolFood and the N.Y. State Dept. of Agriculture and Markets. Students harvested garden herbs and vegetables that were used in a special lunch and food "tastings." This event is now annual, with our most recent one being in the fall of 2012. Each follows a similar format – special tastings of items that represent garden foodstuffs, fresh juicing, a sampling of NY State apples, a food/health-related activity. The event is part of the school culture, loved by all, and educational on the nutritional, agricultural literacy, and gardening fronts.

The garden, coupled with the first Harvest Day, jumpstarted a major campaign to improve what students eat in school and at home. We work with Wellness in the Schools (<http://www.wellnessintheschools.org/>), an organization that has facilitated a gradual change in lunch meals, and provides chefs and cooking interns who work with cafeteria staff to prepare healthy lunches. The lunch menu now offers freshly prepared meals with a daily salad bar (and, the cafeteria no longer serves chocolate milk). Students inform these meals in a monthly Partnership Meeting with P.S. 107's SchoolFood manager, as well as parents and the principal. The Wellness Committee continually updates parents about lunch, healthy eating – particularly snacks – and general child nutrition and related issues through a living room film series. The Wellness Committee has run two Nutrition Detectives weeks (June 2010 and 2011), during which students learned about good nutrition and solved nutritional "riddles", visited community gardens and greenmarkets, and enjoyed classroom-based farmer presentations.

Plans are at play for the fourth annual Nutrition Detectives Week (now to be called the Green & Healthy Week of Wonder) in spring 2013. Last year, WITS led a series of food labs across grades, focusing students on simple healthy food recipes, which students make along with the instructor. This year, WITS runs mini healthy food sessions in classrooms.

Finally, the school runs an after-school cooking program. In this class, children learn how to prepare and cook delicious whole-food recipes. Local, organic produce and meats, including vegetables from PS 107's very own garden are used whenever possible. Recipes will vary from appetizers, entrees, snacks and deserts. This cooking class emphasizes the importance of sustainable agriculture while supporting local farmers.

Student involvement and educational components

These two sections go hand-in-hand as it is the educational/classroom piece that engages students. The following is a comprehensive overview of how students learn and are engaged in gardening and related learning opportunities.

P.S. 107 teachers across grades have enlisted their classes in gardening activities (topping the list planting an array of produce from eggplant to herbs to edible flowers to raspberries, among many others); several of them have built the garden into their daily

teaching. Some have Aero Grow gardens to introduce students to hydroponics.

Teachers link the garden to curriculum in ways they deem appropriate. For example, one kindergarten teacher had students engaged in a variety of gardening exercises to create observation journals, along with “perfumed oils” from various produce they sowed and harvested. The children’s materials were featured during the school’s annual learning fair. A first grade teacher (also the co-garden coordinator) has tied the garden into the science curriculum to teach the life cycle. In the class’ reading and writing units, the teacher has introduced students to gardening books and had them writing about garden-related themes. And, in social studies, her class explored gardens in the neighborhood to determine how they provide food, beauty, and play spaces, and how they help the environment. This same teacher produced a comprehensive school garden unit two years ago (her stem lesson plan included).

Students start seeds in the classroom; sow, plant, and harvest produce; they help maintain the garden – watering, composting, turning soil; work on garden-related projects in the classroom including making salads from garden produce. Overall, students have a deeper appreciation for gardening’s role in and impact on greening the environment. Last year, there were 15 teachers representing 15 classes, totaling about 375 students. Classes were split into work tasks, so students sifted or stirred compost, watered, harvested, and planted. Parent committee members partnered with teachers to lead activities in the garden.

The hands-on engagement during the school day excited students: got them outdoors, their hands in the soil, finding treasures in the garden. The parent/teacher partnership was helpful because as the teacher worked with the parent, he or she learned more about gardening and/or built on what was being done in class that was gardening related. The garden introduces many environmental concepts, particularly through composting (its importance to the soil and as a productive form of waste reduction).

Three years ago, classes participated in an exploration of environmental issues that affect urban gardens. Students learned key lessons from four visiting environmental educators: Iona de Jong (<http://ilonadejongh.nl/Ilo/Portfolio.html>), an industrial design engineer specializing in design and gardening for education and health care, led two class sessions, the first on the various environmental issues that affect urban edible gardening, including:

- Impact of buildings (wind tunnels, permanent shadows, etc.)
- Polluted soil
- Trucks •Urban space constraints
- Impact of people (people stepping on gardens by accident, trash in gardens)
- Impact of animals (good and bad bugs, rodents, smart planting to either repel or attract certain bugs)
- Positive value of local food (less transport, fresher, no days in transit)
- Impact of weather (wind, rain, heat waves) The topic of urban heat waves led to the discussion of plants and water in the second session, coupled with the creation of sub-irrigated soda bottle planters.

Vera Fabian from the New York Restoration Project (NYRP; <http://www.nyrp.org/>) led a session focused on the environmental value of gardening and plant life in the city (e.g., diverting organic waste from dumps and landfills and using it to make compost; trees absorb CO₂; producing food locally reduces air pollution promoted by trucks shipping produce from far away, etc.) Students spent time learning how to generate

compost, and then had a chance to taste some fresh produce from an NYRP garden.

Nina Browne, a New York Citizen Tree Pruner (<http://www.treesny.com/programs.html>), accompanied students on her "It's Hard to be a Tree" tour of local trees, pointing out the challenges they face from pollution, compacted soil, absence of water, suffocated tree roots as a result of soil being added to tree pits, etc.

Dave Daly, Children's Garden Coordinator at the Brooklyn Botanic Garden, led students in a soil study, focusing on soil's value to local tree pits and gardens, and examining the relationship between soil toxins and plant health. In this lesson, students also looked at soil elements, and how the mixture of certain ones with soil (in this case, sand and salt) can affect soil quality, and ultimately what is planted in urban soil.

The second grade teacher involved in the project introduced students to the environmental challenges posed by discarded appliances, computers, cell phones, etc. Students created awareness posters (these included among the photos in the slideshow that is included as garden documentation) and also did some teaching in Pre-K and kindergarten classes on the topic of e-waste.

The science teacher worked with 4th grade students to select an outstanding environmental issue for which they would find solutions -- — from teaching neighbors about soil PH or showing them how to construct mini-planters to improve the success of their vegetable plants ideas to the community at large — with an eye toward community involvement. The students finally decided on two ideas. The first proposed plan dealt with the problem of pests. The second plan involved the creation of movable, wind- and cold-proof planters, which would not be susceptible to the high winds and heavy rain that seem to steadily blow and fall in the garden area. These were to be built of simple materials, and covered with row cover material.

We also run a very successful after-school program each semester on Friday afternoon. Last year a total of 25 children participated. Headed by the garden committee co-chairs, this program offered students a good mix of indoor and outdoor garden activities. Last year, participating students learned about seed saving, composting, worm composting, starting sweet potatoes indoors, harvesting, etc. Students brought many plants home.

Promotion The Sunshine Garden is a highly visible and recognized school garden. This is evidenced not only by its inclusion in Michele Obama's book *American Grown*, but also via the terrific press coverage it has received (visit <http://ps107.org/garden/in-the-news/> to read great articles and view videos about the garden's success and impact), and have been the basis for several research projects. And, of course, be sure to watch PS 107 students on Good Morning America with the First Lady (<http://ps107.org/2012/06/students-from-ps-107-plant-seeds-with-michelle-obama-on-good-morning-america/>). The garden is a recognized entity not only in Brooklyn, but also across the city, where it has partners and supporters in environmental organizations, other school gardens (that frequently reach out to us for guidance and support), public officials, among others. As noted, the garden is at the heart of our annual Garden to School Café event, as well as our nutrition education week every June.

Collaboration The Sunshine Garden has thrived over the years thanks to grants, donations, materials contributions, and organizational assistance. The following lists the many contributors over the years. Note that we continue to reach out to organizations, individuals, etc., for support on several fronts – from materials donations to funding support to technical assistance.

- **Grants**

- AeroGrow Growing Kids Award
- Astor Medical Group
- Brooklyn Community Foundation (formerly Independence Community Foundation)
- Garden Grants Program
- GROW to Learn of GROW NYC
- IOBY.org
- Kids Growing Food, New York Ag in the Classroom, Cornell University (initial and continuation grant)
- Lowe's Toolbox for Education
- Park Slope Civic Council
- Project Learning Tree Greenworks! Community Action & Service Learning Grant
- PTO Today
- Toshiba America Foundation
- Welch's Harvest Grant •Captain Planet Foundation
- Whole Kids Foundation
- Youth Garden Grant of the National Gardening Association Annie's Homegrown

Merchants, city agencies, and non-profit organizations

In addition to the administrators, teachers, custodians, many parents who have supported the garden, the following merchants, organizations, and individuals have also generously contributed to the garden's success:

- 6/15 Green Community garden (compost, seedlings, field trips)
- Baker Creek Seed Company(seeds)
- Botanical Interests (seeds)
- Brooklyn Botanic Garden Education Department (resources, assistance, student workshops)
- Brooklyn Botanic Garden's GreenBridge and Community Garden Alliance (technical assistance, free plants)
- Brooklyn Farms (discounted seed starting supplies)
- Bryan Quinn of One Nature (pro-bono garden design)
- Colbond (Enkadrain)
- Hydrofarm (grow lights)
- Colorblends (tulip bulbs)
- Dan O'Leary, carpenter (pro bono planter construction)
- David Shannon Nursery & Florist (seeds)
- Dyke's Lumber (discounted lumber, free supplies workshops, books)
- FEDCO Seeds (seeds)
- Flower House (greenhouse replacement parts)
- Foxgloves, Inc. (children's gardening gloves)
- Garden of Union (compost)
- Gateway Greenhouse Education Center (seed starting supplies)

- GROW NYC (plants, gloves, and other supplies, along with technical assistance and volunteer support)
- Hydrofarm (grow lights)
- Ilonda de Jongh (garden professional development for teachers, classroom workshops)
- Leopoldi's Hardware Store (watering can and supply discounts)
- Liberty Sunset Garden Center (soil, Enkadrain, compost)
- Melanie Kozol & Scott Carney of Bussaco Restaurant (raffle gift certificate)
- Nina Browne, NYC Citizen Tree Pruner (student pruning demo)
- Noted (discounted Matchbook gardens)
- NYC GreenThumb (tools, seeds, greenhouse, compost bin, plants, etc.)
- Operation Green Plant of the America the Beautiful Fund (seeds)
- Rose Red & Lavendar (items for raffle)
- Seed Matters (seed-saving screens and envelopes)
- Seed Savers Exchange
- Silver Heights Farm (seeds and seedlings, free and discounted)
- Stokes Seeds (seeds)
- Tarzian True Value Hardware (discounted planters)

PROJECT ANALYSIS

Successes and challenges A critical success is the plan for the garden's longevity. Since the two garden co-chairs, who "graduate" this year as their children are in 5th grade and moving on to middle school, is that the principal and the PTA agreed that key to the garden's long-term sustainability is teacher oversight and management of the garden. And that has happened: There are two teachers who will share duties during the school day (and some after school) that will keep other teachers engaged, keep the garden in shape, and other tasks as decided upon with the garden committee. The K-2 science teacher will also create garden-based learning opportunities, as well as engage students in sowing, planting, and harvesting. This is the way, ultimately, school gardens should be: Fully teacher led with parental support.

Of course, the most critical success has been getting students to be adventurous about trying new foods. They have been enthusiastic about trying and liking many things, from kohlrabi to arugula flowers to raw okra. Our crop variety ensures that even the very picky eaters will find something to their liking (even if it's just stevia).

And, we have two compost bins...a big plus for the school. We used to get "donations" of compost from community members and gardens. And, we had to ease the bins into the yard cautiously to guarantee that there would be no pests, odor, etc. Now, school and community members put their limited food scraps in there...and we do get some from the cafeteria. This compost has greatly enhanced our soil.

Some challenges (that we either overcome or are working to resolve):

- Dwindling parental engagement, this in part attributed to the garden's ability to be sustained by a few hands. We have parents who will work on a specific project, but it is harder to get more hands to do some of the more intensive work. We are actively recruiting and engaging, especially for a new garden committee chair for the 2013-2014 school year.
- A small garden that has reached its size is at its capacity. That said, we feel we

- have been very successful maximizing the space allotted.
- Our garden is on the north side of the building, and thus, there is not sufficient sunlight. But, we have learned that most crops that thrive in full sun do grow well in the garden.
 - What's a garden without its share of pests? We've had slugs, tomato hornworms, spider mites, cabbage moths, and powdery mildew. Some remedies have been successful, but we were slow to react to spider mites on some pole beans, which hurt an entire crop.

Applicability to other schools The following is a short article that Michele Israel, garden committee co-chair wrote for a newly produced web site for PTAs (<http://ptalink.org/activities-events/school-gardens/>) about sums up basic garden development advice for schools...the content, clearly, drawn from P.S. 107's six years of gardening experience:

School Gardens

School gardens are high on the popularity chart...and here to stay. Having a garden places you in a league with impressive parents, teachers, students, and administrators who have improved school lunches, advanced environmental literacy, brought children outside, provided green space at urban schools...and introduced young people to fresh, locally grown (Right in the schoolyard!) produce that they sow, harvest, and eat, often directly "off the vine."

Think of school gardens this way: Have garden, make change...that is long lasting. There are so many benefits to school gardens. They each roll out differently in each school, depending on envisioned use and impact.

Typically, school gardens involve students in hands-on science learning as they observe the whole plant lifecycle and explore how the environment affects the growth and health of plants.

Then there is the food connection: Students realize that fresh fruit and vegetables don't originate in the grocery store, thus jumpstarting an appreciation for how delicious and nutritious fresh food is. Sometimes, students have a chance to delve into the sustainable agricultural aspects of food production. In many schools, gardens have propelled changes in school lunch so that students are eating fewer processed foods, and in events like Garden to School Café, eating meals prepared with produce right from their school gardens.

Don't forget environmental awareness and stewardship: Maintaining a garden helps students understand the importance of a clean, healthy environment.

Establishing a school garden has some basic steps: school/administrative/custodial OK; a group of committed parents and teachers; an outside space (and don't despair if it's just concrete or has minimal shade...it's doable!), access to water; substantial first-year planning and physical work; some financial and other resources; and PASSION AND COMMITMENT. It might take a year or two to make gardening a smooth operation – so do think big, but start small.

There are myriad school garden resources in the city...and many school gardens that can serve as models. The school gardening community is quite tight knit and people are willing to help every step of the way.

The best part? No matter what challenge you might face, you know the garden is amazing every time a child plants a seed, plays in the soil, finds a worm, eats a vegetable he or she has not eaten before...and those are the experiences you want, no matter the garden size or location.

Key tips to keep high on your radar:

1. Ask the principal whether a school garden can be established, and if it's a yes, then ask him or her where the garden can be located, how big it should be, etc.
2. Work with the custodian to determine the best garden location (make sure there is access to water), as well as any regulations/requirements that must be followed (fire safety, security, etc.) If the garden is in a gated area, make sure you have a key (this can be tricky depending on your custodian and overall school culture)
3. Visit other school and community gardens to get a feel for what might work at your school (there are lots of good models)
4. Establish a garden committee (parents, teachers, students, and other volunteers, like community gardeners or a garden-focused non-profit, etc.) **IMPORTANT:** Garden committee chairs need to be committed, engaged, creative, persistent, especially when getting the garden started. There needs to be at least one dedicated teacher. Continually think to the future: Who will run the garden down the line? How will it be sustained over the long term?
5. Determine what type of garden you want (and remember, the principal has the first call on this, though you can certainly negotiate, but the goal is to develop partnerships with school leaders and staff) and create a garden plan (usually a visual map — make sure to think about storage and whether you want raised beds,); you will want to show this to the principal and custodians for review and approval
6. Determine who will use the garden and how (e.g., Will it be a mix of parents and teachers? Will there be one teacher who is the garden coordinator? Will all grades participate?)
7. If you are thinking about a gardening on existing green space, make sure to test the soil. Many schools green spaces have contaminated soil. For edible gardens, that is problematic, and that means building raised planters with new soil.
8. Determine garden development needs and identify resources to fulfil those needs (Will you get donations of materials? Will you write grants? Will the PTA support the garden? Will you have local sponsors? What type of fundraising will you undertake?)
9. Decide who will construct the garden (Parents, teachers, and students? Community volunteers?) or whether you will raise enough resources for a pre-fabricated system. The latter is probably easier, but typically more expensive. The former is much more engaging and pulls community together...and can be quite fun.
10. Consider a "gardening 101" for key volunteers and teachers.
11. Have a garden launch: Announce it to the school, maybe a groundbreaking. Get some press!
12. Create a plan for using the garden. **REMEMBER:** Start small. Maybe just a few classes to start. Determine how you will work with teachers in these classrooms...and what you hope students will learn. Teachers especially like to build gardening into aspects of the curriculum, like science.

13. Have fun...anticipate challenges (everything from natural to school-based)...work through the challenges...grow incrementally.
14. Seek and get visibility!

Measuring success The earlier described programming and impact demonstrates the garden's success. Evaluation is mostly qualitative and is drawn from student and teacher feedback on their garden involvement, photographs, some student work, lesson plans, etc. Because it is not necessarily a formalized program – meaning that it is not directly tested or graded – there is no formal assessment mechanism. However, the garden's continuity, the student's continued engagement, teachers' willingness to "get their hands dirty" (so to speak) sends a loud message of success...and a great likelihood for longevity.

Future plans The school has some very "blue sky" plans: Some will be harder to accomplish than others, but we are looking at ways to make them happen. Two aspects of our larger dreams are:

Compost expansion: We are convinced that should there be a composting device that will block most vermin (so as not to lead to infestations in the school), is low maintenance for an increased amount of compostable waste, is relatively odorless, and can be strategically placed (no blocking of exits or play space, not too obtrusive) on school grounds, our composting efforts would almost quadruple as we would compost cafeteria foodstuffs. This reduces school waste significantly, while providing compost for our garden and others in the neighboring community (this is an urban area – not everyone can compost!).

Green space: Vertical gardens, trees and shrubs, and additional planting space (removing concrete is required for this) would not only green and beautify our school grounds, but would also enhance our gardening initiative, while supporting an overall more environmentally compliant school. And give the students a greener outdoor experience while at PS 107. Greening the school grounds is an environmental and aesthetic win on all fronts.

Lesson Plan
Science
Plant Unit
Lesson: Stems
Kindergarten
May 17, 2011

Lesson: Observe stems of celery plant

Students engage in activities that provide opportunities to describe how a celery stem looks and how it functions.

Objectives--what students will be able to do as a result of the lesson
As part of a unit on plants students will observe the structure of a plant stem

Standards--which state content and developmental standards are addressed in the lesson

Common Core Curriculum
Reading Standard for Information text
Key Ideas and Details

1. With prompting and support, ask and answer questions about key details in a text.
Integration of Knowledge and ideas

7. With prompting and support, describe the relationship between illustrations and the text in which they appear.

Process Skills – Observe – Science knowledge is based on evidence. Science knowledge can change based on new evidence

Procedures--what the teacher will do to get the students there – see attached

Assessment opportunities--what the teacher can do to see if the lesson was taught effectively: Teacher will listen to student's discussion in a large group and record findings on "Celery Stem Chart". Teacher will observe students as they carry out the experiment. Teacher will collect "*Stem Study*" sheet and observe. Teacher will record new understanding the children gain on "Celery Stem Chart".

Modifications/accommodations for any special needs students in the class
Students will work in cooperative groups so students needing support will be able to observe their neighbor performing experiment. Students needing support will be able to hear other children share thoughts and findings in a large group. They can refer to the "Celery Stem Chart" for information. Students will conduct a hands-on experiment to help student's access content with kinesthetic modality. Students who understand the structure of a stem can share their knowledge with their neighbors at their tables. They can write their understanding on observation paper. They can write how a stem in a thicker or thinner plant might differ from the celery experiment.

Additionally, many lesson plans also include:

■ **Materials** *Plants* by Gale Philips Kahn and Allison Kahn Goedecke
Celery stalk for each student
Containers, 2 per table
Water
Water color, blue and red

Stem Study sheet, 1 per student
Chart paper to record understandings of stems
Celery Stem Chart

Stem Procedures:

- Students gather on rug and look at the illustrations on page 14 of *Plants* by Gale Philips Kahn and Allison Kahn Goedecke. Teacher reminds students of the Plant Inquiry which asks the questions, “What are the different parts of a plant?” “What are the jobs of the different parts”. Teacher mention previous study of arugula, mizuna, and beet roots. Say, “Today we are focusing on stems.”
- Say, Before we read, can you predict why a **stem** might be important to a plant? Record on Stems Chart. Read page 14 of *Plants* aloud. Have students revise Stems Chart.
- Explain that a plants’ parts work together. The roots hold the plant in the soil and the **stem** holds the plant up.
- Direct students to look at the **stem** of the flower and compare it to the **stem** of the tree. Say, The **stem** of the flower is thin. The **stem** of the tree is thick. Ask, Why are these stems different? Add to Stems Chart.
- Explain, A heavy tree needs a thick trunk to help it stand but a flower does not weigh much. It only needs a thin **stem** to help it stand.
- Read the last sentence of page 14. Ask, What else does a stem do? Children discuss and add to stem chart. Explain, It lets water move through the plant. Explain that water comes in from the roots and travels up the stem to the rest of the plant. The stem is like a straw for a plant. The water moves up the straw.
- Explain that some stems are edible, can be eaten and some are not. Say, We are going to look at a celery. This is the stem of a celery stalk or stem and it can be eaten. Now, I am going to hand each of you a celery stalk or stem. We will do 2 things with the stems. First, we will observe the celery stems and I will record what you notice on our Celery Chart – (move stem chart). Second, you will take your celery to your table and put them in either blue water or red water. Tomorrow we will look at our stems and observe what happens. I don’t expect to find pieces on the floor, please don’t eat it. You will hold it in your hand and observe it using your eyes and hand. If you can’t handle this, I will take your celery stem back and you can watch your friends observing the stems. Can you handle this? Hand out Celery. I’ll talk quiet hands to describe what they celery stem looks like. Record findings.
- Ask, How do you think this stem helps the celery plant? Record findings. (collect celery if to silly)
- Now I am going to have quiet tables take their celery to the table. You can put your celery in either the red or blue water. I don’t expect to see water splashing on the table or your hands going in the water.
- What do you think will happen when you put the celery in the red or blue water? Tomorrow, we will observe what happens to the celery. Would anyone like to predict what will happen to the celery in the red or blue water? Record findings.
- Students put celery in water and return to floor to read. I collect water and we observe the stems in 24 hours using Stem Study sheet.

SUGAR, STARCH FAT

(Adapted by Steve Tomsik, P.S. 107 Science, from *Sugar Content of Beverages Learning Station* lesson plan, Cornell University Cooperative Extensions)

Essential Question

What foods have sugar, starch, and fat?

Mini-lesson

Shared Reading: Food for Life, pgs. 4-17, 12-13

Focus Question: What are carbohydrates, proteins, and fats? Chart or web children's responses stopping and adding to each category (one separate page for a single element: carbohydrates, proteins, fats)

Vocabulary: carbohydrate, starch, simple sugar, data indicator, prediction

Group Discussion

- Talk about how marathon runners eat a big spaghetti dinner because pasta is made of starch and gives athletes a steady dose of energy for many hours.
- Briefly compare the new pyramid with the old as you read the segment.
- Explain the word indicator by referring to the indicator in a car (blinker) and how it gives the other drivers information about the car ahead. (An indicator changes color because of a chemical reaction. This color change tells us there is a specific substance present. Which substance depends on the indicator used? Iodine turns from blue to black in the presence of starch. Benedict's Solution changes color in the presence of simple sugars.)
- The brown bag test is a way to test for fats. Press a brown bag against different kinds of food. Does the food leave a greasy smudge or just a watermark? Fatty foods leave a grease mark, which is an indicator of fat molecules.

Activity

Testing Foods for the Presence of Fat, Proteins, and Carbohydrates

Materials

Iodine
Benedict's Solution
Droppers
Paper plates
Brown lunch bags
Knife for cutting food into small pieces
Potato
Marshmallows
Oranges
Pasta
Banana

Bread
Muffin
Cookie
Apple
Butter
Student data sheet
Plastic cups

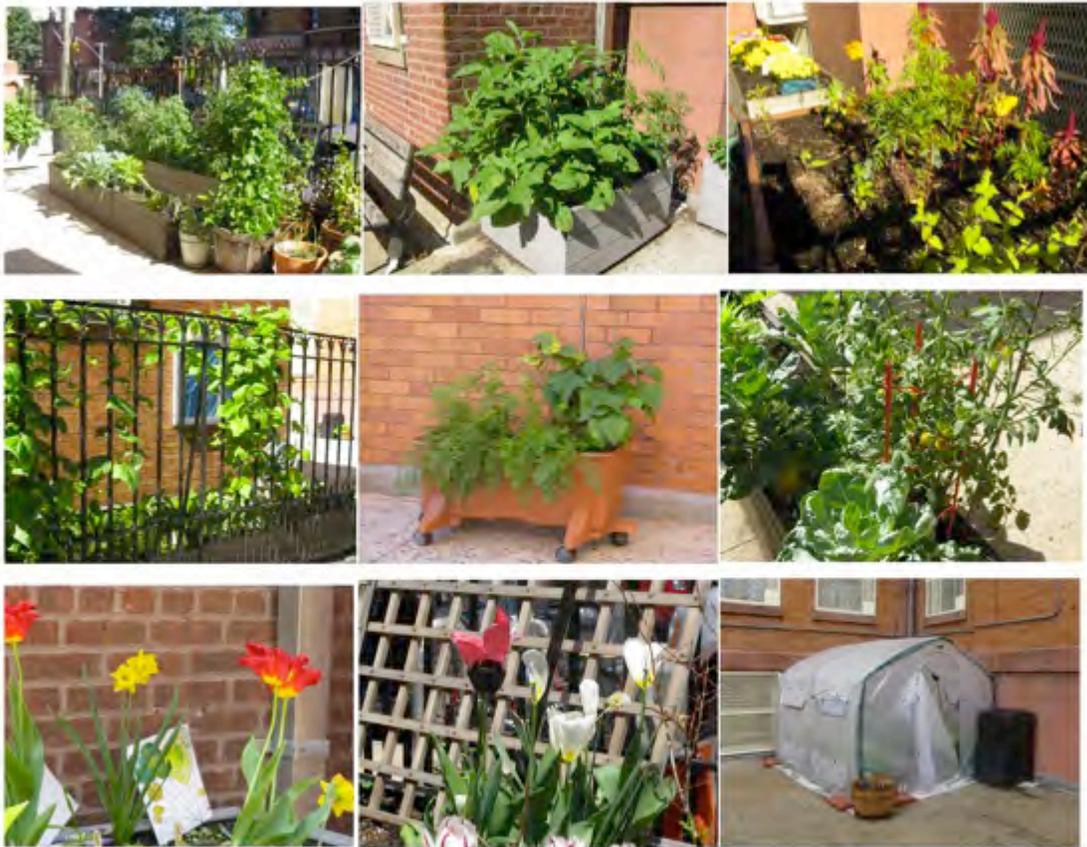
Set Up and Teacher Explanation

- Cut a variety of foods into small slices and place one of each on a paper plate. Create enough small plates for all table groups.
- Place a very small amount of iodine in a plastic cup with a dropper for each group. Do the same with Benedict's Solution. Pass out small squares of brown paper or a brown baggie to each group.
- Before beginning, model the testing process for students by showing them how to add one drop of iodine of potato and pointing out the color change, etc.
- Ask children to test each of the foods after making their predictions on the data sheet.
- Tell children to put one drop of iodine and Benedict's Solution on each food item (e.g., slices of potato, marshmallow, orange, pasta, banana, bread and apple) and press each food item with a brown bag swatch.

Note: Students can draw or write the name of the food, and then use colored pencils plus words for prediction and results.

Share

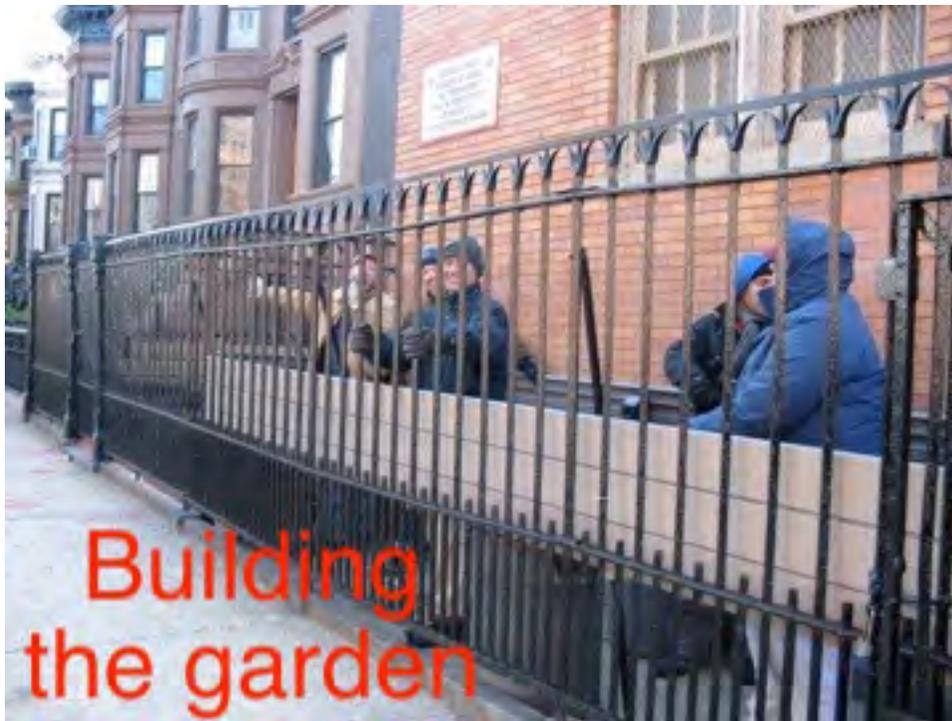
Ask the children to explain their results by classifying foods as having starch, sugar, and/or fat.







Michelle Obama





PHOTOS (also, as noted in the comments section of the proposal sent online, please visit this link for a great slideshow: <http://www.slideshare.net/malamu/sunshine-garden-20092011>)



A garden sampling

Pre-garden and during construction

PS 107 Sunshine Garden Photos



c

PS 107 Sunshine Garden Photos



- Portion of the main garden in school courtyard



- Side of school where EarthBoxes sit



- Large planter in main garden of school courtyard



- Planter in front of the school

Meeting Michelle Obama on Good Morning America



Copyright 2011, The Associated Press

Caption

This image released by ABC shows host Robin Roberts, right, looking on as first lady Michelle Obama talks with students from PS 107 on the set of Good Morning America on May 29, 2011. The photo is part of a story of the first lady's visit to the school. Photo/ABC

day,
: The
AP



Michelle Obama

And the garden featured in American Grown



CORN GROWS IN BROOKLYN
"We are in urban school, with no field in back, in the middle of brownstone Brooklyn. Now our kids know food doesn't just come from the bags on the carts!"
—Mary Vines

PS 107: There wasn't a single tree or blade of grass on the school grounds at PS 107, and the only open space was a north-facing concrete courtyard, surrounded on three sides by the school building.

But over the course of five years, a group of parents set up nineteen container systems, several half-barrel planters, and a donated nine-foot self-watering planter alongside six raised beds, which were built by a neighborhood carpenter who donated his time. The space has been named the Sunshine Garden, and here students have raised an impressive variety of vegetables and herbs.

They've faced plenty of challenges, from lack of sunlight to working around scaffolding for building repairs, to pests ranging from hungry birds (who ate the cucumbers) to cabbage butterflies (who attacked the kale

and broccoli). Then, in the fall of 2010, just after the scaffolding came down and the school was preparing for its big harvest, a tornado and hailstorm swept through the area, destroying most of the crops. "It was a humbling experience for the gardeners, who lost their harvest just as a farmer would to a sudden storm," says PS 107 parent Michele Israel. But the garden was replanted and flourished once again the next spring.

Today the school gardeners are using seasonal gardening techniques and timing their planting to extend the growing and harvest seasons to line up with the beginning and end of the school year. Teachers have begun incorporating the garden into their lesson plans, educating students about the nutritional value of fruits and vegetables and helping them study the effects of the weather

on their plants. One teacher even organized a Three Sistas planting as a way for students to learn about Native American cultures and traditions. The garden has also spurred the school to change the lunch menu to include more healthy offerings and a salad bar.

"The garden was a wish for many, many years," says PTA president Mary Vines. "Most of our kids don't have their own outdoor space. Now they have a place where they can plant a seed and watch it grow—they feel it, touch it, and smell it. They can see the miracle of life, and we can say to them, 'This is your space and your garden.'"



FROM SPRING PLANTING TO FULL BOUNTY

"Kids feel a great sense of ownership. That's my goal. My son grew a green bean and then he got to eat it. He would have some extra if I had given it to him."
—Mary Vines



More garden takes



