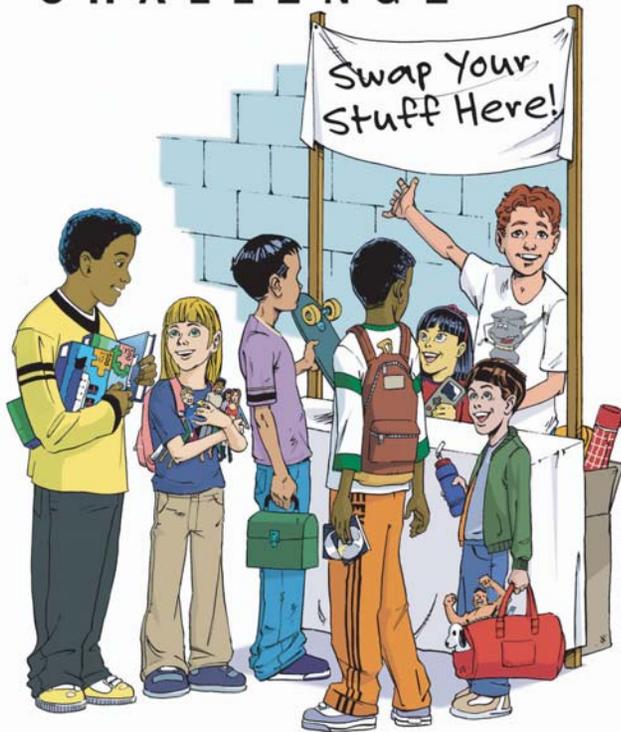


TrashMasters!™  
**REDUCE & REUSE**  
CHALLENGE



Intermediate Division  
Brooklyn Borough  
& Citywide Winner

MS 126 John Ericsson  
Magnet School for  
Environmental Engineering

# 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](http://nyc.gov/wasteless)



# 2013 Golden Apple Awards Contest Entry Judging Info

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



**ID Info:** 13033

**School:** John Ericsson MS 126 Magnet School for Environmental Engineering

**Grade Division:** IS

**Borough:** K

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

## 2013 Project Entries received for:

**School Population: total #** 262

**Core Group:**  **Total Participating:**

**TrashMasters! Super Recyclers**

Received:

**TrashMasters! Reduce & Reuse Challenge**

15

235

Reduce, Reuse, Re-Create!

Received: 5/2/2013

With large amounts of packing materials entering our school, we utilized our environmental engineering programs to teach our students ways to reduce and reuse materials. The Green Team fused learning with art, science, and technology to improve the school's recycling programs, and reduce the purchase of new materials, preventing waste. They visited MFTA to learn about decomposition; built science projects, including an LED sign; visited the Botanic Garden to learn about plants and built a soda-bottle terrarium; analyzed their own carbon footprints; inspired by the work of El Anatsui at the Brooklyn Museum, put on a reused materials fashion show; culminating in a showcase of their Reduce & Reuse projects at the Go Green Greenpoint festival in May.

**TrashMasters! Team Up to Clean Up**

Received:

## Prior Year Entries:

03:RR-boro;05:RR-ru;06:RR-hon;11:RR-C,GS-K;13:RR-C

## Current Prizes

13:RR-C

## School Contact Information:

**Phone:** 718 782-2527

**Address:** 424 Leonard St  
Brooklyn 11222

**Block&Lot:** 3027120001

**DOE Location:** K126

**DOE Bldg:** K126

**Contest Coordinator:** Amber Moore

**Principal:** Marcos Bausch

**Sustainability Coord:** Steven House

## REQUIRED for Super Recyclers only:

**Custodian:** Mariano Ramirez

**Info Confirmed:** 5/15/2013

Printed: 6/26/2013

# JOHN ERICSSON MIDDLE SCHOOL 126

MAGNET SCHOOL FOR ENVIRONMENTAL ENGINEERING



## Reduce & Reuse Challenge



# JOHN ERICSSON MIDDLE SCHOOL 126

MAGNET SCHOOL FOR ENVIRONMENTAL ENGINEERING



**424 Leonard Street Brooklyn, NY 11222**

**P:(718) 782 - 2527**

**Fx:(718) 302 - 2319**

**Principal: Mr. Marcos Bausch,**

**Contest Coordinator: Amber Moore**

**(718)782-2527, MBausch@schools.nyc.gov**

**Magnet Resource Specialist**

**P: (718) 782- 2527 x1011**

**Email: amoore@ms126magnet.org**

**School Description:** M.S. 126 is a diverse, vibrant learning environment comprised of passionate students and staff in Greenpoint, Brooklyn. As the Magnet School for Environmental Engineering, our STEM (Science, Technology, Engineering, Math) infused curriculum challenges students with projects that incorporate re-used/up-cycled materials and creative problem solving skills. We are committed to fostering a genuine sense of environmental awareness and responsibility in our students and encourage them to promote environmental efforts and sustainability focused projects in school and within the community.

# Contest Entry Information

**Borough:** Brooklyn

**Grade Division:** Intermediate/Middle School

**Contest Entry Title:** Reduce, Reuse, Recreate!

**Contest Entry Summary:**

To reduce waste, cut down on consumption of new materials, and promote recycling throughout the entire school we re-purposed waste materials to create innovative projects that fused art, science, and technology. One of the biggest challenges we faced as a school was ensuring the proper separation of recyclable and trash items. Since most classrooms were not outfitted with designated paper recycling bins at the start of the project, we created bins and/or bin lids (with various reused packing materials) to ensure that every classroom would have the means to facilitate paper recycling. From plastic soda bottle terrariums, to sculptures made with recycled materials, to an entire fashion show made with reused/recycled materials and found objects, our goal was to build community and increase school spirit through our Reduce/Reuse Challenge.

# Student Involvement

Student Participation *Core Group*:  
15 students "**Green Team**"

Student Participation *Total*: 235 students

School Population: 270 Students

# Implementation - Why this?

Our target waste products for reduction are packing materials such as cardboard, bubble wrap, packing paper, various plastics, packing foam and 2 liter soda bottles. Our school has in influx of packing materials that are disposed of weekly. As an environmental engineering school we are teaching our students the importance of saving the environment through reducing and reusing materials in school and at home. Our major theme is to educate staff and students on the importance of waste reduction and the reduction of carbon dioxide in the atmosphere which contributes to global warming.



# Project Planning

We wanted to engage 100% of school staff and students in the reduce and reuse initiative through meaningful, sustainable projects. Therefore, we developed environmentally friendly projects with the common theme of reusing trash to reduce our carbon footprint.



John Ericsson Middle School 126  
Magnet School for Environmental Engineering  
424 Leonard Street  
Brooklyn, New York 11222  
Marcos Bausch, Principal  
Phone: (718) 762-2527 Fax: (718) 302-2318

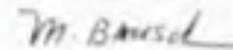
William Kirk, Assistant Principal  
Jean Grace, Assistant Principal  
Joseph Guzman, I.A. Assistant Principal

TO: All Staff  
FROM: Principal, Bausch  
RE: School wide Reduce and Reuse Efforts  
DATE: February 5, 2013

As a magnet school for Environmental Engineering I feel it is highly important that all staff and students work as a team to promote environmentally friendly practices in our school community. I give the staff and students my full support toward their creation of projects that will help reduce the amount of trash that are placed in our landfills which are potentially harmful to our environment. I would like for everyone to please support our students as they make efforts toward the enhancement of recycling paper waste, bottles and aluminum cans as well as trash. As educators we have the responsibility to exhibit behaviors that show our students how to be exemplar citizens. Hopefully, as role models we will help instill in our students positive environmental values can extend beyond school but to their homes and into their communities.

Sincerely,

Marcos Bausch  
Principal

  
**Principal**

# M.S. 126 Students Reduce & Reuse to Re-Create!

**School Day Projects:** Grades 6-8 receive thematic programming to infuse our school's Magnet theme, **Environmental Engineering**, into the curriculum

**Grade 6: Recycling**  
"Ancient Greek vases" and animal sculptures using packing materials. Cardboard has also been used to create shelves for the display of student 3D artwork.

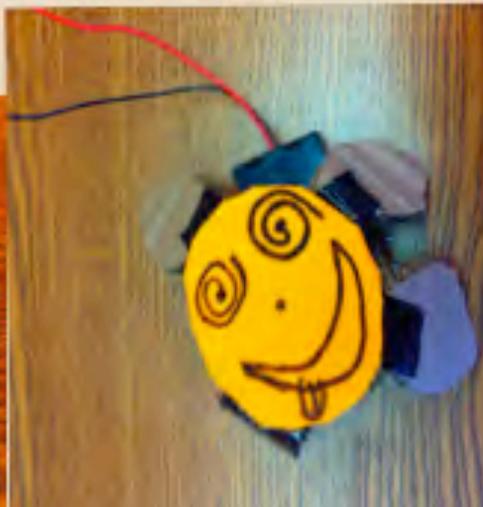


**Grade 7: Sustainability** Here students created models of green spaces with cardboard and other reusable materials.



## Grade 8: Electrical Engineering

Students created robot critters and circuitry projects with LED lights.



Terrariums and hanging planters made with two liter soda bottles!



# M.S. 126 Students Reduce & Reuse to Re-Create!

**After School Projects:** Students work together to make creative projects from reused materials

Grade 7 students in our International Science Club reused fabric from Materials for the Arts, for their Humans to Mars, educational music vi



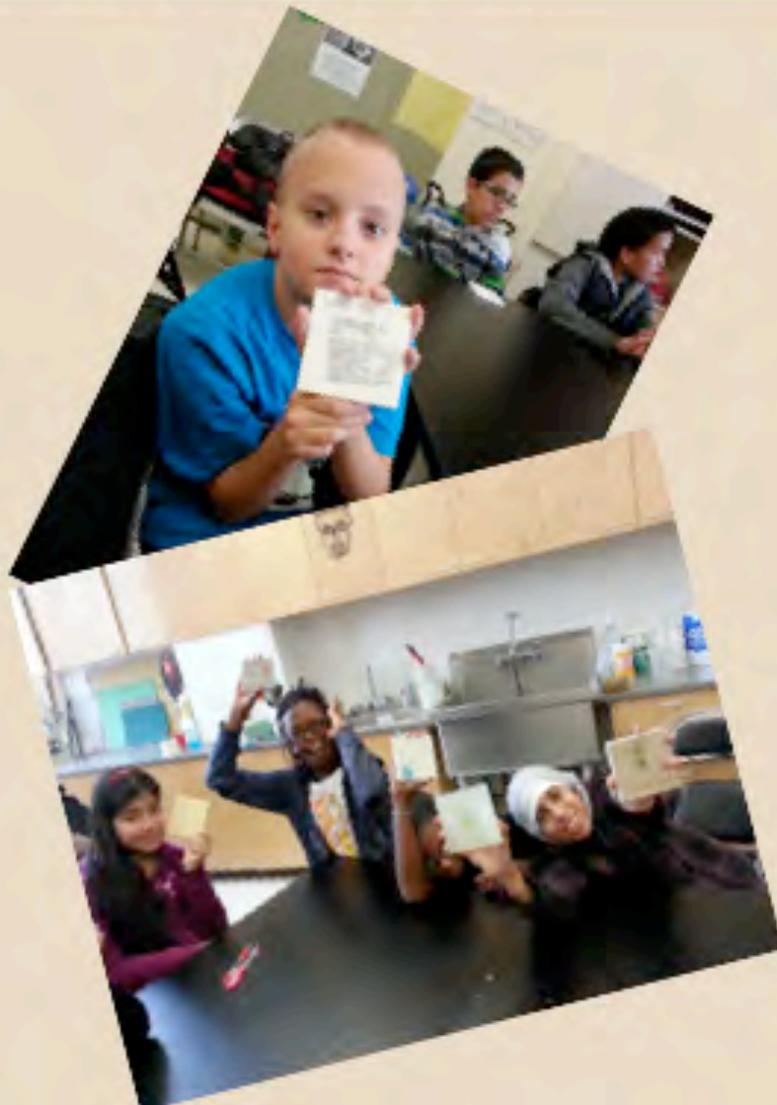
Our *Green Team* is reusing scrap materials and findings from Materials for the Arts to bring their designs to life for our first annual Reduce & Reuse Fashion Show!



Grade 8 students in our Green Fab Electronics program reused scrap cardboard and paper to create a school welcome sign with functional LED technology!



Thanks to Materials for the Arts we are now aware of the importance of reducing and reusing materials.



Trip to Brooklyn Botanical Garden  
for terrarium inspiration



# Brooklyn Botanical Garden - Plant Reproduction Workshop

Students study kitchen botany and plant reproduction to gain ideas of the plants that would be better suited for their soda bottle terrariums.



# In preparation for the terrariums students learned all about seeds.

Lesson Plan

6

Name Sofia Soto Date 1-25-12

## Seed Dissection Lab Sheet

### Purpose:

To dissect a seed, identify the parts, and learn the function of each part.

### Vocabulary Words:

**seed coat:** the protective covering that surrounds the seed

**food supply:** the material that feeds the baby plant

**embryo:** the baby plant

**Question:** What is inside a seed? Write a hypothesis.

nutrients and minerals

### Part One: Dry Seed Observation

1. Look carefully at the pinto bean. Examine it with a hand lens.
2. Describe what you see: a bean that is brown and some brown
3. Draw the pinto bean.



Lesson Plan

7

### Part Two: Soaked Seed Observation

1. Use a hand lens to examine the soaked pinto bean. Compare the soaked bean to the dry bean. What differences do you see?  
The soaked pinto bean is bigger.
2. Carefully remove the outside covering of the soaked bean. Gently pull apart the two halves of the seed. Examine each half with a hand lens.

What do you see inside the seed? some white stuff

3. Draw what you see inside the bean.



4. Share your observations with your lab partner. Discuss the vocabulary words *seed coat*, *food supply*, and *embryo* with your partner. Can you find these parts of your bean? Label these parts on your drawings.
5. Where does the seed store its food? inside the seed
6. Was your hypothesis accurate? What can you conclude about the inside of a seed?

My guess is like some white stuff inside that's it

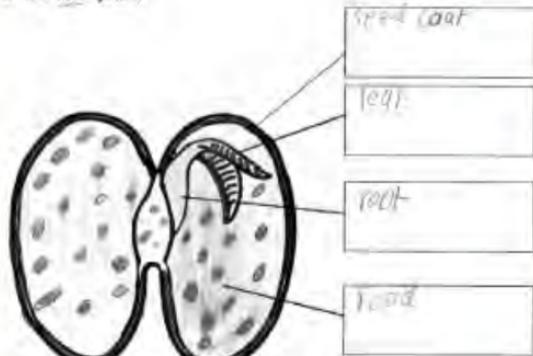
# Students studied the anatomy of seeds.

Jairo

## SEED PARTS

A seed holds a tiny new plant (embryo) inside. The new plant is surrounded by a supply of food. It is covered by a seed coat to protect it and its food until the plant begins to grow.

Label each seed part.  
Color the seed coat red,  
Color the leaf green  
Color the root brown  
Color the food yellow



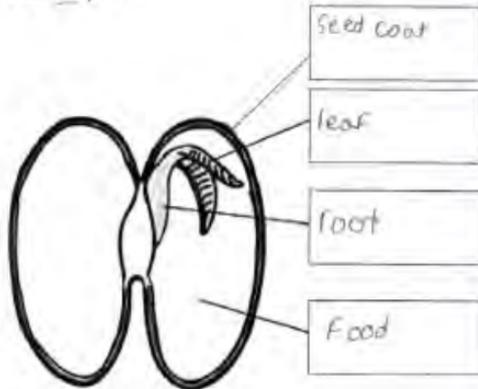
la semilla  
tiene mucha  
comida

Veronica

## SEED PARTS

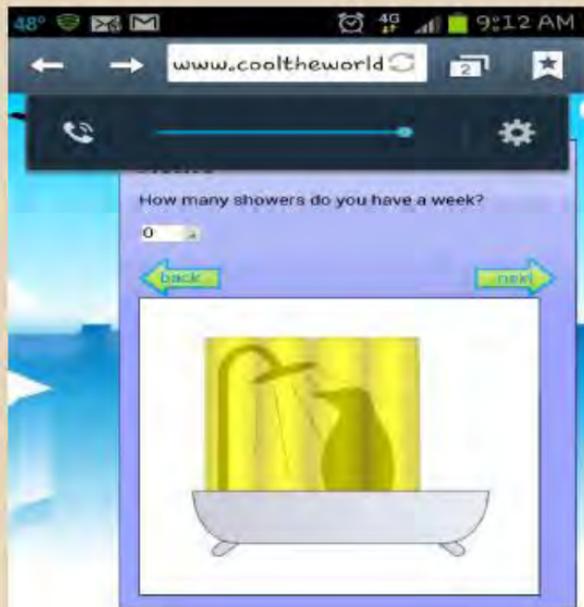
A seed holds a tiny new plant (embryo) inside. The new plant is surrounded by a supply of food. It is covered by a seed coat to protect it and its food until the plant begins to grow.

Label each seed part.  
Color the seed coat red,  
Color the leaf green  
Color the root brown  
Color the food yellow



Most of the seed is Food

# Students analyzed their carbon footprint to determine ways they can help fight global warming.



M5126

Name Tedward Cove

Class 502

Date 11/21/12

### MY CARBON FOOTPRINT

**DIRECTIONS:** Using the information you learned in class a) define carbon footprint in a complete sentence b) Go to [www.cooltheworld.com](http://www.cooltheworld.com) on the upper right of the site click on kids carbon calculator, take the quiz and enter your results below.

A) What is meant by Carbon Footprint? How much carbon dioxide is put in the air.

B) Complete the table below using [www.cooltheworld.com](http://www.cooltheworld.com).

Your Carbon Footprint:		
Traveling to School	413	Kgs CO2 a year
Watching television	66	Kgs CO2 a year
Leaving TV on standby	0	Kgs CO2 a year
Using the computer	7	Kgs CO2 a year
Lights in the bedroom	10	Kgs CO2 a year
Showers	86	Kgs CO2 a year
Baths	0	Kgs CO2 a year
Home total	169	Kgs CO2 a year
Going on holiday	44	Kgs CO2 a year
Your total	626	Kgs CO2 a year

C) Write 3 sentences on what you can do to reduce your carbon footprint:

1. I can walk to school.
2. I can use less energy in my house.
3. I can go on less vacations.

# Students analyzed their carbon footprint to determine ways they can help fight global warming.

48° 9:13 AM  
www.cooltheworld

### Ways you can reduce your carbon footprint

- You saved the car to school. If possible you could try getting homework done on the bus or walking to school. If you need to go by car, try car-sharing with a friend or you could use car-pooling.
- You are leaving your TV on. It could save you costs by turning it off at night. It saves 1 kg of CO<sub>2</sub> a year.
- You could try switching a dimmable TV standby and use low-power standby mode - it will save up to 10%.
- Computers use energy too! Switching the power button on the computer will reduce the energy it uses. Turn off and keep it off - especially at the end of the week.

**Now that you've used this calculator by thinking about ways you can reduce the energy you use. You could do this quite again and see how much you've reduced your carbon footprint!**

**Did you know?**  
The average power-up for a carbon footprint of 1 tonne CO<sub>2</sub> a year. By 2050 we need to cut that down to 0.5 tonnes a year.

### Your carbon footprint:

Traveling to school	120	kg CO <sub>2</sub> a year
Watching television	165	kg CO <sub>2</sub> a year
Leaving TV on standby	11	kg CO <sub>2</sub> a year
Using the computer	82	kg CO <sub>2</sub> a year
Lights in the bedroom	30	kg CO <sub>2</sub> a year
Showers	0	kg CO <sub>2</sub> a year
Baths	0	kg CO <sub>2</sub> a year
Home total	288	kg CO <sub>2</sub> a year
Going on holiday	0	kg CO <sub>2</sub> a year
Your total	417	kg CO <sub>2</sub> a year

MS120  
Date 8/2  
Name Abd W/Alid F Z  
Date 12/10/17

### MY CARBON FOOTPRINT

**DIRECTIONS:** Using the information you learned in class: a) define carbon footprint in a complete sentence b) Go to [www.cooltheworld.com](http://www.cooltheworld.com) on the upper right of the site click on kids carbon calculator, take the quiz and enter your results below.

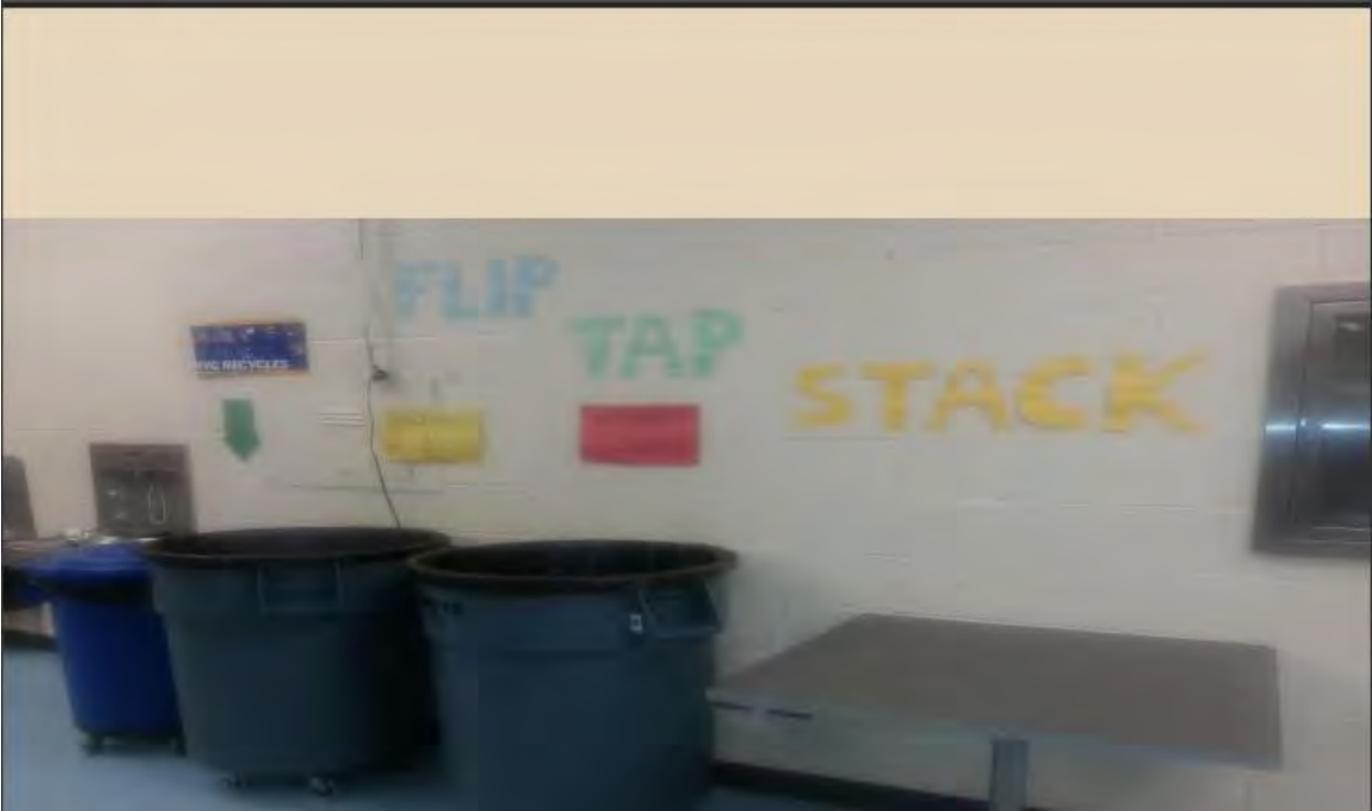
A) What is meant by Carbon Footprint? it means how much carbon you create

B) Complete the table below using [www.cooltheworld.com](http://www.cooltheworld.com)

Your Carbon Footprint:		
Traveling to School	0	kg CO <sub>2</sub> a year
Watching television	0	kg CO <sub>2</sub> a year
Leaving TV on standby	0	kg CO <sub>2</sub> a year
Using the computer	92	kg CO <sub>2</sub> a year
Lights in the bedroom	0	kg CO <sub>2</sub> a year
Showers	200	kg CO <sub>2</sub> a year
Baths	0	kg CO <sub>2</sub> a year
Home total	282	kg CO <sub>2</sub> a year
Going on holiday		kg CO <sub>2</sub> a year
Your total	282	kg CO <sub>2</sub> a year

C) Write 2 sentences on what you can do to reduce your carbon footprint.  
I can use a laptop so I can save not being on the computer every day.  
taking 6 hours with it or 7

Students stacked their lunch trays to reduce the amount of lunch trays and trash bags we use.



# If you could "Green" a space what would you do?

## Teaching Point:

Students will be able to present their sustainable green spaces and an assessment.

## Do Now:

What is sustainability?

## Vocabulary:

Going Green Environment Global Warming Carbon dioxide Cycle

## Mini Lesson:

Review the meaning of Going Green.

Discuss with students their current ideas on what they have created for their green spaces.

Ask students: what have you chosen to create? Why? How is this space beneficial to the environment?

## Task:

1. Students will present their sustainable green spaces based upon the following questions:
  1. What does it mean to Go Green?
  2. Describe your sustainable green space.
  3. How is your green space sustainable?
  4. How would your green space be beneficial to the environment?
- II. Take a quiz on sustainability.

## Closing:

Students will ask their classmates questions about their projects.

## Homework:

Students are to bring in 2 liter soda bottles for future terrariums building as well as other materials for the sustainable green space.

CCLS: CR.1

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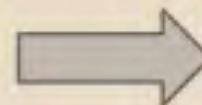


# Promotion



We will showcase M.S. 126's Reduce/Reuse Projects to the North Williamsburg & Greenpoint Brooklyn community at the Townsquare's "Go Green, Greenpoint!" Event at McCarren Park on May 11th, 2013.

Students and teachers will work side by side to educate our neighbors about the creative potential for scrap materials and to facilitate on-site craft projects such as soda bottle planters and terrariums!



# Promotion

John Edison Middle School 126  
Magnet School for Environmental Engineering  
424 Leonard Street  
Brooklyn, New York 11222  
Elliott Bausch, Principal  
Phone: (718) 482-3577 Fax: (718) 802 2319



William Kiri, Assistant Principal  
John Grace, Assistant Principal  
Joseph Diener, I.A. Assistant Principal

November 27, 2012

Ms. Julianne Schrader  
NYC School Gardens Initiative  
GrowNYC  
51 Chambers Street, Room 228  
New York, NY 10007

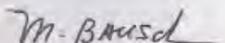
Dear Ms. Schrader

I proudly write this letter to the NYC School Gardens Initiative in support and approval of the school garden project here at MS126 School for Environmental Engineering.

- The vision for our school garden is to create a garden that can be utilized to enhance student knowledge about the importance and various resources to be gained from plants.
- Our goal is to create a model community garden that will inspire other schools, and persons within the community to desire to learn more about gardening education.
- As a committee we will infuse the gardening program throughout our school-wide curricula, create procedures to involve all students and staff with the garden as well as promote the benefits and importance of the garden to other organizations and families within the school community.
- We hope to partner with the Solar1 organization as well as the Lower East Side Ecology Center to assist us in our efforts to create energy efficient and sustainable indoor and outdoor gardens.

Our garden will serve as an educational space to inform youth about food related issues, such as health and the environment, as well as to support science and math learning. I am excited to be a part of this network, and a part of the larger movement for school gardens in New York City and abroad.

Sincerely,

  
Principal

# Collaboration

Our school partnered with Solar 1 to educate our students about materials science and green sustainable spaces.

Green Team visited MFTA to spark their creativity and get them excited for the Golden Apple Challenge!

ROLANDPFE

## Memorandum of Understanding between Solar One and MS 126

### Project: The Green Design Lab

Solar One will deliver the Green Design Lab curriculum and program at MS 126 John F. Kennedy during Spring of 2013. The Green Design Lab is Solar One's in-depth curriculum and program focused on helping to green New York City schools. Using the building as both a laboratory for learning and a tool for environmental change, Green Design Lab explores five main energy, air, water, materials, and food. Each participating school will be able to select 2 units.

### General Agreement:

During spring of 2013, Solar One in partnership with MS 126 will deliver the following Green Design Lab programming. MS 126 agrees to coordinate, schedule, and participate in the following:

- 1) Classroom Delivery: Solar One Educators will deliver GDL program alongside the classroom teacher 1 day per week for up to 4 classes per day throughout spring of 2013.
- 2) Professional Development Training: 2 half days equivalent of professional development training with teachers on either NYC DOE PD days or at the school site.
- 3) Sustainability Projects: 1-2 school-wide sustainability projects to be completed by the school with professional guidance from Solar One staff. Examples include: improving recycling, linking/maintaining an indoor or outdoor garden, or energy reduction measures.
- 4) School Walk Assembly: One school-wide assembly.
- 5) Campus Walk Through: 1-2 hour building assessment with campus engineer and Solar One fielding performance specialist.
- 6) Parent or Community Event: Solar One will deliver 1 parent or community event at the school.
- 7) Evaluation: Teachers agree to help promote/distribute pre- to post-knowledge surveys to participating students. Teachers will also agree to complete their own program surveys.

### Solar One Representative

Name: Sarah Hildebrand Signature: [Signature] Date: 2/22/13

School Principal:

Name: William Hildebrand Signature: [Signature] Date: 2/22/13

This is just the inspiration I need for our reduce and reuse fashion show...



We love materials for the Arts!



Green Team and 8th Graders visited the Brooklyn Museum to glean inspiration from reduce/reuse masterpieces by contemporary artist El Anatsui

## Brooklyn Museum

Exhibitions: Gravity and Grace: Monumental Works by El Anatsui

Current

Upcoming

Past

Touring

Exhibition Archive



El Anatsui (Ghanaian, b. 1948), Earth's Skin, 2017. Aluminum and copper wire, 177 x 504 in. (4498 x 12806 cm). Courtesy of Guggenheim Abu Dhabi



# Project Analysis: What Worked?

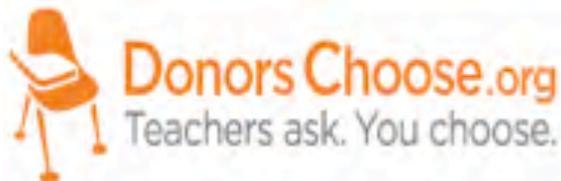
The most successful aspects of this project were the hands-on opportunities and final products students created with reused materials. These projects gave students the opportunity to problem solve like real Environmental Engineers and share their creations with the entire school community!

- Recycling bins/lids
- Scrap Paper bins
- Art projects
- Electronics projects
- Reused materials Fashion Show
- Soda Bottle Terrariums & Planters
- Signs



# Project Analysis: *What didn't Work?*

To help our students in their sustainability efforts we planned a "Pencil Challenge" wherein every student would have to hold onto a single pencil for two weeks! We decided to fund our project through Donors Choose and though we have not yet received full funding we still plan to facilitate the challenge by the end of the year!



I'm a teacher »

Projects Gifts About Help Account ☆

✓ New York



## M.S. 126 The Great Pencil Challenge!!! ☆

Mr. Isidoridy/Fagiola's supplies project at John Ericsson Ms 126 Env Eng in New York City



**My Students:** "Treat the Earth well. It is not a gift from our parents but a loan from our children" - Kenyan Proverb. Our school spends a lot of money each year on pencils. Crazy right?! With mechanical pencils we can save money that cost and conserve natural ... [show more »](#)

**My Project:** With an arsenal of refillable mechanical pencils we will become the leaders of our school's sustainability spirit.

This year we are focusing on the thematic integration of sustainability into the curriculum. During a ... [show more »](#)

2 1

**My students need** mechanical pencils to facilitate a school-wide challenge to reduce waste.



## Advice to other Schools

We advise other schools to build good relationships with their custodians and community organizations. There are many ways materials can be reused. Everyone just needs to be creative, supportive and determined to work toward a common cause.

# Our Measure of Success

We gauged our success by student involvement and the percentage increase of classrooms outfitted with paper recycling bins and scrap paper bins at the end of a three month period.

## Paper Recycling Bin Covers & Scrap Paper Boxes

These projects transformed the state of paper recycling and reuse in our school! Students successfully provided classrooms in our school with the bins necessary for proper separation of paper for recycling and for reuse as scrap paper. By ensuring the separation of classroom waste into the appropriate receptacles we were able to reduce the amount of landfill-bound matter produced by our school and reuse much of the separated paper for scrap paper and various projects.



# NYS Science Performance Standards

## **Standard 4:**

Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.

Key Idea 5: Plants and animals depend on each other and their physical environment.

Performance Indicators--Students:

- participate in activities that demonstrate how plants and animals, including humans, depend upon each other and the nonliving environment
- participate in activities that demonstrate the relationship of the sun as an energy source for living and nonliving cycles

Key Idea 6: Human decisions and activities have had a profound impact on the physical and living environment.

Performance Indicators--Students:

- participate in activities which show how humans have changed their environment and the effects of those changes

## NYS Visual Arts Learning Standards

1: Creating, Performing, & Participating in the Arts

**2: Knowing and Using Arts Materials and Resources**

3: Responding to & Analyzing Works of Art

4: Understanding the Cultural Dimensions & Contributions of the Arts

*Our "Reduce, Reuse, & Re-create" project supported NYS learning standards for the Visual Arts with emphasis on exploring innovative materials use!*



# NEXT GENERATION SCIENCE STANDARDS

Figure 1

## Scientific & Engineering Practices

- Asking questions (for science) and defining problems (for engineering)
- Developing and using models
- Planning and carrying out investigations
- Analyzing and interpreting data
- Using mathematics and computational thinking
- Constructing explanations (for science) and designing solutions (for engineering)
- Engaging in argument from evidence
- Obtaining, evaluating, and communicating information

## Core Ideas (partial)

### Physical Science

- PS 1: Matter and its interactions
- PS 2: Motion and stability; Forces and interactions
- PS 3: Energy
- PS 4: Waves and their applications in technologies for information transfer

### Engineering, Technology, and the Applications of Science

- ETS 1: Engineering design
- ETS 2: Links among engineering, technology, science, and society

## Crosscutting Concepts

- Patterns
- Cause and effect: Mechanism and explanation
- Scale, proportion, and quantity
- Systems and system models
- Energy and matter: Flows, cycles, and conservation
- Structure and function
- Stability and change

# Future Plans



Our future plans are to create a check system to ensure that everyone continues to reuse and recycle. We also hope to learn composting to establish a program that would involve all of our campus schools and programs.

We plan to share our reduce and reuse initiatives with our campus and neighborhood schools so that more people will join us towards the education and promotion of environmentally friendly habits.