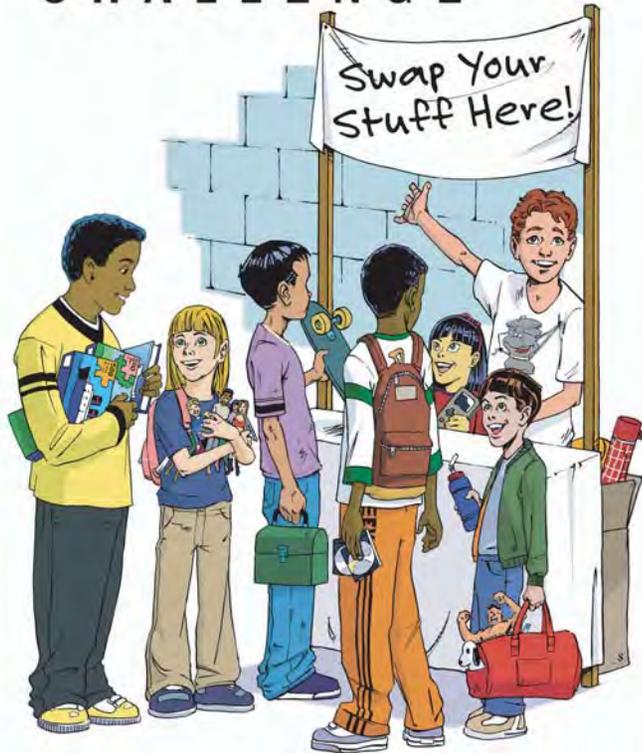


TrashMasters!™
REDUCE & REUSE
CHALLENGE



Elementary Division
Manhattan Borough
Runner-Up

Earth School PS 364

NEW YORK CITY DEPARTMENT OF SANITATION

2010 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, Michael R. Bloomberg, Mayor
Department of Sanitation, John J. Doherty, Commissioner
Bureau of Waste Prevention, Reuse and Recycling, Robert Lange, Director


John J. Doherty, Commissioner
June, 2010

A Description of the Earth School's Efforts in the Pursuit of Waste Reduction

This binder contains the work of the children, their families, and the staff members of the Earth School that shows our commitment to the ongoing efforts to teach and empower children in the stewardship of our planet. It concentrates on how the youngest members of our school community enter into this process and how it continues through their journey in our school. We hope to set the stage for our students as they grow and evolve. We realize that this a lifelong process and we hope that our work continues to inspire children and their families after their stay at the Earth School ends.

Thank you for your consideration,
The Green Committee from the Earth School,
Carole Scott and Erica Zimetbaum

Waste Reduction at the Earth School

Summary of Projects

I. The Mission and Guiding Principals of the Earth School

The Earth School is a public elementary school in the East Village area of Manhattan. It was founded by a group of teachers in 1992 as an “ecological institute.” Over the last 18 years, the school has grown in size and honed its programming. Each year we examine our practices and try to incorporate projects and practices that help in the reduction school wide waste.

II. Entry to Kindergarten

Each year, a welcome letter and list for incoming students is sent to each family in which we ask for supplies that show our commitment to waste reduction. We also solicit items during the school year in our newsletter such as bottle caps, small plastic containers, etc. to be used in the classroom for counting, sorting, and art projects.

III. Paper Reduction

By far the most profound reduction in our school’s paper use stems from moving the majority of our administrative record-keeping, collaboration, and internal communications to email and Google Documents. This has greatly reduced the amount of paper that we use in sharing work with staff and parents. We are currently working on moving the majority of school-family communications online as well. In addition to these fundamental reductions in paper use, our school orders recycled paper for office and classroom use whenever the budget allows.

The general kindergarten curriculum, as well as, the Earth Studies curriculum devotes time to teaching children about trees. The children learn how we can help the trees and how the trees help us. We teach children to use both sides of a piece of paper, to use “one good side paper,” and to recycle paper.

Teachers put clean “used-once” paper in their classroom printers to make sure both sides are printed upon when possible.

IV. Composting and Gardening

The students learn about composting from our Earth Studies teacher, Abbe Futterman, and their classroom teachers. Each classroom has a composting bucket and there are compost buckets in the cafeteria. The students are able to plant fruit and vegetables in the school garden. This year some of that food has been harvested to be used in the “Garden to Café” program in which those ingredients are prepared and served to the students.

V. Materials for the Arts

The Art teacher uses many donated materials from families. She also makes regular trips to the Materials for the Arts program to gather recycled materials.

VI. Fundraisers

The Earth School has a very active Parent’s Association. The parents raise money for many programs in our school. One of the fundraising efforts involves making crafts

from recyclable materials. In October the parents have a fair. Part of the fair consists of a rummage sale of goods donated by the parents and their children.

VII. Recycling of Tech Materials

Our Technology Coordinator, Michael Steinberg, recycles as much equipment as possible by re-using and repurposing all computer and audio-visual hardware

Family and staff have eagerly donated older computers, printers, scanners, and cameras, which have then been fixed and returned to classrooms and offices. Teachers have been trained to follow energy-saving protocols to ensure long-lasting bulb and screen life and students and staff know to turn off and unplug any equipment not in use. Digital cameras and video cameras are shared on grade-level; teachers have been outfitted with rechargeable batteries and chargers so they can be responsible for their energy needs.

Within the Department of Education's strictures for asset removal, the Tech Coordinator also arranges for "green" disposal of unusable materials. Color printers have been set on to print in black and white only so teachers and staff must think about their choices before they use color images.

The ink cartridge and cell phone recycling program, set up by our parents, has been well-promoted and is very successful.

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I. The Mission and Guiding Principles of The Earth School

The Earth School's Mission Statement reflects the community's deep commitment to sustainable uses of the Earth's resources. We have worked to integrate "eco-literacy" education into all aspects of the curriculum.

Mission Statement of The Earth School

The staff, families, and support agencies that comprise the Earth School community nurture the development of our students through our ongoing collaboration and our deep commitment to knowing each child through her unique strengths and interests. We work to be a place where children and adults from diverse backgrounds come together to celebrate our differences, to appreciate our common humanity, and to contribute to our community. Our mission is to support children's inherent love of learning through curriculum that is active, playful, socially-conscious, and rigorous. The Earth School's educational program is designed to support children's academic achievement and to encourage their commitment to the peaceful resolution of conflict and the preservation of the Earth's resources.

In addition to the Mission Statement, the faculty of The Earth School developed "Guiding Questions" which are used to focus inquiry and to develop critical thinking about the ways that we live and work.

The Earth School's Guiding Questions

To recognize the wonder and importance of the world and its inhabitants, to enrich our lives, to make wise decisions, we are guided by the following questions:

For Knowing and Learning

How do I find out about this? Come to know this?
What did I discover?
Why is this important?
Where does this fit in?
Is there another way of looking at this?
Do I have enough information?

For Being with Others

How can I help?
How do my actions affect others, myself, the environment?
Who is here? Who is not here?
Am I being respectful to myself and others?
How is this like me? ...different from me?

For Living on the Planet

Am I being respectful toward the planet and its resources?
Do I really need this?
Where does this come from? Where will it go?
Am I leaving this (place, situation) better than I found it?

I. The Mission and Guiding Principles of the Earth School

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Each year, a welcome letter and list for incoming students is sent to each family in which we ask for supplies that show our commitment to waste reduction. We also solicit items during the school year in our newsletter such as bottle caps, small plastic containers, etc. to be used in the classroom for counting, sorting, and art projects. The children also eat their school lunches on recyclable sugar cane trays. These trays have replaced the Styrofoam trays provided by the Department of Education.

Attachments: supply letter, newsletters, photographs

July 20, 2009

Dear families,

I hope you are enjoying your summer!

Welcome to kindergarten! I will be your child's kindergarten teacher for the 2009/2010 school year. I am looking forward to working with you and your family this coming school year.

I started teaching kindergarten at the Earth School two years ago. In May, I finished my M.A. in Education at Bank Street College. I have had a wonderful couple of years at the Earth School. I am so glad you will be joining or returning to this wonderful community.

I am enjoying an active summer. I have been spending time with friends and family in New York and Cape Cod. In August, I will be traveling to California and the Northwest.

In the first few weeks of school, we will focus on building a caring community of learners in our classroom. In order to build this sense of community, we will spend time getting to know each other, as well as establishing classroom rules and routines. As part of our community-building curriculum and as an entry point to our literacy curriculum, we will also begin a name study early in the year.

In addition, our core studies this year will focus on a study of Tompkins Square Park and the neighborhood post office. Through these studies, we will observe, explore, and learn about the trees that inhabit the park, the playgrounds in the park, the animal life that lives in the park, as well as the community that uses the park and other neighborhood resources, like the post office. During the summer, feel free to work with your child to start a stamp collection from the letters you receive or a collection of natural objects from parks you visit. When we begin the school year, your child can bring these found objects to school to share.

I have enclosed a list of supplies that the children will use throughout the year. The class will share all supplies as a community, so please do not put your child's name on the items you bring in.

In addition, your child should bring a change of clothes that should be kept in a plastic Ziploc bag. The change of clothes should include a shirt, pants, underwear, and socks. If you anticipate that your child might have bathroom accidents, please include extra underwear and wet wipes.

Enjoy the rest of your summer and I look forward to meeting and getting to know all of you in September. If there is anything that you would like me to know about your child (i.e. asthma, any medications, allergies, etc.) to insure a happy and healthy year, feel free to write me a note or call the school. If you would like to set-up a meeting the week before school starts, please contact me by e-mail or call the school after August 31st.

Sincerely,

Micaela Morse

micaelamorse@mindspring.com

Materials for Micaela's Class

- 2 boxes of colored pencils
- 2 boxes of washable markers
- 2 boxes of glue sticks
- 1 box of crayons
- 1 package of gallon sized plastic bags
- 2 bottles of non-toxic spray cleaners
- 1 package of sponges
- 2 reusable cleaning rags
- 3 rolls of paper towels
- 2 boxes of facial tissues
- 1 bottle of liquid soap or hand sanitizer

*** Materials that would be appreciated but not necessary**

- **Interesting collage materials**
- **Thick sketching pencils**
- **Yarns**
- **Fabric**
- **Band-aids**
- **Interesting art paper**
- **Watercolor paper**
- **Watercolors**

The Earth School Kindergarten Newsletter
Carole, Erica, and Micaela
March 9, 2010

Calendar News:

Tuesday, March 16th- ½ Day for Professional Development (11:30 Dismissal)
Friday, March 19th – Spring Equinox Celebration at Town Meeting (8:30a.m.)
Friday, March 26th- ½ Day for Professional Development (11:30 Dismissal)
Monday, March 29th – Tuesday, April 6th – NO SCHOOL (Spring Break)

Class News:

Post-Office Study

Thanks to the families who continue to send in supplies to augment our Post Office Study! Last week all three kindergarten classes took trips to the Third Street Post Office. We had the chance to buy stamps, talk to the postal workers, and tour the public side of the post office. Last Friday, we explained to the whole school how the Earth School Post Office will operate.

On Monday, we began writing letters and servicing our postal routes. All of the children have their own mail slots. Please feel free to drop a letter or a card in your child's box. If your child wants to, they may write letters at home and drop them in the box at school. In addition, please continue to check your mail at home with your child and look out for the letter that they mailed home.

Fieldtrips

We will take another walking trip to the post office at a later date. In the spring, we will begin our bird and insect studies. As part of this work, we will visit the Prospect Park Audubon Center on April 21st, the Ramble at Central Park in early May, and the American Museum of Natural History on May 21st. We will also visit the Union Square Farmers Market in early June to observe and explore how the change in season affects the availability of produce. We will send permission slips home for all of these trips, as we get closer to the actual date. In addition, we will request a few parent chaperones to join us.

Wish List

As we enter the last third of the school year, we are running short on some important supplies. If you are able to contribute at this time, we would greatly appreciate the following items: **Paper Towels and Kleenex**. In addition, we would love the following found or recycled objects for our classroom collections: old keys, wine corks, buttons, plastic caps (rinsed), and natural objects (shells, branches, pinecones, rocks, pebbles, seeds). We may share these materials and supplies among the classes as needed.

Thanks for all of your help,
Carole, Erica, and Micaela

Hi Families,

We have finally run out of some of our supplies! We need some hand soap and paper towels. We are also still collecting bottle caps, wine corks and any other interesting items for our classroom.

As the weather continues to get warmer, we will be taking more observational walks to the park to look at birds, plants and insects. Please send in a clipboard for your child so that we can draw our observations outside. If you have extra or used clipboards at home or the office, you may donate more than one this way everyone will have one!

I have also listed a couple of items we would love for our room:

Baby food jars

Green tempera paint

Black tempera paint

Watercolor paper

One set of acrylic paints (water soluble)

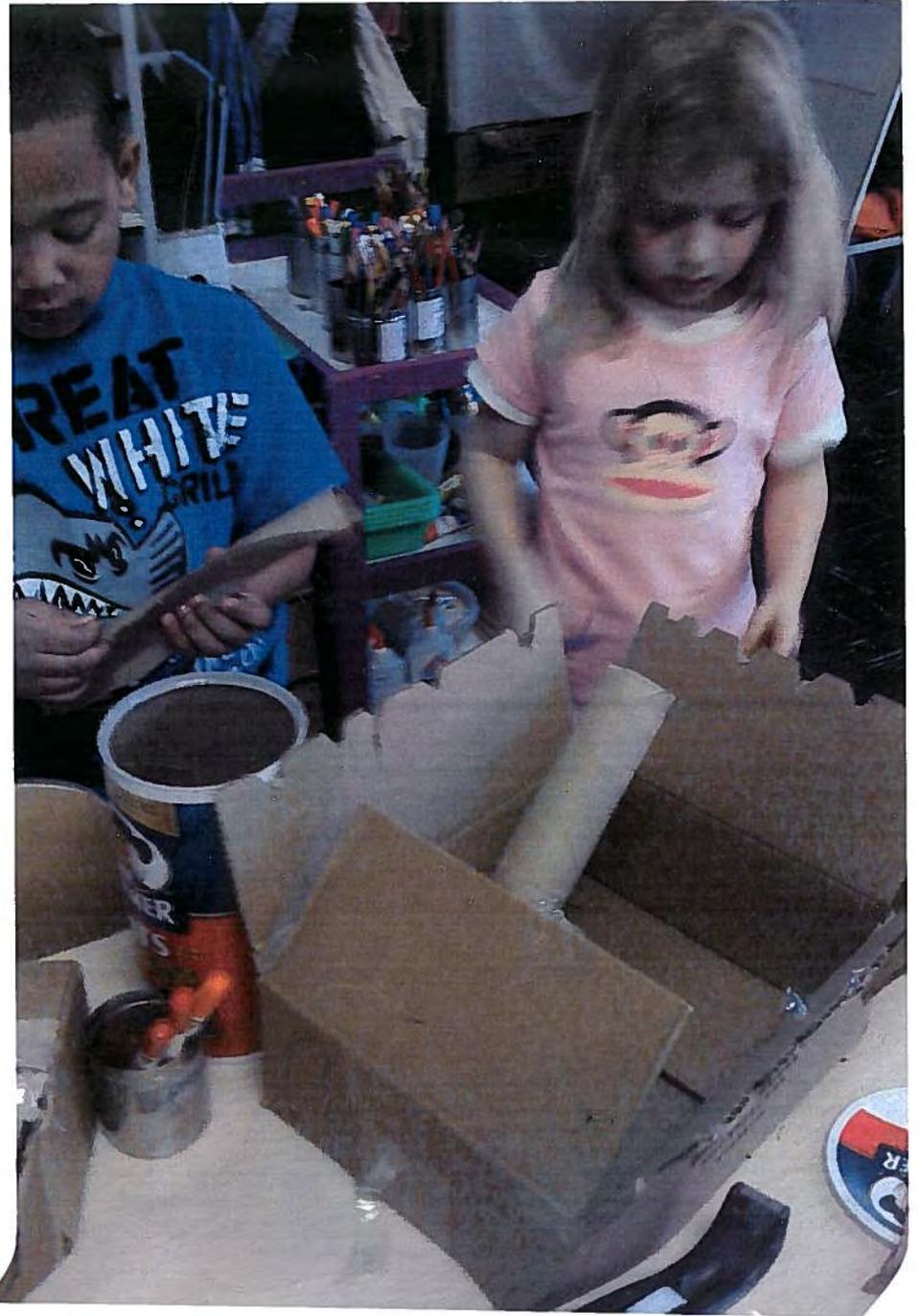
Thanks for your continued support.

Sincerely,

Carole



Families send in bottle caps which are sorted by the students. These students are sorting the caps by color.



These children are making a "pirate ship" out of boxes sent from home.



These children are making a "pirate ship" out of boxes sent from home.



These children are using boxes from snack and school supplies to create a boat.



This group looked through work that they saved and other recycled materials to create a large art piece to share with the whole school at our weekly Town Meeting.



This is a recyclable sugar cane tray. Parents raised money for our school to switch from styrofoam trays to these recyclable trays.

III. Paper Reduction

By far the most profound reduction in our school's paper use stems from moving the majority of our administrative record-keeping, collaboration, and internal communications to email and Google Documents. Each member of our staff uses email daily, printed memos to teachers are almost non-existent, and our school handbook, schedules, various protocols and guidelines that in the past were printed and photocopied now exist "in the cloud" on the internet and are shared and accessed when needed from any computer. Teachers create curriculum units on shared documents and calendars that exist entirely online. The staff uses shared Google Documents to write our reports, set agendas for meetings, and document all aspects of our work with children. This has greatly reduced the amount of paper that we use in sharing work with staff and parents. At family-teacher conferences, teachers now use laptops to go over progress reports instead of printing them out. At staff meetings, agendas and other work is projected onto screens, saving both time and paper. We are currently working on moving the majority of school-family communications online as well.

In addition to these fundamental reductions in paper use, our school orders recycled paper for office and classroom use whenever the budget allows.

The general kindergarten curriculum, as well as, the Earth Studies curriculum devotes time to teaching children about trees. The children learn how we can help the trees and how the trees help us. We teach children to use both sides of a piece of paper, to use "one good side paper," and to recycle paper. There is a drawer in the school office, where mail is sorted, and paper that has a "good" side, as well as, paper left over from notices and copies that may have mistakes are made available for classroom use. Teachers put clean "used-once" paper in their classroom printers to make sure both sides are printed upon when possible.

Attachments: printout of earth school staff portal for google docs, photographs

The Earth School Staff Portal

erica@theearthschool.org | [Sign out](#)

Web [Images](#) [Groups](#) [News](#) [Shopping](#) [Maps](#) [Scholar](#) [more »](#)

[Advanced Search](#)
[Search Preferences](#)
[Language Tools](#)

Google Search

I'm Feeling Lucky

[Add stuff »](#)

Email

[Inbox \(150\)](#) [Show preview](#) [Compose Mail](#)

Google Calendar

Showing events until 5/31. [Look for...](#)

Google Docs

New York, NY

54°F
Current: Partly Cloudy
Wind: NW at 13 mph

Wed

54° | 42°

Dictionary.com Word of the Day

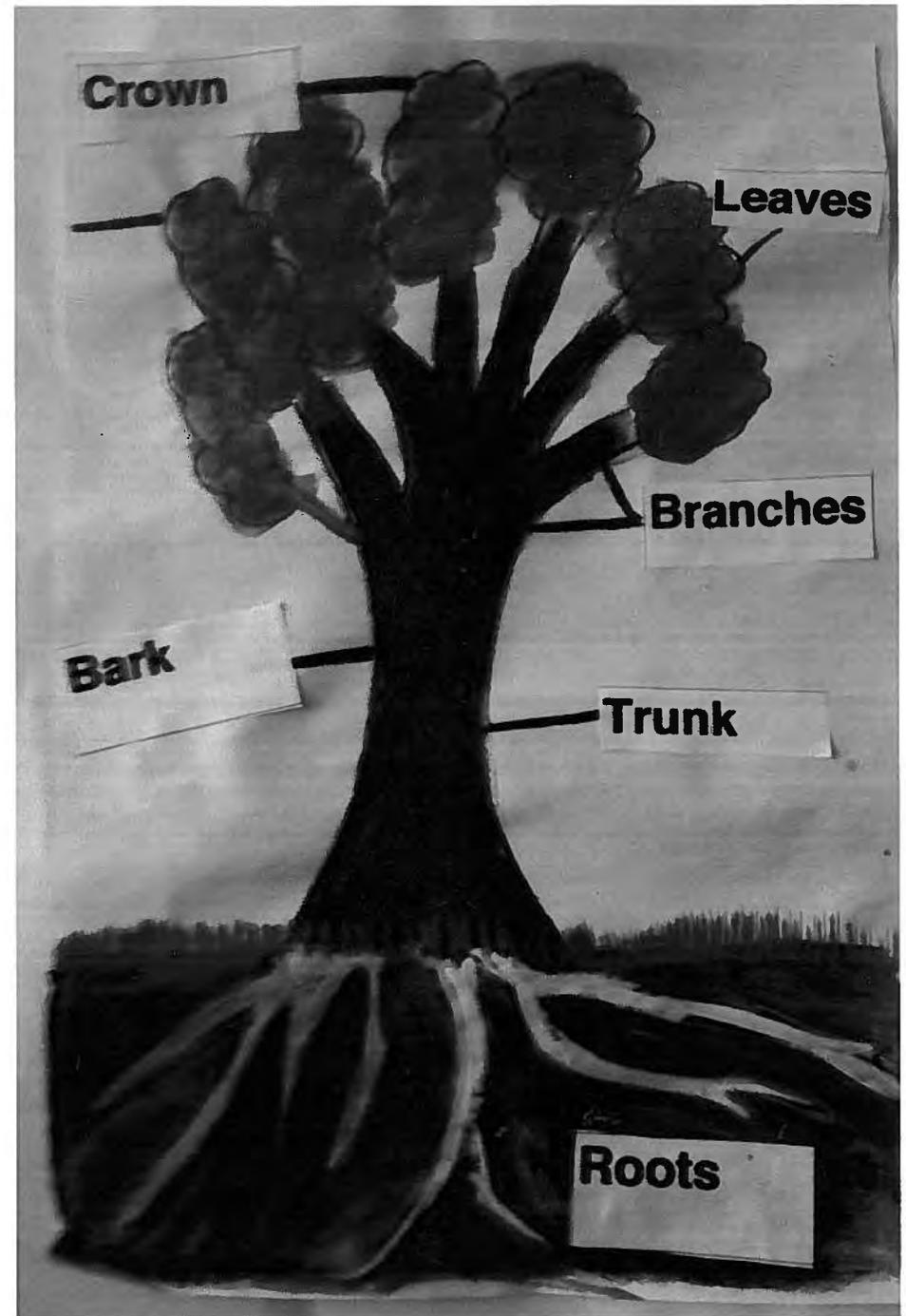
[pellucid: Dictionary.com Word of the Day](#)

[Today](#) | [Add](#)

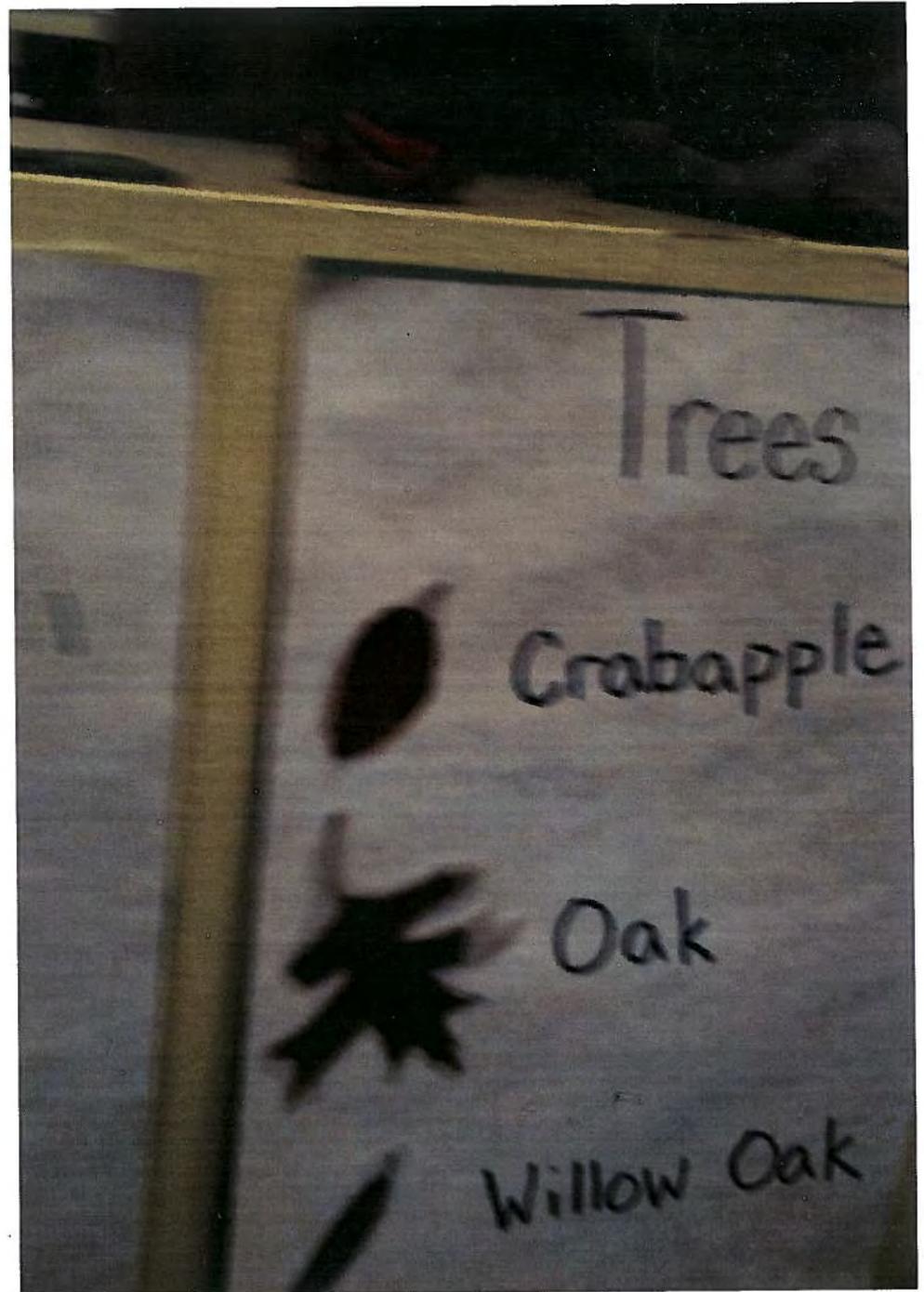
Quotes of the Day

Read, every day, something no one else is reading. Think, every day, something no one else is thinking. Do, every day, something no one else would be silly enough to do. It is bad for the mind to be always part of unanimity.
- [Christopher Morley](#)

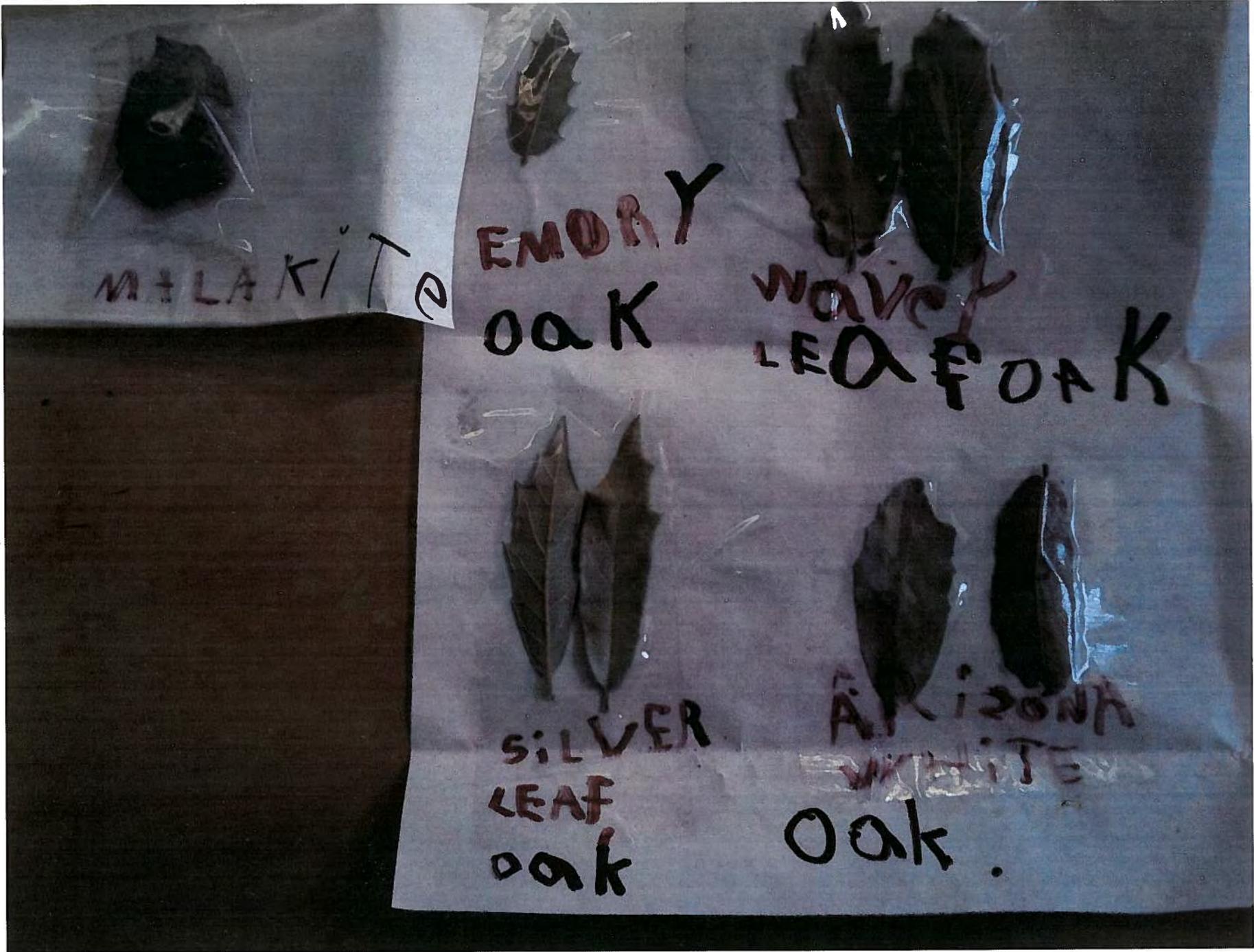
[Privacy Policy](#) - [Terms of Service](#) - [Help](#)



The aerial photo is of Tompkins Square Park. The kindergarten classes visit the park every day for recess. We also visit the park to observe the trees and animals in the park. The students use the poster to learn the anatomy of trees.



These are posters generated by the students and written up by the teachers about how we can take care of trees, what we get from trees and the names of trees near the playground where we have recess.



MILAKITE

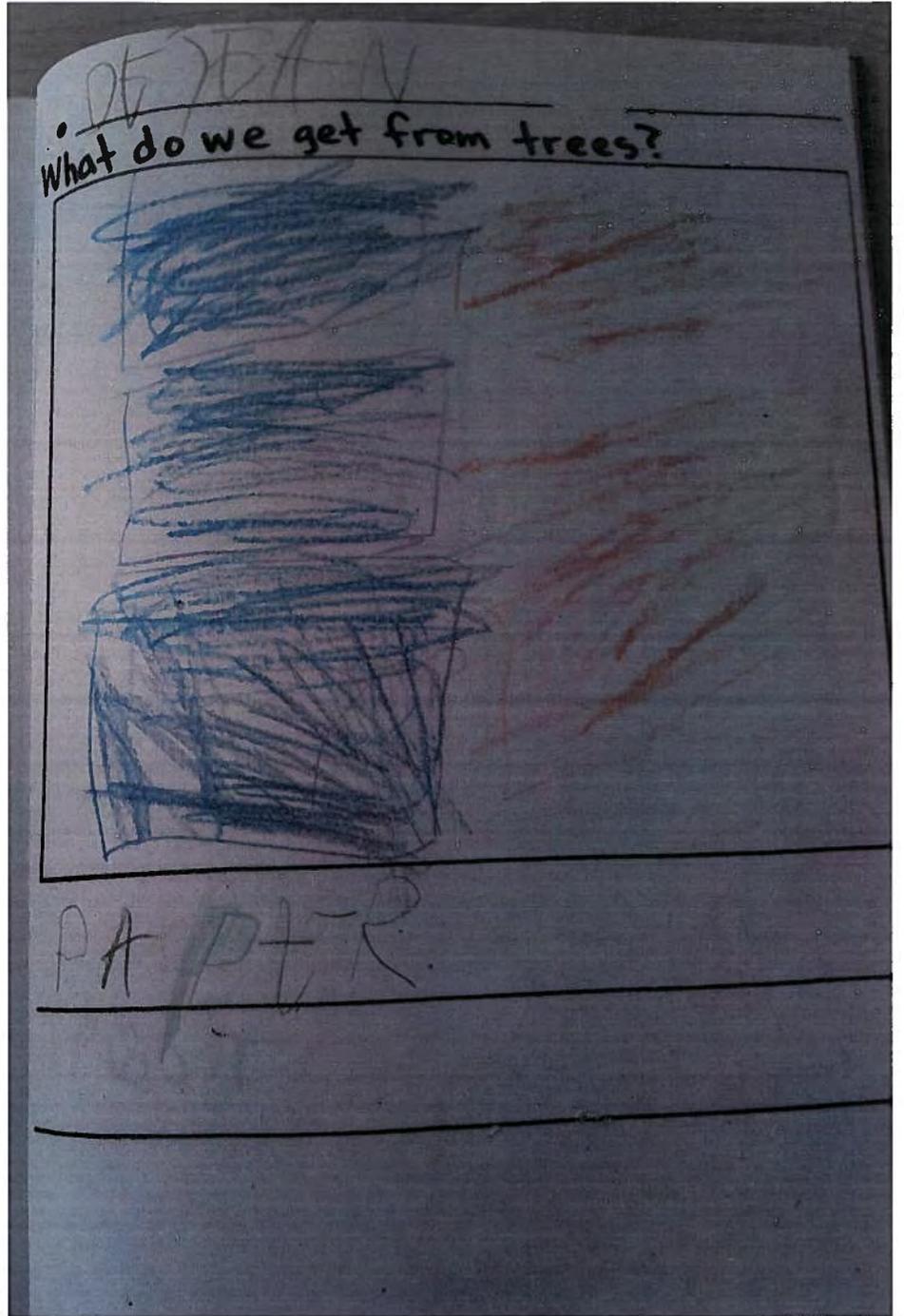
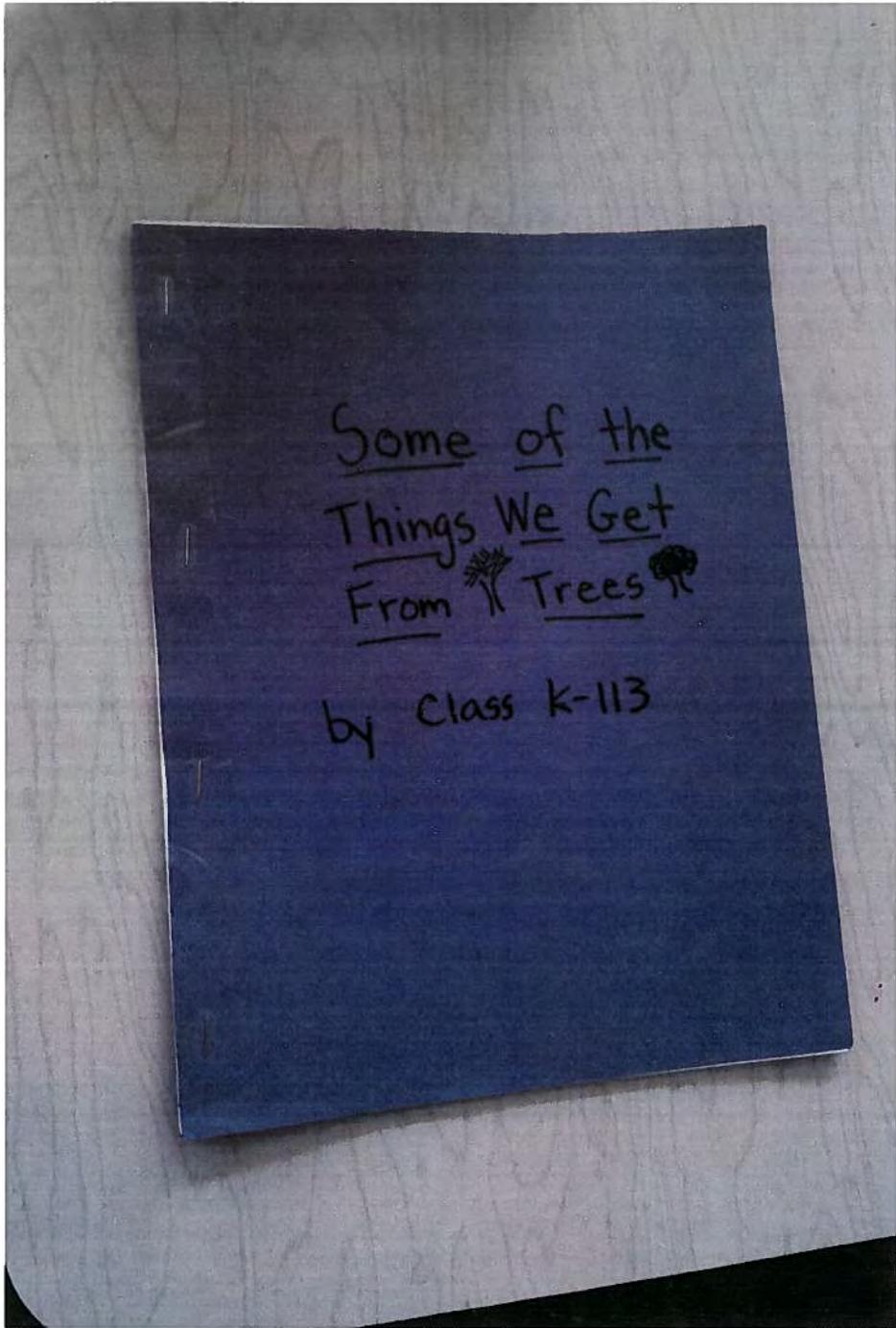
EMORY
OAK

WAVEY
LEAF OAK

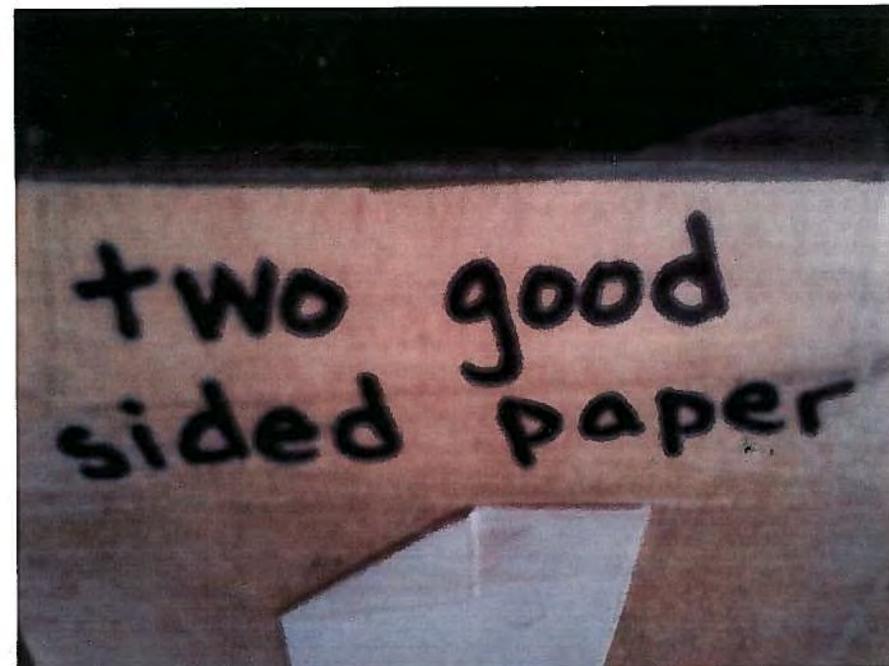
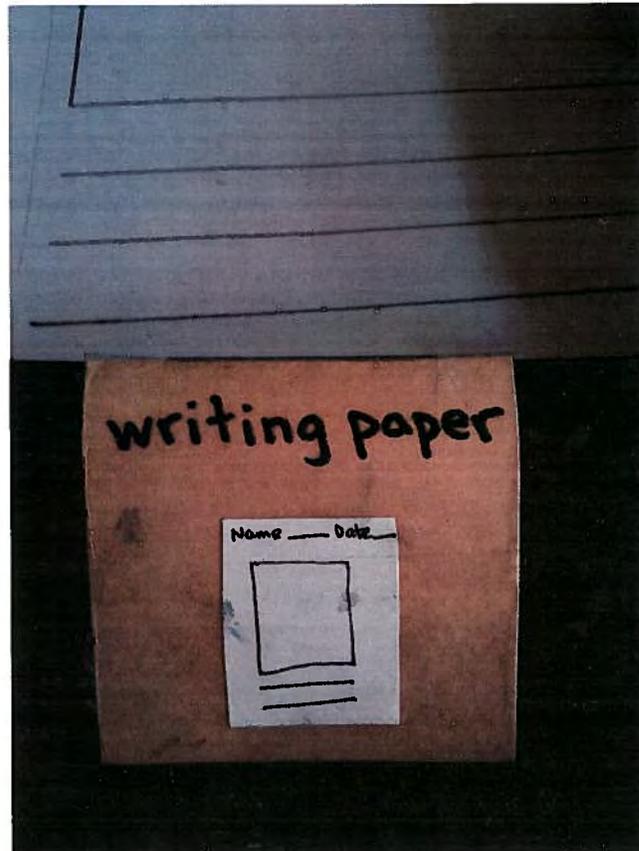
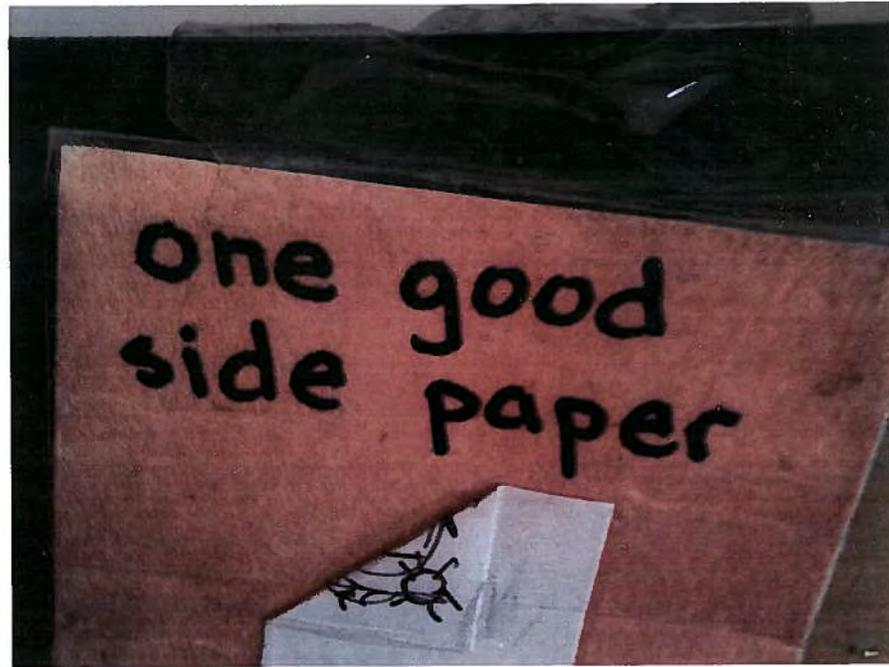
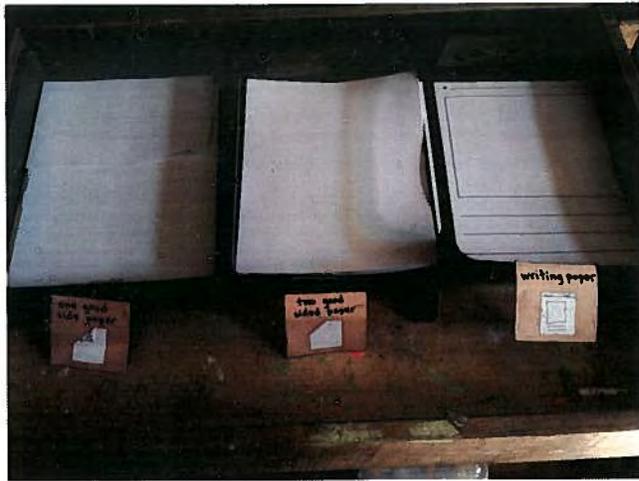
SILVER
LEAF
OAK

ARIZONA
WHITE
OAK.

This is a student's work. He collected and labeled his own leaves.



This is a book written by a kindergarten class about what we get from trees. Next to it is a page from the book showing that our students understand that paper comes from trees.



Here are photos of the paper supplies in a classroom. Children can decide what kind of paper to use. If they make a "mistake" they can draw on the other side of the paper or put it in the "one good side" basket.

IV. Composting and Gardening

The students learn about composting from our Earth Studies teacher, Abbe Futterman, and their classroom teachers. Each classroom has a composting bucket and there are compost buckets in the cafeteria. The children are responsible for delivering the contents of the buckets to the Earth Studies room where it is added to the compost pile in the school garden. The children are able to examine and work with the compost in the garden. They are able to plant fruit and vegetables in the school garden. This year some of that food has been harvested to be used in the "Garden to Café" program in which those ingredients are prepared and served to the students. And in turn, the compost from these meals is put back into the garden again, completing the cycle.

Attachments: earth studies curriculum parent handout, earth studies topics, curriculum samples with standards, earth school garden handbook, information of garden to café project, photographs

The Earth Studies Curriculum

Abbe Futterman, Teacher

Education might well be defined as knowing the story of the universe, of the planet Earth, of life systems and of consciousness, all as a single story, and recognizing the human role in the story. The primary purpose of education should be to enable individual humans to fulfill their proper role in this larger pattern of meaning. We can understand the role in the Great Story only if we know the story in its full dimensions.

From *The Universe Story* by Brian Swimme and Thomas Berry

What are Earth Studies?

The Earth Studies curriculum offers experiences through which children increase their understanding and appreciation of the Earth and their connection to it. It aims to develop the skills and willingness to make decisions and take action to sustain the planet. Through the Earth Studies curriculum, we aim to increase each students' Earth literacy; that is, each students' understandings of the basic ways in which the environment works and the ways in which the Earth continues to sustain life.¹

The Big Ideas (adapted from *Ideas for Environmental Education*)

Interdependence: Living things depend on other things-- both living and non-living-- for their survival.

Community: There are many different types of relationships between things on Earth. The relationships are often part of complex communities of living things.

Natural Cycles: Many cycles exist on earth which help to sustain and regenerate life.

Energy: All living things use energy. Nature provides many energy sources.

Place and Home: There are many different types of environments. Each place is particular in its natural and cultural resources.

Change: The environment is constantly changing.

Impact: Human beings have had a major impact on the environment. People can learn to "live lightly" on the planet.

Scientific Inquiry

The Earth Studies curriculum is designed to enhance each child's skills and abilities to do scientific inquiry. Children will have opportunities to develop the following inquiry skills as defined by the National Science Education Standards:

- Ask a question about objects, organisms, and events in the environment.
- Plan and conduct a simple investigation.
- Employ simple equipment and tools to gather data and extend the senses.
- Use data to construct a reasonable explanation.
- Communicate investigations and explanations.

¹Murdoch, Kath. *Ideas for Environmental Education in the Elementary Classroom*. Portsmouth, NH: Heinemann, 1993.

Earth Studies Topics (subject to change)

	life: plants	life: animals/other	earth/ecology	physical	skills & attitudes
PreK	plants & gardening: seeds, life cycle, parts of a plant, edibles, bulbs tree study	animals/pets snails	compost seasons recycling rocks	light, shadow & color: paint mixing balance & mass magnets sink/float	Rules in School animal care pattern measurement: length sci illustration & description sorting & classifying
K	fall leaves & trees plants & gardening: seeds, life cycle, parts of a plant, edibles, bulbs	health: HIV curriculum hermit crabs: shells, crustaceans	compost seasons recycling	balance & mass sink/float	Rules in School animal care pattern measurement: mass sci illustration & description sorting & classifying
1 st /2 nd odd yrs	gardening	pill & sow bugs: classification human body: anatomy, skeletal system, digestion, development, teeth, sleep, health (HIV)	weather water cycle compost recycling	states of matter	Rules in School animal care msmt: temperature sci illustration & description
1 st /2 nd even yrs	gardening	mealworms: life cycle, metamorphosis	compost rocks & charts recycling	balance & mass sink/float	sci and scientists Rules in School animal care sci illustration & description
3 rd	gardening plants: propagation, seeds, dissection, plant needs, life cycle, flowers, plant anatomy, plant cells	owls: research, pellets bones Small Things: cells, bacteria, viruses, HIV Prevention	food chains & webs	electricity intro: circuitry magnetism: fair test simple machines: levers, mechanical advantage, friction microscopy/lenses/optics	Rules in School sci illustration & description measurement
4 th /5 th odd yrs (4 th gr)	gardening Fast Plants: germination, life cycle, pollination, photosynthesis; genetics; heredity	skin color shells (test prep)	compost Earth in space: day/night, seasons, solar system, moon Geography: land & water forms, water supply	chemistry: mystery powders electricity II: circuitry, energy resources	Rules in School sci illustration & description documentation Test Prep: measurement Science Fair: design, documentation; presentation
4 th /5 th even yrs	Systems & Sustainability: garden, agriculture, soil	Nutrition: food groups, pyramids, nutrients, body systems, food labels; food chain		electricity II: energy, circuitry	sci illustration & description Test Prep: measurement Science Fair: design, documentation; presentation

even years = 2006/2007, 2008/2009

odd years = 2007/2008, 2009/2010, etc.

Earth Studies
Curriculum Samples with Standards
Pre-K – Grade 5
Teacher Abbe Futterman

Pre-K & K

Compost and Gardening

Spring is time for working in the Earth School Garden. We begin reading about composting and earthworms. We discuss how our garden's compost bins work. The children spend a portion of each class working in the garden. They participate in a variety of activities including planting seeds, exploring the compost ecosystem (i.e. looking for creatures), clean-up chores, and sketching. In bad weather, we stay inside to study other botany topics including seeds and spring bulbs.

NYS Core Curriculum & Learning Standards

A. Life Sciences Concepts

1. Begin to observe and describe characteristics of plants and animals, and distinguish between living and nonliving things.
2. Begin to observe and describe how animal and plant parts enable the plant or animal to survive (structure and function).

B. Earth and Space Sciences

1. Examine and describe Earth materials such as water, rocks, soils, and sands.

D. Scientific Communication

1. Begin to acquire information from observation, simple experiments, print, and non-print sources.

Grade 1/2

Pill and Sow Bug Study

First and second graders always enjoy the pill and sow bug investigation. The tiny crustaceans lend themselves very well to discussions of scientific classification. Initially, the children "argue" about whether or not the critters are insects, spiders, or something else. Through our readings, they learn that the pill and sow bugs belong to a group of animals known as isopods. Later, when they begin to notice subtle differences between pill and sow bugs, the discussion turns to how scientists group animals and distinguish species, a conversation that would be almost meaningless for this age group without prior hands-on experience. Through close observation, the students create large-scale watercolor paintings of the isopods and label their anatomy with scientific terminology. After first-hand investigations and a number of class read alouds, the students write Pillbug Reports using information gathered throughout the study. Students learn about the Pill Bugs important role as "nature's recyclers" or decomposers. We culminate the study by searching for Pill Bugs in our school garden in order to find the best place to release them.

NYS Core Curriculum & Learning Standards

A. Life Sciences Concepts

1. Begin to understand that animals need air, water, and food in order to live and thrive.
2. Observe, describe, and compare animals and how their specific parts help them to survive (structure and function).

B. Scientific Connections and Applications

1. Begin to develop an understanding and appreciation of the natural world.

C. Scientific Thinking

1. Begin to ask questions and construct explanations based on observations and the results of simple experiments.
2. Work individually and in groups to collect, describe, record, and share ideas and information.
3. Ask questions that can be investigated by performing simple experiments.
4. Use evidence from observations and reliable sources to construct explanations for experiment results.

D. Scientific Tools and Technologies

1. Use technology and tools such as magnifiers.

Ongoing School-wide Project: Composting

All classrooms have labeled compost buckets that are kept in their classrooms. Students deliver organic scraps to The Earth Studies Room to be added to the school compost. Additionally, a compost monitor collects "compost-ables" in the school cafeteria. Students have ongoing opportunities to tend to the compost piles in the school garden. They love to sift and search through it to discover the various decomposers that live there. When the compost is ready, children use it for planting and spread it around the school garden.

Description of the Composting Curriculum

I. Beginning compost concepts (Pre K – Grade 2)

- A. Read Aloud: *Compost!: Growing Gardens from Your Garbage* by Linda Glaser
- B. Discuss The Earth School Compost Bin poster (see attachment)
 1. New Stew = Left Side of bin for new additions
 2. Old Gold = Right side of bin for garden-ready compost
- C. Read compost bucket label for "Yes" and "No" items (see attachment)
- D. Visit compost bin in The Earth School Garden
- E. Exploring decomposers: worms, pillbugs, etc.

II. Revisiting compost ideas (Grades 3 – 5)

- A. Readings: *Re-Cycles* by Michael Elsohn Ross, *Pass the Energy, Please!* by Barbara Shaw McKinney, *Squirmy Wormy Composters* by Bobbie Kalman
- B. Compost practice sheet (see attachment)
- C. Compost ecosystems explorations (see attachment)

III. Ongoing compost activities (all grades)

- A. Classroom compost collection and delivery (see photo)
- B. Food scrap collection in the cafeteria (see photo)
- C. Stirring and watering compost heaps
- D. Transferring New Stew to right side of bin periodically
- D. Spreading "Old Gold" compost in the garden

IV. Learning Standards

Science: The living environment

6. Plants and animals depend on each other and their physical environment.
 - describe how plants and animals, including humans, depend upon each other and the nonliving environment
 - describe the relationship of the sun as an energy source for living and nonliving cycles
 - describe the flow of energy and matter through food chains and food webs
 - provide evidence that green plants make food and explain the significance of this process to other organisms
 - explain factors that limit growth of individuals and populations
 - explain the importance of preserving diversity of species and habitats
 - explain how the living and nonliving environments change over time and respond to disturbances

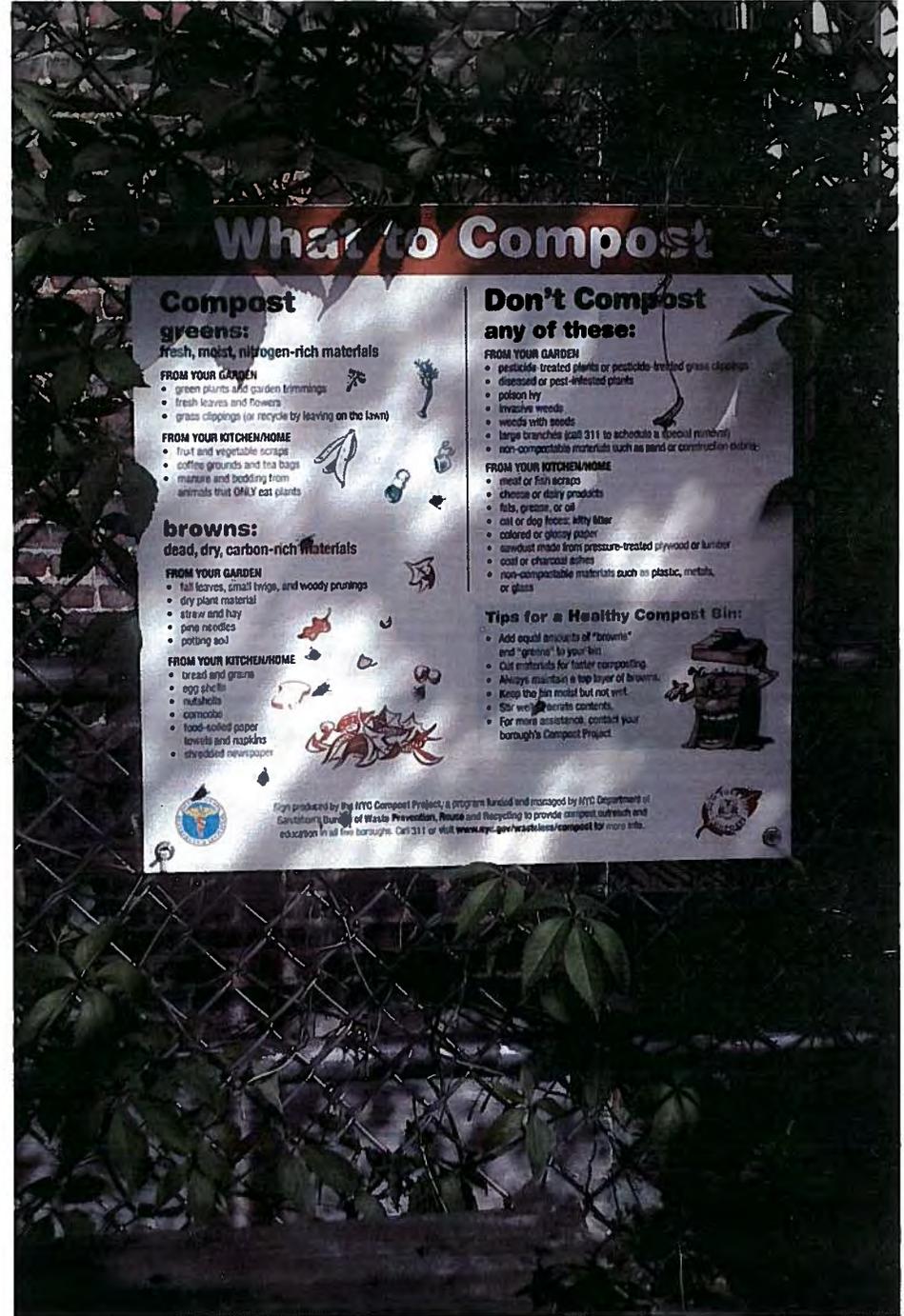
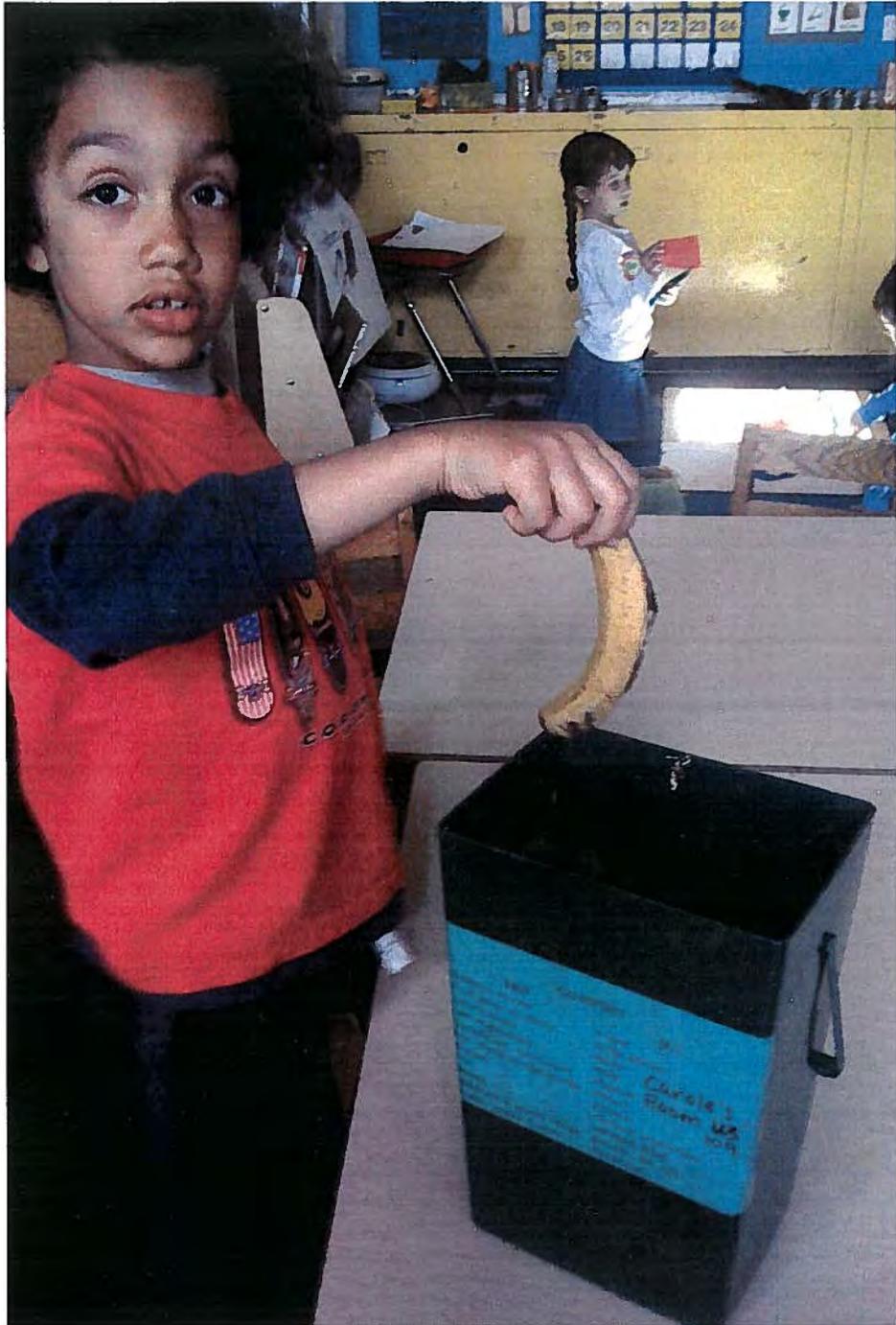
Applied Learning

A5 Tools and Techniques for Working With Others

Work with others to achieve a shared goal, help other people learn on-the-job, and respond effectively to the needs of a client.

The student works with others to complete a task; that is, the student:

- reaches agreement with group members on what work needs to be done to complete the task and how the work will be tackled;
- takes a share of the responsibility for the work;
- consults with group members regularly during the task to check on progress in completing the task, to decide on any changes that are required, and to check that all parts have been completed at the end of the task.



A kindergarten student using a compost bucket from the 2008 Golden Shovel Award. This is a poster about the compost in the school garden.



These are the school compost piles.

The Earth School Garden Handbook

This handbook is designed to help adults help children enjoy the garden in safe, productive, and fun ways. The Garden is a work-in-progress. You are encouraged to contribute your ideas and creativity!

Garden Rules

1. Respect the living things.
2. No running.
3. One at a time on the steps.
4. Don't go in or out without an adult.
5. Be careful of the black hose.
6. Return all tools and supplies to their places.

These rules were originally drawn up by the students themselves. Going over the rules before going out to the garden anticipates and pre-empts some of the problems that typically occur. The main rule of thumb is safety first.

Garden Rules with explanation

1. Respect the living things.

It's always important to go over this rule to establish the expectation that we care for the creatures and plants in the garden: no flower picking, no bug squashing, etc. Spring a good time to call children's attention to seedlings or sprouting bulbs which may be easily stepped on by accident.

2. No running.

3. One at a time on the steps.

It's really easy to smash your head on the window going in and out of the garden. Kids form a single line at the bottom of the steps. An adult goes out and guides children out one by one by taking the child's hand in one hand and holding the other hand just under the window edge to avert a bump. Going back in, children make a single line along the windows. One child goes down first and assists as a hand holder. The adult stays behind to watch for head bumping.

4. Don't go in or out without an adult.

5. Be careful of the black hose.

Alert children not to step on or damage the black irrigation hose.

6. Return all tools and supplies to their places.

It's best to establish tool areas from the beginning so kids know where to bring them.

Garden Access & Security

The Garden is reached through the Earth Studies room or the cafeteria by climbing out the window. Please be sure to re-latch the metal fire gates when you are finished. When classes are working in Earth Studies, it's best to enter through the cafeteria. Please schedule Garden visits in advance by dropping Abbe an email (abbe@lookhereproductions.com) to make sure the space is available. When classes are having recess, it's a bit noisy out there. Please remind students to respond kindly to attention from kids in the yard or cafeteria and to report any problems to an adult.

Garden Tools, Supplies & Materials

It helps to get out some of the tools in advance. Teach safety habits such as being aware of where the end of your shovel or rake is pointing, not leaving tools where they can be stepped on!!

Compost Buckets

Waste Buckets

Brooms, dust pans

Gloves

Spades, bulb diggers, hand rakes

Shovels, rakes, pitch forks

Wagons

Vessels and trays

Drawing materials: clipboards, paper, colored pencils, watercolors

Bug boxes

Sieves

Watering cans, water bucket

Plant material: bulbs, seeds, seedlings

Field guides and other reference materials

Composting

It's important to teach kids about composting before working in the garden. That way, they know how to sort the debris they collect.

Here are our compost guidelines:

COMPOST	
YES	NO
weeds, flowers	sugar
fruit peels & cores	large sticks
melon rinds	meat
raw vegetables	milk
pumpkins, corn cobs	cheese
nut shells & egg shells	bread
worms	plastic
soil	cooked vegetables
leaves	canned fruit
sawdust & woodchips	grease, fat, oil, salad dressing
pencil shavings	
rodent bedding	

The left side of the compost pile is our "new stew"; the right is the "old gold." New stuff goes to the left. The soil on the right is ready to use for planting. The new stew needs regular stirring. Towards the end of the fall, the new stew should be transferred to the old gold bin to begin the process again.

Garden Jobs and Activities for Kids

The big trick of gardening with kids is quickly finding something for everyone to do. Get as many kids as possible going on basic gardening activities which can be done independently (for example, sweeping up) so you can focus your attention on a smaller group when introducing new or more complex tasks. I recommend talking about what students can do before going out.

sweeping

adding to and stirring the compost

sketching and drawing

observing living things (worms, insects, etc.) *The children need parameters about where it's okay to dig and search for things. The compost pile is the best bet. Sometimes I scoop compost onto trays and space them around for kids to look through.*

planting

weeding *This is tricky for kids. They need to be shown how to pull from the base to get the roots. Then I hand them a weed to walk around with in order to identify others like it.*

mulching & spreading compost

watering *Hot days only! Fill a large bucket for dipping small cans. Endlessly fun!*

sifting compost

seed collecting (autumn)

plant identification activities

deadheading

Garden Maintenance & Improvement Projects (for grown ups with or without kids)

Pruning and tying back rose bushes

Weeding, cutting back, and clearing overgrown areas

Check and repair irrigation system

Improve storage facilities of tools and materials (for easier access)

Create more seating areas

Chicken project

Pond project

Cold frame construction/seed starting

Lattice on fence/fence beautification

Garden beautification projects: permanent signage for compost, storage areas

Green Thumb liaison

Garden related grant writing

Procuring materials and donations and arranging pick up and/or delivery

Your ideas...???

Notes:



[Home](#)

2008-2009 Garden to Cafe Pilot Project

Posted by Christina Grace, NYS Dept of Agriculture & Markets, and Billy Doherty, NYC Department of Education, SchoolFood

What is Garden to School Café?

Garden to School Café is a pilot program of NYC Department of Education, SchoolFood and NYS Department of Agriculture & Markets in collaboration with Cornell Cooperative Extension; GreenThumb; Added Value; and more than 20 community-based organizations. The goal is to connect school gardening and school lunch menus through seasonal harvest events and supporting educational activities.



Objectives of the Garden to School Café Pilot

- Increase student's healthful eating by promoting consumption of plant-based menu items and connecting kids to local food and farming
- Connect school gardening with SchoolFood's broad-based efforts to source more local foods
- Build awareness of the benefits of school gardening
- Demonstrate the learning opportunity of integrating school gardening and school lunch.

Pilot Participants

In the spring, twenty schools were recruited to participate in the pilot program. Participation in the Garden to Café pilot project required that schools and partner community-based organizations meet basic criteria. Schools were chosen through an open competitive application process.

Participation in the program required:

- An established garden or farm
- An established children/youth gardening program
- Liability insurance for community gardens or urban farms
- Safe soil demonstrated through soil test results or proof of new soil from a safe source.

Participating Schools:

- New Design HS
- NEST+m
- Food and Finance HS
- PS 171
- Millennium Art Academy
- PS 28
- Bronx Green MS
- International HS/HS for Violin and Dance
- Automotive HS
- IS 71
- Brooklyn New School
- PS 15
- PS 27
- PS 29
- PS 295
- Brooklyn Academy of Science and the Environment (BASE)
- Urban Assembly School of Music and Art
- PS 89 @ IS 302
- John Bowne HS
- PS 219



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Recent Images



maple tree tapping



Stone Barns greenhouse



Jersey calves



<http://www.foodsystems.org/Garden-to-Cafe-Pilot-Project>

Announcements

- **Apple Tree Planting at Randall's Island**
- **JOBS: Farmers' Market Managers, Sustainable Long Island**
- **JOB: Marketing and Communications Manager, Stone Barns**
- **INTERNSHIPS/JOBS: NYCDOHMH**
- **Program Manager Wanted For Food Access Initiative with the Myrtle Avenue Revitalization Project**

[more](#)

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- A dedicated advocate - Winston-Salem Journal

[more](#)

Just Food For Thought

- Do the Florida Tomato



apples

Tag Cloud

agriculture chickens
 climate change community
 boards community
 organizing conference
 cooking farmers' market
 farming farm workers food
 food access food
 collar jobs food crisis
 food justice food
 movement food
 policy food security
 food sovereignty FRESH
 funding fundraiser
 gardening health internship
 jobs Just Food labor rights
 local food meat New
 Amsterdam Market
 non-profits nutrition
 nutrition education nyc
 food detective obesity
 open networking
 meeting Policy policy
 public health public
 policy committee school
 food school gardening slow
 food SNAP UFCW urban
 agriculture video
 WIC world food day

PS 219

School Site Partners

The pilot relied heavily on partner organizations to provide garden sites and/or gardening expertise:



- Open Road
- Cornell Cooperative Extension (Hydroponics Program)
- Union Settlement
- Montefiore School Health Program
- CENYC-Learn It, Grow It, Eat It
- New York Restoration Project & FamilyCook Productions
- Slow Food USA/Harvest Time Program Added Value (4 schools)
- 6/15 Green Community Garden
- Brooklyn Botanic Gardens
- City of NY Parks and Recreation (Highland Park Children's Garden)
- John Bowne High School

What Happened?

In the Gardens

Pilot participants gardened on school sites in outdoor raised bed gardens, in classrooms with EarthBoxes, at nearby community gardens and in much larger urban farm sites. Some began growing for a fall harvest event in the spring. Others started growing in September. Many varieties of vegetables were grown including an array of salad greens, collards, peppers (bell and hot), squash, cauliflower, herbs (loads of basil!), tomatoes, carrots, and potatoes.

Garden to Café Educational Activities

Every school site was different. Harvest Day events included:

- Auditorium assemblies where students, teachers, and farmer experts discussed the process and benefits of growing foods to the entire student body.
- Individual classroom sessions where student farmers, agriculture professionals, and culinary experts interacted with students more closely. Some sessions included cooking demonstrations.
- Cafeteria presentations by school "Teen Iron Chefs" demonstrating their harvest recipe on the cafeteria menu
- Student farmer-operated information booths in the cafeteria to share materials and experiences with fellow students.
- Student photo and video projects
- NYS Ag & Markets provided posters, produce seasonality charts, farmers' market maps and other materials to promote local food in NY.

On the Menu

- SchoolFood utilized existing and developed new recipes to best feature gardened produce to appeal to students and stretch their taste palettes. For example, food service staff prepared spicy vegetable burritos, Spanish squash stew, pasta pesto, collards and chickpeas, colcannon, and other dishes across the 20 sites depending on the harvest.
- Where necessary, student-grown foods were supplemented by other fresh vegetables. Where possible, locally-farmed produce was used.
- SchoolFood staff assembled tasting tables and in some cases worked with students and volunteers to encourage school kids new to these foods to try them.



- Do the Florida Tomato Growers Exchange increases wages, but does anything change?
- New study points to difference in using subsidy and taxes in promoting healthy food.
- Digesters bring electricity and problems for farmers in California.
- USDA announces \$5 million in farmers market grants.
- Synthetic nitrogen threatens soil health.

more

What's Next for 2009?



Erica Zimetbaum <erica@theearthschool.org>

EXCITING NEWS from the Cafeteria Committee

1 message

Lisa Desimone <babyleosmom@hotmail.com>

Wed, Jan 20, 2010 at 6:16 PM

To: alison@theearthschool.org, jocelyn@theearthschool.org, tim@theearthschool.org, carole@theearthschool.org, patrice@theearthschool.org, shalu@theearthschool.org, meghan@theearthschool.org, maya@theearthschool.org, vanessa@theearthschool.org, carol@theearthschool.org, mrsteinbergtsms@gmail.com, shonelle@theearthschool.org, erica@theearthschool.org, suzanne@theearthschool.org, davesnewyork@yahoo.com, karen@theearthschool.org, jessica@theearthschool.org, micaela@theearthschool.org, ani@theearthschool.org, rachel@theearthschool.org, gikeno@theearthschool.org, theresa@theearthschool.org, abbe@lookhereproductions.com, cecile_cannone@yahoo.fr, davidsandlin2001@yahoo.com, melanie.fitzpatrick@gmail.com, ehgery@aol.com, triciak@speakeasy.net, ilianavargas47@yahoo.com, eleachjohnson@nyc.rr.com, laura.frisk@gmail.com, kitty@goodfilmsinc.com, michelelipman@hotmail.com, aredling@manhattanmedia.com, eileen@eileenshields.com, blakinltd@gmail.com, gpeterman@nyc.rr.com, tanya_hernandez@glic.com, alice_henty@yahoo.com, jfiber@earthlink.net, ganapati@mac.com, cardonethemagician@yahoo.com, janeyeo@nyc.rr.com, alindsey75@gmail.com, jonkit@nyc.rr.com, castlion.home@verizon.net, lindamidori@yahoo.com

Cc: selo@mindspring.com, Atsuko QUIRK <unadontabetai@mac.com>

THIS COMING FRIDAY, JANUARY 22

Garden to Cafe!
DRESSING DAY!

FRIDAY'S DELICIOUS RECIPE IS...

"GARDEN HERB VINAIGRETTE"

DRESSING AT THE SALAD BAR IN THE CAFETERIA

FEATURING
HERBS FROM THE EARTH SCHOOL GARDEN!

We encourage all the kids to take some salad to put the special dressing on!

Garden to School Cafe! is a pilot program of NYC Department of Education, SchoolFood; NYS Department of Agriculture & Markets, and NYC Department of Parks. The program connects school gardening and school lunch menus through seasonal harvest events and supporting educational activities.

Objectives of the Garden to School Cafe! Pilot

- Increase student's healthful eating by promoting consumption of plant-based menu items and connecting kids to local food and farming
- Connect school gardening with SchoolFood's broad-based efforts to source more local foods
- Build awareness of the benefits of school gardening
- Demonstrate the learning opportunity of integrating school gardening and school lunch.

Watch for our monthly recipes and our exciting "Harvest Day" event this spring!!

EVERYONE'S INVITED!!

REMEMBER, TRY THE DRESSING ON FRIDAY!



Students harvesting herbs from the school garden with the kitchen manager for dressing.



Students at the salad bar using the dressing.



Students deciding what to put in and on their salads.



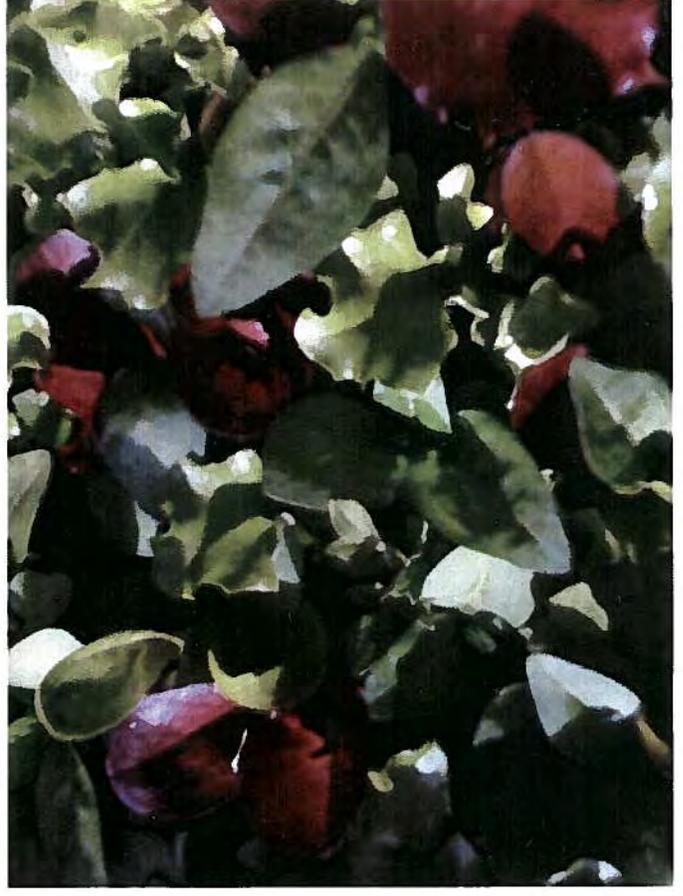
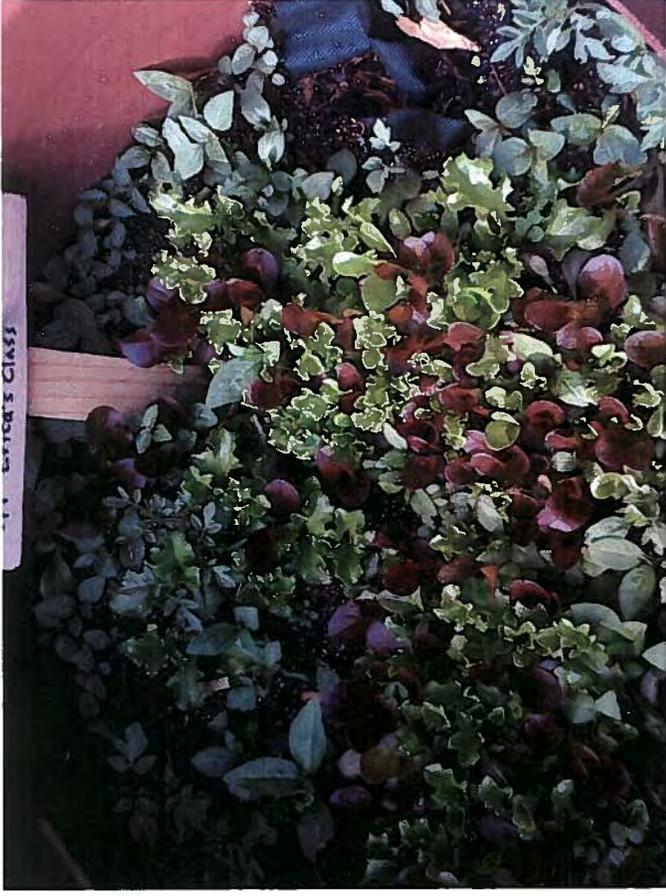
A complete lunch with salad and dressing on a sugar cane tray.



Students harvesting rosemary in the school garden for “Rosemary Potatoes.”



“Rosemary Potatoes” in the school cafeteria.



Planters in the school garden containing old compost and newly seeded vegetables to be used in our "Garden to Cafe" Program. Each class got to choose seeds to plant in the garden and all children were able to participate in the planting.

V. Materials for the Arts

The Art teacher uses many donated materials from families. They bring her such things as empty egg cartons, empty paper towel and toilet paper tubes, and a variety of fabrics. She also makes regular trips to the Materials for the Arts program to gather such items as fabric, paper, etc. In fact, the binder in which our project is in comes from a recent trip to Materials for the Arts. Depending on what the kindergarten students are studying, Patrice will send home notices to bring in other items during the school year. For example, when the kindergarten students study birds, the families send in clean milk containers from home to make bird feeders with the art teacher. This year, she also used "jewel" cases as frames for self portraits of the students in a study about feelings and colors.

VI. Fundraisers

The Earth School has a very active Parent's Association. The parents raise money for many programs in our school. They raise money for dance, music, yoga, and overnight environmental programs (in which all students are able to attend regardless of their family's income level or ability to contribute). One of the fundraising efforts involves making crafts from recyclable materials such as decorative pins made from bottle caps. In October the parents have a fair. Part of the fair consists of a rummage sale of goods donated by the parents and their children. This fair is held in a local park and the public is welcome.

Attachments: information about crafts – "The Earth Goods," poster from fall fair

craft sale

craft sale

Wednesday, 11 November 2009 13:46 Maria Soares



The Earth School Goods

The Earth School (P.S. 364 in New York City) began an extraordinary endeavor in the autumn of 2008 that has continued to blossom. We the parents, the children, and our friends in the community have come together to raise money for arts enrichment programs by recycling used materials into wonderfully useful and decorative gifts.

The program began with a simple question: How can we use the resources already at our fingertips to increase students' exposure to the arts and towards stewardship of our planet? We began by harvesting and selling herbs from the school's garden, and have continued by collecting discarded materials that we make into whimsical key chains, luggage tags, unique jewelry, picture frames and more. Old newspapers no longer merely blow down Avenue B; leftover upholstery swatches aren't just last years' style. They've become The Earth School's door to dance classes, music appreciation, field trips and weekly cooking lessons.

Every item sold in this catalog is made by volunteers. All the money is put towards education. Students of our Title 1 public elementary school, along with their parents, neighborhood shop keepers and local small business owners have enhanced their view of community by working toward a collective good, one in which nothing is discarded and honest work can become something wonderful.



The Earth School Goods

sustainable crafts

Unique handmade gift items made from found, donated, re-purposed and recycled materials.
Crafted by The Earth School community. No two are alike!



Earthling Key Rings
4" high
felt
\$12 to \$20



Monkeys w/Bling Key
Rings
6" high felt
\$14



Toothless felt boots
to tie to
approx 3" high
\$12



Earth Applique
coll patches
approx 3" x 3"
\$1



Beaded Elastic Purses
approx 7" x 3"
\$12



Recycled sweater
coll patches
approx. 4" x 4"
\$3



Recycled sweater
lined patches
approx 8" x 4"
\$10



Bath Tags, Laundry Sachets,
Laundry Bath Sacs
all \$4



Recycled Water & Toilet
Tape
Necklaces
\$15



Recycled Water & Toilet
Tape
Bracelets
\$15



Recycled Drop earrings
in metal th
\$15



Recycled Bead & Silk neckties
approx 32" long
\$15 each



Decoupage Comic Book
Frame
3" x 5" photo
\$11



Decoupage Subway
Frames
3" x 5" photo
\$10



Decoupage recycled Sawing Tin
6" diameter x 5" tall
\$8



Original & Recycled Paper Bags & Napkins:
rose paper, am h t & st, clam on tie &
pepper mill, & steel & st
Box of 6: \$6

For further information or to order, contact Barbara Lakin, 212 995 0920 blakin1d@gmail.com

A wider selection of items is available for sale including limited editions and special orders.

Total price is donated to The Earth School, a public elementary school in NYC and helps pay for educational enrichment programs

Last Updated (Friday, 13 November 2009 18:11)

Join us **Saturday October 24** between 11am and 4pm

THE EARTH SCHOOL'S ANNUAL FALL FAIR

the amazing
MAZE

**pumpkin
painting**

**cupcake
decorating**

OPEN MIC
for kids & adults

rummage sale
with clothes & books

crafts

**delicious
food**

**fabulous
performances**

HARVEST
with our own school grown herbs

FESTIVAL GREEN MARKET
with our own school grown herbs

ALL IN TOMPKINS SQUARE PARK AT 10TH ST & AVENUE A



candi

VII. Recycling of Tech Materials

Our Technology Coordinator, Michael Steinberg, recycles as much equipment as possible by re-using and repurposing all computer and audio-visual hardware. Older laptops that are no longer “cutting edge” and cannot handle the latest software are serviced for use by lower grade students and for simpler computing tasks. These laptops are used to learn keyboarding and for word processing to publish student writing. In addition to repurposing laptops, older desktop computers have been upgraded well beyond their expected use to serve students in upper-grade classrooms.

Family and staff have eagerly donated older computers, printers, scanners, and cameras, which have then been fixed and returned to classrooms and offices. Teachers have been trained to follow energy-saving protocols to ensure long-lasting bulb and screen life and students and staff know to turn off and unplug any equipment not in use. Digital cameras and video cameras are shared on grade-level; teachers have been outfitted with rechargeable batteries and chargers so they can be responsible for their energy needs.

Within the Department of Education’s strictures for asset removal, the Tech Coordinator also arranges for “green” disposal of unusable materials. Color printers have been set on to print in black and white only so teachers and staff must think about their choices before they use color images.

The ink cartridge and cell phone recycling program, set up by our parents, has been well-promoted and is very successful. Everyone knows where find the “Green Frog Recycle Bin” and members throughout the entire school community bring in cartridges and old phones to recycle.

Attachments: information from earth school website about “ink/phones” box

USED INK/ laser cartridges and PHONES

USED INK/ laser cartridges and PHONES

Friday, 30 January 2009 09:57

Lisa Desimone



CELEBRATE EARTH DAY EVERYDAY!

New Recycling Program at The Earth School

On Monday, you will see a "DROP INK/PHONES HERE" BOX in the ES Lobby. There will also be a second box in the ES Office.

-Please use this box to recycle your **used ink/laser cartridges** or **old cell phones** (delete all personal info first!)

-We will be sending the drop box items to **The Funding Factory** (www.fundingfactory.com) on a regular basis to earn \$\$ for our school.

-Would your **office like to participate**? Let Melanie know and she will provide a DROP BOX for you to take there.

-Check The Earth School website (www.theearthschool.org) to see how much we are making from this **easy free-cycle program**.

All money earned will be used for the many programs the ESPA funds that make our school one of a kind!

Questions?

Please Contact: Melanie Newell 917-501-3810 mmnewell@earthlink.net

Drop It In The Frog!

Drop It In The Frog!

Thursday, 05 February 2009 19:19 Melanie Newell



The first week of our new Funding Factory recycling program started out with a bang!

The two green **DROPPIT FROGS** were added to The Earth School Lobby and The Earth School Office.

We collected 30 ink cartridges and 2 phones!

One of the cartridges is worth a whopping \$3.20!!

That is some easy money for our school folks. Keep bringing them in.

Don't forget to get your office to donate, too.

*Phones brought have to be in good condition- NO BROKEN PHONES CAN BE SENT IN FOR CREDIT.

*If you bring in a phone, I suggest you place it in The Earth School Office Frog for safe keeping!

Thank You So Much For **FEEDING THE FROG!** Melanie Newell mmnewell@earthlink.net

Last Updated (Monday, 21 September 2009 15:41)

VIII. Learning Standards

The learning standards that are addressed by our waste reduction efforts at the Earth School are attached in this section.

New York City and New York State Learning Standards

Science

S2 Life Sciences Concepts

The student demonstrates conceptual understanding by using a concept accurately to explain observations and make predictions and by representing the concept in multiple ways (through words, diagrams, graphs, or charts, as appropriate). Both aspects of understanding—explaining and representing—are required to meet this standard.

The student produces evidence that demonstrates understanding of organisms and environments, such as the interdependence of animals and plants in an ecosystem; and populations and their effects on the environment.

The living environment

Plants and animals depend on each other and their physical environment.

- describe how plants and animals, including humans, depend upon each other and the nonliving environment
- describe the relationship of the sun as an energy source for living and nonliving cycles
- describe the flow of energy and matter through food chains and food webs
- provide evidence that green plants make food and explain the significance of this process to other organisms
- explain factors that limit growth of individuals and populations
- explain the importance of preserving diversity of species and habitats
- explain how the living and nonliving environments change over time and respond to disturbances

Human decisions and activities have had a profound impact on the physical and living environment.

- identify ways in which humans have changed their environment and the effects of those changes
- describe how living things, including humans, depend upon the living and nonliving environment for their survival
- describe the effects of environmental changes on humans and other populations
- describe the range of interrelationships of humans with the living and nonliving environment
- explain the impact of technological development and growth in the human population on the living and nonliving environment
- explain how individual choices and societal actions can contribute to improving the environment

Physical Setting

Energy exists in many forms, and when these forms change, energy is conserved.

- describe a variety of forms of energy (e.g., heat, chemical, light) and the changes that occur in objects when they interact with those forms of energy.
- observe the way one form of energy can be transformed into another form of energy present in common situations (e.g., mechanical to heat energy, mechanical to electrical energy, chemical to heat energy).

Mathematics

Number and Numeration

- use models, facts, and relationships to draw conclusions about mathematics and explain their thinking.
- use patterns and relationships to analyze mathematical situations.
- justify their answers and solution processes.
- use logical reasoning to reach simple conclusions.

Students use number sense and numeration to develop an understanding of the multiple uses of numbers in the real world, the use of numbers to communicate mathematically, and the use of numbers in the development of mathematical ideas.

- use whole numbers and fractions to identify locations, quantify groups of objects, and measure distances.
- use concrete materials to model numbers and number relationships for whole numbers and common fractions, including decimal fractions.
- relate counting to grouping and to place-value.
- recognize the order of whole numbers and commonly used fractions and decimals.
- demonstrate the concept of percent through problems related to actual situations.

Students use mathematical operations and relationships among them to understand mathematics.

- add, subtract, multiply, and divide whole numbers.
- develop strategies for selecting the appropriate computational and operational method in problem-solving situations.
- know single digit addition, subtraction, multiplication, and division facts.
- understand the commutative and associative properties.

Students use mathematical modeling/multiple representation to provide a means of presenting, interpreting, communicating, and connecting mathematical information and relationships.

- construct tables, charts, and graphs to display and analyze real-world data.
- use multiple representations (simulations, manipulative materials, pictures, and diagrams) as tools to explain the operation of everyday procedures.
- use variables such as height, weight, and hand size to predict changes over time.
- use physical materials, pictures, and diagrams to explain mathematical ideas and processes and to demonstrate geometric concepts.

Students will understand mathematics and become mathematically confident by communicating and reasoning mathematically, by applying mathematics in real-world settings, and by solving problems through the integrated study of number systems, geometry, algebra, data analysis, probability, and trigonometry.

Technology

Information Systems

Analysis, Inquiry and Design

Students will use mathematical analysis, scientific inquiry, and engineering design, as appropriate, to pose questions, seek answers and develop solutions.

Key Idea: Information technology is used to retrieve, process, and communicate information and as a tool to enhance learning.

Impacts of Technology

Students will apply technological knowledge and skills to design, construct, use, and evaluate products and systems to satisfy human and environmental needs.

Key Idea: Technology can have positive and negative impacts on individuals, society and the environment. Humans have the capability and responsibility to constrain or promote technological development.

Social Studies

Civics, Citizenship, and Government

Key Idea 3: Central to civics and citizenship is an understanding of the roles of the citizen within American constitutional democracy and the scope of a citizen's rights and responsibilities.

- examine what it means to be a good citizen in the classroom, school, home, and community
- identify and describe the rules and responsibilities students have at home, in the classroom, and at school
- understand that effective, informed citizenship is a duty of each citizen, demonstrated by jury service, voting, and community service

Key Idea 4: The study of civics and citizenship requires the ability to probe ideas and assumptions, ask and answer analytical questions, take a skeptical attitude toward questionable arguments, evaluate evidence, formulate rational conclusions, and develop and refine participatory skills.

- participate in activities that focus on a classroom, school, or community issue or problem
- suggest alternative solutions or courses of action to hypothetical or historic problems
- evaluate the consequences for each alternative solution or course of action
- prioritize the solutions based on established criteria
- propose an action plan to address the issue of how to solve the problem

Applied Learning

A1 Problem Solving

Improve a System

The student troubleshoots problems in the operation of a system in need of repair or devises and tests ways of improving the effectiveness of a system in operation; that is, the student:

- identifies the parts of the system and the way the parts connect with each other;
- identifies parts or connections in the system that have broken down or that could be made to work better;
- devises ways of making the system work again or making it work better;
- evaluates the effectiveness of the strategies for improving the system and supports the evaluation with evidence.

A5 Tools and Techniques for Working With Others

Work with others to achieve a shared goal, help other people learn on-the-job, and respond effectively to the needs of a client.

The student works with others to complete a task; that is, the student:

- reaches agreement with group members on what work needs to be done to complete the task and how the work will be tackled;
- takes a share of the responsibility for the work;
- consults with group members regularly during the task to check on progress in completing the task, to decide on any changes that are required, and to check that all parts have been completed at the end of the task.

The Arts

Students will know and use a variety of visual arts materials, techniques, and processes.