



**School Adventure Program
It's Easy Being Green
Pre-visit and Post-visit Activities**

Dear Teacher,

We are excited about your upcoming visit to the Brooklyn Children's Museum, the world's first museum for children! We are looking forward to working with you and your students during your visit. The enclosed pre/post-visit materials are provided to help you prepare your students for participating in and getting the most out of the workshop. It includes learning concepts, vocabulary, discussion questions and activities that you can use before your introduction to the **It's Easy Being Green** program. In addition, we have included post-visit activities that will help you to reinforce and extend the learning back in the classroom.

If you have any questions about your visit or these materials, please contact Group Reservations at (718) 735-4400, extension 118. We look forward to working with you.

It's Easy Being Green

Even kids can protect our precious natural resources! Go on a scavenger hunt exploring the first LEED certified museum in NYC to see how BCM protects the environment. Then test your skills to learn what your class can do to save our planet.

Meets NYC Science Scope and Sequence

- *Grade 4:* Unit 1 Animals and Plants in Their Environment: LE 7.1ab Describe the way that humans: Depend on their natural and constructed environment and have changed their environment over time. LE 7.1b,c Identify examples where human activity has had a beneficial or harmful effect on other organisms (e.g., deforestation). Unit 4 Interactions of Air, Water, Land: PS 2.1c Describe and illustrate the natural processes by which water is recycled on earth (e.g., ground water, runoff).
- *Grade 5:* Unit 1 Nature of Science: Sequence events M3.1a Use mathematics in scientific inquiry. S2.1d S3.1a,b Employ tools to gather, analyze, and interpret data. S3.2a,b,c Use data to construct reasonable explanations. Evaluate your hypothesis in light of the data. Unit 4 Exploring Ecosystems: LE 7.2b,c LE 7.2d Describe the way humans depend on their natural and constructed environment and have changed their environment over time. LE 7.2b,c LE 7.2d Identify examples where human activity has had a beneficial or harmful effect on other organisms (e.g., deforestation).
- *Grade 6:* Sequence events Unit 2 Weather: PS 4.1a PS 4.2a,b Transfer of heat: radiation, convection, and conduction. PS 4.1a,c,d PS 4.4a,b Light energy vs. heat energy. Unit 4 Interdependence: LE 7.2d PS 2.2r ICT 1.4 2.1-2.3, 4.1, 5.1, 5.2, 6.1, 6.2, IPS 1.3 Global Warming: natural cycles vs. human impact. LE 7.2a-d LE 7.1e ICT 5.2 Effects of environmental changes on humans and other populations
- *Grade 8:* Unit 4 Humans and Their Environment (whole unit): Renewable and non-renewable energy/resources, conservation, waste management

During the program your students will:

- Investigate features in our museum that are earth-friendly and discover why the Brooklyn Children's Museum is considered the first green museum in NYC through an interactive scavenger hunt.
- Engage in games demonstrating recycling and other sustainable practices.

Learning Components

- Define renewable and non-renewable energy sources and give an example of each.
- Describe features that the Brooklyn Children's Museum chose to incorporate into our design and our behaviors to save energy and water.
- Describe two or three ways that students themselves can make a difference in the amount of energy and resources used to protect our Earth for ourselves and future generations.



Vocabulary Words

ENERGY: Is the ability to perform work. There are many kinds of energy, including heat, kinetic or mechanical energy (moving), light, electrical and potential (stored energy).

ENVIRONMENT: The living and non-living things that exist in a specific place. For example, the trees, flowers, rocks, air, water, soil, birds, bugs and other plants and animals that can be found in a forest environment.

GREEN: Behaving and building things in ways that protect our Earth and resources.

LANDFILL: A specially designed place where people put their trash so that it can decompose and turn back into dirt. A landfill has many kinds of protections to ensure that chemicals and other waste do not get into the water and pollute our land, rivers or underground drinking water.

RECYCLE: To take an item that has been used, break it down to its most basic form (often by melting), then re-shape it into something that people can use again.

RESOURCE: Is a natural feature or phenomenon that can be used to enhance human or animal life. It is something that is valuable because it is useful.

SUSTAINABLE: Providing us with the things we need to survive in a way that allows future generations to also fulfill their needs

Discussion Questions

- What are some things we throw away every day? Is there a way to throw away fewer things?
- How do you use electricity? What would happen if there was no electricity? Talk about a time when you didn't have electricity – camping, a power failure. Are there certain things you did differently during those times?
- Where does your food come from? Where does the grocery store get food from?

Pre-Visit Activities

1. Sources of Energy

The National Energy Education Development Project (www.need.org) has developed dozens of activities for students of all ages. Each activity has information for the student and teacher, including discussion questions and suggested activities.

2. How much waste do YOU make in a day?

Talk with students about what kinds of things they throw away in a day. How much do they think they throw away? Have each child bring in an empty plastic shopping bag. At the beginning of your day together, have each child tie the bag to their belt loop or wrist so that they can carry it with them all day. Every time they need to throw something away (snack wrappers, lunch waste, scraps of paper, craft leftovers, etc.), they should put it in their shopping bag and carry it with them all day. At the end of your school day, weigh each child's shopping bag. Encourage children to see how much additional waste they accumulate before they go to bed that night. The next day, discuss with students what they found surprising, what matched their expectations, and what ways they might be able to reduce the amount of trash they make in a day.

3. If You Can't Stand the Heat...

...keep it out of the kitchen! Divide students into teams of four students to create insulated lunch boxes. Provide each team with the same supplies—a large brown lunch bag, a thermometer, some newspaper, scrap cloth, bubble wrap, tape, some clean dry take-out containers, etc. Their task is to design an insulated lunch box that can keep a drink cold the longest. Once the teams have completed their designs, distribute the same number of ice cubes in exactly the same kind of container for each team. The teams should record the time when they receive the ice cubes. Make sure to set aside one container of ice cubes without any insulation to act as a basis of comparison for the class. Kids pack up their ice cubes in the lunch boxes, then the teacher should announce observation times at 5 or 10 minute intervals. Be sure to make notes at each of the observation intervals for the control ice cube set as well. Each team should note when the ice cubes were totally melted. After that point, they should record the temperature of the water at each interval until all teams have water in their containers. Discuss as a class which lunch boxes kept things cold for the longest. What did those lunch boxes have in common? How much of a difference



did they make compared to the ice cubes just sitting on the table? What are some things you could do next time to design a better lunch box? What are some things other than lunch boxes that might use insulation to help keep the temperature the same inside? Talk a bit about how insulation is used in homes, schools and other buildings to keep the room the same temperature without having to constantly have the heat running or air conditioning on. What are some lessons we learned from our lunch boxes that we might be able to use elsewhere?

Extend the Learning

1. Facing which way

Houses equipped with solar panels or green roofs are faced in different directions to achieve efficiency in collecting solar energy for their rooftops. Chart the sun throughout the school day. Where is it the strongest and when? At the museum, your students learned about the solar panels on our roof and walls. Have students apply what they learned at the museum by making a guide that documents North, South, East, West, and charts where the sun rises and sets. Make a green roof and point one in each direction in a place outside that will not be disturbed. Make certain to water each one consistently, so that this factor remains constant. See which one(s) grow(s) better. In which direction should you point solar panels or a green roof to get the most sun? For directions on how to construct a green roof, check out this video from the National Building Museum: <http://www.nbm.org/media/video/how-to-build-a-green-roof.html>.

2. Building Material Economics

Have students divide up into three to four groups with each group building their own model house. Provide various recyclable building materials (toothpicks, popsicle sticks, twigs, milk cartons, paper towel rolls, glue, etc.) Set a price amount for each material costs. Give each group a pre-set amount of play money. Set a goal for the group: build the strongest and least costly house that can support the weight of a certain book on top of its roof. Have each group decide which kind of materials they should buy and how should they design and construct their group's house. Compare the prices and strength value of each group's house. Discuss the following questions: What "price" should be set for the twigs? Are the twigs considered "free" or was there a cost to obtaining them?

3. My Green Community

BCM has developed a special curriculum on sustainability called "My Green Community." Though the teacher guide is designed for early childhood educators, there are great suggestions for all grade levels. The accompanying blog has extensions and additional activities more appropriate for older students as well. For the educator guide and other resources, please visit www.brooklynkids.org/greenguide.

ADDITIONAL READINGS

For Students

Building Green Places: Careers in Planning, Designing, and Building (Green-Collar Careers)
by Ruth Owen, Crabtree Publishing Company 2009

A Clean City: The Green Construction Story by
Robyn C. Friend
Cascade Pass 2008

The EARTH Book, by Todd Parr
Little Brown Books for Young Readers; Har/Pstr
edition 2010

*Eco-Neighbor's Guide to a Green Community
(Point It Out! Tips for Green Living)* by Judith An-
gelique Johnson
Picture Window Books 2010

Flush!: Treating Wastewater by Karen Mueller
Coombs. Carolrhoda 1995

Making Cities Green (Going Green) by Jeanette
Leardi
Bearport Publishing 2009

Rachel: The Story of Rachel Carson by Amy Ehr-
lich
Silver Whistle 2008

*There's Still Time: The Success of the Endangered
Species Act* by Mark Galan
National Geographic 1997



For Teachers

City Green, by Dyanne Disalvo-Ryan
William Morrow & Company 1994

The Earth Is Painted Green: A Garden of Poems About Our Planet, by [S. D. Schindler](#)
Scholastic 1994

Roots, Shoots, Buckets & Boots: Gardening Together with Children, by Sharon Lovejoy
Workman Publishing 1999

Welcome to the Green House, by Jane Yolen
Putnams 1993

PORTABLE COLLECTION SUITCASES (Rented from BCM)

Urban Naturalist: Exploring the New York Environment (Grades K-5): By examining a squirrel, a bird, insects, and leaves collected right here in Brooklyn, students learn how to look for evidence of nature in the big city. The case includes specimens, teacher's guide, books, binoculars, and a birdsong identifier. You can read the [full PDF version of the Urban Naturalist](#): Exploring the New York Environment Portable Museum Teachers Guide before you order.

Land Birds of New York City (Grades 2-4): This case encourages students to look to the skies for local birds, including a woodpecker, warbler, starling, and a robin. They can learn to build a birdhouse and listen to bird calls. The case includes a teacher's guide, books, and audiocassette.

Rental fee: \$100.00 for two weeks. Please contact our Scheduling Secretary at (718) 735-4400, extension 118.