PS 110 THE MONITOR SCHOOL

124 Monitor Street, Greenpoint, NY

Students participating in school boiler room tour

PROGRAM DELIVERY

Solar One Educator, Nicole Petti, delivered The Green Design Lab to fourth and fifth grade students at PS 110 the Monitor School during the spring of 2014. Over the course of the semester, approximately 95 students received the Energy Unit from the Green Design Lab curriculum. Solar One has had a working relationship with The Monitor School for about three years. Nicole collaborated with LuAnn Fortunato, the science and social studies teacher, to develop lessons that challenged the fifth grade, who received the program the previous year. They also collaborated to develop lessons that were accessible to all learners including students with different learning styles.

Nicole kicked off the semester in April with a hands-on "Energy Transfer" lesson in which students learned about and observed basic energy principles. In the lesson, students completed a stations activity in which they observed The First and Second Laws of Thermodynamics at work. Throughout the rest of the semester, students learned how we get electricity in the city, how power plants work and about the environmental impacts of fossil fuels. They conducted a classroom energy audit by measuring appliances with watt meters. Students then designed an energy conservation campaign in which they brainstormed methods for saving electricity and reducing our impact on climate change. The unit transitioned to renewable energy where students differentiated between renewable and nonrenewable energy sources. Students then explored wind and solar power by designing wind turbines and building solar cars. Lastly, students learned about some of the limitations of renewable resources and then built batteries out of household materials. They learned basic battery vocabulary such as anode, cathode and electrolyte. Using aluminum foil, activated carbon, paper towels, salt water, some alligator clips and basic instructions, students powered a fan and used a multimeter to measure the voltage of their battery. Students speculated how many batteries they would need to link together in order to light a 6-volt light bulb. One highlight of the spring program was a boiler tour led by Nicole Petti and the school custodian. Students were excited to see the hidden infrastructure of their school building and learn how heat and hot water are generated for the school.

The semester ended with students thinking about transitioning our city to renewable resources. The students were engaged and excited to learn more. They expressed interest in conducting a light bulb lab, learning about hydro-electric power, and planting around their school to improve air quality.

Custodian showing students how the boiler works

SUSTAINABILITY PROJECT

Students at PS 110 completed a workshop on indoor air quality (IAQ), in which they learned about factors that affect the air we breathe, why indoor air quality is important, and about the types of plants that help to improve indoor air quality. Students then planted one plant for each room in the building. In groups, they designed the pots, created care cards for each plant and identified their plants on a list of 19 approved plants that improve IAQ. The classes each came up with a plan for summer care so that they will still have the plants upon returning to school in the fall.

After learning about plants that improve IAQ, students then learned about vegetable plants and their importance to us. All students planted radishes in recycled planters to take home and grow. They developed directions for their plant's care and took the plants home to harvest.

ENERGY CHALLENGE

PS 110 students and teachers conducted a strong energy awareness campaign in the school, but despite their efforts, energy

use increased. This was caused by a massive ongoing construction project. With scaffolding and lighting on 24/7, and work being done in and around the building during off hours, the electricity use increased 15% overall during the 4 month period. The PS 110 community is dedicated to saving energy and they are looking forward to the completion of the construction. In the meantime they are continuing to save energy in classrooms.

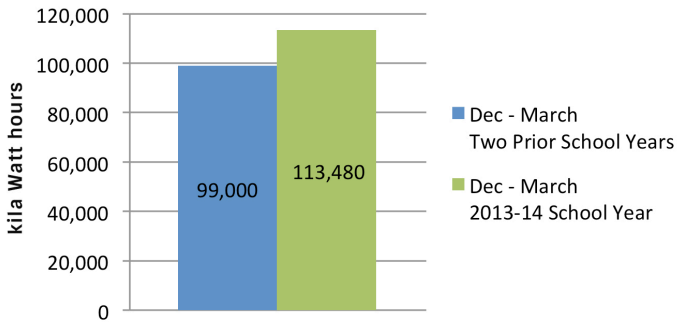
SCHOOL ACTIVITIES

On June 18th, Solar One Educator Fronsy Thurman delivered an assembly on climate change and energy efficiency to the 2nd and 3rd grade students. These students have not received Green Design Lab curriculum yet and it provided Solar One with a great opportunity to reach more students at the school. Educator Nicole Petti delivered ongoing professional development training for Ms. Fortunato after school and during prep periods. Solar One also plans to deliver additional onsite professional development training for more PS 110 teachers during fall of 2014.

"Ms. Petti was an excellent facilitator for Solar One and the students loved her."

– LuAnn Fortunato,
Science and Social Studies Teacher

ENERGY CHALLENGE



"Students were aware that they can play a role in conserving energy and taking that information home and sharing it."

– Michele McLee, Special Education Teacher

"Nicole was engaging and captured the student's attention throughout the period and the program. Nicole was very interested to listen to the student's ideas The students enjoyed the hands-on activities, I watched them discuss and problem solve!"

–Joanne Vogel, Special Education Teacher