Eco-Explorers Project

The Needham Science Center (SC) has received a two-year EPA grant. With the money, we enthusiastically anticipate implementing a collaborative environmental education program titled the Eco-Explorers Project that fundamentally transforms the way our K-5 students and classroom teachers interact with the environment. Led by Science Center Director Mary Rizzuto and the SC staff, the project utilizes an Environmental Education Leadership Team (EELT) that functions as a professional learning community. The project uses the resources of over 11 community partners including Needham Community Farm, NPS Food Service, 5 Parent Teacher Councils (PTCs), Green Needham, Public Works, Friends of Woods and Waters, and Conservation Commission.

The Eco-Explorers Project is designed to provide a multidisciplinary and interdisciplinary district-based approach to environmental education. The deliberate use of existing outdoor locations for place-based learning offers students repeated yet varied environmental field experiences in their schoolyards, school neighborhoods, and throughout Needham. These field experiences require students to observe, question, investigate, record and evaluate familiar environments with a new lens.

Eco-Explorers focuses on the environmental issue of Sustainability through hands-on, mind-on exploration, inquiry process skills, and authentic science-based learning. The project is designed to institutionalize an approach that will bring students from awareness to knowledge/skills, to problem-solving/decision-making, and to action/stewardship as 4th and 5th grade Eco-Rangers. Most importantly, teachers and students will experience environmental education embedded within the social framework of sustainability and multidisciplinary content rather than as a stand-alone subject.

The Eco-Explorers Project creates an Environmental Education Leadership Team (EELT) comprised of 16 people from the Science Center, elementary school teaching staff, community partners, and Town departments. In Year One, the EELT will engage in 36-hours of professional development as a learning community (teacher's stipend). Meeting monthly, the EELT will learn the basics of environmental education focusing on the issue of sustainability, especially as it relates to environmental and food security, and visit each of the 5 elementary school-based outdoor spaces. During the visit the EELT members will meet and learn from the stewards of each of the Needham community outdoor spaces involved in the project. Furthering the work of elementary science district-wide commitment to inquiry participants at each location will "do" inquiry as adult learners, return to the NSC and debrief the experience as researchers. Follow-up meetings discuss environmental content connections to that particular site and research what lessons, curriculums and activities already exist. In spring, 2011, the EELT will use their skills, knowledge and enthusiasm to recruit additional teachers in grades 2 and 4 at all five elementary schools to pilot the activities. The EELT will continue to meet to advance its own Learning Community development and to share ideas, resources, problem-solve and continue to advance the initiative. In Year Three, the Science Center will extend the program to grades 3 and 5, bringing in kindergarten and grade 1 the following year.

The project meets the SC's life science and Earth science curriculum goals targeting classroom teachers and ultimately students in grades K-5. It also meets the SC's broader community outreach goals with an extensive group of highly committed community partners and the support of all 5 PTCs, the audience extends deeply into the parent and citizen community. The project is also highly visible in that it takes advantage of the already well-developed outdoor classroom resources in and around the elementary school neighborhoods. These range from a 1/4-acre farm, to an educational conservation nature trail with multi eco-systems, to school based gardens, to a fully equipped courtyard outdoor learning center.

EPA funds totaling $44,510.dollars will support Project Coordination (coordinator stipend, substitutes, teacher stipends), Supplies and Materials for Professional Development and Student Kits; Outdoor Signage/Enhancements; and Guest Experts. The project is matched with funding and in-kind services equaling $15,060 dollars from a variety of partners.

Ultimately, our vision is students who are comfortable and at-home in the out-of-doors, aware and knowledgeable about their environment, skilled at observation and inquiry, and active as environmental citizens. We envision students who leave elementary school with enduring understanding about sustainability, and practice in what it means to be stewards of our environmental resources. To accomplish this vision we have set three goals:

Goal 1: To promote system-wide **cultural change** and **institutionalize environmental education** and inquiry-based practices in Needham's elementary schools.
Goal 2: To provide **environmental education field experiences** in a multidisciplinary manner requiring students to interact with the environment through nature exploration and science-based learning.
Goal 3: To increase student awareness, understanding, and knowledge of their local environment so as to promote positive attitudes and **critical thinking skills with respect to their own actions and consequences**.

The proposed project is also aligned with all three Needham district-wide goals – standards-based learning, social/emotional learning, and active citizenship – which also form the basis for each elementary School Improvement Plan.

The NPS elementary science curriculum is in year two of a five-year planned transition. This grant gives the SC the tools to address changes more comprehensively. Existing curriculum is being revised and new curriculum is being developed that has scientific integrity across levels and is aligned to Massachusetts State Standards. The new curriculum focuses on inquiry approaches, science notebooks and authentic hands-on, minds-on learning, and science talks to make ones' ideas public. It also aims to improve environmental content that was misrepresented, undervalued or missing totally by infusing environmental education issues, topics and literacy into existing science and social studies units wherever possible.

The environmental issue we are addressing is **sustainability**. At its core, sustainability offers a foundational understanding of all environmental issues. It also serves to link our goals, our science curriculum, our existing outdoor resources, and the efforts of multiple Needham community partners. It also capitalizes on a growing community commitment to sustainability as a community issue.