Local and Global Water Quality
By Margaret Strohecker

The Berwyn Heights Elementary School water quality project (2006-present) combines student creation and maintenance of three Chesapeake Bay Trust rain gardens, construction of a rain barrel in our courtyard, and water quality testing of Still Creek and the Chesapeake Bay (NorthBay). Fifth and sixth grade students are currently partnering with a sister school in Italy to compare water test results, strategies and action plans to improve water quality in the Chesapeake Bay and the Bay of Naples.

Best Practice 1: What recognized community need was met by your project (e.g. health, education, environmental or public safety need)?
When Berwyn Heights Elementary School was renovated and expanded six years ago, no plantings or landscaping was done on the cleared land. Severe erosion and runoff was filling Chesapeake Bay storm drains with silt and debris. Students did research on water quality and rain gardens. They decided to take direct action at school and in the community to improve water quality in the Chesapeake Bay Watershed. Over two years, students planted and maintained three rain gardens at school. At Still Creek, students do water testing, living organism inventory and litter removal to improve water quality.

Best Practice 2: How was the project connected to school curriculum (e.g. what course outcomes were met and/or how did the project reinforce or enhance student academic learning)?
In science, students learned which personal and community behaviors cause environmental harm and which behaviors maintain or improve the environment. In social studies, students learned how human modifications to the environment impact the watershed. Research and writing objectives were met throughout the project.

Best Practice 3: How did you reflect on your experience throughout the project?
Students made ongoing observations of the rain gardens, including observational drawings and journal entries on plant growth and organisms. At the creek, students inventoried the types of litter collected and researched the years each type takes to decompose. 6th grade students wrote environmental action plans which connected their direct actions in the gardens and the creek with water quality improvement in the Chesapeake Bay.

Best Practice 4: How did students take leadership roles and take responsibility for the success of the project?
Students made maps of the areas surrounding the Chesapeake Bay drains with ideas for where to plant large shrubs and small plants. Through research and experiments, 4th grade students chose the most effective, but environmentally safe weed killing method. Every class participated in planting, papering, mulching, weeding and/or replanting. At Greenbelt Park, students remove litter from Still Creek, and do water quality monitoring, including water tests and inventory of creek life. 5th grade students are researching and making rain barrel plans.

Best Practice 5: What community partners did you work with on this project (e.g. non-profits, civic organizations, business that provided donations, etc.)?
Partners include Chesapeake Bay Trust, Beltsville Boy Scout Troop, Greenbelt National Park (National Park Service), Anacostia Watershed Society, and Recreational Equipment Incorporated.

Best Practice 6: How did you prepare and plan ahead for the project?

As stated above, students were involved in researching and mapping of the rain gardens. Planning for safety and maintenance was necessary. Tasks were divided into those that required adult or Boy Scout assistance (roto-tilling, tree replanting), those for intermediate students (wheelbarrow handling, digging large holes, large shrub planting), and those for primary students (hand trowel use, small holes for bulbs and plants, weeding, spreading). A maintenance plan for weeding and watering was developed by 4th and 5th graders and has been modified each year as challenges arise. Students are currently making plans for the rain barrel.

Best Practice 7: What knowledge and skills did students develop through this project?

Various community experts instructed students in special areas: Anacostia Watershed Society representative (native plants and invasive plant removal), our REI partner (principals of "Leave No Trace" and consequences of littering in the watershed), the School Counselor (student council Rain Garden research), a PTA landscaping expert (native plant selection, weed management and irrigation methods), the Science Coordinator and NPS Ranger (water quality testing and stream organism inventory), and the Arts Integration teacher (writing about local water quality problems). In science classes, students learned how rain gardens benefit the watershed.