

Partnership

Spring/Summer 2008 Issue: Volume 18, No. 1

Co-Chairmen's Report: Science in the Summer

- Pat Harcourt and Patti Parker

The last weeks of school are already upon us, and we can anticipate a change of pace from busy school schedules to the slower pace of summer days. Though students may see the summer break from school as a respite from science, math, and technology studies, the summer season presents opportunities for students to put their knowledge to work and keep learning all summer long. WHSTEP invites the teachers, scientists, and community members in our area to join with friends and family members, especially children, to put some science into summer activities. Once you start, it's clear that science and math can make the summer even more fun, and students are sure to enjoy the new ways of looking at and thinking about familiar places and pastimes.

Students can put their observation skills to work wherever they are, and apply math skills to all kinds of new situations. Science starts with questions and observations. If you can include a written record of observations, you have the beginnings of a research project. Observations made in the same way over an extended time are especially interesting and valuable. Here are some suggestions for including science, math and technology in typical summer activities.

Let's go to the beach! Everyone loves the shore, but there's more to do than swim and lie in the sun. Try digging in the sand near the shore. How deep do you have to dig to reach the water? Can you find water if you dig in the sand farther away from the water? Look at the waves. Which way are they moving? Are they moving in the same direction as the wind is blowing? How are the clouds moving?

Let's explore the back yard. Find a Hula Hoop or make a circle of string, set it out on the lawn or under a tree, and use it as your study area. What kinds of plants are growing there? Are there any insects? Dig a little way into the soil. What is living there? Close your eyes and listen for one minute. What kinds of sounds do you hear? Use a thermometer to find the warmest and coolest locations in your yard. What makes these spots warm or cool? How does the temperature change from morning to afternoon?

These are just a few examples of how teachers, parents, or kids can take almost any summer situation and turn it into an engaging investigation. All you need to do is make a few observations, start asking questions, and make way for applied science, math, and engineering!



Kama Thieler

Lawrence School teachers (from left) Bob Laquidara, Pat Davis and Lynn Parks take in the exhibits at the Woods Hole Science Aquarium at the WHSTEP General meeting in January.



WHSTEP Newsletter Going Green!

Beginning with our next edition (Fall/Winter 2008), the WHSTEP newsletter will be published electronically. Our mailing list has over 400 people, most of whom have email access. In addition to saving lots of paper, this will allow us to have color photographs and graphics, live web links and more! It will be emailed as a pdf file, for those who want to print and for easy viewing in most email applications. We will contact our mailing list in the coming months to confirm your email address. (A print version will still be available for those who prefer it. Please contact WHSTEP administrator Kama Thieler at 508-457-2350 or kthieler@usgs.gov to receive a paper copy.)

The WOODS HOLE SCIENCE AND TECHNOLOGY EDUCATION PARTNERSHIP (WHSTEP), established in 1989, is a partnership of schools, scientific institutions, businesses, and community resources. Its purpose is to support, promote, and expand science, math, and technology education and science literacy in the participating communities.

WHSTEP General Meeting – Seal Training at the WH Aquarium

- Arlene Hanlon

WHSTEP's General Meeting was held at the Woods Hole Science Aquarium of the National Marine Fisheries Service on January 16 with George Liles, Director of Public Affairs, and Rachel Metz, Senior Aquarist, presenting the program for the afternoon.

Mr. Liles began the program sharing information about the aquarium, which is owned by the federal government and jointly operated by NOAA and the MBL. The aquarium is home to 140 species of fish and invertebrates common to the Continental Shelf off the New England coast and Middle-Atlantic waters. The aquarium has just completed an impressive renovation project, one which replaced the old 1960 4000 gallon seal pool with one that is four times the size of the old one and holds 17,000 gallons. The new pool is a closed system and equipped with chillers for the hot summer months. In the 1990's the aquarium became a permanent home for stranded seals. At the present time the aquarium has only one resident, LuSeal, but the staff hopes to acquire another in the near future. Seals that are rescued by the facility cannot be released into the wild. Mr. Liles also mentioned a very important component of the aquarium—the intern/volunteer program.

Rachel Metz, who works with seals, fish and turtles, continued the program with a presentation of methods used to train seals. A demonstration was given of the techniques used for teaching behaviors, (more commonly called "tricks" by the public) to the seals. Metz uses "audible bridges", in which a whistle is blown and treats are given as a reward for a correctly-performed trick, oops, behavior. She also uses hand signs to teach and reinforce behavior. Another technique is the use of LRS—least reinforcing stimulus--which means giving the seal no attention and no eye contact to discourage unacceptable behavior. Ms. Metz compared the seals to border collies, because they can be taught up to 30 different behaviors. She also clarified common confusion about seals and sea lions. Sea Lions swim with front flippers, can balance balls, do not live on the East Coast, bark and have ears. Seals swim with back flippers, cannot balance balls, do live on the East Coast, do not bark, and do not have ears, only ear holes.

The program ended with a tour of the aquarium and the newly-renovated section of the facility.

For more info, visit the aquarium website at <http://aquarium.nefsc.noaa.gov>, or contact Mr. Liles at george.liles@noaa.gov or Ms. Metz at rachel.metz@noaa.gov

WHSTEP Science Safari – Groundwater and Habitat Restoration on the MMR

- Pat Harcourt

Gray skies and pelting rain couldn't dampen the spirits of the dedicated teachers who came to Massachusetts Military Reservation Wednesday March 19 for WHSTEP's spring Science Safari. Lynda Wadsworth of the Army Environmental and Readiness Center joined with Doug Karson of the Air Force Center for Environmental Excellence to introduce the many programs and projects under way at MMR.

The afternoon's program led off with a virtual tour of the habitats on the base, described by Dr. Mike Ciaranca, who pointed out that the MMR encompasses more than 15,000 acres of open space and wildlife habitats. The Environmental and Readiness Center runs many monitoring and restoration programs with the goal of ensuring that the training of military units is conducted in accordance with state and federal environmental requirements. Dr. Ciaranca described the impressive variety of plants found at MMR, including rare species such as the state endangered listed broad tinker's weed *Triosteum perfoliatum*, which has a population on MMR and is carefully monitored. Environmental research by the E&RC has also focused on Eastern box turtles, Eastern cottontail rabbits, and whip-poor-wills, a formerly common ground-nesting bird.

While many local residents have heard of the plumes of groundwater contamination that have been found at MMR, the extensive remediation efforts that are in progress are less familiar. Kris Curley of the Impact Area Groundwater Study Program gave an overview of how the plumes have been located and how they are being treated to purify the water. Doug Karson then invited the group to board a bus for a tour of the northern side of the base and a chance to see one of the water treatment plants at work.

At the treatment plant, it was evident that all mechanical systems are kept in excellent working order and that detailed records are kept on all aspects of the groundwater remediation operations. Mr. Karson encouraged community members to learn as much as they can about the remediation program, by visiting local public libraries, checking out the web site at <http://www.mmr.org/> or by contacting him at (508) 968-4670 x 4678 or doug.karson@brooks.af.mil.

Along the way back to the meeting space, we saw not only extensive communities of native plants and areas managed for wildlife, but we saw evidence of suitable wildlife habitat as three large turkeys appeared at the roadside, foraging in the low ground cover. All the attendees agreed it was a most informative and enjoyable safari, and a great way to spend a rainy afternoon.

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Teachers who would like to schedule class visits to learn about environmental programs at MMR should contact Lynda Wadsworth, Public Outreach Manager, at (508) 968-5152 or lynda.e.wadsworth@us.army.mil.



Kama Thieler

As teachers look on, Kris Curley of the Army Impact Area Groundwater Study Program describes the treatment of Fuel Spill 12 during the WHSTEP Safari in March.



WHSTEP Selects New Administrator

- Arlene Hanlon

WHSTEP welcomes Kama Thieler as the recently appointed Administrator for the partnership. One look at Kama's background leaves no doubt that she is dedicated to science education and has a solid knowledge of the local scientific community. While living in Maryland, she served as a senior member of the Chesapeake Bay Foundation's education staff. She also assisted in writing middle school environmental curriculum. After moving to the Cape in 1997, Kama worked at the Ecosystems Center of the MBL as a research assistant and coordinator of a project examining carbon and nutrient cycling in Arctic tundra soils.

Now a full-time parent with 2 children, Kama continues her love of science education as an outreach volunteer with the USGS Woods Hole Science Center. She also volunteers weekly at North Falmouth Elementary, an experience that, as she states, "has increased my desire to become a stronger advocate for science education, and to foster opportunities for all students to access the resources and experts here in our own community."

WHSTEP looks forward to its continued success through Kama's leadership.

Lawrence School Science Project Mentoring Program

- Kama Thieler

For 11 years, WHSTEP has organized a science project mentoring program at the Lawrence School in Falmouth. Members of the WHSTEP scientific community volunteer their time to meet with 7th and 8th grade students and help them design and refine their science projects. Students meet with the volunteer mentors one-on-one for 15 to 25 minutes during their science class periods. This year, mentoring took place over two weeks mid-January and early February.

WHSTEP thanks the following volunteers for taking their time to help the students at the Lawrence School.

Michele Bahr, J.C. Weber, Liese Siemann, Sam Kelsey, Marshall Otter, Mary Anne Alliegro, Justine Allen, Abigail Toltin (MBL); Bill Waite, Matt Arsenault, Claudia Flores, Brian Buczkowski and Kevin Kroeger (USGS), Gary Shepherd and Paul Rago (NMFS); Betsy Gladfelter, Porter Hoagland, Vicke Starczak, Mary Carman, Garrett Leahy, Melissa Patrician, Nancy Copley and Lauren Mullineaux (WHOI); Kathleen Savage and Jared Stabach (WHRC); Skye Moret (SEA) Pat Harcourt (WBNERR); Jaime McLaren (AmeriCorps); Tracey Crago (VIPS); Molly Cornell (community); Kama Thieler, Patti Parker and Pat Perry (WHSTEP)



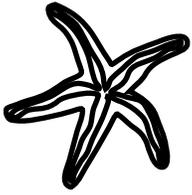
WHSTEP Says Thank You, and Welcomes New Executive Committee Members

- Arlene Hanlon

WHSTEP would like to express its appreciation to Liese Siemann, the outgoing Administrator, who served from 2004 to 2007. Thank you, Liese, for your dedicated and creative leadership, boundless energy and zeal for science education. Good luck to you in all your continued endeavors and interests.

WHSTEP would also like to thank retiring Executive Committee members Janet Wessling (North Falmouth Elementary School) and Sarah Bordenstein (MBL) for their time, ideas and enthusiasm.

The WHSTEP Executive Committee welcomes Suzanne Avtges to the board. Suzanne teaches AP & Honors Biology and Marine Science at Mashpee High School. Suzanne has been a WHSTEP liaison since 1990. We would also like to welcome Debbie Scanlon, another long-time liaison, to the board. Debbie is the Projects and Publications Coordinator at the MBL Ecosystems Center.



**Summer Programs for Kids
Cape Cod Area 2008**

<http://www.who.edu/seagrant/education/resources/summer.html>

For general information about WHSTEP and announcements about events related to science and math, subscribe to the WHSTEP listserver at:
<http://lists.mbl.edu/mailman/listinfo/whstep>

To post a message, send an e-mail to
whstep@lists.mbl.edu

For all WHSTEP questions, send an e-mail to
whstep-info@who.edu

WHSTEP Mini-Grants Available

Grants up to \$500 to support and enhance science, math and technology education in our member schools

Applications and more information are available on the WHSTEP website
<http://www.who.edu/whstep/>

Save the Date

WHSTEP Liaison Dinner

When: Wednesday, Oct. 22nd

*Where: Landfall Restaurant
Woods Hole*

Please notify Janet Fields (jfields@who.edu or 508-289-2950) about corrections to the WHSTEP mailing list.

Many thanks to Arlene Hanlon, Pat Harcourt and Kama Thieler for their assistance with this issue of the WHSTEP newsletter.

WHSTEP

Newsletter

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