

Bringing Plankton to Light: Viewing “Invisible” Plankton in a Narragansett Bay Salt Marsh

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It was an improbable assortment of materials for a science unit, but the two fifth-grade teachers at a small Rhode Island elementary school were game to teach about micro-organisms in a brand-new way. Here were the scavenger hunt-like directions the Fishing Cove Elementary teachers followed with the help of a C-MORE Education in Microbial Oceanography grant.

Gather one each:

- *an empty peanut butter jar*
- *a non-native English speaking student*
- *a box of oil pastels*
- *a projector microscope*
- *one salt marsh, preferably located within easy walking distance from a school*

In September, marine educator Jill Johnen taught an introductory lesson on the diversity of phytoplankton and zooplankton, the tiniest living creatures living in a Narragansett Bay salt marsh located behind the school. The fifth grade joined a Grade 1-4 initiative in the 2011-12 year to integrate learning about this unique environment in many subject areas. While younger grades studied mummichogs, bivalves and harbor seals, fifth graders expanded on the science unit studies of buoyancy, magnification and micro-organisms by learning about plankton. Thanks to the C-MORE grant, students were able to collect specimen with a plankton net, pouring out a dense concentration of plankton into eager hands holding that empty peanut butter jar! Minutes later, students viewed them on the classroom SMART Board with the digital binocular microscope donated by C-MORE sponsoring scientist D. Sonya T. Dyhrman from Woods Hole, Mass.

Learning about plankton infiltrated several other curriculum areas, as well. Days before the classes opened their GEMS-NET “MicroWorlds” science kits, a non-English speaking student arrived at our school. How would he learn about plankton when he didn’t even know the words “water” or “tiny” or “science,” for that matter? Enter Kathleen Mellor, a retired English as a Second Language Teacher and 2004-2005 National Teacher of the Year. With her help, she created visual teaching materials that would benefit all fifth graders, as well as the student who had just moved from Vietnam.

Art teacher Mia Thompson extended science learning about the buoyant design of plankton structure into her classroom. A bin of oil pastels representing nearly every hue of the rainbow gave students creative license to design a floating phytoplankton. Connecting the image

to words, students tried out quasi-scientific nomenclature to name their plankton creations and penned 5-line poems called cinquains to describe them. Here's one:

Anchorus spikulum

colorful, thorny

floating, drifting, sailing

moving around the world

phytoplankton

The multi-disciplinary, hands-on learning that took place this year was a winner! The C-MORE grant gave students access to technology that we would not have otherwise been able to provide. In future years, we hope to expand our use of the microscope and software to incorporate measurement lessons in math. It was clear that this year's enhanced science curriculum encouraged student scientists to grow in knowledge of microbial oceanography and their appreciation for the marine landscape that surrounds our school.