



DARTMOUTH MONTSHIRE INSTITUTE FOR SCIENCE EDUCATION



PROJECT OVERVIEW

Environmental Detectives

A Middle School Environmental Chemistry Curriculum

Project Details	
Primary Funder	National Institute of Environmental Health Sciences
Lead Organization	Dartmouth College, Center for Environmental Health Sciences at Dartmouth
Additional Funder	National Science Foundation
Additional Organization	Dartmouth College, MaryLou Guerinot, Department of Biological Sciences, Dartmouth College
Outreach budget	\$486,000 over five years
Total project budget	
Project dates	4/1/00 - 3/31/05
Related Research Project	--

Principal Investigators and Project Staff

- ▶ Carol Folt, Scientific P.I., Dean of Faculty and Professor of Biological Sciences, Dartmouth College
- ▶ Greg DeFrancis, Educational Programming P.I., Director of Education, Montshire Museum of Science
- ▶ Rachel Donegan, Educational Programming, Science Educator, Montshire Museum of Science

Project Documents

Reports by Dr. Cindy Char, of Char Associates, which provided formative evaluation during the mid-phase of the project.

[Year 2 Evaluation \[pdf\]](#)

[Year 3 Evaluation \[pdf\]](#)

Project Summary

This project engaged 6th-8th grade students with participatory experiences in environmental science with a concentration on the behavior of chemicals in the environment. Placed in the role of problem solving "detectives," students developed an enthusiasm for environmental science and gained an appreciation for the complexity of understanding environmental issues. Museum-based science educators, collaborating with Dartmouth research scientists, created this intensive, multi-week sequence of environmental investigations and piloted the activities with rural New Hampshire and Vermont schools. Professional development opportunities for participating teachers were provided as an integral component. Dr. Folt and her research colleagues were actively engaged in supporting the teacher professional component including curriculum development and participating in classroom activities.

The proposed program was designed to fulfill three educational aims:

- ▶ Create a middle school environment (both physical and intellectual) in which students gain knowledge about the fate and transport of chemicals in the environment through their own hands-on, self-directed activity; provide an experience through which students' appreciation for the experimental process is as stimulating as the knowledge itself.
- ▶ Create experiences that make environmental science relevant to students' own communities.
- ▶ Begin introducing, as a precursor to their future academic work, how interrelationships between multiple disciplines contribute to a successful understanding of the environment and how the environment is impacted by human activity.

A five-year evolutionary process provided time to develop the program, refine it through several iterations of classroom use, and using formative evaluation to guide the process. Dr. Cindy Char, of Char Associates, provided formative evaluation during the mid-phase of the project (see below for the Char reports). Although the project was completed in 2005, Montshire continues to support the Environmental Detectives program in several schools.