

Bay Watershed Education & Training Program Meaningful Watershed Educational Experience (MWEE)

NOAA B-WET is an environmental education program that promotes locally relevant, systemic experiential learning in the K-12 environment. The primary delivery of B-WET is through competitive funding that promotes Meaningful Watershed Educational Experiences (MWEEs).

NOAA recognizes that knowledge and commitment built from firsthand experience, especially in the context of one's community and culture, is essential for achieving environmental stewardship. Carefully selected experiences driven by rigorous academic learning standards, engendering discovery and wonder, and nurturing a sense of community will further connect students with their watershed, help reinforce an ethic of responsible citizenship, and promote academic achievement. NOAA B-WET maintains relevance by responding to regional education and environmental priorities through local implementation.

Experiential learning techniques, such as those supported by the NOAA B-WET Program, have been shown to increase interest in science, technology, engineering, and math (STEM), thus contributing to NOAA's obligations under America COMPETES.

NOAA B-WET:

- Supports experiential learning
- Is locally implemented and administered by the most appropriate NOAA office or program
- Promotes MWEEs through competitive funding
- Builds local capacity to support MWEE implementation, when required
- Focuses on K-12 Audiences
- Is rigorously evaluated at the local and national levels
- Incorporates NOAA products and services as appropriate
- Supports the NOAA Education Plan

Defining a *Meaningful Watershed Educational Experience*

Experiences are investigative or project oriented.

Experiences should be centered around questions, problems, and issues and be investigated through data collection, observation, and hands-on activities. Experiences should stimulate observation, motivate critical thinking, develop problem-solving skills, and instill confidence in students. Where appropriate, technology such as computers, probeware, and GPS equipment, should be integrated throughout the instructional process. Experiences such as tours, gallery visits, simulations, demonstrations, or "nature walks" may be instructionally useful, but alone do not constitute a *meaningful* experience.

Experiences are an integral part of the instructional program.

Experiences should be clearly part of what is occurring concurrently in the classroom. The experience should be part of the curriculum and aligned with the academic standards. Experiences should occur where and when they fit into the instructional sequence. Experiences do not have to be based solely on science disciplines. Experiences could involve the use of materials, resources, and instruments to address multiple topics, such as maritime heritage, history, economics, math, English, art, and the cultural significance of our natural resources. Experiences make appropriate connections between subject areas and reflect an integrated approach to learning.

Experiences are part of a sustained activity.

"Meaningful" experiences are part of a sustained activity that stimulates and motivates the student from beginning to end. Though a watershed experience itself may occur as one specific

event occurring in one day, the total duration leading up to and following the experience should involve a significant investment of instructional time. An experience should consist of three general parts - a preparation phase; an action phase; and a reflection phase. Projects should provide teachers with the support, materials, resources, and information needed to conduct these three parts.

- The **preparation phase** should focus on a question, problem, or issue and involve students in discussions about it.
- The **action phase** should include one or more outdoor experiences sufficient to conduct the project, make the observations, or collect the data required. It is strongly encouraged that the action phase includes restoration projects or activities that result in the environment changing.
- The **reflection phase** should refocus on the question, problem, or issue; analyze the conclusions reached; evaluate the results; assess the activity and the learning; and include sharing and communication of the results.

Experiences consider the watershed as a system.

Meaningful watershed educational experiences should make a direct connection to the marine or estuarine environment. Experiences do not have to be water-based activities; as long as there is an intentional connection made to the watershed, water quality, and the coastal and marine environment, watershed experiences may include terrestrial activities (e.g., erosion control, buffer creation, groundwater protection, and pollution prevention).

Experiences are enhanced by NOAA products, services, or personnel.

NOAA has a wealth of applicable products and services as well as a cadre of scientific and professional experts that can heighten the impact of outdoor experiences. For example, NOAA data can be used to supplement or contextualize the information collected by students. In addition, the inclusion of NOAA products and services in classroom activities will increase awareness of the agency's vast resources and may lead to better understanding of its mission. NOAA personnel have technical knowledge and experience that can serve to complement the classroom teacher's strengths and augment the array of resources for the learning. Additionally, these professionals can serve as important role models for career choices and as natural resources stewards, thus promoting science, technology, engineering, and math (STEM) careers.