

From the Mountains to the Estuary: From the Schoolyard to the Bay

**Meaningful Watershed Experiences
for Grade 6 Students**

Created by:



**With grant support from
The NOAA Bay Watershed Education Training (B-WET) Program**



In partnership with:



**Occoquan Bay National Wildlife Refuge
Manassas Battlefield National Park**



Science Literacy

Wetland Metaphors

Overview

In this activity adapted from *Project Wild Aquatic*, students consider a selection of common objects as physical metaphors for the many functions of wetlands.

Teacher Background: Wetlands

- Wetlands perform a valuable role in environment:
 - *nature's sponge*- wetlands store water in vegetation and above and below ground in wet periods and adding water to streams and rivers during dry periods;
 - *flood control*- wetlands can slow down flow of water;
 - *minimize erosion*- by slowing down water, wetlands decrease erosion;
 - *natural filter*- wetlands can trap sediment and remove excess nutrients;
 - *important wildlife habitat*- wetlands serve as a home for migratory birds, waterfowl, and aquatic organisms;
 - *nursery grounds*- wetlands are areas of reproduction for many fish and shellfish species.
- Wetlands are also known as bogs, swamps, marshes, and bottomlands.
- All wetlands contain *hydric soils* (soils that can hold water for moderate to long periods of time).
- Vegetation in the wetlands can tolerate being inundated by water for part of growing season.
- Wetlands are very productive ecosystems.
- Wetlands are very sensitive to human impacts.
- Between 1700 and 1980 over 53 percent of the nation's wetlands were lost because people thought they were swamps that should be filled in or cheap land to be built upon.
- Government agencies are now working to protect, restore and enhance wetlands.

Materials

- pillow case
- sponge
- small pillow or picture of bed
- egg beater
- empty jar of baby food
- coffee filter
- small bar of soap
- antacid tablets
- can of tuna fish
- composition book
- Before Class: Place all items into pillow case; do not let students see items.

Setting the Stage

Students should understand that the wetlands perform many important functions including providing food and shelter for wildlife and nesting and resting areas for migratory birds.

Wetlands vegetation is also highly beneficial providing such benefits as: absorbing nutrients, natural filtering system, flood and erosion protection and cycling nutrients.

Visit EPA's site on wetlands to review the many important ways wetlands help the environment

<http://www.epa.gov/bioiweb1/aquatic/importance.html>

Acquisition of Learning

1. Ask if anyone can give an example of a metaphor. Explain that metaphors offer dramatic ways of drawing a comparison. For example: "Robin is a chip off the old block" or "Wes is a barrel of laughs."
2. Tell students that objects can be used to represent wetland functions.
3. Now bring out the pillow case filled with items or the "Mystery Metaphor Container". Tell the students that everything in the container can be a metaphor that relates to the functions of wetlands.
4. Divide the class into six different groups. Have a representative of each group to draw an object from the pillow case.
5. When each group has an object, ask the students to describe and demonstrate the relationships and similarities between their object and wetlands. Encourage the students to build on each other's ideas.
6. Have the groups record in the composition books all the ways that there object relates to the wetlands. Encourage them to be as creative as possible.

Refer to examples below for ideas. Be sure to allow each group time to discuss its ideas before presenting them to the class.

Examples of Functions

SPONGE: Absorbs excess water caused by runoff; retains moisture for a time during droughts even if standing water has dried up (sponge stays wet even after it has absorbed a spill)

PILLOW: A resting place for migratory birds

EGG BEATER: Mixes nutrients and oxygen in the water

BABY'S BOTTLE OR JAR: Provides a nursery that shelters, protects, and feeds young wildlife

STRAINER: Strains silt and debris from water (keeps water supply clean)

COFFEE FILTER: Filters smaller impurities from water (excess nutrients, toxins)

ANTACID: Neutralizes toxic substances

CAN OF TUNA: Provides nutrient-rich foods for wildlife and humans

SOAP: Helps clean the environment

WETLAND ANIMAL TOY OR PHOTO: Habitat for diverse wildlife

Closure

Groups should present their findings to the class. Classmates can add other reasons the object is similar to wetlands.

Discuss the consequences if wetlands were polluted, drained, or damaged