

# MARSH METAPHORS



## Overview

Students are challenged to match clues relating wetland functions and values with metaphoric attributes of twelve objects on exhibit. Two games and clue sets are provided. The first covers basic wetland functions and values, and is played cooperatively. The second associates wetland values-related facts and impacts, and pits player against player in a card game-style format.

## Objectives

After successful completion of this activity, students:

- will recognize important ecological functions of wetlands
- will understand the benefits of wetlands to humans and wildlife
- will be able to relate consequences of wetland loss to diminishment of ecological functions and wildlife/human values

## Vocabulary

erosion	habitat	nutrients
estuary	metaphor	organic
groundwater	migratory	water quality

## Skills

analyzing, applying, interpreting, inferring, matching, reading and using information, cooperative learning, creative thinking and problem-solving

## Source

This activity was adapted from "Wetland Metaphors" in Aquatic Project WILD, Western Regional Environmental Education Council, 1992.

## Background

In the past, wetlands were largely viewed as wastelands, and consequently, millions of acres across the U.S. were filled, dug, dyked, paved or otherwise altered for human use. Fortunately, these days wetlands are viewed more favorably, as areas that provide numerous ecological, economic and environmental benefits.

High on this list of wetland values is the habitat they offer living things. Many of our rare, endangered, and threatened plant and animal species make their homes in wetlands. Still others, including hundreds of water bird species, rely on wetlands as resting and "refueling" areas in their seasonal migrations. Wetland habitats also serve as spawning and/or nursery areas for the majority of our commercially and recreationally important fish and shellfish.

These fish and wildlife values in turn generate an assortment of human and economic benefits. Millions of people spend billions of dollars each year in pursuit of fishing, hunting, wildlife watching and other wetlands-related recreational activities.

The capacity of wetlands for absorbing, storing, filtering, and otherwise improving water quality likewise benefits humans in many ways. Wetlands situated along rivers, estuaries and coastal areas can significantly reduce the harmful impacts of floods and storms. In areas prone to drought, wetlands can provide a reservoir of water for human, wildlife and plant use. By trapping and holding eroding soil particles, excess nutrients, and other substances in the water, wetland plants help reduce the harmful effects of these substances on water bodies adjacent to those wetlands.

Through the *Marsh Metaphors* activity, students are introduced to these and other wetland values in a way that makes them more concrete and memorable. The chart to follow summarizes the metaphors presented. For a more detailed description of wetland functions and values, see Chapter 3 in the *Wonder of Wetlands!* book.

## Before the Activity

If you feel it would help prepare your group to get more out of this activity, make some background information on the benefits of wetlands available. This could be done via: a brainstorming exercise (building a list of what the class thinks is “good” or “bad” about wetlands), video viewing (*Fabulous Wetlands* with Bill Nye) or poster/reading assignment. See the “*Introducing Wetlands*” section of this manual for more ideas on this approach.

Since these activities are based on the idea of using everyday objects as *metaphors* for wetland benefits, you may want to go over examples of what the word “*metaphors*” means. Explain that a *metaphor* uses one thing (object, place, being, idea, etc.) to represent or get across another, for example, “the Earth is a spaceship” or “the sea was a raging lion”. You may wish to go over one example of how this works (such as the sponge) from the exhibit board. Instructions for playing *Marsh Metaphors* (as they appear on the exhibit) are given in the box below.

## During the Activity

The clue/object matching part of Game 1 is straightforward, but students may need a little extra encouragement for the creating-your-own clues (for the two objects lacking clues) part of the challenge. Remind students to sign their names to their creative contributions (on the post-it pads), and be sure to collect all these notes for use during the wrap-up session. Also encourage the students to check and correct their matches from game 1, as this will prove helpful to them in playing Game 2.

The Game 2 clues are tougher, as they require students to apply the functions/values information presented in Game 1 to facts and consequences that tie into wetland benefits. This is also made more challenging in that one object (the sneaker) is used for two of the clues, while another (the canteen) is not used at all. Students who make use of the Game 1 information and pay attention to the incorrect guesses made during other people’s turns will have a definite advantage in this game.

### How to Play MARSH METAPHORS

Game 1: Each object on the board symbolizes something useful wetlands do or provide. Your task is to match each object with the clue it represents.

- ☞ Take turns (alphabetical order by last name) choosing a green card from the left pocket.
- ☞ Attach this card to the velcro piece next to the object you think best fits the clue.
- ☞ Continue this way until all 10 clues are used. Notice that two of the objects are missing clues! Use the post-it pads to create your own wetland values clues for these!
- ☞ Discuss and decide as a team whether you agree with the matches on the board. If not, make any changes you agree are needed.
- ☞ Check the green answer key card from the card pocket to see how you did. Correct any misplaced matches. If time allows try game 2!

Game 2: This game plays differently, but the idea is similar - figuring out which clues (red ones this time) are matched to which objects. Here’s how to play:

- ☞ The red card set contains clues that relate to matches made in game 1. Stack all the red cards, clue side up, on the table in front of you. Do not look at the pictures on the other side.
- ☞ Taking turns (reverse alphabetical order this time), read the clue on the top card out loud, and say what object you think that it matches. Look at the picture on the back of the card.
- ☞ If it matches, hold onto the card and earn the points printed on it. If you are wrong, place the card on the bottom of the desk with the clue side up.
- ☞ The player with the most points at the end of the game wins. Please return all clues to the proper pockets at the end of your game.

## After the Activity

Ask students to build a list of ways wetlands are useful and important to humans and the environment (or if you started a list as a pre-activity, see what they can add to it now). If they have trouble remembering, use the objects on exhibit to prompt them. Ask them: *Do you view wetlands any differently now than before you did the activity?*

The chart below summarizes the clue matches and metaphoric relationships presented.

As you review specific objects and the wetland values associated, try to get a sense of which objects/clues were troublesome and why. Touch on additional supporting facts and information as you see fit to further emphasize the benefits of wetlands.

Retrieve the post-it pad clues created by the students for the **sneaker** and the **house**. As you go over the ideas offered, commend the students for their creative thinking. Allow opportunities to add to the list, again emphasizing that there are no right or wrong answers. The chart below presents additional ideas on benefits relating to these two objects.

Object	Function/Value (Green Clue Set)	Consequence/Fact (Red Clue Set)
sponge	Wetlands are capable of absorbing and holding large quantities of water.	Filling in or paving over of wetlands located along rivers results in increased flooding problems downstream.
canteen	Wetlands retain excess water for use by wildlife (and humans) in times of drought.	no clue for this object!
strainer	Wetlands help filter silt (soil particles) and other debris from the water.	The ability of wetland plants to trap/hold soil particles can lessen the harmful impacts of erosion on water quality.
cat litter	Wetlands trap and bind up pollutants that make their way into the water.	Experimental wetlands are being used in some places to treat sewage and other organic waste materials.
soap	Wetlands improve water quality by cleaning pollutants in the water.	Wetland plants help reduce water pollution by removing nutrients and other impurities from the water.
wire whisk	Wetlands mix up nutrients, minerals and oxygen in the water.	Twice a day in the tidal wetlands of the DE Estuary, elements of both fresh and salt water meet and mix.
baby bottle	Wetlands serve as nursery areas for fish and wildlife.	The young of over 80% of our commercially valuable fish and shellfish use wetland areas to do their growing.
house*	<i>provide habitat for many living things; source of timber/wood for building.</i>	Wetlands provide much-needed habitat for over 40 % of the endangered and threatened species in the U.S.
pillow	Wetlands serve as important resting areas for wildlife.	Over 100 species of migratory waterfowl and wading birds use Delaware Bay wetlands to rest and refuel along their journeys.
cereal	Wetlands provide nutrient-rich food for both wildlife and people.	Cranberries, blueberries, wild rice and salt hay are examples of crop products grown in Delaware Estuary area wetlands.
sneaker*	<i>recreational use of wetlands; storm buffer between land and water; provide support/protection for living things;</i>	Coastal wetlands help reduce storm damage by providing a protective layer between water and people's homes. More than 30 million people hike, canoe and otherwise enjoy recreational values of wetlands in the U.S. each year.
paint brush	Wetlands are a source of beauty and artistic inspiration.	The famous naturalist John Henry Audubon is also known for his beautiful paintings of wetland birds
* In Activity #1 (the green clue set), these two objects do not have clues. To encourage creative thinking about wetland values, students are asked to create their own clues for these objects.		

## Activity Adaptations

This activity is an adaptation of a classic wetlands education tool. As originally offered in *Aquatic WILD*, this involves passing out objects (like those in our exhibit) from a “Mystery Metaphors” bag and challenging groups of students to come up with wetlands associations for each object. This teacher-led approach makes an excellent introductory activity for any Wetlands unit, and to the Wetland Kit for that matter. If you do choose to go that route, the *Marsh Metaphors* exhibit will still serve as good reinforcement. See pages 85-86 of the *WOW!* book for more information on this approach.

Another effective way of doing this, particularly for smaller class sizes and younger groups of students, involves a hybrid of these two approaches:

- ☞ Assemble your own mystery metaphors bag with objects like the twelve exhibited (please don't remove the ones from the board!).
- ☞ Develop clues like those in the green set for all but two objects (e.g. sneaker and house), and attach velcro pieces to the back of each clue and object. Then attach the clues to the objects so that the matches are incorrect.
- ☞ Then explain to the group that you have this bag of items that symbolize different ways wetlands are valuable, with clues that are meant to go with each object. *But somehow the clues got all mixed up in the bag!*
- ☞ Ask your students to help sort out the mix-ups, but instruct them to do this *without talking!* Pass out one object to each student, and let them circulate and swap clues until they feel all objects/clues are correctly matched.
- ☞ Do a go-round, with each student holding up the object and reading aloud the clue that goes with it. As they do this, feel free to expand on the wetland values messages.
- ☞ After congratulating them on their efforts, make a show of reaching down into the bag, and saying something like *“Oh, no, there's a couple objects down here that seem to be without clues! Could you please help think up some wetland values clues to go with them?”*
- ☞ Write down their ideas on a post it and thank them for helping you unravel the mysteries.

## Activity Extensions

Challenge students to create a bumper sticker, poster, commercial or other display promoting the values of wetlands and why we should protect them. Or assign different benefits to students for each to contribute a page towards production of a class “wetland benefits booklet”. You might even target this for use in teaching younger children in your school about the importance of wetlands.

Visit a wetland to look for evidence of the benefits described in this activity. Identify those metaphors that seemed to work well for this wetland, and those that didn't. Emphasize that just because we can't see something (such as wetland plants ability to pull out and trap invisible pollutants from the water), doesn't mean it's not going on and isn't important.

Work with students in developing an opinion survey that they can use to find out how people in their community perceive wetlands. Don't forget to share the results with people who work in wetlands-education from the Fish and Wildlife or Department of Natural Resources agencies in your area.

## Assessment

Have students summarize what they know about the benefits of wetlands. This could be done verbally as a group, in list form individually, or in whatever other format works well for your situation. You could also ask them to write a persuasive, editorial-style letter encouraging people to appreciate and care about our wetland resources.

Challenge students to create wetland benefits-type clues for other everyday objects. A sample worksheet based on this approach is offered in the assessment section of this notebook.

## Related Activities & Resources

*“Rate a Wetland”* and *“The Wetlands Gazette”* in *Wetlands Conservation and Use Issue Pac*, U.S. Fish and Wildlife Service. Good source of wetland values follow-up activities for the field and classroom.

*“Wise Wetland Ways”* in *Wetlands: Water, Wildlife, Plants & People* (poster), U.S. Geological Survey, Denver, CO. Students simulate the work of future archaeologists, interpreting a collection of “wetland artifacts” to tell story of how we use wetlands today.

# Marsh Metaphors

## Follow-Up Exercise



Name \_\_\_\_\_

Date \_\_\_\_\_

Make up a *Marsh Metaphors*-type clue that would make sense for each of the objects pictured below. Write each clue in the box below each picture.


For each of the wetland benefits below, come up with an object that you think would make a good metaphor for it (but one that is different from any of the objects above or that you used in class). Write or draw the object in the box above each clue, and explain why you think that object fits it.

<p>Wetlands help reduce storm damage in coastal areas by acting as a “buffer zone” between ocean and dry land.</p>	<p>Wetlands provide critical resting and feeding habitat for many of our migratory waterfowl and shorebirds in the United States.</p>	<p>Wetlands provide places for people to observe and learn more about plants, wildlife and the natural world.</p>

Use the back of this paper to write a letter to a politician, planner, or some other person aimed at trying to convince them of the importance of valuing and protecting our wetland resources.