

# The Wonder of Water

## Post-Visit Activity

### WHO IS IT FOR?

- ◆ Young Scientists . . .
- ◆ Evolving Mathematicians . . .
- ◆ Emerging Linguists . . .
- ◆ Sprouting Historians . . .
- ◆ Budding Artists . . .

**TARGETED LEVEL:**  
(Second Grade)

### THE CHALLENGE:

The students will . . .

- ⇒ be introduced to the water cycle.
- ⇒ Recognize the process of the water cycle.
- ⇒ Understand the importance of the water cycle.

### SAFETY ISSUES & CONCERNS:

- \* Students need to practice safety while using yarn.

### WHAT'CHA NEED?

1. Yarn or string.
2. Photos, drawings, or name signs of specimens representing different members of a wetland ecosystem: (1) sunlight, (5) water, (5) cattails, (6) algae, (5) microscopic animals, (3) turtles, (3) ducks, (3) frogs, (2) snakes, (2) snapping turtles, (2) fish, (1) mink .

**TIME NEEDED FOR THE POST-VISIT ACTIVITY**  
Minimum of 45 minutes.

Students discovered in the on-site activity that wetlands are bodies of water where water and land meet. They fall at the transition zones between land and water. They may be recognized at times as those shallow margins of freshwater lakes, for instance, where you can see a crowd of cattails, frogs and turtles. They are also the areas exposed at low tide where the tidal marshes appear to be nothing more than salt and mud, as well as the swamps along the banks of rivers and streams, often times overwhelmed by floodwaters attempting to travel the overfed river.

The determination of where the lake ends and the wetland begins, or where the actual line is between the salt marsh and the ocean is a difficult one. By its very definition, a transition zone means a place where one environment blends into another. As was mentioned in the on-site activity, there are three key indicators that signal the makings of a wetland: saturated soils, water-tolerant plants, and enough water to cover the land to a shallow depth. Though these three indicators are the same for all wetlands, not all wetlands are the same. The following comprises a list of a few of the most common wetland types:

Bog: The source of water for this wetland mostly comes from precipitation. It is recognized by its peat-accumulating nature and by the fact that it has no significant in-flows or out-flows of water.

Bottomlands: These are the lowlands along streams and rivers. They usually fall within the floodplain, and therefore, their water source is from the overflow of the floodwaters attempting to traverse the river.

Marsh: Marshes are often, if not continually flooded. They can be found at the edges of rivers, creeks, ponds and/or lakes. Freshwater marshes are often settled into isolated depressions. Saltwater marshes can be found along the lines of the coast.

All types of wetlands play significant roles in the water cycle. They store vast quantities of water; they accept, break down, and make available nutrient matter; they absorb heavy metals; filter out toxins; produce a considerable food base; process nitrates; and they release oxygen into the air while aiding in the removal of carbon dioxide from the air. They are also homes for a vast number of plants, which in turn contribute to the earth's water cycle through the process of evapo-transpiration. Wetlands, in every watershed, also contribute to flood control, stream and riverbank stabilization, pollution control, the supply of ground water and as a habitat for a variety of plants and animals.

In this post-visit activity, the students will have further investigate a wetland ecosystem.



## WORDS TO KNOW?

11. Hydrologic Cycle (water cycle)
12. Bog
13. Marsh
14. Ecosystem
15. Predator
16. Prey
17. Food Chain
18. Watershed
19. Wetland

## DID YOU KNOW . . .

A food chain is an arrangement of organisms in an ecological community.

According to the order an organism consumes another organism in which each uses the next (usually the lowest) member as a food source?

An ecosystem is an ecological community (together with its physical environment) considered as a unit.

A predator is an animal that eats other animals?

Prey is an animal that is eaten by other animals?

## EXTRA STUFF?

Related books/stories and on-line sources:

[http://www.earth.nasa.gov/science/Science\\_global.html](http://www.earth.nasa.gov/science/Science_global.html)

[http://www.ghcc.msfc.nasa.gov/ghcc\\_home.html](http://www.ghcc.msfc.nasa.gov/ghcc_home.html)

## TEKS

### CONNECTIONS:

Science TEKS - Second Grade:

2.9 (B) The student will compare and give examples of the ways living organisms depend on each other and on their environments.

2.10 (A) The student will describe and illustrate the water cycle.

2.10 (B) The student will identify uses of natural resources.

Denton ISD, Science S.P.O. – Second Grade:

S7.1 The student will describe and illustrate the water cycle and identify uses of natural resources.



## PROCEDURES:

*Ready, Set, Go . . .*

2. Begin the lesson by reviewing about wetlands. Ask the students to take out their Journals and ask each student to review the information that they each wrote about wetlands.
3. Make a list on the board of the observations that the students made in their journals, as well as a list of the chemical and physical data that was obtained. (You might consider using this the data in today's math lesson!)
4. Review with the students what the data represents, and how it helped to demonstrate the differences between the bodies of water.
5. Based on their observations and information, what do they now know about wetlands?
6. Tell the students that they are going to create their own "wetland" in the classroom.
7. Go over the parts of the wetland (from *Whatcha' Need* on first page). This is a partial list of the living and nonliving components that might be found in a wetland. As you go through the list, hold up the representation (photos, drawings, or signs) of each of the components.
7. Have the students sit in a circle with the representative wetland components in the middle. Tell the students that they will become the wetland by choosing to be different parts of the wetland.
8. Allow each student to choose to be one part of the wetland.
9. As the students choose, have them stand in the middle of the circle, holding up their "names". Encourage them to look around at the wetland they have created. Is there something missing?
20. Ask the "water" to step forward. If no one or only one chose water, then you have no wetland and each student needs to place their components back into the center and begin again.
21. Again, ask the "water" to step forward. Use this moment to reemphasize the importance of water to everything within the wetland.
12. Ask the "algae" and the "cattails" to step forward. If only a couple of students chose plants, you again need to start over because plants are at the base of the food chain and without plants, animals would not be able to use the energy from the sun as food (like plants do), and once again, there would be no wetland.
13. Repeat this activity until you get a variety of water, plants, and animals. Open up a discussion about the importance of having this variety of organisms within an ecosystem.



### ***Procedures continued . . .***

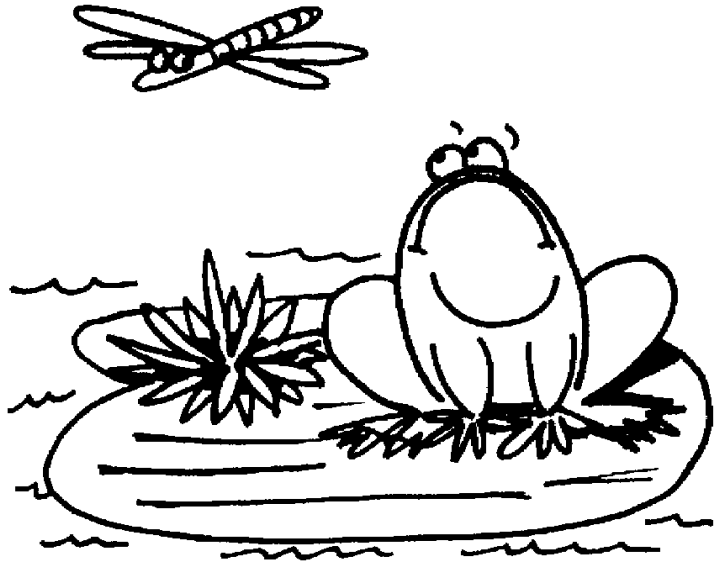
#### **psst . . .**

Initially, in the activity, the students will most often choose the organisms that they are more familiar with or the ones that they perceive to be the most important. This is very much the norm and is a part of this learning process.

- 14.** Ask the students which part of the ecosystem they believed to be the most important when they started the activity, and which they believe to be the most important now? Are they all important?
- 15.** Using the large ball of yarn or string, start with water and the sun and ask what members of the wetland use these things. Connect the students with the yarn as they demonstrate the relationships. Eventually it will become clear that all members of the ecosystem are invisibly connected.
- 16.** Tug on one link of the web and see how many students can feel the pull. If each student who feels the tug pulls on the lines he or she is holding, the original tug will ripple through the whole community. Relate this to similar disturbances that occur within a wetland community.

#### **Assessment:**

Teacher Observation  
Science Journals



**The Bottom Line:** The students will learn about ways in which an ecosystem serves to meet the survival needs of the organisms living within it.