

A TALE OF TWO WETLANDS

Jan Derksen, Bath School District, Michigan

OVERVIEW: This lesson will provide students with an opportunity to learn about and examine two different types wetlands, discover how plants and animals are adapted to these unique habitats, and then compare and contrast the two, in this case a bog and a pond.

GOAL: To make students aware of the importance of aquatic habitats/wetlands to wildlife and humans.

DURATION: Two 60 minute sessions.

LOCATION: Outdoors – freshwater pond with access to the edge and one other type of wetland

CONCEPTS/BACKGROUND: A **wetland** is an ecosystem with both water and land characteristics. Some are saturated to the surface and some are only wet certain times of the year. Wetlands are important since they provide food, shelter, and nesting and spawning sites for many animal species. They provide floodwater storage by storing water and slowly releasing it. Wetlands help purify water by naturally filtering polluted runoff from streets, agricultural land, etc. and have great economic benefits from the important products harvested from wetlands. They also provide endless recreational activities. More than half of the nation's original wetlands have been lost to development since the mid-1800's.

A **pond** is a body of water that is a community of plants and animals which interact with and depend on each other to survive. Some have outlets while others don't. A young pond is usually clear and deep, but as plants and animals grow, die, and decay they sink to the bottom of the pond and start to fill it up. Silt and gravel are washed in to it and the pond matures, providing food and shelter for more animals and plants. The pond begins to fill in and become more shallow and smaller, first becoming a marsh and then a meadow. This is the natural process of **succession**.

A **bog** is a wetland that accumulates a deposit of dead plant material. Sphagnum moss is often the main plant type. Bogs are highly acidic, low in nutrients, and oxygen deprived. Bogs clean more carbon from the air than rain forests. They are considered **carbon sinks** because of all the greenhouse gasses they absorb from the atmosphere. Low fertility and a cool climate causes slow plant growth and decay. A very unique variety of plants are adapted to this environment.

SUBJECT AREAS: STEM(Science, Technology, Engineering, Mathematics)

NEXT GENERATION SCIENCE STANDARDS:

- Matter and Energy in Organisms and Ecosystems
- Earth Systems
- Structure, Function, and Information Processing
- Weather and Climate
- Interdependent Relations in Ecosystems
- Inheritance and Variation of Traits
- Engineering Design

MATERIALS: Pond – collecting nets, small white plastic containers, white plastic dishpans, white plastic spoons, large nets with a long handle, magnifying glasses, thermometer, macro invertebrate ID resources, Pond Creature Worksheet

Bog - Magnifying lenses, straws to tag plants ahead of time, boots, thermometer

Two hula hoops for debriefing activity

*(Props for **Wetland Metaphors** and cards for **Are you Me?**)

***Please note:** We will not have time today to do the pond portion of this activity. We will do a condensed version of an activity called **Wetland Metaphors** to help understand the importance of wetlands and **Are You Me?**, to introduce some of the different life stages in aquatic animals. Both activities are adapted from **Aquatic WILD K-12 Curriculum & Activity Guide**.

THE LESSON: (Be sure to research and discuss a variety of wetland types ahead of time.)

Pond: Have students use dip nets to look for macro invertebrates. Put collected organisms in white dish pans. Have each student choose one macro to observe more and fill out the Pond Creature Worksheet.

Bog: Review how a bog is formed and remind students how fragile a bog is. (*You will probably not have many opportunities to go out on a bog like we are doing today.) Identify some of the unique plants found in a bog including pitcher plants, sun dew, cranberry. Have these marked ahead of time. Point out poison sumac. What are some of the adaptations these plants have which help them survive in this habitat? Use hand lenses to look closely at these plants. Sketch them in journals.

DEBRIEF: Make a Venn Diagram by overlapping two hula hoops on the ground to compare and contrast the two different types of wetlands. The circles will be used for characteristics unique to each wetland habitat. The overlapping space will be used to describe how the habitats are similar. Give students strips of paper to place in the appropriate section.