

Pond Study

Grades K-6

Nutshell

Students explore a pond community by locating, collecting, and identifying pond animals. They also examine the role of each animal in the pond food web and some adaptations aquatic animals have for living in their watery environment.

Objectives

Upon completion of this activity, students will be able to:

- Identify “citizens” of the pond community.
- Describe how pond critters are dependent on one another for survival
- Compare the adaptations of animals typically found within a pond community with those found more typically in a terrestrial community.

Pond Study Pre-Visit Activities

The following materials are aids to help prepare your students for their visit to the Central Wisconsin Environmental Station. The vocabulary list contains terms and concepts your students will encounter in their visit. Please modify the definitions as needed. The activities listed below are merely options – it is not necessary to do them all or follow any particular order. Keep in mind that your students' learning experiences at CWES will be enhanced if they are familiar with these concepts and terms prior to the on-site activities.

Vocabulary

Adaptation: a physical or behavioral characteristic that helps an animal survive in its environment

Community: all of the interacting plants and animals in a particular area

Food chain: how food energy passes from one living thing to another (in the classical food chain, the sun provides energy for plants to grow, plants are eaten by primary consumers or plant-eaters, primary consumers are eaten by secondary consumers or animal-eaters, and so forth.)

Food web: system of food chains connected by common links.

Habitat: the surroundings in which a plant or animal lives and its needs for life are found.

Interdependence: the dependence of plants and animals in a community on each other to survive; mutually dependent.

Interrelationship: the relationships or connections between parts of the environment.

Niche: the role or job of an organism in its community (i.e. producers, consumers, decomposers.)

Predator: an animal that hunts or captures another animal for food

Prey: an animal that is hunted by another animal for food.

Activity #1

Begin by having the class brainstorm all the possible things they would expect to find in a pond. Record the students' suggestions on the chalkboard. Make sure that such basics as fish, plants, water, air (or oxygen), soil (or muck), and sunlight are included in their list. Select 8-10 of these suggestions and break the class into corresponding groups of 8-10 students. Explain to the class that their group task will be to determine which of these

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things is the most important member of the pond community. Assign each student in each group one of the pond community members. Tell them that their individual job will be to try to convince the group that their member is the more important and that without it the pond community would suffer. Each person will give their “sales pitch” to their group and then their group must decide which pond community member is most important. Allow the students a few minutes to formulate their presentations.

When all of the “pitches” have been made and the groups have each come to a decision, bring them back together and discuss the results. (This may be difficult, as there is no “correct answer” or “most important thing” in a pond.) A case can be made for all the items, for each contributes to the balance of the pond ecosystem. (The most obvious answer is sunlight, because it is the driving power source of the pond. However, without the plants in the pond community, the solar power could not be used to produce food.) Two important points should be made. First, all pond community members are important to a pond’s existence. Second, the sun is the power source for the pond community.

You may choose to end this activity by having students make a pond community food web and hang it up for others to see.

Activity #2

Challenge your student to think like a fish, polliwog, leech, or other member of the pond community. Imagine what the world would look like from that point of view! Have the students write stories or draw pictures from that creature’s perspective and share it with the rest of the class.

Activity #3

Have students create fictitious creatures that could live in a pond. Once each has one in mind, have them write a story or draw a picture about their organism, highlighting what it needs to live in the pond (what it eats, where it lives, etc.) Some examples of critter lifestyles might include

- a) it stalks its prey from beneath lily pads
- b) it eats dead plants and can’t be touched by direct sunlight or it will die
- c) it breathes with bubbles for “scuba gear” and eats animals living in the muck on the pond “floor.”

Your class can create their own gallery of imaginary pond creatures.

Another option is to generate a long list of lifestyle options. Then, have each child secretly choose one and draw a picture of that creature. Then hang the lifestyles and creatures up and have students try to match each creature with the lifestyle that inspired it.

Pond Study Post-Visit Activities

A visit to the Central Wisconsin Environmental Station can be a school-year highlight for both students and their educators. We feel the knowledge and concepts gained during a Station visit apply outside the Station as well. The following activities will allow students to expand their knowledge and help them incorporate those lessons into their everyday life. Feel free to pick from and modify the activities as best suits your group.

Activity #1

Encourage your students to choose any interesting organism they discovered in the pond at CWES and to learn more about that organism, either individually or in small groups. Based on what each student (or group of students) learns, have them write a story entitled “A Day (or Night) in the Life of...” their organism. They might want to organize and perform skits illustrating the daily (or nightly) activities of their organism

Activity #2

Have students read the newspaper for at least a month to track current events related to ponds and other wetlands. Clip the articles and categorize headlines by similar topics or issues. As a group, share the categories that students discovered. Rank the headings by what the students see as the most critical or most important to the survival of the wetlands and the creatures living therein. Are most of the issues local, regional, national, or international? Discuss the hottest issues and what their causes might be. How do your students feel about the issues? How might they get involved? Be sure you mention that research, such as their newspaper searches, is necessary when forming opinions about controversial topics.

Activity #3

Have the students write down their answers/guesses to the following questions:

1. What was the temperature when you were the hottest you can remember?
2. What is the warmest temperature a human can stand?
3. How long can a person live without oxygen?
4. How long can a person live without food?
5. How long can a person live without water?

Have students share their answers with one another.

Share the following answers, taken from the Guinness Book of World Records.

Warmest temperature possible: U.S. Air Force experiments say 400 to 500 oF.
(A hot sauna is about 280o F)

Survival without air: The record is 6.29 minutes. Other sources say 4-5 minutes.

Survival without food: The longest ever was 382 days. A more common “food strike” figure would be 60-70 days.

Survival without water: The record is 10 ½ days.

Pond Study Post-Visit Activities

Do members of the pond community have similar limits in which they can survive? (*of course they do.*) Are these the same for each organism? (*of course not*) Have students choose a pond organism and research what it would need to survive. Challenge the students to create a habitat for the organism that would perfectly suit their needs. Make field guides and other resources available so that students can research what the animal eats, where it lives within the pond, what temperature the animal prefers, what eats it, etc.

Activity #4

Have your students brainstorm all the ways that Planet Earth is like a pond community. Stress the idea that both are self-contained, delicately balanced systems. Challenge the students to create posters of a “bubble person” depicting a person living in a bubble with all the things s/he would need to survive in the closed environment. Remind them that this bubble person never opens the bubble, so they cannot get things from the outside. Display the students’ creations when they are complete.

Pond Study Resources

Teacher Resources

Braus, Judy. 1986. *Wading into Wetlands*. Washington, D.C.: National Wildlife Federation. 65 pp.

Thompson, Gerals and Jennifer Coldrey. 1984. *The Pond*. Cambridge, MA: MIT Press. 256 pp.

Youth literature

Fowler, Allan. 1996. *Life in a Pond*. New York: Children's Press. 31 pp.

Ganeri, Anita. 1993. *Ponds and Pond Life*. New York: F. Watts. 32 pp.

Mendoza, George. 1990. *Were you a Wild Duck, Where Would You Go?* New York: Stewart, Tabori and Chang, Inc. (Grades 4-6)

Norsgaard, E. Jaediker. 1990. *Nature's Great Balancing Act*. New York: Cobblehill Books.

Pallotta, Jerry. 1996. *The Freshwater Alphabet Book*. Watertown, MA: Charlesbridge.

Parker, Steve. 1988. *Pond and River*. New York: Knopf. 63 pp.

Schwartz, David M. 1997. *Look Once, Look Again: At the Pond*. Cypress, CA: Creative Teaching Press. 16 pp. (Grades 1-3)

Stone, Lynn M. 1983. *Pond Life*. Chicago: Children's Press. 45 pp.