



Wacky Water Critters

Program Purpose:

To provide students with a hands-on learning experience dealing with aquatic insects. Emphasis is placed on insect sorting and adaptations.

Length of Program: 2 hours

Ages: Grades 4th-9th

Maximum Number of Participants: 14

Objectives:

After completion of all activities, students will be able to:

- Recognize the biodiversity that exists in a wetland ecosystem.
- Sort wetland organisms into categories by similarities.
- Identify individual wetland organisms.
- Define, identify, and understand the importance of adaptations.
- Describe the process of metamorphosis.

Preparation:

Before the class arrives:

- Organize wet lab with one critter tub next to each microscope.
- Glance at each critter tub to make sure all materials are present.
- Ensure that there are enough copies of the "Critter Adaptation" sheet present.

Basic Outline:

- I. Introduction (5 minutes)
- II. Adaptation fun (5-10 minutes) and/or
- III. Functions of a wetland (5-10 minutes)
- IV. Critter collecting (25 minutes)
- V. Critter exploring directions (5 minutes)
- VI. Critter exploration (20 minutes)
- VII. Adaptation sheet (10 minutes)
- VIII. Clean-up (10 minutes)
- IX. Conclusion (10-15 minutes)

Materials:

- 1 complete critter tub per pair of students
- 1 big aquatic insect net per pair of students
- 1 small strainer per pair of students
- 1 dissecting microscope per pair of students
- Wetland function item box including
 - Sponge

- Small pillow
- Baby bottle
- Strainer
- Soap
- Rechargeable Battery
- Bottle of antacid
- Strainer

Dry erase board or large sheets of paper

Markers (for board or paper)

Critter adaptation sheets

Pictures of aquatic insects, if available

Introduction:

Introduce yourself and the title of the class. Explain to the students that today they are going to get a chance to collect "creek critters." Ask the class if anyone knows what a creek critter is and see if anyone can name one. Try to guide them toward the aquatic insect category. After a couple of critters are named, explain the rest of the class. The students will be able to bring the critters back into the wet lab, where they will then sort them, examine them under the microscope, and learn about some of their very cool adaptations.

Adaptation Fun!

(You can either pick this activity, or the functions of a wetland activity depending on time...or you can do both!)

On a dry erase board or large piece of white paper, draw a large squiggly river (to represent the Wisconsin River). Ask students to come up and quickly draw things that they would find in the water of the Wisconsin River. After several students have had a chance, ask them to close their eyes and turn around while you draw something. Draw a deer, or cow, or rabbit (something that doesn't live in the river) in the middle of the water. When they start to laugh, ask them why this animal doesn't live in the water. Explain to them that they just told you all of this animal's adaptations for helping it live on land. Ask the students what water adaptations they could add to the animal to help it live in the water (gills, fins, scales, i.e.). Draw these water adaptations on your land animal (it should turn into a very funny looking critter). Define adaptation (*something an animal has or does to help it live in its environment*). Explain that they will be looking at cool adaptations of water critters today. Give examples of some cool adaptations (some critter breath out of (what appears to us) their butts; one uses a tank of air like a scuba diver only one eye, i.e.).

Functions of a Wetland:

In a box, or bag, have a variety of household objects in front of you. As you hold up each object, ask the class how a wetland is like a ... Here are a few ideas you can use:

- *Sponge*
Absorbs excess water caused by runoff; retains moisture even if standing water dries up.
- *Pillow*
A resting place for migratory birds.
- *Baby bottle*
Provides a nursery that shelters, protects, and feeds young wildlife.
- *Strainer*
Strains silt, debris, etc. from water.
- *Soap*
Cleans and purifies the water.
- *Rechargeable Battery*
Facilitates recharge of ground water.
- *Bottle of Antacid*
Neutralizes toxic substances.

Critter Collecting:

Assign partners (a quick way is to have the students make two lines of equal numbers and pair them with the student across the line from them). Have students put on a pair of waders (with their socks on) and stand next to their partner. Each pair should get one ice cream bucket, one large net, and one small strainer. Walk down to the backwater area and demonstrate the following:

- *Filling the bucket with water* (1/2 full)
- *Collecting vegetation* (this is where all the critters hide, live, and sleep), emphasize not to get TOO much duck weed because it will be hard to see the critters in the lab.
- *Rinsing the net* in the bucket each time they sweep (turn it inside out and stick in the bucket to get all the critters out). Just because you don't see anything in the net, doesn't mean there aren't any critters in there!
- *Collecting critters* (using the net: go up and down in the water—no splashing the net down and slapping the water).
- *Boundaries*

Walk around and assist in rinsing nets. Before you head back make sure that each bucket has enough water and vegetation in it. Ask the students to rinse the nets a final time in the water to remove as much vegetation as possible before you walk to the nature center.

Critter Exploring Directions:

After everyone has taken off their waders and put on their shoes, have them sit down (outside works well if weather permits) and explain how to explore their critters. Bring out a tub and talk about everything in it.

- *White tub*: this is what you will SLOWLY dump your bucket into.

- *Ice cub tray*: put all the critters that look similar in the same section (make sure to put WATER in it first).
- *Spoon & eyedropper*: used to pick up critters; only try to suck up very small critters with the eyedropper.
- *Petri dish*: used (with water) to place critters in and look at under the microscope.
- *Bug box*: another container that critters can be viewed in.
- *Pencil*: used to complete the cool critter adaptation sheet.
- *Identification chart*: if you have time, draw a critter on the board and help the class identify it while explaining how to use the chart.
- *Wonderful, Wacky Water Critter book*: look up and read about your favorite critter.

Critter Exploration:

Now it's time to relax and let the students discover the critters. Walk around and help students use the identification sheet. Try not to tell the students what the name of each critter is with out each student trying to identify the critters using the identification chart.

Adaptation Sheet:

With about ten minutes left before clean up and wrap-up time, start passing out the adaptation sheets. Watch to ensure that everyone has started their sheet and is reading about their critters.

If you are running short on time, draw three columns on the board and label them "name," "how it breathes," and "how it protects itself." Then, as the groups discover and read about their favorite critter, instruct the groups to write their critter's name on the board and list two adaptations (breathing and protection). This board can then be used for the conclusion.

Clean Up:

The critters need to be dumped back into the ice cream buckets. One partner can go back down and carefully pour the critters into the backwater (not off of the wooden platform). The tub and all containers should be rinsed out. If you have time, you can fill a big tub with water and place it outside or in the sink. The students can rinse out their ice cube trays and containers in the water.

Everything should be placed back into the tub. When all the equipment is clean, call out the name of each object in the tub. The students should hold the piece of equipment in their raised hands and then place it in the tub. This will help ensure that each tub has the proper equipment.

Conclusion:

Assemble outside if weather permits. Ask the students to share what cool adaptations they discovered (from their sheets) and write them on a dry erase board. It works well to make four columns: organism, breathing, protection, and food. Reveal (if it hasn't happened already) what critters breathe from their "butts" (water scorpion and giant water bug are two cool ones) and other cool adaptation "teases."

Before you leave the nature center, make sure that all the boots are hanging up, all the critters have been returned to the backwater, the tubs are organized, and the lab is clean. THANKS!

REFERENCES

Strathe, S., Braun, D., & Brown, A. (1994). Wetland understanding leading to protection. Plymouth, Wisconsin: Outdoor Skills Center, Inc.

Wade, S. (2001). Wonderful, wacky, water critters. Madison, Wisconsin: University of Wisconsin-Extension.