Go Fish!

Extension Activity for "Aquatic Adaptations"

Objective:
Students will be able to:

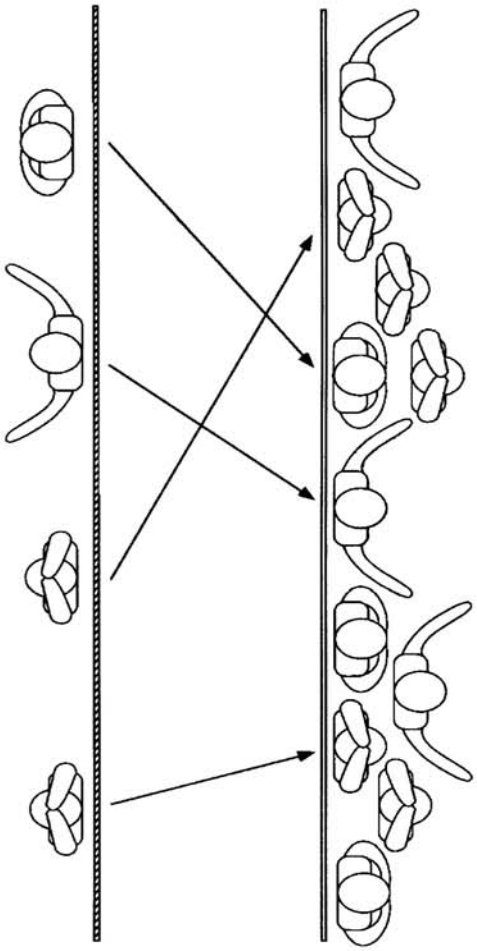
1. identify and describe food, shelter, water, and space as the essential components of a fish's habitat;

2. describe the importance of good habitat for all animals;

3. define "limiting factors" of a habitat, cite examples;

4. recognize that some fluctuations in wildlife populations are natural as ecosystems undergo constant change;

5. construct and interpret graphs.



Method:
Students become fish and components of the fish's habitat in a participatory physical activity.

Time:
45 minutes for the basic game; two class periods or 90 minutes if the extensions or modifications are used also

Materials:
an area, either indoors or outdoors, large enough for students to run (a playing field outdoors or large area in a gym would work well)

chalkboard or flip chart to keep score

coloring markers or other writing materials

ropes or cones to mark two lines on the playground if you are playing this game outdoors

Procedure:
1. Begin by telling the students that they are about to participate in an activity that emphasizes the essential things that fish need to survive. Review the essential habitat components that all fish need: oxygen, food, clean water, shelter and space in a suitable arrangement. This activity emphasizes three of these habitat components: food, shelter, and space. We will assume that the fish have plenty of clean water.

2. Ask your students to count off by fours. The "ones" will be the fish in the game. The "twos," "threes," and "fours" represent the habitat components: food, shelter, or space. Tell the students that their roles will be changing in the game so at some point all students will have an opportunity to be a fish. When a "fish" is looking for food in the game, it should clamp its "fins" over its stomach. If the "fish" wants shelter, it holds its "fins" together over its head. If the "fish" needs space, it indicates this by holding its "fins" out to its sides. A fish can choose to look for any one of these three habitat components during each round of the activity. However, the fish cannot change what it is looking for during that round of the game. If the fish survives (gets the habitat component it needs), it can change what it is looking for in the next round.

3. The students who were "twos," "threes," or "fours" are the habitat components. Each of these students gets to choose at the beginning of each round which component he or she will be during that round. The students depict which components they represent in the same way that the "fish" indicate habitat components they are seeking. Hands on stomach is the sign for food. Hands together over head is the sign for shelter. Arms held out to the sides is the sign for space.

4. The game starts with the "fish" behind a fish line on one side of the playing field and the "habitat components" behind a habitat line on the opposite side of the playing field. Refer to

illustration. The student fish should stand with their backs to the students in the other line (habitat components). The teacher then asks each student to indicate one habitat component. Individually each student in the fish line decides which habitat component (food, shelter, or space) to seek and makes the appropriate sign. Likewise, each student in the habitat line also decides which habitat component he or she will be and makes the correct sign.

5. When you see that all the students have made a sign and are ready, tell them to turn around and face each other. Pause a few seconds so students can size up the situation. No one can change his or her sign at this point. When you say, "Go fish!", the fish run across the playing field toward the habitat components. The fish must hold their signs all the way across the field. The habitat components must stand still. They do not run to the fish. When a fish reaches a habitat component that matches the sign the fish is making, the fish takes that component back to the fish line. This action represents the fact that the fish successfully met its needs, survived, and spawned to add to the fish population. Any fish that fails to get the habitat component that it needs "dies" and becomes part of the habitat in the next round. If one or more fish try to get the same habitat component, the fish who gets there first survives. If a particular habitat component isn't selected during a round, the habitat component just stays where it is in the habitat line. As stated earlier, the habitat person can change which component he/she represents from round to round. For example, if a student is food in the first round, he or she can represent shelter or space in the next round.

6. The teacher keeps track of how many fish are lined up on the fish line at the beginning of each round. Continue the game for at least 10 rounds. If you keep the pace brisk, the students will thoroughly enjoy the game!

At the end of the game, gather the students together to discuss the activity. Encourage them to talk about what they experienced and saw. For example, they saw a small school of fish begin their lives in the "school pond" with plenty of habitat components to meet all their needs. As the game continued and the fish population in the "school pond" expanded, the habitat was depleted. There was not enough food, shelter, or space to support all the fish. Fish kills, sometimes massive, resulted. Dead fish decomposed and became a component of the habitat. Such things happen in nature, also.

7. Using a flip chart or chalkboard, post the data recorded during the game. Ask the students to graph the data by placing the number of fish at the beginning of each round on the "y" axis, and the year (each round represents a year) on the "x" axis. The first point on the graph will be at "year = 0" (beginning of the game) and the initial number of fish that started the game. The students will depict what they experienced in the "Go Fish!" game: The fish population fluctuated over a period of years. This is a natural process, as long as the factors that limit the population do not become excessive to the point that the fish cannot successfully reproduce. Like fish, other wildlife populations tend to peak, decline, and rebuild in repeating cycles as long as there are good habitat and sufficient numbers of animals to reproduce successfully. With fish populations, especially those in a "closed system," such as a farm pond, fluctuations can be severe depending on competition among various fish species and human manipulation of the habitat.

Evaluation:
Name three essential components of habitat. Define "limiting factors" (influences on fish populations) and give three examples of limiting factors for fish. Interpret other population graphs for different animals and notice any patterns. (The teacher provides these graphs or constructs one of his or her own.)

Credits:
This activity is adapted from "Oh Deer," **Project N.C. WILD.**

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