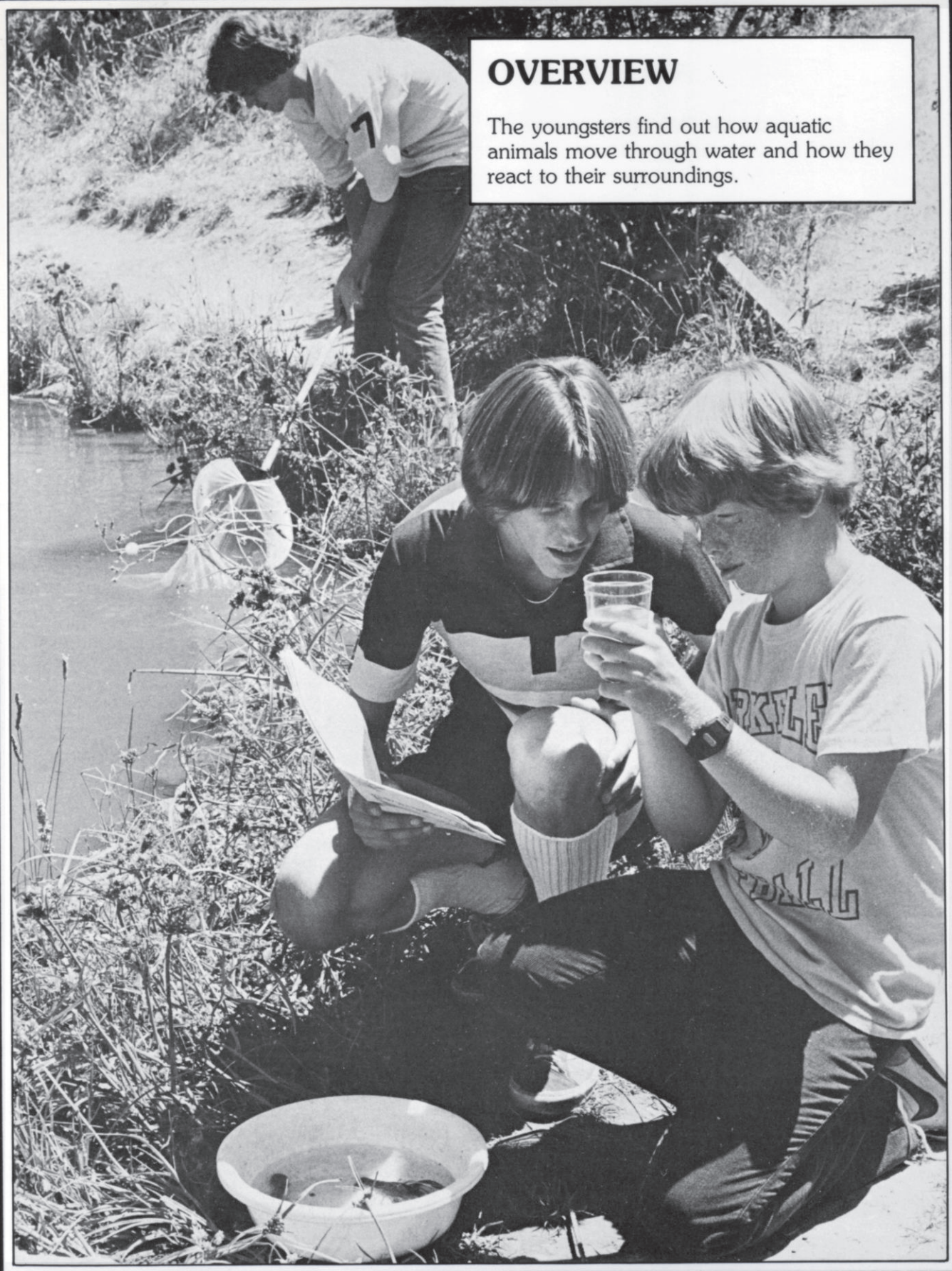
ANIMAL MOVEMENT IN WATER

BIO KEY

Animal Investigation
Locomotion
Adaptation



OVERVIEW

The youngsters find out how aquatic animals move through water and how they react to their surroundings.

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BACKGROUND

The ability to move from place to place (locomotion) enables many animals to obtain what they need for survival. Locomotion enables animals to search for and gather food, to escape from predators or other dangers, and to move into new environments. Locomotion also contributes to reproductive success by enabling individuals to locate each other and mate.

Aquatic animals face the problem of moving through water, which is 900 times denser than air. Consequently, many aquatic animals have streamlined bodies and special structures that minimize water resistance. Aquatic animals use a variety of structures to propel themselves through water:

- long, oar-like legs (water boatmen, backswimmers).
- webbed feet (frogs, ducks, otters).
- flattened tails (beavers, tadpoles, fish).
- fins (fish).
- flippers (seals and other marine mammals).
- jet propulsion systems (dragonfly nymphs, squid, octopuses, free-swimming scallops).

Streamlined bodies and special structures for moving through water are all adaptations for living in water. An ***adaptation*** is any feature of an organism that helps it to survive and reproduce.

DRAGONFLY NYMPH

CHALLENGE: DISCOVER HOW SOME AQUATIC ANIMALS MOVE THROUGH WATER.

MATERIALS

For each buddy team:

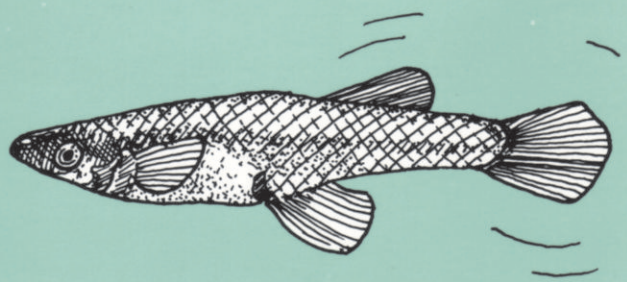
1 dip net*
2 observation trays* (See the "Aquatic Observation Aids" Equipment Card.)
1 magnifying lens* or bug box*
1 plastic spoon*
1 clear plastic cup*

For the group:

1 copy of the "Aquatic Observation Aids" Equipment Card*

Optional: copies of the *OBIS Pond Guide** or other freshwater aquatic guides

* Available from Delta Education.



MOSQUITO FISH

PREPARATION

Group Size. This activity is suitable for any size group.

Time. Plan on forty to sixty minutes for this activity.

Site. Select an aquatic site (freshwater or marine) that is not too steep or slippery. Make sure the site contains a variety of aquatic animals. (You can use a dip net to test for animals.) Choose a level area in the site where the kids can share their observations.

Materials. See the "Aquatic Observation Aids" Equipment Card for instructions on making and using the equipment. Practice using the various pieces of equipment so you can demonstrate their use.

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Safety. When working around the water, use the buddy system. (See the "Safety" section of the *Leader's Survival Kit* folio.)

Conservation. Establish rules of procedure to promote respect for the activity-site environment. (See the *Leader's Survival Kit*.)

ACTION

1. Point out the boundaries of the activity site.

2. Explain the buddy system, and divide the group into buddy teams.

3. Demonstrate the use of the aquatic observation aids. Emphasize to the youngsters that they should handle and observe live organisms in such a way that the organisms will not be harmed.

4. Give each team a set of materials. Challenge each youngster to capture one or two *different* kinds of aquatic animals and to place them in an observation tray filled with clear water. Instruct team members to share the dip net.

5. After ten to fifteen minutes, call a halt to the animal collection. (You can collect the nets.) Challenge each youngster to find out how one of his animals moves through the water. Each youngster should closely observe his animal's movements and try to answer these questions:

- How does the animal get from place to place?
- Which structures does it use for movement?
- Does the animal have more than one form of movement? (Encourage the youngsters to *gently* prod their animals with their fingers to observe escape behavior.)

6. After about five minutes, ask everyone to investigate another kind of animal and to compare its movements and structures with those of the first animal.

WATER BOATMAN

7. To expand this investigation, each team can alter its container of animals by adding various small objects such as rocks or sticks (but not mud because it clouds the water). Then, the kids can introduce organisms. The youngsters should start with one animal in their trays and then add objects and additional organisms one at a time so that they can observe the animal's reactions to each addition. Observations are usually more interesting if the non-living objects are added first, followed by plants and animals taken from the environment. The youngsters should be careful to minimize handling and jarring of the animals as the system is manipulated.

8. When about ten minutes remain in the session, have all the teams place their containers of animals in a central location. Give the youngsters a chance to see what the other teams caught.

9. Now, announce that the youngsters are going to play a game of charades to share their discoveries about how aquatic animals move. Ask each child in turn to silently imitate the movements of an aquatic animal. The rest of the group should try to guess the animal's identity. Play the game until most of the captured animals have been identified.

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MOVING THOUGHTS

Explain to the youngsters that fins, webbed feet, and other structures that aquatic animals use to move through the water are examples of adaptations for living in water. Define ***adaptation*** as any feature of an organism that helps it to survive and reproduce.

1. How might the ability to move from place to place help animals to survive?

2. How does movement help people survive?

3. If you lived in the ocean, how would your body have to change to enable you to move through the water more easily?

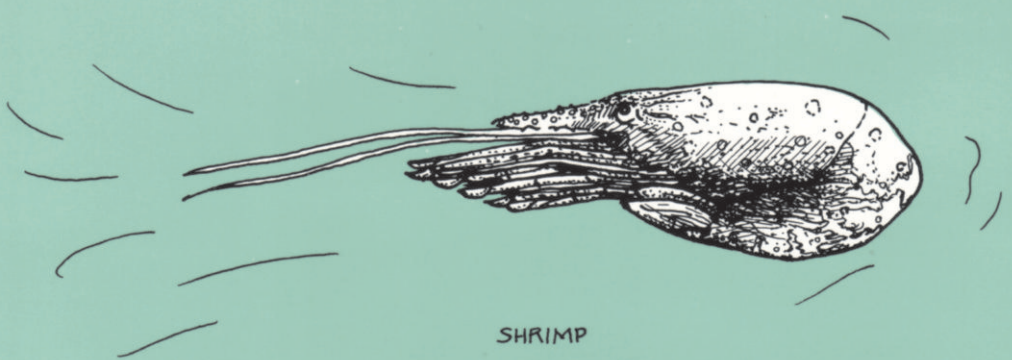
Note: Ask the youngsters to return the animals to the water near the places where they were found.

BRANCHING OUT

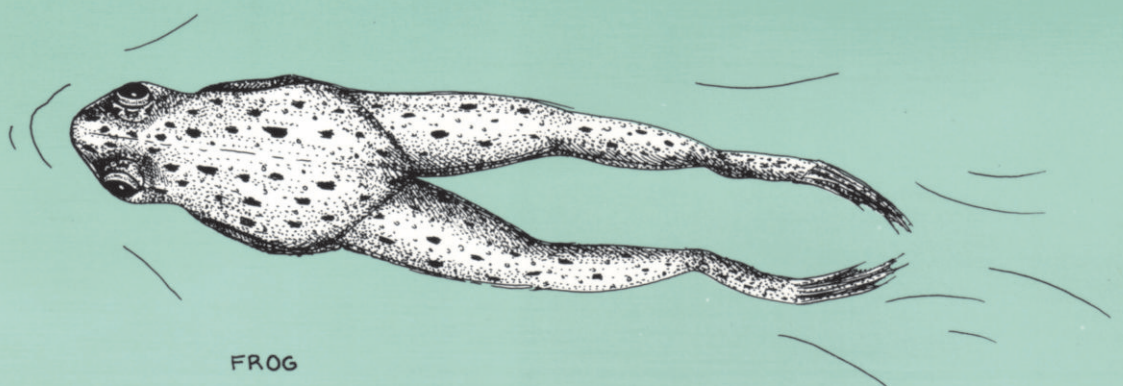
1. Investigate some of the advantages and disadvantages of moving through water at a local swimming pool. Try running in waist-deep water. Why is it so difficult? Push off and see how far you can glide under water. Float on your back. What keeps your body from falling straight to the bottom?

2. Put on a pair of swim fins and try swimming as a frog swims (use a breast-stroke kick), as a muskrat swims (use a flutter kick), and as a dolphin swims (use a butterfly kick).

3. If a race of humans were discovered living deep in the ocean, what do you think they would look like? Draw a picture of one.



SHRIMP



FROG