ATTRACT A FISH

BIO KEY

Animal Investigation
Fish Behavior
Experimentation

OVERVIEW

The youngsters find out how minnows respond to a variety of lures and then design and test the most effective minnow attractor.

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BACKGROUND

Have you ever sat quietly by a pond, brook, or irrigation ditch and watched schools of minnows milling around? Perhaps you stood up for a better look, only to see the minnows scoot out of sight into the tules or weeds. Perhaps you then tossed a tiny pebble or bit of twig into the water and watched as all the minnows rushed over for a closer look, some even following the pebble to the bottom. If so, you have probably also wondered what attracts minnows and what scares them away.

Most minnows feed on tiny aquatic insect life such as mosquito wigglers and water fleas. In turn, minnows are eaten by larger fish and birds such as egrets. In rushing toward tiny moving objects and away from large looming objects, the minnows are instinctively seeking food and fleeing danger.

CHALLENGE: FIND OUT WHAT ATTRACTS MINNOWS.

MATERIALS

For each youngster:

1 thin stick (twig, bamboo cane, or dowel, at least 1.5 meters long)
1 piece of #32 copper wire*, at least one meter long (See the "Preparation" section.)

For the group:

1 data board* and marking pen*
1 *Attract-a-Fish* Junk Box* containing: string, cotton, paper, rubber bands, aluminum foil, clay, colored paper, wire, cork, small weights, and shiny materials
small pieces of meat, vegetables, and substances with strong odors (cheese, bacon, fish, garlic)
2 rolls of clear tape*

* Available from Delta Education.

PREPARATION

Group Size. This activity is suitable for groups with up to sixteen youngsters.

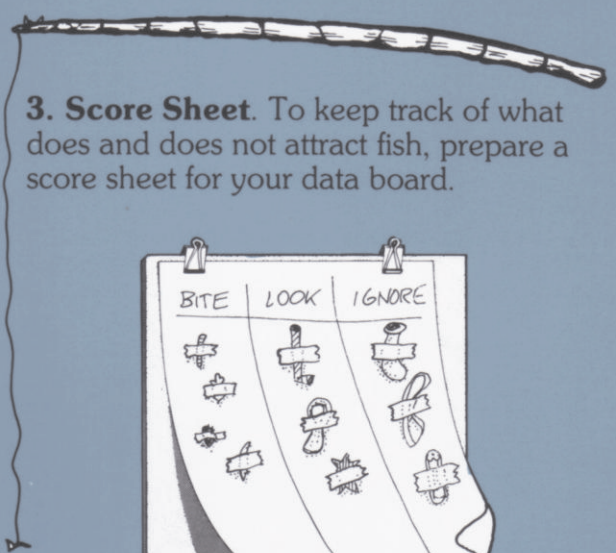
Time. Plan on thirty to sixty minutes for this activity.

Site. Select an easily accessible pond, brook, or irrigation ditch that contains minnows.

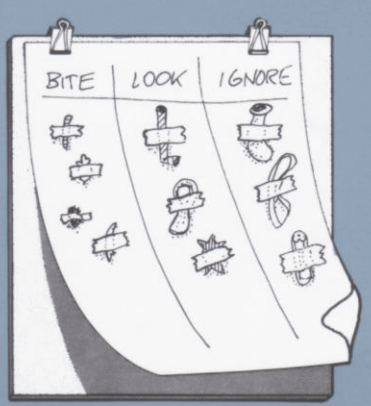
Materials

1. Wire. You can obtain suitable copper wire by taking apart a one-meter length of multi-strand electric cord. Pull the wire bundles out of the insulation and carefully separate the tiny strands. Wire "fishing line" makes it easy for kids to change lures quickly.

2. Fishing Pole. Make a fishing pole by twisting a one-meter length of thin wire to the end of a twig, bamboo cane, or dowel.



3. Score Sheet. To keep track of what does and does not attract fish, prepare a score sheet for your data board.



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

ACTION 

1. After arriving at your "fishing hole," define boundaries for the study area. Explain the buddy system, and divide your group into buddy teams.

2. Introduce the activity by pointing out the minnows and asking the youngsters if they think they can attract the minnows to the surface.

3. Show the youngsters the food items and the contents of the junk box. Tell the kids that they can use the materials in the box, as well as any natural materials from the site, to make lures that they think will attract the minnows. The small pieces of food should be used to add taste and odor to the lures.

4. Hold up the fishing pole you made earlier, and suggest that each youngster construct one of her own for presenting lures to the minnows. Bring out the sticks and wire and let the youngsters make their poles. Offer assistance if needed.

5. While the youngsters build, hold up the data board and score sheet. (See the "Preparation" section.) Tell the kids that after testing a lure, they should remove it from the end of the wire and tape it to the score sheet in the appropriate "reaction" column.

6. Let the fishing begin. Encourage the youngsters to try several lures and to test them *thoroughly* before taping them to the score sheet. **Note**: Kids tend to use large lures. You may need to hint that the youngsters use tiny lures (less than 0.5 cm in any dimension) by encouraging unsuccessful anglers to compare their lures to those made by successful anglers.

7. While the youngsters experiment, circulate and ask questions such as:

- How do the fish react to different colors of lures?
- What happens when you add a smell (such as garlic, mint, or meat) to your lure?
- What do fish do when you jiggle your lure?

Encourage the youngsters to try a number of lures and to tape each one to the score sheet after the fish response is noted.

8. Fishing for Answers. After the youngsters have experimented with a variety of lures, call everyone over to the score sheet to review the results. There should be a number of lures in each of the three columns. Ask some of the following questions to focus attention on the properties of lures that make them either successful or unsuccessful.

- Which lures were the best attractors?
- Which lures did not attract any fish?
- Does the size of the lure make a difference?
- Which colors seemed to work best?
- What effect does moving the lure have?
- Do surface lures work better than underwater lures? Do lures on the bottom work?
- Do fish respond to the taste of your lure?

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The Super Lure

1. In a clear space on your score sheet write "Properties of a Good Lure." Ask the kids to name the properties of the best minnow attractors. Record their suggestions on the data board. Tell the youngsters that a lure with all these properties should be a "super" lure.

2. Challenge the kids to construct a super lure from the junk-box materials and to try it out. All the kids should have success if they follow the formula suggested by the properties list.

A NEW ANGLE

1. Do fish get tired of your super lure and ignore it? How long does it take?

2. How far away can a fish be and still sense your super lure?

3. Can you bring a super lure up behind a fish without the fish detecting the lure? Does the fish eventually *see* the lure or might other senses be involved first?

4. What happens when you skip your super lure rapidly across the surface of the water?

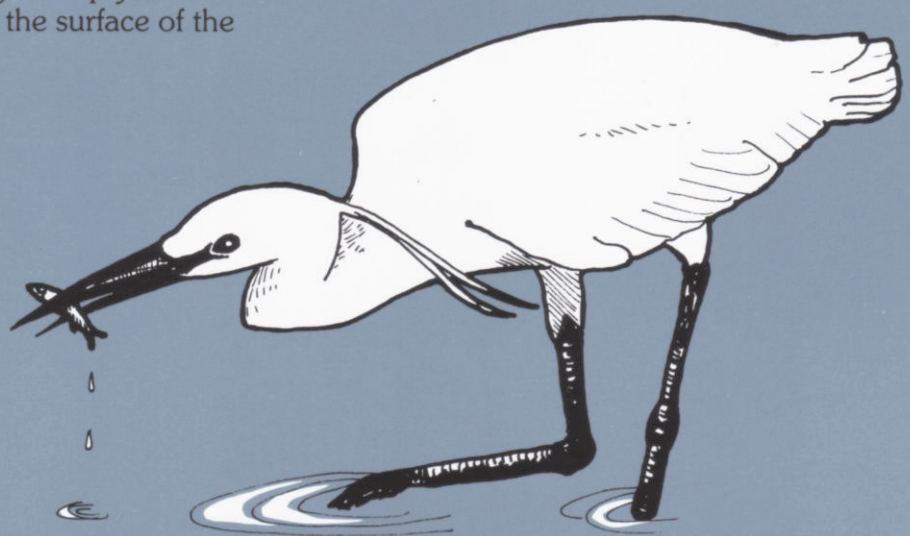
BRANCHING OUT

1. Design an experiment to find out if sound alone can attract fish.

2. What scares fish away? Can you discover a predator that preys on the minnows in your pond?

3. Now you know what stimulates fish to bite. Return to the pond and locate some living organisms that might be food for the fish. If possible, catch some fish and keep them for a while in an aquarium. Try feeding them your live food.

4. What changes occur in a pond when fish are present? Set up a pair of identical mini-ponds or aquaria, one with minnows and one without. Be sure to include some pond-bottom materials, plants, and as many different kinds of animals as possible. Observe changes over a period of time.



LITTLE EGRET

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