

FISH PRINT

SUMMARY:

The Japanese have used the art technique of goyakto record their fish catches. Students will use this technique to record the fine details of a fish's body on paper. Fish prints are one way for students to preserve the beauty of a fish and at the same time create attractive pictures that they can be proud of.

OBJECTIVE:

Students will be able to compare and contrast the physical characteristics of three Pennsylvania fish species.

ACTIVITY INFORMATION

Grade Level: K-12

Subject: Visual arts, science

Duration: One hour

Setting: Classroom

Attitudes: Perseverance, curiosity, open-mindedness

Skills: Observing, classifying, manipulating equipment and materials, controlling variables

Knowledge: Matter

Vocabulary: Fish prints, goyakto

TEACHER BACKGROUND:

This activity provides an opportunity to closely examine the shape and external structure of a fish, either from the fish itself, or from the prints that the students make. Questions could be phrased around the following discussion points:

General Body Shape: Water is dense - just try running through it. The general shape of most fish allows them to slip through the water with minimum resistance. There are many variations, however, on the basic fish shape. Open water fish, and fish that must move against currents tend to be typically streamlined, like salmon. Fish that must quickly turn and wriggle through rocks or weeds tend to be more disk-shaped and flatter.

Fins: One advantage of water is that you can push against it to move or orient yourself. Fish fins represent an extreme adaptation for this purpose, and they can be used for little else. Some fish, however, have sharp spines which may be raised and used in defense, or to make them seem a sharp and unpalatable mouthful.

Note: Spiny-rayed fish should be handled carefully. The spines are sharp and

can easily pierce skin

Scales: Scales represent a basic compromise between speed and protection. By sliding over one another, scales allow fish to remain flexible enough to turn and wriggle through the water. Fish with larger scales, however, give up some flexibility, and therefore speed, to gain added protection. Larger scales also create more friction between the fish and the water, and the fish must use more energy to move. For more information on scales, see

Note: Flat-sided and large fishes tend to work best. Avoid bullheads and other catfishes because of spines.

MATERIALS:

Five to six specimens of several species of Pennsylvania fishes or molded facsimiles (possible sources of fresh or frozen fishes include fresh fish markets and anglers); rubber rollers (soft variety are best) or paint brushes; absorbent paper (newsprint); water-based block printing ink or water paints in a variety of colors; pieces of plastic or glass (i.e., non-absorbent surfaces for rolling out the ink); cardboard on which to put fishes.

ADVANCE PREPARATION:

- (1) Clean mucus off fishes using a rag, soap and water.
- (2) Freeze fishes so they are more durable and not so messy during the activity.

PROCEDURE:

- (1) Divide class into groups of four to six.
- (2) Encourage students to feel and describe the fishes. Have students compare the mouths, eyes, fins and scales.
- (3) Have students place the frozen fishes on cardboard and dry them as much as possible. Have them spread fins out, using double-sided tape or pins to hold them in place.
- (4) Have students pour some ink or paint on a non-absorbent surface and work ink or paint into the roller.
- (5) Have students roll the ink or paint over one side of the fishes, being sure to cover head, gills and fins.
- (6) Have students put newsprint over fishes and rub the paper with their hands or with clean roller, so that the ink or paint from the fish sticks to the paper.

Note: Stress that students not allow the paper to move during this process or the ink will smear.

- (7) Have students carefully peel the paper off the fish and set prints aside to dry.

EVALUATION:

Have pairs of students, each with a different species of fish, exchange prints and describe the physical characteristics of the other fish; then as a team, identify the differences and similarities between the fish.

EXTENSIONS:

- (1) Supply different colors and kinds of paper for the prints.
- (2) When they are dry, prints can be framed, laminated or glued to wooden boards.
- (3) Have students draw in some of the missing detail, e.g., the eyes.

REFERENCE:

Adapted with permission from Grambo, Gregory. "Fish Printing" In Science and Children, Vol. 20, No.3 Nov/Dec 1982