

From the Inside Out



Objective

The student will learn about fish anatomy as he or she builds a fish model.

Materials

For each student:

- copy of page 3
- crayons
- scissors
- glue

Background

Fishes have many of the same organs inside their bodies as humans do, and some that we don't have! Just as we breathe with lungs, most fishes get oxygen from the water through gills. As water flows over the gills, oxygen passes from the water through thin membranes into the fish's blood. The blood carries oxygen to the rest of the body as it circulates.

Most of the internal organs of a fish are located in the lower front half of its body. The rear portion is filled with important swimming muscles. One organ many fish have that humans don't is called a swim bladder. This gas-filled sac regulates the fish's buoyancy.

A fish's brain is very small compared to the rest of its body. Its main function is to receive and sort information about the outside world through the fish's sense organs. The heart pumps blood through vessels in the fish's body. A fish's stomach is lined with glands which secrete substances used to break down food, preparing it for digestion. The outside of a fish's body is as efficiently adapted as its inside. Fish scales are thin plates that overlap one another. Some fishes are covered with large scales, while others have very small scales. Scales provide protection from infections and diseases. Located along the fish's spine, dorsal fins act like the keel of a boat, giving stability as the fish swims. An anal fin is found on the underside of some fish's bodies, near the thick stalk of their tails. The pelvic and pectoral fins that jut out from each side of a fish's body are usually used for steering and stopping. The caudal fin, on the rear of the fish, propels it through the water.



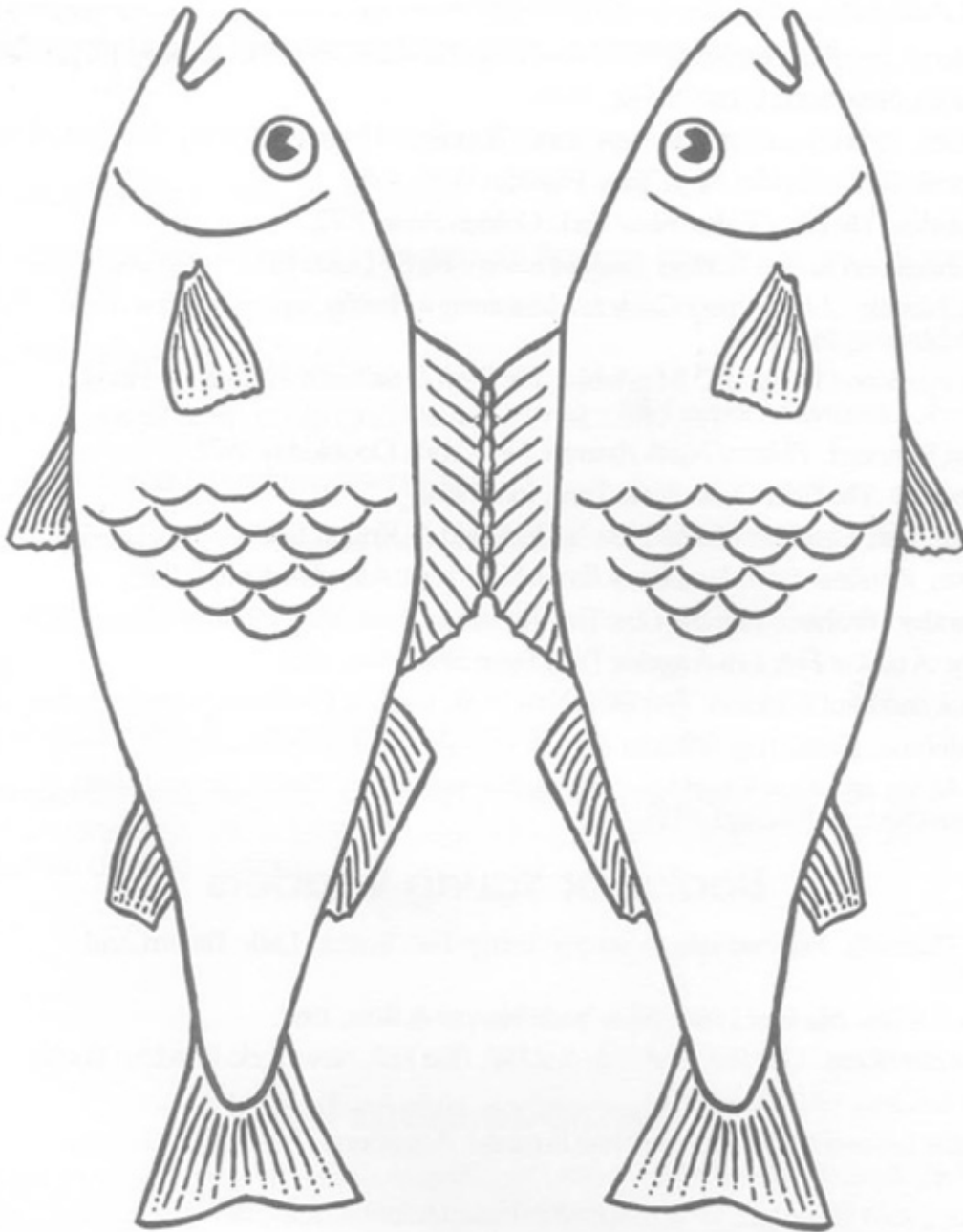
Action

1. Tell students they will be making a paper fish; inside and out. Share the Background Information with your students and name the different organs and body parts.
2. Give each student a copy of the body parts on page 3, scissors, glue, and crayons.
3. Have students cut off the bottom portion of the paper that has the organs. They will cut out the organs later.
4. Have students fold their copy of page 3 in half along the top dorsal fin of the fish. Make sure the students DO NOT cut the dorsal fins apart. Cut along the fish outline and fold the fish in half.
5. Ask students to color each organ and body part on the photocopied page a different color. Have them cut out the organs and place them on the inside page of their fish shape. Circulate and help students make sure the organs are in the correct place. When they are, have students glue the pieces to the paper.
6. Have students finish drawing scales onto the front and the back of their fish. Remind them to make the scales overlap, to give their fish the best protection. Point out to students that fish don't have scales on their dorsal fins or their tail fins, only on the stalk of the tail.
7. Have students color their fishes. Remind them that reef fishes are usually brightly colored and covered with vivid patterns.
8. Ask students to name the fins of their fishes.

Deeper Depths

Obtain a Biosmount preparation of a perch (available from Carolina Biological Supply Company.) Have students follow along while you use the Biosmount to name the different organs and body parts of a perch.

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stomach



brain



heart



swim bladder