



ALL ABOUT FISH

Fish are the largest group of vertebrates. All fish are ectotherms and live in water. Some species of fish are adapted to live in freshwater and other species are adapted to live in salt water.

Fish have gills. Gills are fleshy filaments where carbon dioxide and oxygen are exchanged. Water that contains oxygen passes over the gills. When blood is pumped into the gills, the oxygen in the water moves into the blood. At the same time, carbon dioxide moves out of the blood in the gills and into the water.

Most fish have pairs of fanlike fins. Fish use fins to steer, balance, and move. The motion of the tail fin pushes the fish through the water.

Most fish have scales. Scales are thin structures made of a bony material that overlap to cover the skin.

TYPES OF FISH

Scientists classify fish into three groups—bony, jawless, and cartilaginous (kar tuh LA juh nuhs). Bony fish have endoskeletons made of bone. Jawless fish and cartilaginous fish have endoskeletons made of cartilage. Cartilage (KAR tuh lihj) is a tough, flexible tissue that is similar to bone but is not as hard or as easily broken.

Bony Fish

About 95 percent of all fish species are bony fish. Goldfish, trout, and marlins are examples. The body structure of a bony fish is shown in the figure below. Bony fish swim easily in water because their scales are covered with slimy mucus.



Most bony fish have a swim bladder. A swim bladder is an air sac that helps control the depth at which the fish swims. Gases move between the swim bladder and the fish's blood. When gases move into the swim bladder, the fish rises in the water. When gases leave the swim bladder, the fish sinks lower in the water.

Most bony fish reproduce using external fertilization (fur tuh luh ZAY shun). External fertilization takes place when egg and sperm cells join outside the female's body. First, a female releases large numbers of eggs into the water. Then, a male swims over the eggs, releasing sperm into the water. Many eggs are fertilized by the sperm.

Jawless Fish

Jawless fish have long, tubelike bodies with no scales. They have round, muscular mouths with no jaw. Their mouths have sharp toothlike structures. Their endoskeleton is made of cartilage. Lampreys are jawless fish that attach to



another fish with their strong mouths. Lampreys feed by removing blood and other body fluids from the host fish.

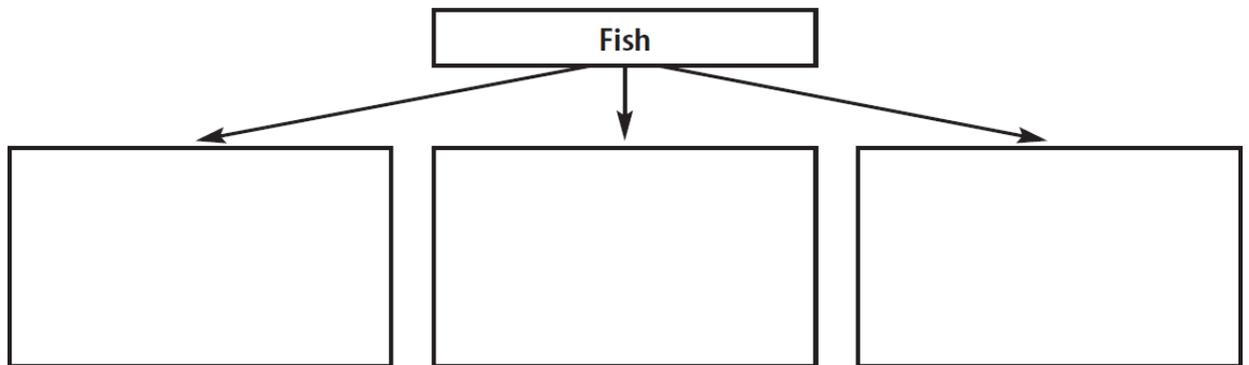
Cartilaginous Fish

Cartilaginous fish also have endoskeletons made of cartilage. They have movable jaws that usually have well-developed teeth. Their bodies are covered with sandpaperlike scales. Sharks, skates, and rays are cartilaginous fish. Most cartilaginous fish are predators.



ACTIVITIES

Complete the following concept map by filling in the three types of fish and give a quick fact about each.



What is your favorite type of fish? Why is it your favorite?

All fish are ectotherms ... what do you think ectotherm means?
