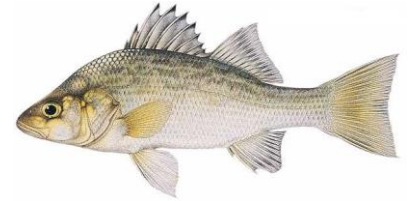


Name: _____ Period: _____



LAB 25: GREY PERCH FISH DISSECTION

INTRODUCTION:

The fish in the class Osteichthyes have bony skeletons. There are three groups of the bony fish --- ray-finned fish, lobe-finned fish, and the lung fish. The perch is an example of a ray-finned fish. Its fins have spiny rays of cartilage and/or bone to support them. Fins help the perch to move quickly through the water and steer without rolling. The perch also has a streamline body shape that makes it well adapted for movement in the water. All ray-finned fish have a swim bladder that gives the fish buoyancy allowing them to sink or rise in the water. The swim bladder also regulates the concentration of gases in the blood of the fish. Perch have powerful jaws and strong teeth for catching and eating prey. Yellow perch are primarily bottom feeders with a slow deliberate bite. They eat almost anything, but prefer minnows, insect larvae, plankton, and worms. Perch move about in schools, often numbering in the hundreds.

MATERIALS:

Forceps
Scalpels

Dissection probes
Scissors

Dissecting mat
Ruler

Microscope slide
Microscope

Grey Perch Fish

PROCEDURE: EXTERNAL ANATOMY

1. Obtain a perch & rinse off the excess preservative. Place the perch on your dissecting mat on one of its sides.
2. Use your ruler to determine the total length and fork length of your fish. Record this in Table 1.
3. Observe the light, silvery line running across the top of the fish. This is the lateral line. Draw and label this line on Figure 1.
4. Open the perch's mouth and observe its bony jaws. Locate the upper jaw or maxilla and the lower jaw or mandible. Draw and label these on Figure 1. Identify the number and make observations in Table 1.
5. Feel the inside of the mouth for the teeth.
6. Locate the nostrils. Draw and label on Figure 1. Identify the number and make observations in Table 1.
7. Locate and note the location of the eyes. Draw and label on Figure 1. Identify the number and make observations in Table 1.
8. Next, observe all the different fins of the perch: dorsal, pelvic, anal, caudal, pectoral. Draw and label them on Figure 1. Identify the number and make observations in Table 1.
9. Find the bony covering on each side of the fish's head called the operculum. The opercula cover & protect the gills. Draw and label these on Figure 1. Identify the number and make observations in Table 1.
10. Use a probe to lift the operculum and observe the gills. Note their color and texture.
11. Use a scissors to cut away one operculum to view the gills. Find the gill slits or spaces between the gills.
12. Use your scissors to carefully cut out one gill. Find the cartilage support called the gill arch and the soft gill filaments that make up each gill. In the box below labeled "Gill", draw what the gills look like on your perch. Then identify the number and make observations in Table 1.
13. Lastly, using forceps, carefully pull one or two scales from the fishes body. Place it on a microscope slide and use a microscope to observe. Draw your observations in the box below labeled "Scales".

GILL:

SCALES:

EXTERNAL ANATOMY OBSERVATIONS:

TABLE 1:

FORK LENGTH (CM):		TOTAL LENGTH (CM):
STRUCTURE	NUMBER	LOCATION/DESCRIPTION
Maxilla (upper jaw)		
Mandible (lower jaw)		
Nostril(s)		
Eye(s)		
Dorsal fin(s)		
Caudal fin(s)		
Anal fin(s)		
Pelvic fin(s)		
Pectoral fin(s)		
Opferculum		
Gills		

FIGURE 1



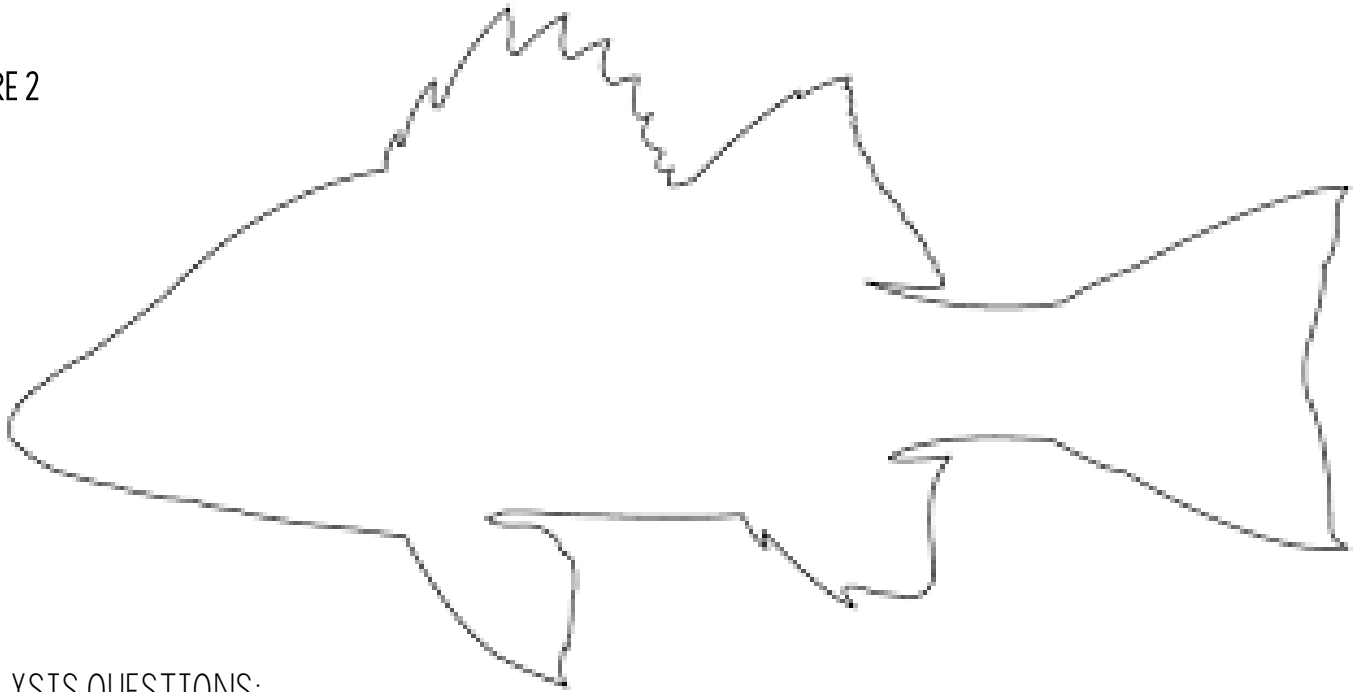
PROCEDURE: INTERNAL ANATOMY

1. **NOTE: as you do this, the perch is a muscular fish! Take your time! Also, the rays in the fins of this fish can be sharp! It is recommended that you cut them off if you can!**
2. ****The instructions for the following are shown on the diagram at your lab table.**
Carefully hold your fish in your hand. Insert the scissors at the base of the pelvic fin near the anus to create a small puncture. Cut upward toward the top of the fish. Then carefully reinsert the scissors at the base of the pelvic fin and cut along the belly of the fish. Try not to cut any of the internal organs by moving slowly and not opening the scissors up to wide. At the end of this cut, cut upwards across the operculum and gills toward the top of the fish. Finally cut across the top of the fish to remove the large rectangular piece of flesh from the fish. You should be able to see the internal structures of the fish. Read the instructions below to continue.
3. Locate the cream-colored liver in the front of the body cavity at the bottom of the belly. Also, try to locate the gall bladder between the lobes of the liver. Draw and label these on Figure 2, then describe in Table 2.
4. Remove the gall bladder & liver to observe the short esophagus attached to the stomach. Draw and label the stomach on Figure 2, then describe in Table 2.
5. At the end of the stomach nearest the fish's tail are the coiled intestines. Draw and label these on Figure 2, then describe in Table 2.
6. Underneath the operculum and the gills, are the bony gill rakers. Underneath the gill rakers is the heart. You may have to cut away more of the fish closer to the face to locate the heart. Draw and label the heart on Figure 2, then describe in Table 2. Note: the heart of a fish has only 2 chambers, an atrium & and a ventricle. You and other mammals have four chambers.
7. In the upper part of the body below the lateral line is the swim bladder. This sac has a thin wall and gives the fish buoyancy. Draw and label the swim bladder on Figure 2, then describe in Table 2.
8. Find the two long, dark kidneys in the tail end of the perch. These filter wastes from the blood. Draw and label these on Figure 2, then describe in Table 2.

TABLE 2:

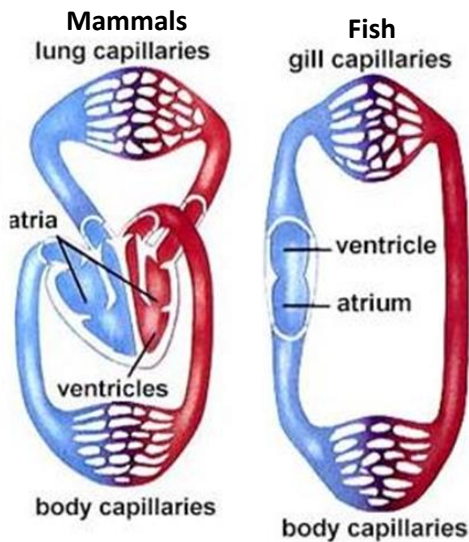
STRUCTURE	LOCATION/DESCRIPTION
Liver & Gall Bladder	
Stomach	
Intestines	
Heart	
Swim Bladder	
Kidneys	
Muscle	
Spine & Spinal Cord	

FIGURE 2



ANALYSIS QUESTIONS:

1. What structure in human anatomy are gills homologous to? How are they similar? How are they different?
2. How many chambers do perch hearts have? _____ How many chambers do human's hearts have? _____
3. Below is a diagram of the circulatory systems in fish and mammals/humans. Describe how these organ systems are homologous. How are their structures similar? Different? How are their functions similar? Different? (*Note that capillaries are itty bitty blood vessels [one cell thick walls!] that allow for nutrients, gases, and waste products to move in and out of the blood stream).



4. Based on your knowledge of evolution and common ancestry, what does the homology of the circulatory systems of the mammal and the fish tell you? What evidence does it provide?