

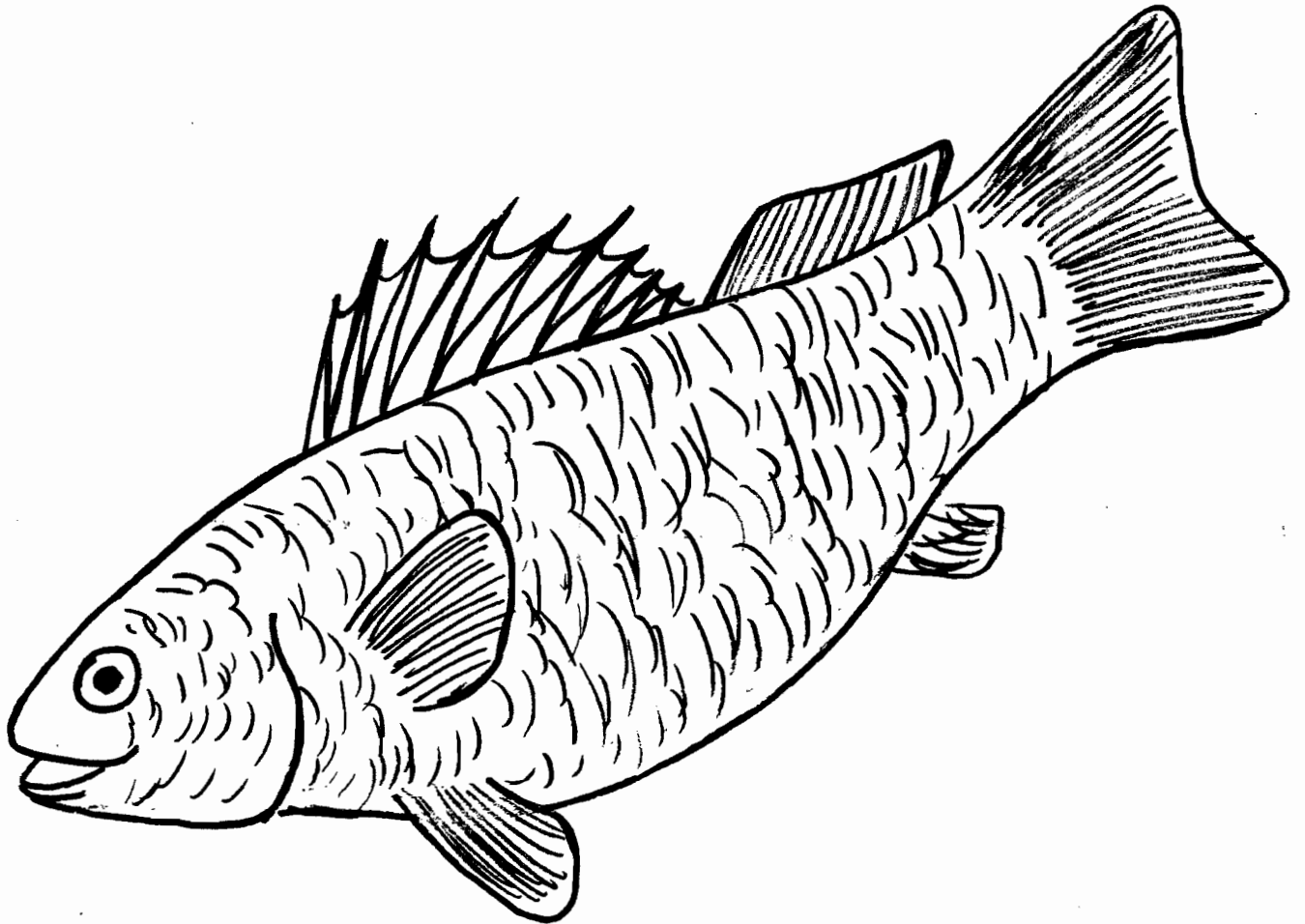
GREGORY GRAMBO

DEVELOPED AT THE LOUIS ARMSTRONG  
MIDDLE SCHOOL

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fish



## ANATOMY

### FISH DISSECTION LAB MANUAL

This is a hands on dissecting unit intended for use in Middle Schools. It can, however, be modified for use in High School. There are five experiments, a practice cut up sheet, and a quiz. Since the experiments will take more than one period, the fish can be placed onto a styrofoam meat tray, which works great as a dissecting tray as well, and put into a ziplock type bag. The students using that animal can place their names on a label which can be put on the outside of the bag. The bags can then be put into a box for the next period they will be using them. In the Middle School, I find that students can do the experiments without the use of a scalpel.

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**A-** Hands-On Dissection Guide To The Fish

**B-** This is a hands on dissection unit intended for use in the middle school. It can, however, be modified for use in lower or upper grades. While this unit is intended to be used with a real fish, a computer program simulation can be substituted.

**C-** Students will work cooperatively to conduct scientific investigations that will help them solve a scientific problem using a variety of inquiry skills including observing, predicting and testing solutions. Students will communicate their experiences through their student worksheets and in class presentations.

**D-** Materials include- fish (or computer simulation), scissors, tweezer, probe, zipper style gallon bags, work tray, labels, marker, lab sheets. COMPUTER PROGRAMS such as Computer Biology Lab, The Perch by Cross Educational Software, 504 E Kentucky Avenue, P.O. Box 1536, Ruston,

Louisiana 71270, 1 (318) 255-8921 will enhance this unit. It will provide an alternative to the actual animal dissection and will also provide a resource for information that does not come from the teacher.

**E-** Each experiment in this unit will require one class period (approx 45 min) to complete. The entire unit requires one week.

**F-** There are five Hands-on experiments, A practice fish dissection sheet and a quiz. Since the experiments will require more than one weeks time, the teacher may wish to place the clams onto styrofoam or cardboard meat or lunch trays and then place these items into gallon size zipper seal bags. The students names and classes can be written onto labels placed on the outside of the bags. Bags can then be stored for later use. Students should work in cooperative groups of three or four, with each child having a job such as experimenter, supply gatherer, recorder, presenter, reader, etc. I have found that students in my middle school classroom can do these experiments without the use of a scalpel or knife; they need only a pair of scissors, a tweezer and a probe which is a stick that has a pin attached.

**G-** Since the children will be using sharp instruments, it is important to go over the proper use of these instruments.

**H-** Teachers should send a note home to parents explaining the upcoming unit. It is important to explain that the children will be sharing equipment and fish. It is also important to explain the need for dissection and how it will help the children understand physiological processes that go on inside their own bodies.

**I-** Questions for students are on the worksheets.

**J-** Assessment- After collection and review, the student worksheets should be graded from one to ten, ten being the highest grade. During lab time, question the students to see if they understand the material being presented to them. See if the students are engaged in the activity and if they are working cooperatively. Finally, after students finish with the unit test, have the students write in their lab notebooks their ideas on the dissection process.

**K-** References- This work was completely designed by Mr. Grambo, hence there are no outside references.

# Anatomy - The Fish Experiment 1

Name \_\_\_\_\_  
Class \_\_\_\_\_ Box No \_\_\_\_\_

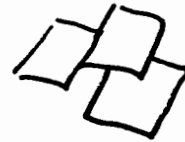
## Problem - What is a fish?



1) Begin  
With



This  
sheet



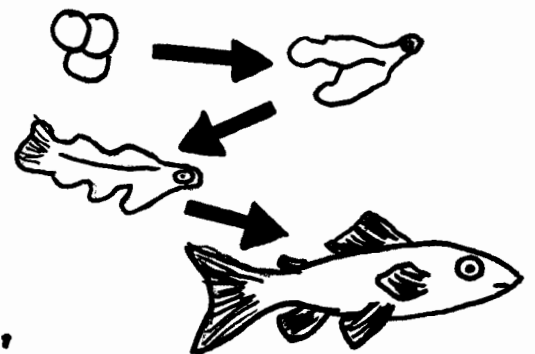
pictures of  
fish

2) Before we begin, Describe  
for me how you think  
a fish looks.

Fish appeared on the  
earth about 400 million  
years ago. They were  
the first animals with  
backbones. Today we

know of over 30,000 different kinds of fish.

Fish are cold-blooded animals. This means that the  
temperature of their body changes when the  
temperature of the water changes. Fish live in  
water, and breath by means of gills. Fish hatch  
from eggs. Some fish grow  
over 50 feet long, like the great  
white shark while others grow  
to only 1/2 inch long, like the goby fish,



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3) Since a fish lives in water it must somehow get air out of the water so it can breathe. The fish has gills which take air out of the water.

4) What are three reasons why fish can't live on land? (except fish)

Pollution causes water to hold less oxygen, or air, than it usually holds.

How can pollution hurt a fish?

## Homework -

1- look up the word Fish. What does it mean?

2- How is a fish different from other animals?


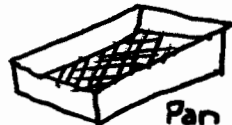


Anatomy - The Fish  
Experiment 2

Name \_\_\_\_\_  
Class \_\_\_\_\_ Box No \_\_\_\_\_

Problem - How does a fish look?



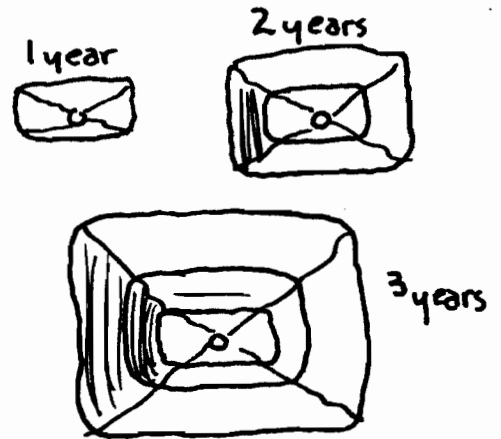
1) Begin With



2) How is the fishes body similar to yours?  
How is it different?

3) Touch the fishes body.  
If you were blind how would you know you were not touching human skin?

Fish have fingernail like material covering their body. These scales overlap like shingles on a house and are there for protection. Scales are alive and grow with the fish.



They leave marks where they stop growing from one year to the next.

4) How can we tell how old our fish is?



5) The outside of the scales is covered by a slime that keeps disease away from the fish.

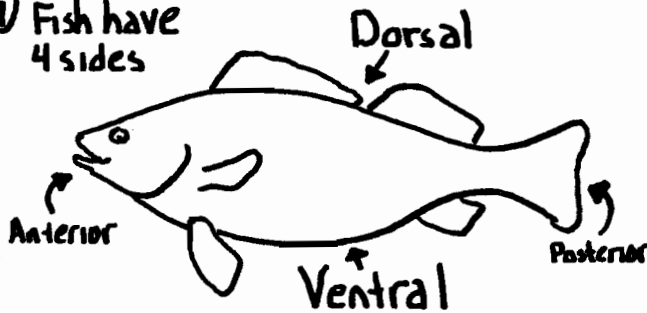
6) Place the 2 objects in the basin (get from teacher) of water. Which is easier to move?

7) Why is this easier to move?

8) Why have planes, boats, and cars been shaped like a fish?



9) Fish have 4 sides



10) How is the dorsal side different from the ventral side?

11) like a boat has a rudder, fish have fins and a tail to help with swimming and steering



## Homework -

1- How does a fishes body help protect the fish?

2- Why is a fish shaped like it is?

# Experiment 3

Problem - What else does the body tell you about the fish?




1) Begin With

2) locate the head, trunk (main part of body) and tail. Label parts of fish.

3) Open the mouth. The upper jaw is the maxilla. The lower jaw is the mandible. Describe how the mouth moves

4) Examine the teeth and tongue. Draw a picture of the inside of the mouth.

5) Put a probe into one nostril. Tell me where it leads to.

6) Pull the dorsal fin <sup>out</sup> forward. Describe  how it is made. Draw a picture.

7) Look at the other fins.  
Why do you think the fish has these fins?

8) Look at the eyes.  
How are they like yours?

How are they different?

9) Why would it be difficult for a fish to live on land?



10) How do you think a fish moves, since it doesn't have legs?

## Home work -

1) What are 5 ways a fish is like us and 5 ways it is different from us?

# Experiment 4

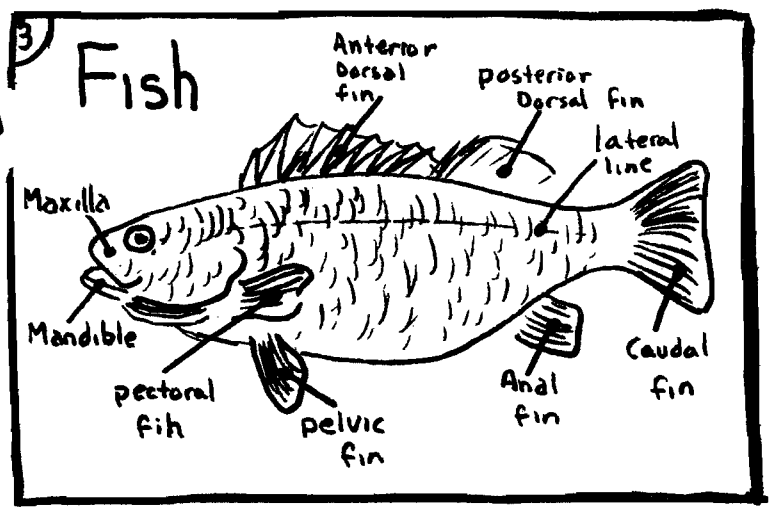
## Problem- How can we find out what's inside a fish?



1) Begin With

fish, Pan, scissors, Probe, Tweezers, pins

2) We have explored the outside of the fish. How can we find out what is inside the fish?



4) What does dissecting mean?

5) How can scissors help us dissect the fish?

6) Place fish on the tray ventral side up. Insert Scissors in the body wall at A. Cut to B.

7) Cut from B to D  
Cut from A to C

Lift Flap

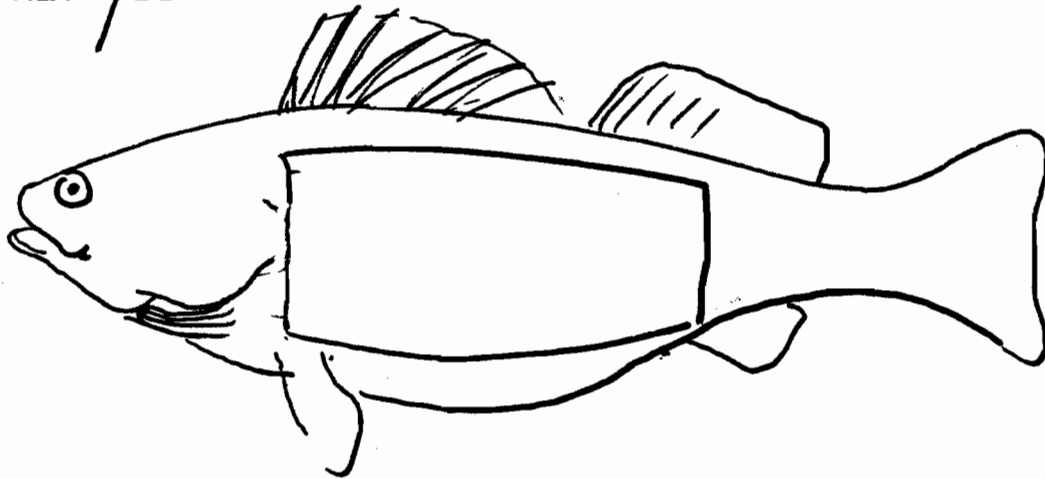
How can we keep the flap open?

8) Open all layers of skin as you did this one.

9) Be careful not to damage anything

Look around with your probe 

10) Draw what you see inside the fish.



## Homework -

- 1) How many layers of skin did you have to cut through?
- 2) How will the probe help us dissect the fish?
- 3) Why do we need such a large opening to dissect the fish?



Name \_\_\_\_\_  
Class \_\_\_\_\_ Box No \_\_\_\_\_  
Anatomy - The Fish

## Quiz on the Fish

- 1) How does a fish breath?
- 2) What is a scale? How can we tell how old a fish is by its scales?
- 3) How does the shape of a fish help it swim?
- 4) How do you cut open this fish?



label cuts

- 5) Why are the intestines coiled up?

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