

Developed at the Louis Armstrong  
Middle School

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GREGORY GRAMBO

fros



## DISSECTING AND ANATOMY

### THE FROG

This is a hands on dissecting unit intended for use in the Middle School. It can, however, be modified for use in the High School. There are five experiments, a practice frog cut up sheet and a quiz. Since the experiments will take more than one work period, the frog can be placed on a styrefoam meat tray, which works great as a dissecting tray, and placed into a ziplock type bag. The students names and classes can be put on labels on the outside of the bag. The bags can then be put into a box for the next period they will be using them. Students should work in groups of 3 or 4. I have found that students in my middle school classes can do the experiments without the use of a scalpel; they only needed seissors , tweezers and a prebe, which is a stick with a pin on the end of it.

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

**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 frog, 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- Grass frog (or computer simulation), scissors, tweezers, probe, zipper style gallon bags, work tray, labels, marker, lab sheets. COMPUTER PROGRAMS such as Computer Biology Lab: the Frog by Cross Educational Software, 504 E. Kentucky Ave., P.O. Box 1536, Ruston,

Louisiana 71270, 1 (318) 255 8921 provides an alternative to the actual animal dissection as well as a resource with 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 frog dissection sheet and a quiz. Since the experiments will require more than one weeks time, the teacher may wish to place the frogs 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 frogs. 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.

## Experiment 1

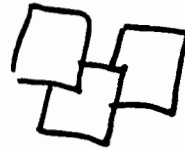
Problem - What is a frog? <sup>parent</sup>



1) Begin  
With



This  
Sheet

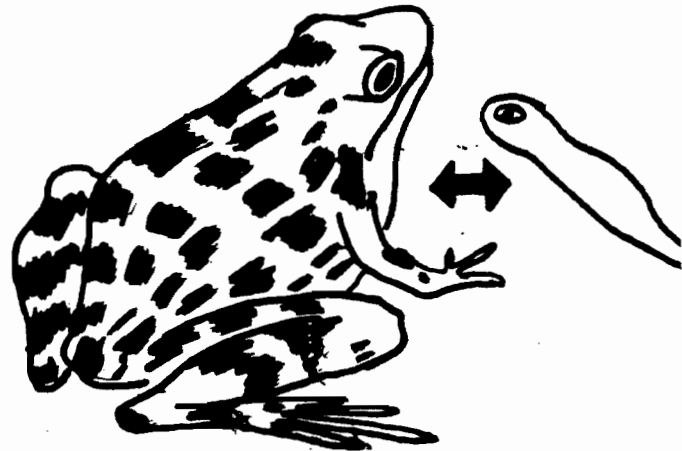


pictures  
of  
frogs

2) Before we begin, Describe a frog.

3) You went to the forest to get a frog; where might you begin to look?

Frogs hatch from eggs and begin their life in water as tadpoles. Tadpoles have no legs, but instead have a tail. Tadpoles are a lot like fish. They breathe through gills that take air out of the water. As they get older, their tail disappears, they develop legs, and they crawl onto the land. Since they are not in the water they can't use gills to breathe any more.



4) How might Frogs breath on land?

5) How might life on land be different than life in water for the frog?

Just before the frog crawls out on land, it develops teeth and a tongue so it can catch and eat animals. When frogs get older they may want to have babies. The frogs return to the water, lay eggs in clumps and surround them with a jelly.

The black dots, which are the eggs, turn into tadpoles.



6) Why do frogs live near water?

7) Why do tadpoles need gills?

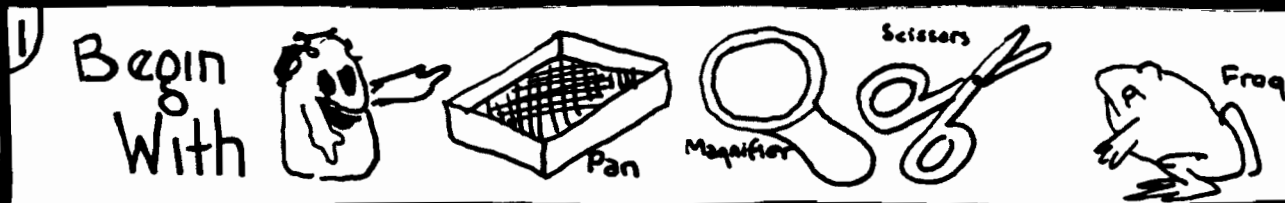
### Homework —

1- Find out what kind of things frogs eat.

2- Draw pictures of how a tadpole turns into a frog.  
(you may need an encyclopedia or book)

## Experiment 2

Problem- What does a frog <sup>parent</sup> look like?



2) look at the frog. It has two sides. One side is the back or Dorsal. The other is the chest or Ventral

3) Touch the frogs skin.  
How is it different from your skin?

4) How is a frogs body similar to yours?

How is it different?

5) How might the frogs Color help it stay alive in the forest?

6) How is the ventral side of the frog different from the dorsal side?



8) Open the frog's mouth.  
You may have to cut the  
sides of the mouth.

Feel for the  
maxillary teeth.

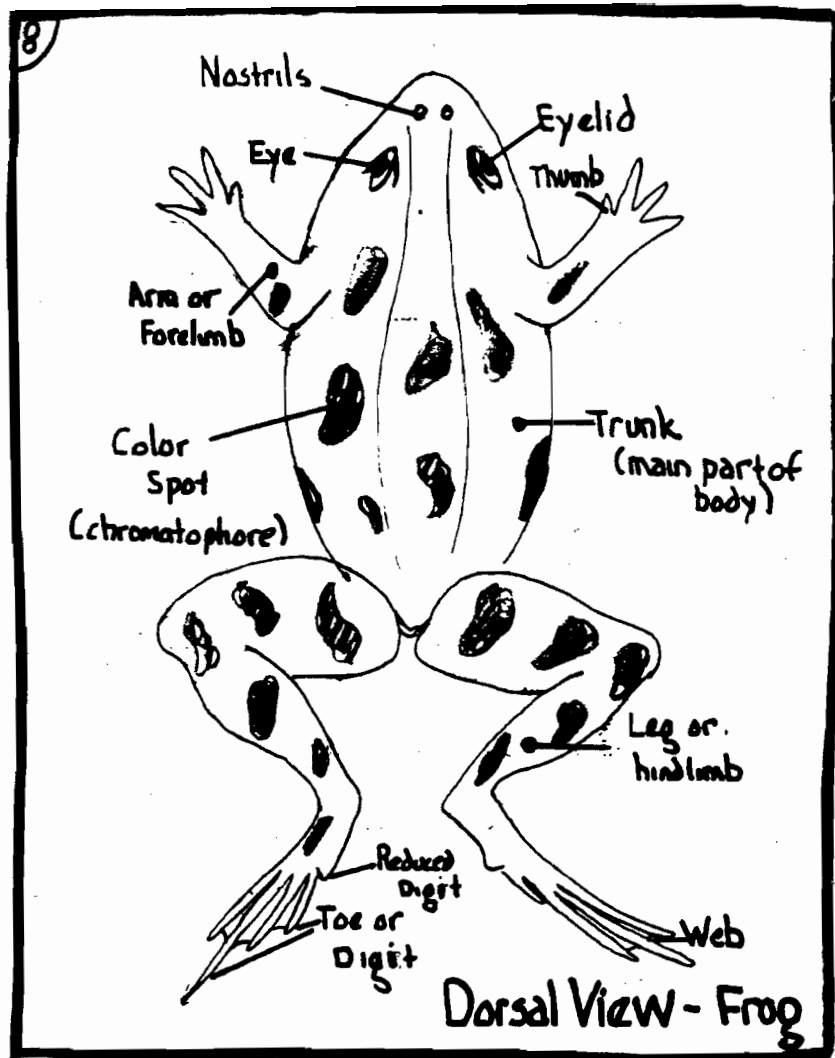
Are they on the  
bottom or top?



9) Notice the bumps on the  
roof of the mouth. When  
the frog eats he lowers  
his eye. He smashes his  
food against the eye.

10) How do the frog's eyes  
help him eat?

11) How do the frog's web  
feet help him in the  
water?



11) look at the frog's tongue  
How is it different from  
yours?

## Homework —

list 5 ways a frog is like us and 5 ways it is different from us.

Problem- How can we find out <sup>parent</sup> what's inside a frog?

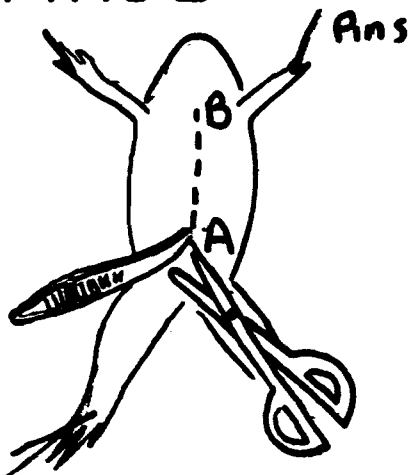


3) We have explored the outside of the frog. How can we find out what is inside the frog?

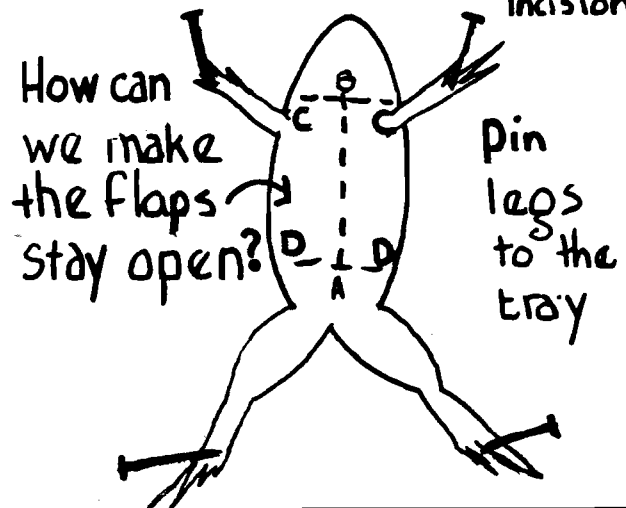
3) What is "dissecting"?

4) How might the scissors help us dissect the frog?

5) Place the frog on the tray ventral side up. Grab skin at A and lift. Cut with the scissors From A to B.



6) Cut from B to C  
Cut from A to D  
These cuts are called lateral incisions

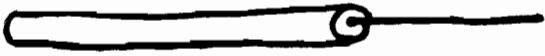


7) Open all other layers of tissue as you did the skin.

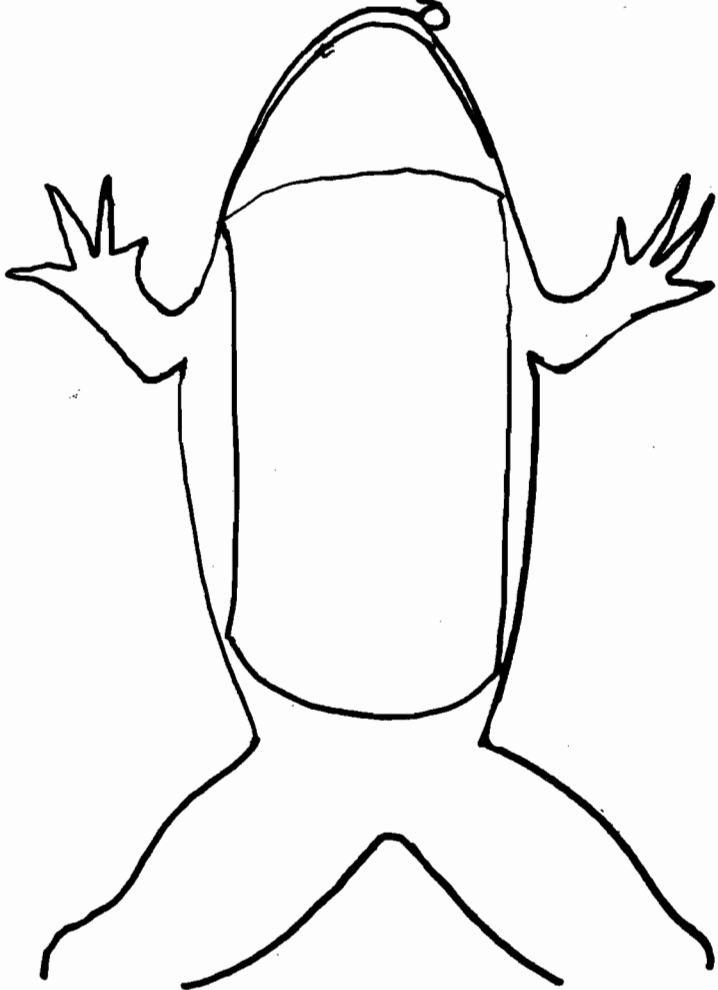
8) Be careful not to damage anything inside when cutting

9) As you remove the layers of skin look for small yellowish knots. These are lymph nodes.

10) The yellow banana shaped objects are **Fat** cut these out and put them in the garbage.

look around with your probe 

11) Draw what you see inside the frog



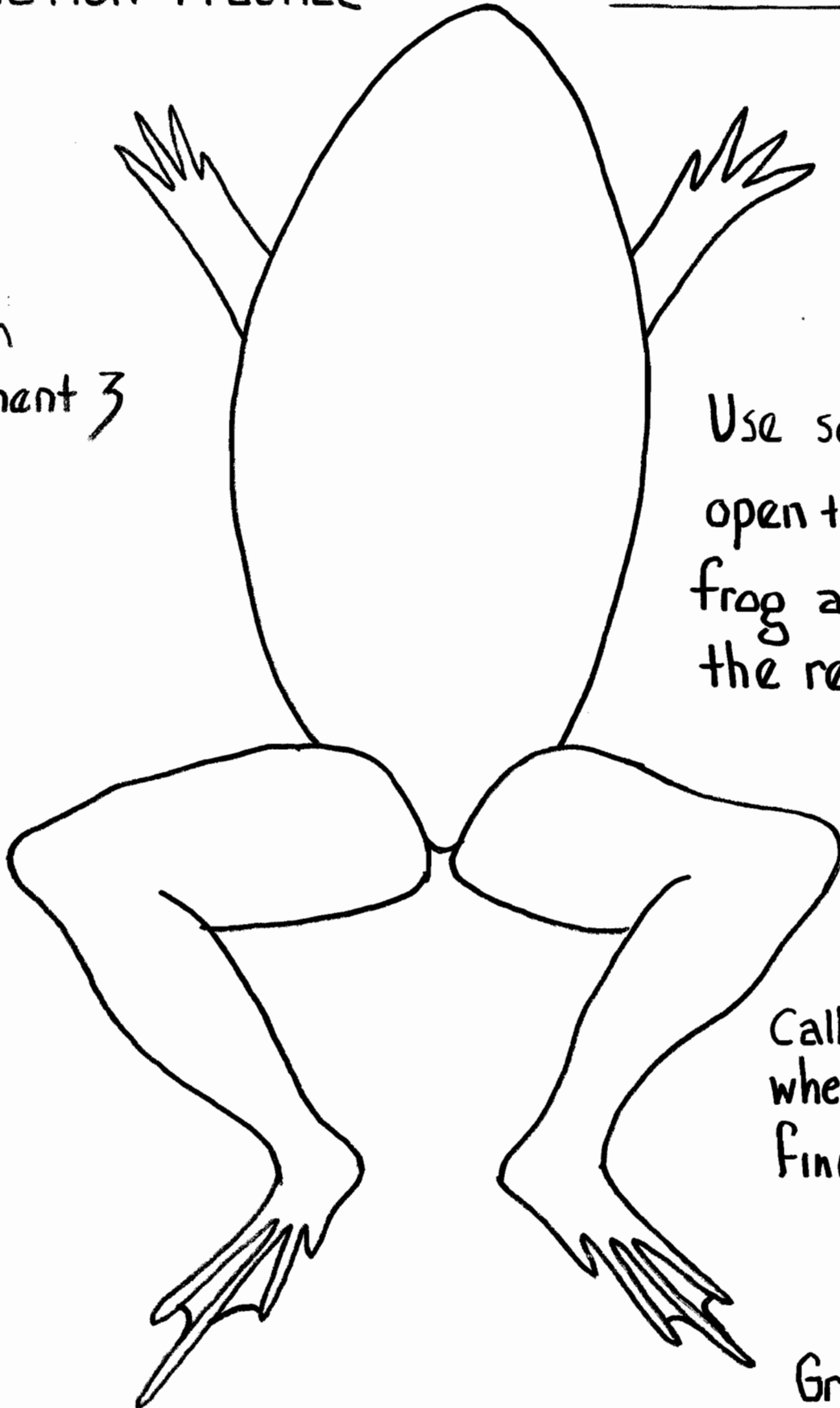
Homework -

- 1) How can we find out what is inside the frog?
- 2) Why do you think we removed the fat?
- 3) How many layers of skin and tissue did you cut through to get inside

# Dissection Practice Sheet

\_\_\_\_\_ *parent*

Use with  
experiment 3



Use scissors to  
open the paper  
frog as you would  
the real frog

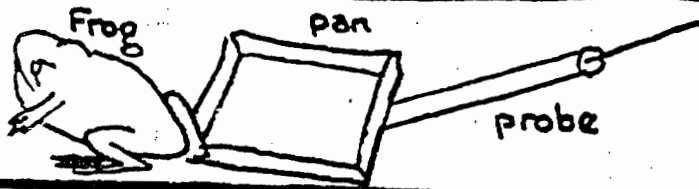
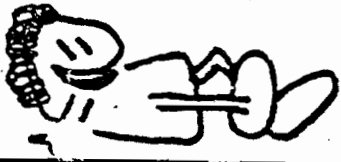
Call teacher  
when you are  
finished

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Problem- What is inside a <sup>parent</sup> frog?

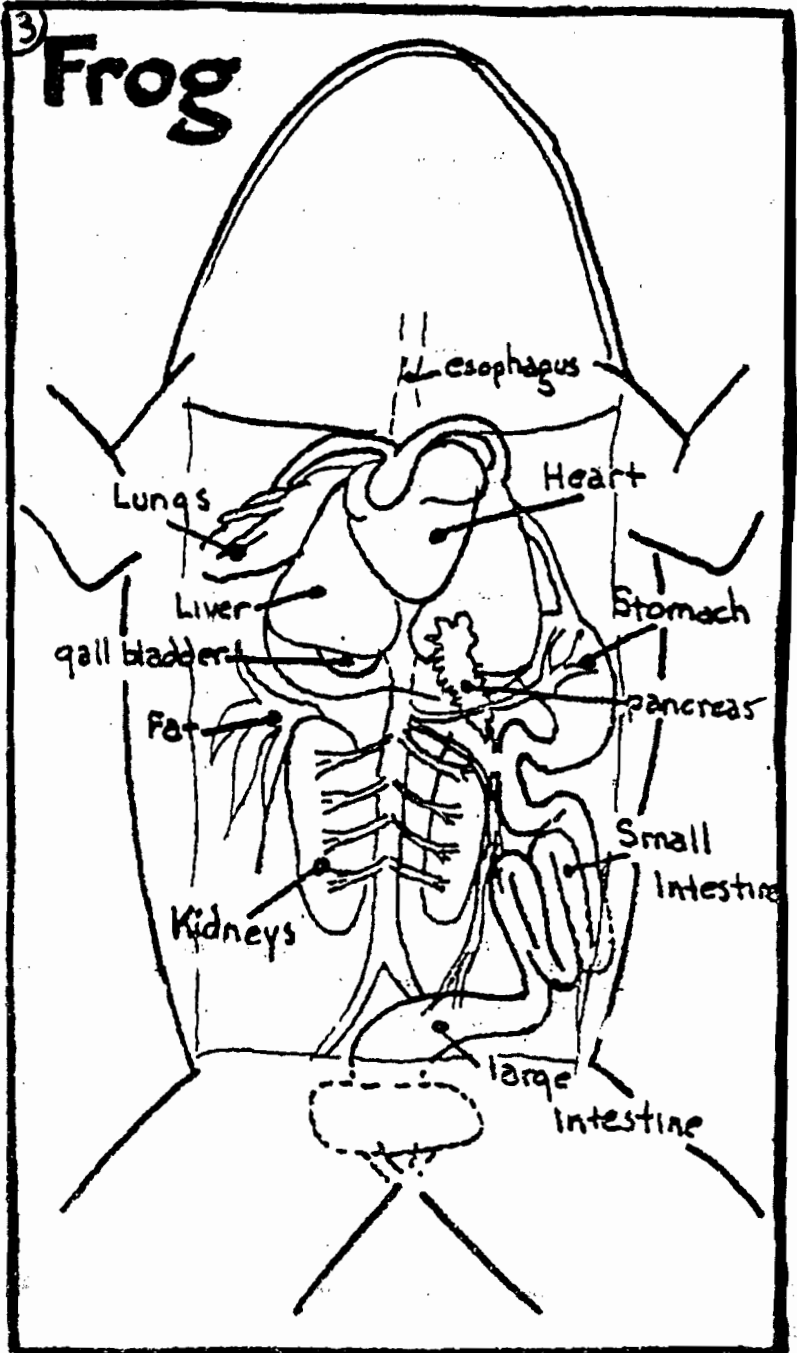


1) Begin With



2) look inside the frog. Some frogs are male some are female. If you see a lot of round black eggs you have a female. Remove the egg mass.

3) In the middle of the body just under the front arms is the heart. The heart moves blood around the body. The tubes going in and out of the heart are like pipes carrying blood



5) Next to the heart is a red brown organ called the liver.

How many parts or lobes does the liver have?

6) The liver makes a liquid that helps the small intestine digest fats.

7) Near the liver is a green mass called the gall bladder.

The gall bladder stores this liquid made by the liver.

8) There is a tube from the gall bladder to a coiled up organ. This is the small intestine. Fats are digested there. The small intestine is very long.

Why is it coiled up?



9) The small intestine is connected to a white curved object. This is the stomach. Most food is digested here. The stomach then connects to the mouth by the food tube - esophagus.

10) On the other side of the small intestine is the large intestine.

12) Near the stomach is the pancreas. This organ gives the stomach enzymes.

13) Kidneys which remove wastes, are red and are near the dorsal body.

11) The lungs are under everything.

Homework -

1) What is an enzyme?

2) What does the stomach do?

## Experiment 5

Problem- What else can we learn about the frog?



1) Begin With

2) Any animal's body has many organs. These organs make up different systems.

4) The brain is inside the head, which is covered by a bone called a skull.

Why is the brain inside a hard skull?

3) The system that carries blood around consists of a pump, the heart, and pipes, called veins and arteries. This system is known as the circulatory system. Foods are broken down by the digestive system. We get rid of wastes through the excretory system. Lungs, part of the respiratory system, give air to the blood. All these systems and everything else we, or the frog does, get their orders from the brain through the nervous system.

5) There is also a system that has the organs which help make babies. This is the reproductive system.

6) What are the names of the 6 systems of the frogs body?

8) How can we find out what is inside the leg?

Lets find the brain

7) Cut away the skin and flesh on top of the head. Scrape the bone with the scissors. Cut bone on the sides of the skull.

What does the brain look like?

How does the size of the brain compare to the size of the body?

9) Draw a picture of how the bones connect at the knee.



Homework -

1) - What holds the bones in place?

2) - What is the job of the brain?



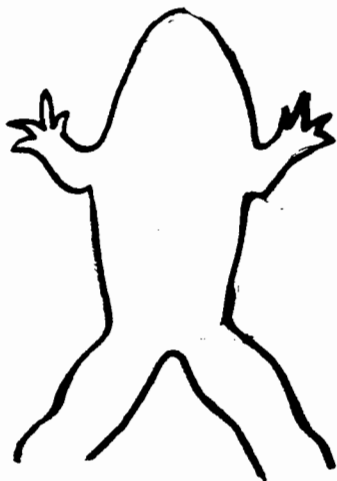


Name \_\_\_\_\_  
Class \_\_\_\_\_ Box No \_\_\_\_\_  
Anatomy - Frog

## Quiz on the Frog

- 1) Describe how a tadpole changes into a frog.
- 2) How is the dorsal side of the frog different from the ventral side?
- 3) What are the yellow banana shaped objects?

4)



Draw how to cut the frog open.

5) Label as many parts as you can



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