

# Operation Kermit!

## Objectives

- Describe the appearance of various organs found in the frog.
- Name the organs that make up various systems of the frog.

## Materials

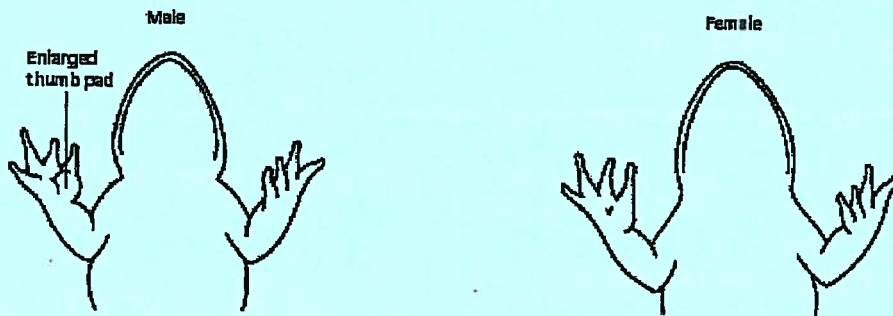
- safety goggles
- forceps
- preserved frog
- dissecting pins (6–10)
- dissecting tray and paper towels
- scissors
- marking pen
- dissecting needle

## Purpose

In this lab, you will dissect a frog in order to observe the external and internal structures of frog anatomy.

## Procedure

1. Put on safety goggles, gloves, and a lab apron.
2. Place a frog on a dissection tray. To determine the **frog's sex**, look at the hand digits, or fingers, on its forelegs. A male frog usually has thick pads on its "thumbs," which is one external difference between the sexes, as shown in the diagram below. Male frogs are also usually smaller than female frogs. Observe several frogs to see the difference between males and females.

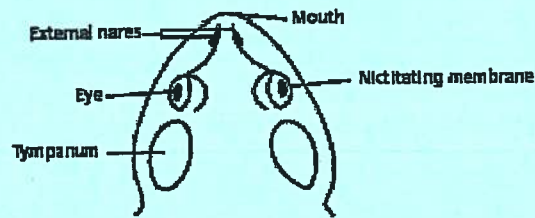


**What is the gender of your frog?**

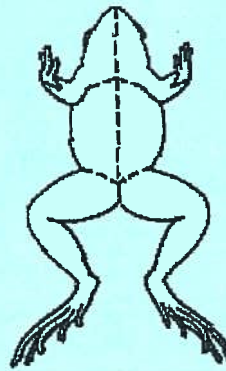
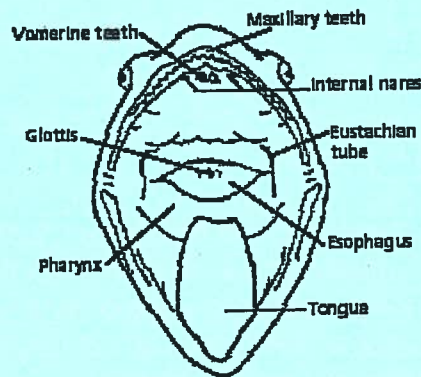
Measure your frog. Record the measurements below in centimeters.

**Frog length.** \_\_\_\_\_ cm.

3. Use the diagram below to locate and identify the external features of the head. Find the **mouth**, **external nares**, **tympani**, **eyes**, and **nictitating membranes**.



4. Turn the frog on its back and pin down the legs. Cut the hinges of the mouth and open it wide. Use the diagram below to locate and identify the structures inside the mouth. Use a probe to help find each part: the **vomerine teeth**, the **maxillary teeth**, the **internal nares**, the **tongue**, the openings to the **Eustachian tubes**, the **esophagus**, the **pharynx**, and the slit-like **glottis**.

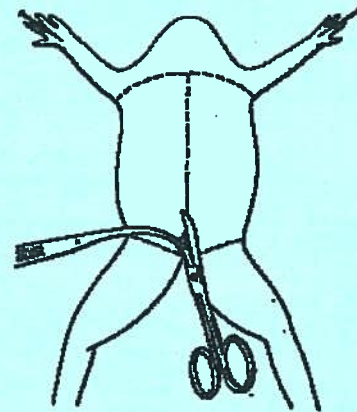


Incisions for Dissection

## Dissection Instructions

1. Place the frog in the dissecting pan ventral side up.
2. Use scissors to lift the abdominal muscles away from the body cavity. Cut along the midline of the body from the pelvic to the pectoral girdle.
3. Make transverse (horizontal) cuts near the arms and legs.
4. Lift the flaps of the body wall and pin back.

\*If your specimen is a female, the body may be filled with eggs and an enlarged ovary.





## Locate the following organs. Check each box when found

**Fat Bodies** –Spaghetti shaped structures that have a bright orange or yellow color, if you have a particularly fat frog, these fat bodies may need to be removed to see the other structures. Usually they are located just on the inside of the abdominal wall.

**Peritoneum** A spider web like membrane that covers many of the organs, you may have to carefully pick it off to get a clear view

**Liver**–The largest structure of the the body cavity. This brown colored organ is composed of three parts, or lobes. The **right lobe**, the **left anterior lobe**, and the **left posterior lobe**. The liver is not primarily an organ of digestion, it does secrete a digestive juice called bile. Bile is needed for the proper digestion of fats.

**Heart** - at the top of the liver, the heart is a triangular structure. The **left and right atrium** can be found at the top of the heart. A single **ventricle** located at the bottom of the heart. The large vessel extending out from the heart is the **conus arteriosis**.

**Lungs** - Locate the lungs by looking underneath and behind the heart and liver. They are two spongy organs.

**Gall bladder**–Lift the lobes of the liver, there will be a small green sac under the liver. This is the gall bladder, which stores bile. (hint: it kind of looks like a booger)

**Stomach**–Curving from underneath the liver is the stomach. The stomach is the first major site of chemical digestion. Frogs swallow their meals whole. Follow the stomach to where it turns into the small intestine. The **pyloric sphincter valve** regulates the exit of digested food from the stomach to the small intestine.

**Small Intestine**–Leading from the stomach. The first straight portion of the small intestine is called the **duodenum**, the curled portion is the **ileum**. The ileum is held together by a membrane called the **mesentery**. Note the blood vessels running through the mesentery, they will carry absorbed nutrients away from the intestine. Absorption of digested nutrients occurs in the small intestine.

**Large Intestine**–As you follow the small intestine down, it will widen into the large intestine. The large intestine is also known as the **cloaca** in the frog. The cloaca is the last stop before wastes, sperm, or urine exit the frog's body. (The word "cloaca" means sewer)

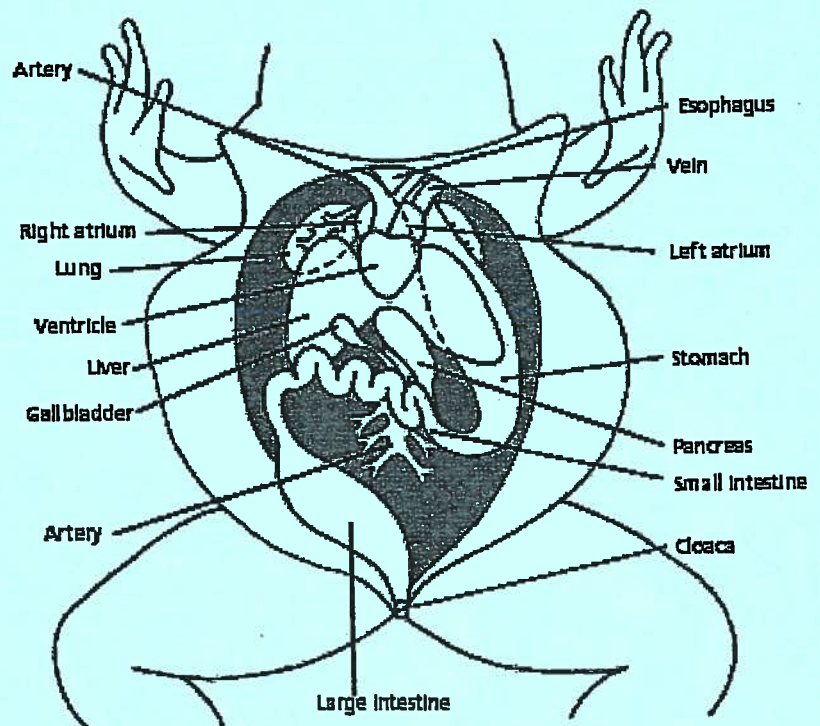
**Spleen**–Return to the folds of the mesentery, this dark red spherical object serves as a holding area for blood.

**Esophagus**–Return to the stomach and follow it upward, where it gets smaller is the beginning of the esophagus. The esophagus is the tube that leads from the frogs mouth to the stomach. Open the frogs mouth and find the esophagus, poke your probe into it and see where it leads.

**STOP!** If you have not located each of the organs above, do not continue on to the next sections!

Find of the Stomach: Cut the stomach to open it up. You may find what remains of the frog's last meal in there. Look at the texture of the stomach on the inside.

**Abdominal and Chest Cavities of the Frog**

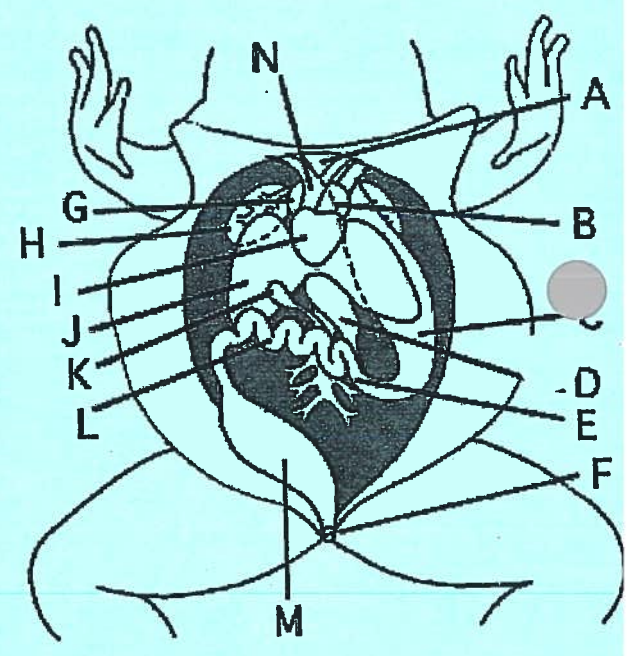


from your teacher

### Post Lab Questions

Label the Diagram

- A. \_\_\_\_\_
- B. \_\_\_\_\_
- C. \_\_\_\_\_
- D. \_\_\_\_\_
- E. \_\_\_\_\_
- F. \_\_\_\_\_
- G. \_\_\_\_\_
- H. \_\_\_\_\_
- I. \_\_\_\_\_
- J. \_\_\_\_\_
- K. \_\_\_\_\_
- L. \_\_\_\_\_
- M. \_\_\_\_\_
- N. \_\_\_\_\_



## Short Answer

1. The membrane holds the coils of the small intestine together: \_\_\_\_\_
2. This organ is found under the liver, it stores bile: \_\_\_\_\_
3. Name the 3 lobes of the liver: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
4. The organ that is the first major site of chemical digestion: \_\_\_\_\_
5. Eggs, sperm, urine and wastes all empty into this structure: \_\_\_\_\_
6. The small intestine leads to the: \_\_\_\_\_
7. The esophagus leads to the: \_\_\_\_\_
8. Yellowish structures that serve as an energy reserve: \_\_\_\_\_
9. The first part of the small intestine (straight part): \_\_\_\_\_
10. After food passes through the stomach it enters the: \_\_\_\_\_
11. A spider web like membrane that covers the organs: \_\_\_\_\_
12. Regulates the exit of partially digested food from the stomach: \_\_\_\_\_
13. The large intestine leads to the \_\_\_\_\_
14. Organ found within the mesentery that stores blood: \_\_\_\_\_
15. The largest organ in the body cavity: \_\_\_\_\_



