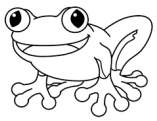
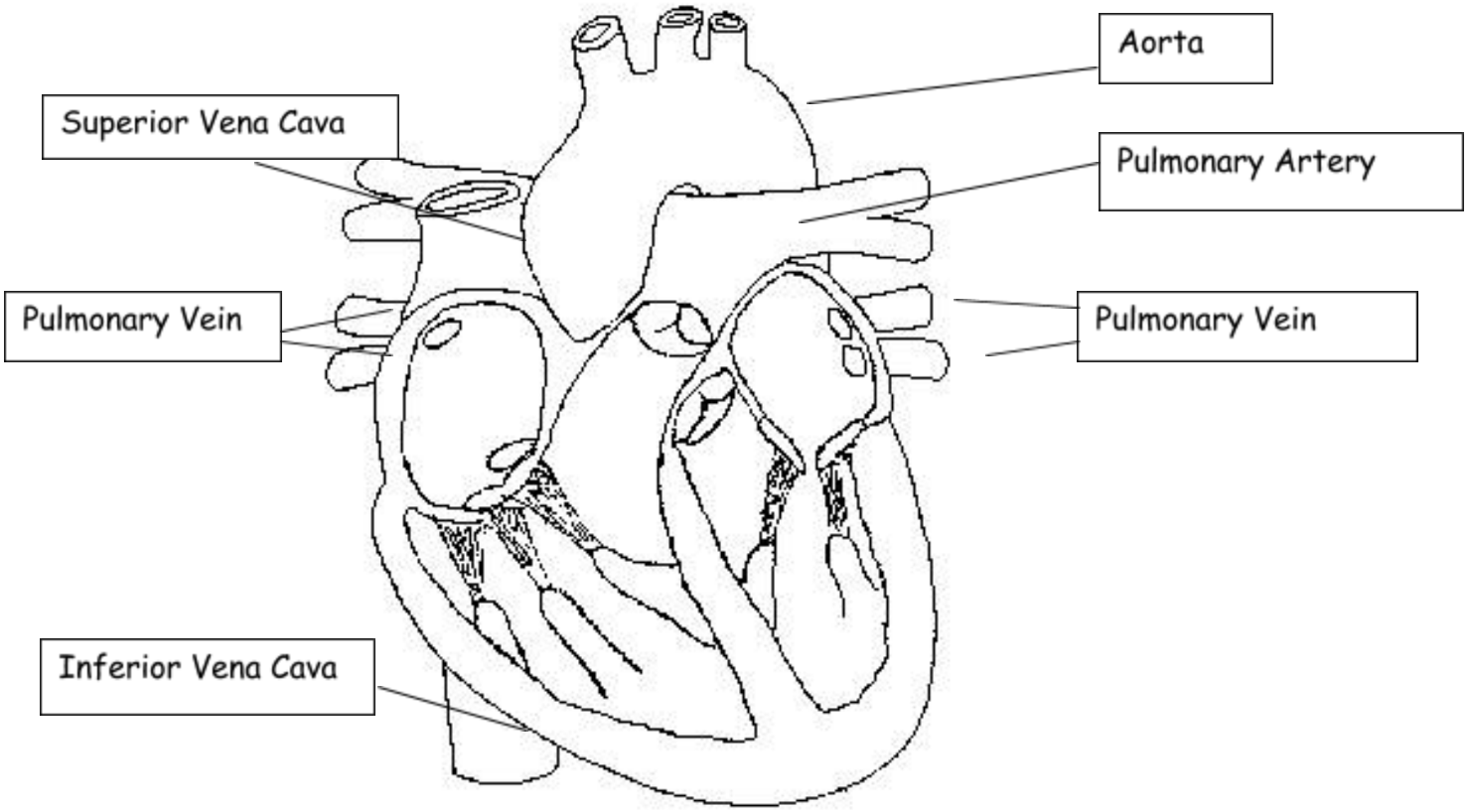
Name: _____
Per.: _____

Comparing Frog Anatomy to Human Anatomy



Human Heart Anatomy

Objective: To visualize the flow of blood through the heart. You will need blue and red colored pencils or crayons. *(Hint: the left ventricle and atrium of this heart are on the right side of the page.)*



1. The atria are the upper chambers of the heart. The ventricles are the lower chambers of the heart. **Label the right and left atria and the right and left ventricles on the diagram.**
2. Oxygen-rich blood flows through a vein from the lungs into the left atrium. **Color the left atrium and the vein that carries the blood from the lungs red.**
3. Blood flows from the left atrium to the left ventricle. **Color the left ventricle red**.
4. Blood flows through an artery from the left ventricle to the body. The body takes up the oxygen in the blood. **Color this artery red**.
5. Blood flows through two large veins from the body into the right atrium. **Color the right atrium and the two large veins blue.**
6. Blood flows from the right atrium to the right ventricle. **Color the right ventricle blue**.
7. Blood flows through an artery from the right ventricle to the lungs. In the lungs, the blood picks up oxygen. **Color this artery blue**.
8. **Add arrows to your diagram to indicate the flow of blood through the heart**. Indicate whether each blood vessel is carrying blood to or from the lungs or the body.

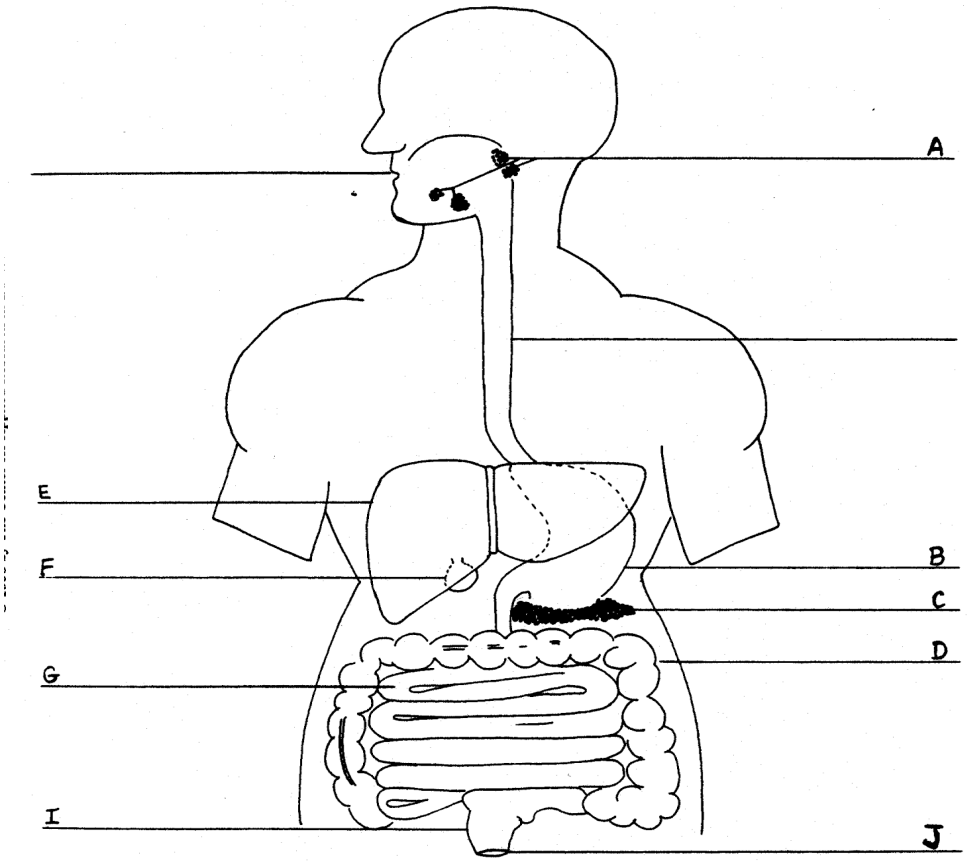
Anatomy of the Human Digestive System

The job of your digestive system is to take nutrients from the foods you eat so that the cells of your body can use them. If for some reason your digestive system could not do this, you would become malnourished

and your health would deteriorate.

Label the digestive anatomy below.

scriptions to help you to label the diagram and to answer the questions.



Skeletal System:

Using the diagrams provided, answer the following questions about the skeletal systems of the human and the frog.

1. Observe the bones in the human hand and the hand of the frog. What do you notice?

2. How are the human skeleton and the frog skeleton similar? Be specific.

3. How are the human skeleton and the frog skeleton different? Be specific.

Observation of Living Frogs (video clip) vs. Humans

1. Notice how the frog jumps. Describe the jumping process.

2. Think about how you jump…. Do you notice any similarities? Differences?

3. What do you notice about how the frog breathes?

4. Take several deep breaths. Do you notice any similarities? Differences?

5. What do you notice about the coloring of the frog? Do you have similar coloring? Why or why not?

External Anatomy Comparisons:

1. How is the frog skin different from the human skin?

2. How are the frog nostrils different from human nostrils?

3. How are frog eyes different from human eyes?

Internal Anatomy Comparisons:

1. Digestive system: Which organs are similar in a human and a frog?

2. Circulatory system: How is the heart of a frog different from a human heart?

3. Muscular System: How do the muscles of the frog compare to the muscles of a human?

4. Respiratory System: How is the respiratory system of the frog similar to the respiratory system of humans? Different?

Frog 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 pectoral girdle.
3. Make transverse (horizontal) cuts near the arms and legs.
4. Lift the flaps of the body and pin back the skin.

* If your specimen is a female, the body may be filled with eggs and an enlarged ovary. You may need to remove these eggs to view the organs.

Locate each of the organs below. **Check the box** to indicate that you found the organs.

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 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 the 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!!! ASK!!!

Removal of the Stomach: Cut the stomach out of the frog and 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.

What did you find in the stomach? _____

Measuring the Small intestine: Remove the small intestine from the body cavity and carefully separate **the mesentery** from it. Stretch the small intestine out and measure it. Now measure your frog. Record the measurements below in centimeters.

Frog length: _____ cm Intestine length _____ cm

Post Frog Dissection Questions

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 spiderweb 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: _____

2. _____
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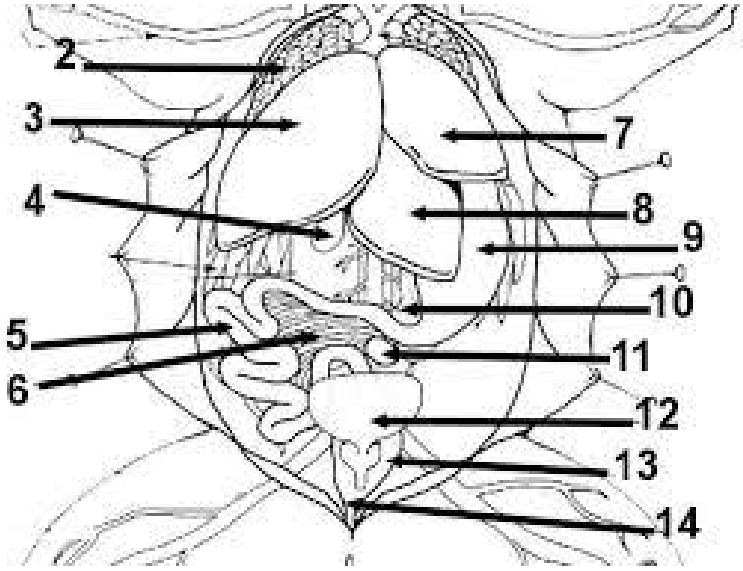

Label the Diagram