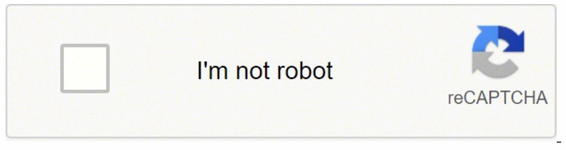
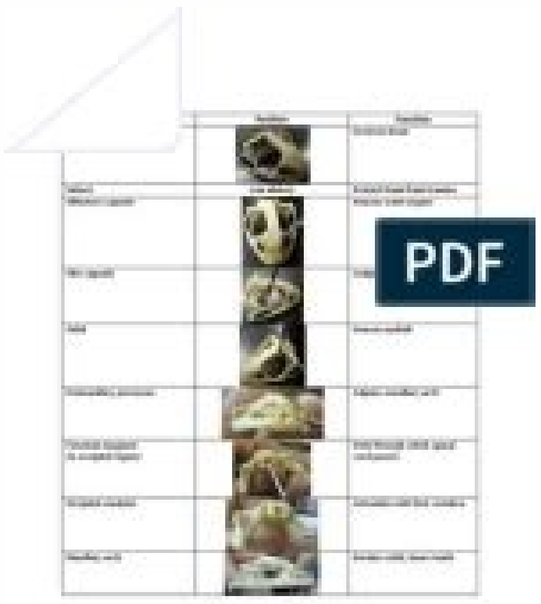


Next

Frog dissection packet answer key



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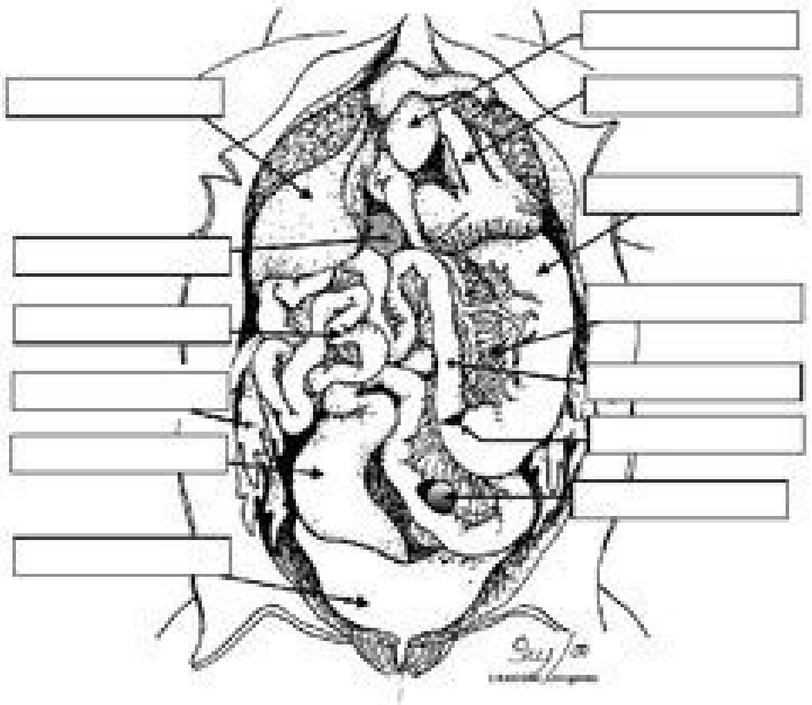
Frog Anatomy Labeling



stomach	large intestine	pancreas
liver	pyloric sphincter	esophagus
gallbladder	urinary bladder	heart
spleen	duodenum (small intestine)	fat bodies
	ileum (small intestine)	

Supplies?

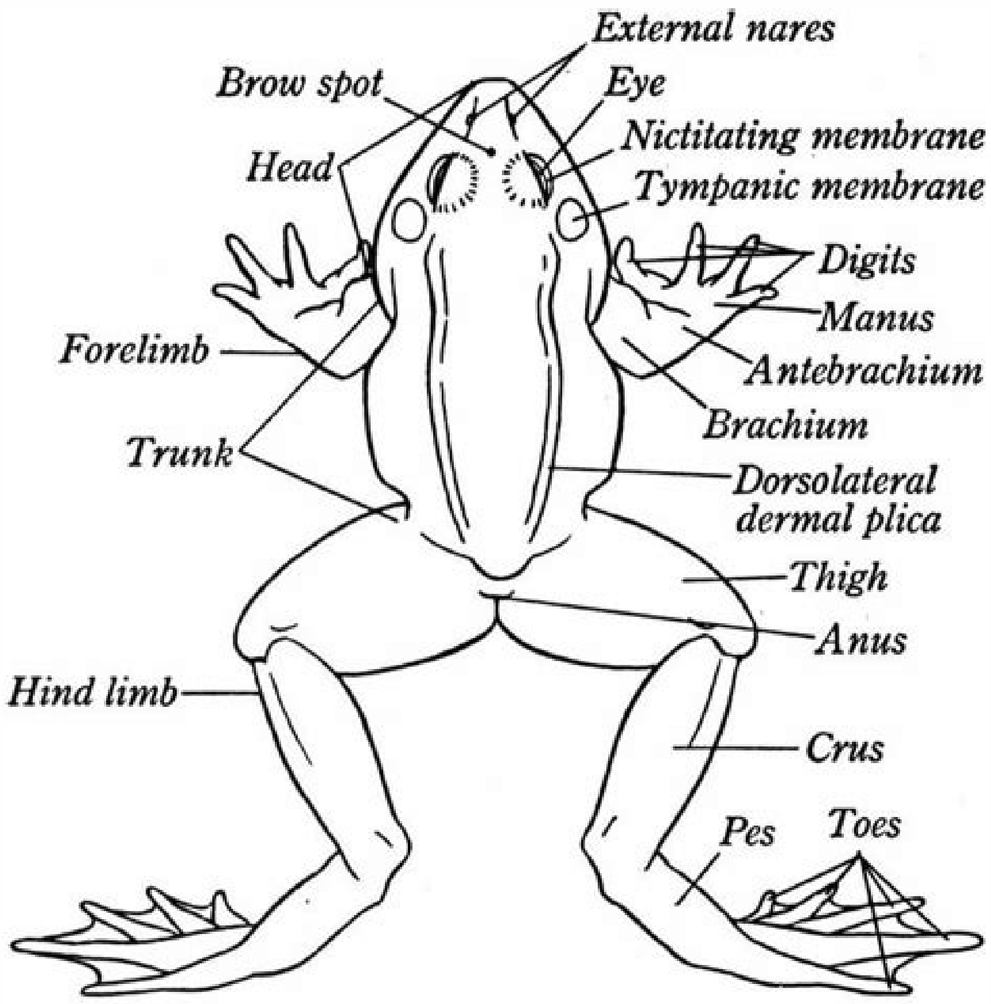


FIG. 384. *Dorsal View of Frog*

This is a preserved specimen, showing head, trunk, limbs, and some of their parts

30.1 Organization of the Human Body

Lesson Objectives

Describe how the human body is organized.
Explain homeostasis.

Lesson Summary

Organization of the Body: The levels of organization in a multicellular organism include cells, tissues, organs, and organ systems.

- A cell is the basic unit of structure and function in living things. Specialized cells are uniquely suited to perform particular functions.
- Groups of similar cells that perform a single function are called tissues. There are four basic types of tissue in the human body. epithelial tissue lines the interior and exterior body surfaces. connective tissue provides support for the body and connects its parts. nervous tissue carries messages in the form of nerve impulses throughout the body, and muscle tissue is responsible for voluntary and involuntary movement.
- Groups of different kinds of tissue that work together to carry out complex functions are called organs.
- A group of organs that performs closely related functions is called an organ system.

Homeostasis: The different organ systems work together to maintain a controlled, stable internal environment called homeostasis. Homeostasis describes the internal physical and chemical conditions that organisms maintain despite changes in internal and external environments.

- Feedback inhibition, or negative feedback, is the process in which a stimulus produces a response that suppresses the original stimulus. An example of feedback inhibition is the way in which the body maintains a constant temperature.
- The liver is important for homeostasis. It converts toxic substances into compounds that can be removed from the body safely. It also helps regulate the body's glucose levels.

Organization of the Body

Complete each statement by writing the correct word or words.

1. The tissue that lines the interior and exterior of the body is called ___epithelial___ tissue.
2. Connective tissue includes fat cells, ___blood___ cells, and blood cells.
3. The brain, ___spinal cord___, and nerves are made up of nervous tissue.
4. Voluntary and involuntary movements are controlled by ___muscle___ tissue.

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Frog external and internal dissection lab packet answer key.

The cleaner the dissection the better. The teeth you feel are the MAXILLARY TEETH. Observe several frogs to see the difference between males and females. LIVER 2. Nerves branch out from the spinal cord. Be sure to scrape AWAY from you. Purpose: In this lab, you will dissect an frog in order to observe the external and internal structures of the frog anatomy SEXING YOUR FROG: Place a frog on a dissection tray. INTERNAL MOUTH STRUCTURES: 6. Vein: take blood toward the heart 13. Label the mouth, tympanum, and the external nares on Figure 1. The cerebrum helps the frog respond to its environment. It is the opening to the trachea (windpipe) that leads to the lungs. The urinary bladder is a sac that stores urine until it passes out of the body through the cloaca. 7. Locate the third eyelid. The nasal openings, are also call EXTERNAL NARES, found toward the tip of the snout will closes when the frog is under water. LOCATE and label THE FOLLOWING on Figure 2. Find the nasal pits at the anterior end of the brain by the nostrils. Nictitating Membrane: clear eyelid, protects the eye 9. 13. SMALL INTESTINE (ileum, duodenum) two letters 5. STOMACH 4. Takes food a long time to travel through the length of the small intestine, giving enzymes more time to digest food 6.) What roles do the kidneys play in excretion? Cut away the heavier bone along the sides of the brain. Behind each eye find the circular eardrum called a TYMPANUM. The frog's skeletal and muscular systems consist of its framework of bones and joints, to which nearly all the voluntary muscles of the body are attached. What does bile digest? To determine the frog's sex, look at the hand digits, or fingers, on its forelegs. Esophagus: Tube that leads to the stomach 5. Why is the ventricle so much thicker than the atria? Notice that it is still flexible. The olfactory nerves leave these structures and connect to the most anterior lobes of the brain, the olfactory lobes (A). Now make transverse cuts through the skin below each of the fore limbs and above each of the hind legs. LOCATE AND LABEL THE FAT BODIES ON FIGURE 3. SPLEEN draw in label 10. If needed you may pin the skin back. Explain your reasoning Near the water's edge where air breathing would be the easiest as lungs developed, and where emerging frogs could climb onto land 12.) Compare and Contrast fish and amphibian body structures: (Hint: It may be easier to make a Venn Diagram: You can use the back of the lab if needed) Similar characteristics: - both are vertebrates , have protective coloration (camouflage), bony endoskeleton, closed circulatory system, dorsal nerve chord, fertilize eggs externally, Frogs Only - three-chambered heart, two pairs of legs, external organs for hearing, lungs as adults, undergo metamorphosis, live on both land and water, have smooth thin skin (No scales) Fish Only - two-chambered heart, fins, no external organs for hearing, gills, do not undergo metamorphosis, live only in water, have scales CLOACA 6. 10. The hind legs are strong and muscular and are used for jumping and swimming. Post-Lab Questions: 1.) How does the liver aid in digestion? Thicket because it needs to pump blood through the entire body 8. Veins from different parts of the body enter the right and left atria. Lung: organ for oxygen and carbon dioxide exchange 1. This is the GALL BLADDER. Why are there so many blood vessels? After cutting the small intestine away from the large intestine, measure how long your small intestine is in cm and inches. LABEL THE male and female reproductive organ ON FIGURE 3. The forelegs provide balance and cushion the frog when it lands after jumping. The straight part of the small intestine is called the DUODENUM and the coiled section is the ILEUM. LABEL (Place the letter next to its corresponding body part): 1. Place the frog on its dorsal side in the dissecting pan and cut the corners of the mouth. ureter 4. 10. The 2 outer ones are the color of the fog's body. You will have to cut through the sternum (breastbone). Explain: 2. MESENTERY draw in label 7. The central nervous system of the frog consists of the brain, which is enclosed in the skull, and the spinal cord, which is enclosed in the backbone. GALL BLADDER 3. Vomarine Teeth: Used for holding prey 2. Connected to each kidney is a ureter, a tube through which urine passes into the urinary bladder. _____cm. Indigestible materials pass through the large intestine and then into the cloaca, the common exit chamber of the digestive, excretory, and reproductive systems. Eustachian Tubes: equalize pressure in inner ear 4. Examine the hind legs and front legs of the frog. Artery; take blood away from the heart 12. VENTRICLE 14. Bile, helps digest food! 7. Complete the data table and label the brain: Brain Part Function Letter Cerebellum Cerebrum Olfactory Lobe Optic Lobe Medulla Oblongata 12. Mesentery helps keep your intestine from knotting up. Kidneys: Filter Blood Ureters: Carry urine from kidneys to bladder Testes: Make sperm Oviducts: eggs travel through these Ovary: makes egg (usually not visible on frog) Urinary Bladder: Stores Urine Cloaca: Where sperm, eggs, urine, and feces exit. Cloaca: Where sperm, eggs, urine, and feces exit. To hold onto prey 9. In the mesentery along the inner curve of the stomach locate the pinkish PANCREAS. Internal Nares (nostrils) breathing 3. It is call a NICTITATING MEMBRANE. LABEL THE KIDNEYS, URETERS AND URINARY BLADDER ON FIGURE 3. The reproductive system in the Female consists of OVARIES which produce egg and the OVIDUCTS which carry eggs to the cloaca. Most digestion and absorption of food into the bloodstream takes place in the small intestine. The stomach attaches to the small intestine. What do you think the frog ate? Insert the scissors horizontally just below the cranium and above the eyes carefully chip away the roof of the skull to expose the brain. Produces Bile, which digests food 2.) Name the three chambers of the frog's heart: • Left atrium • Right atrium • Ventricle 3.) Compared to the frog's body, its lungs are quite small. Male frogs are also usually smaller than female frogs. Collect Nitrogen wastes from the blood and produces urine 7.) Through which organ is the liquid waste eliminated from the frog? Closed- circulation, double-looped circulation, allows blood to reach all parts of the frog's body 4. They store excess food in the form of fat, which gives the frog energy during hibernation They also aid in mating 5.) Give two reasons that might explain why the small intestine is so long 1. Does the size of a frog's lungs affect its ability to take in oxygen? Use your probe. 3. Notice the blood vessels under the skin. Gall bladder: Stores bile 4. When a flexor of a leg or other body part contracts, that part is bent. A male frog usually has thick pads on its "thumbs," which is one external difference between the sexes, as shown in the diagram below. PANCREAS 8. 8. Bile is a digestive juice made by the liver and stored in the gall bladder. Liver: Makes bile (aids in digestion) 3. oviducts 7. 6. Blood is carried to the heart in vessels called veins. -Small mouth, gills, two-chambered heart, no legs, tails 11.) Describe where and how a frog might live during the change from tadpole to adulthood? 11. To receive extra credit for exposing the brain you must first present a completed the data table and have all the brain parts labeled then show the brain dissection to your teacher for approval. Cut away the skin and flesh on the head from the nose to the base of the skull. urinary bladder 3. Bile flows into a tube called the bile duct. When the extensor of that body part contracts, the part straightens. The spleen filters out worn out red blood cells and platelets from the blood. sperm ducts 8. The eyes help hold the prey as a frog is swallowing it. Mesentery: Holds coils of the small intestine together 8. 12. In the male it consists of TESTIS which produce sperm, sperm ducts which transport sperm to the cloaca. In the mesentery find a reddish spherical structure call the spleen. Swallowed food moves from the mouth down the esophagus and into the stomach and then into the small intestine. ARTERY 9. The ridge just behind the optic lobes is the cerebellum (D), it is used to coordinate the frog¹s muscles and maintain balance. Push carefully on the eyes observe how they fill a space in the mouth. How many lobes does the liver have? They are located toward the front of the upper jaw and between the internal nares (internal nostril openings). Why are these structures important to the frog? The small intestine widens to form the LARGE INTESTINE. With your scissors make a cut (through the skin only) along the midline of the belly from the pelvis to the throat. The circulatory system consists of the heart, blood vessels, and blood. Locate the large, bulging eyes. Open and re-pin the frog. The coils of the ileum are connected by thin transparent membranes with blood vessels. Posterior to the cerebellum is the medulla oblongata (E) this is the which connects the brain to the spinal cord (F). testis 5. Place the frog on its belly (ventral side) in the dissecting pan 2. fat bodies 9. Is it attached to the front or the back of the mouth? Just posterior to the olfactory lobes is the cerebrum (B), and it is the frog's thinking center. Right atrium pumps blood into the ventricle 15. Equalize pressure of the inner ear 4. LARGE INTESTINE 9. On both sides of the gullet, near the cut jaws are opening to the EUSTACHIAN TUBES. Ileum 5. What are the maxillary teeth and vomerine teeth used for? Pull on the tongue. 9. The frog can breathe directly through its skin as well as with its lungs. 1. Locate the TONGUE. This tissue is the adrenal gland. RIGHT ATRIUM, 13. Maxillary Teeth: Used for holding prey 10. Allows a large surface area to digest food 2. 1. Where does the eustachian tube lead? 2. Locate the LUNGS, 2 reddish brown saclike structures. Place the frog on its dorsal side and secure it in place with dissecting pins through each of the legs. Carefully remove the thin, gray membrane covering the brain. Cloaca 13. Closely examine the kidneys notice there is a light colored band of tissue running through the middle of each kidney. Was there anything in the stomach? Explain your answer: No, a frog takes in oxygen through the capillaries in the mouth lining and absorbs oxygen through its thin, skin 4.) What is the purpose of the fat bodies? **The reproductive system and urinary system collectively is call the urogenital system. The frog has 3 eyelids. Coloration acts as camouflage Figure 1. Duodenum 2. This is the GLOTTIS. Blood from both atria goes into the ventricle and then is pumped into the arteries, which are blood vessels that carry blood away from the heart. Tympanic Membrane: eardrum, located behind eyes 8. INTERNAL ANATOMY: The digestive system consists of the organs of the digestive tract and the digestive glands. 8.) Describe the pathway an egg takes as it exits the body of the female frog Ovaries, down the oviducts, into the cloaca, and out of the frog 9: Describe the pathway that sperm travel from the testes out of the frog Testes, through the vasa efferentia, into the kidneys, down the ureters, into the cloaca, out of the frog 10.) If you were asked to dissect a tadpole, what differences would you find from what you saw in the adult frog? Pancreas: Makes insulin (aids in digestion) 6.Small Intestine (duodenum and ileum): absorb nutrients from food 7. 4. Glottis : Tube leading to the lungs 5. Spleen: Part of circulatory system, stores blood 10. They do not move. Stomach: First site of chemical digestion, breaks down food 2. Gullet: Opening leading to the esophagus 6.Tongue: Front attached, aids in grabbing prey 7. BE CAREFUL NOT TO CUT TO DEEP AND DAMAGE THE UNDERLYING ORGANS. 5. Eye: vision Figure 2: DISSECTING THE FROG: 5. ovary 6. The heart has two receiving chambers, or ATRIA (singular: atrium), and one sending chamber, or ventricle. cloaca FIGURE 3: 11. Locate the greenish sac attached to the liver. Name the two sections of the small intestine: 1. 1.kidney 2. External Anatomy of the Frog: 3. The urinary system consists of the FROG'S KIDNEYS, URETERS, URINARY BLADDER, AND CLOACA The kidneys are organs that filter wastes from the blood and excrete urine. With your scissors open the J of the stomach to observe what the frog may have eaten. LABEL THE TESTIS, OVARY, OVIDUCTS AND EGGS ON FIGURE 3. Locate the 2 VOMERINE TEETH on the upper jaw. Notice the abdominal muscles. It is a transparent membrane the protects the eye while permitting the frog to see under water. Waste, urine and sex cells are expelled here. Find the GULLET (throat) it leads to the opening of the esophagus. Feel the inside of the upper jaw (maxilla) and the lower jaw (mandible). If your frog is female, the body cavity maybe full of black eggs. This tissue is called the MESENTERY. Why does each sides color help protect the frog from predators? Beneath and to the right of the liver is a j shaped STOMACH. FROG DISSECTION GROUP NAMES: _____ Materials: Dissecting pins, forceps, scissors, paper towel, dissecting probe, preserved frog, dissection tray. The lower portion of the large intestine is called the cloaca. 6. Locate and label the largest organ in the abdominal cavity it is the reddish brown LIVER. Label the hind and front legs on Figure 1. Is your frog male or female? Large Intestine: Collects waste, absorbs water 9. 3 2. Both bile and pancreatic enzymes flow into the small intestine. 14.Fat bodies are orange/yellow in color and are stored food. Turn the frog onto its ventral side and notice the color difference. _____Front_____In a live frog, the tongue is sticky and is used to catch insects. Notice the difference between the toes of the hind legs and those of the front legs. left atrium pumps blood into the ventricle 14. ESOPHAGUS 15.LUNG 16. The heart is located between the lungs. Label the eye and the nictitating membrane on Figure 1. Feel the frog's skin. 3. To the tympanic memebrane What is its purpose? CAUTION: Be careful when using scissors. Cut and scrape the top of the skull until the bone is thin and flexible. Digestive enzymes from the pancreas flows into this duct. PROCEDURE AND OBSERVATIONS: EXTERNAL ANATOMY 1. How many toes are on the front legs_____. The respiratory system consists of the nostrils, trachea and bronchi which opens into two lungs. They locate the two openings into the nasal cavity. Compare the thickness of the atria and the ventricle. It is smooth, moist and thin. What is stored in the gall bladder? HEART b,g,i 11.LEFT ATRIUM, 12. _____ inches. You may have to remove one side in order to continue your dissection. The large intestine is a straight tube leading to the anus. Extra credit: Study and Removal of the Frog's Brain Turn the frog dorsal side up. How many are on the hind legs_____. Posterior to the cerebrum are the optic lobes (C), which function in vision. Voluntary muscles, which are those over which the frog has control, occur in pairs of flexors and extensors. Locate a vertical opening toward the back of the mouth. Now cut through the muscle layer and repeat the incisions you mad in step 2 and 3. 1.