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Squid dissection lab worksheet

Name: _____ Find the water jet. The water jet is located on the ventral side of the squid. 2. The tentacs (long) and arms (short) are attached to the head of the squid. 3. Look for two large eyes on the sides of the head. 4. Look for the body covered with the cape and look for the two fins. 5. Each arm sucker plates, count the number of sucker plates on one arm: ____ Sketch the outside view of the squid; the underlined parts above. Find the jaw, open the arms and remove those that are on your way. Deep in the middle of the arms of the mouth and beak-like jaw. They are located in a bulb structure called a bukkal bulb. Use tweezers to remove the bulb, then the jaw (beak) Draw the tube into the box. Analysis 1. How many arms does the squid have? _____ How many tentacs? _____ 2. What is the function of arms and tentacs? _____ 3. What is the function of the water jet? _____ 4. Name two properties that are an adaptation to the life of the squid predator. _____ 5. Name two properties that the squid shares with other mollusks. _____ 6. Which kingdom does the squid belong to? _____ _____ _____ 7. Name another organism in the same class

loose and easy to pull up. Use scissors to cut off the jet of water from the fins. Open the cloak to make up the structures inside and pin. 1. Locate the ink bag, it is a small dark bag near the jet of water. Remove the ink bag and break the sachet with the incising needle. Write your initials on this paper in squid ink, or just sleet the paper. 2. Locate the esophagus, it is best taken from the examination in the mouth and seeing where it leads. The muscle mass that surrounds the beak can be pulled up (in and out) to show the tube to the esophagus. 3. To find the stomach, follow the esophagus toward the back. 4. The anus empties the water jet, scissors cut the water jet down the center so you can see the small opening in the anus. 5. Look for gills, they are feathered structures that are hidden from other things, there are two of them. 6. Follow the gills toward the interior to find an enlarged structure of the base: this gill heart. 7. All the way to the fin towards the whited or yellowish structure: it's the gonad. The male gonad is usually white, the female gonad is usually more yellow Is the squid a man or a woman? _____ 8. The hard shell-like structure on the back of the squid See if you can remove the pen in one piece. The pen serves to stabilize the squid while it floats (like our spine). Observations and analysis 1. How many gills does the squid have? _____ 2. Where's the ink bag? _____ 3. What is the function of the pen? _____ 4. Where does the waste leave the squid? (be specific) _____ Word Bank Stomach | Ink bag | Esophagus | Gill | Heart | Gonad | Anus | Feather original document: Squid autopsy squid can be purchased from biological supply companies such as carolina.com, or you can buy them from the store packed with frozen squid. External anatomy (tagged) : Finding a shark The beak should look like a bird's beak with two sharp curved points. Analysis 1. How many arms does the squid have? ___8__ How many tentacs? _2____ 2. What is the function of arms and tentacs? ____grasping prey_____ Article 3(2) shall be replaced by the following: What is the function of the water jet? __ drive; movement _____ 4. Name two properties that are an adaptation to the life of the squid predator. tentacs, jet of water, large grains, fins 5. Name two properties that the squid shares with other mollusks. ___ soft body, body cavity (coelom), bilateral symmetry _____ 6. Which kingdom does the squid belong to? Animalia ____What tribe? __ Mollusca _____ What class? __ Cephalopoda ___ 7. Name another organism in the same class ____ snail, snail, shell, oyster _____ How many gills does the squid have? _____2 _____ 2. Where's the ink bag? __ water jet _____ Mi the function? _____ distracts predators; protection _____ _____ stabilizes squid swimming _____ (be specific) ____ anus then water jet _____ Virtual Squid Dissection Objectives: As a result of this lesson, students will be able to: Locate and identify the main external and internal characteristics and organs of the squid. Understanding and using basic dissection techniques and terms. Critically examine the features of several squid features and bodies. Teaching This lab has a very thorough autopsy of the squid and can be adapted to different quality levels. Teachers should try the lessons, considering which parts are best for their pupils and curriculum. Descriptions use complex dissection terminology. Be a certain student who understands the vocabulary of the autopsy before starting These lessons were tested with high school students between the age of 11 and 13. They followed procedures and understood concepts as well. The skills required for each step of the autopsy are within the normal range of abilities of high school students. Materials: squid * scissors toothpicks (for probes and pointers) drawing paper tweezers hand lens (5x recommended) small cups (ketchup cup works well) dissecting pan (or lunch trays) paper towel chart squid washing bottle microscopes (optional) dissectingscopes (optional) slide (optional) slide (optional) * Locate squid in your local supermarket for seafood and frozen foods frozen sections. You may need to order it in advance. In areas that have them, you can also go to your local fish market or eastern food stores, or you can deal directly with fishermen. Teaching notes: Copies of squid are deteriorating rapidly. Keep all squid frozen until the morning before the autopsy. Thaw the squid in the fridge. If a complete autopsy cannot be completed in one day, perform external activities while the specimens are still partially frozen and internal activities are thawed the next day after the squid. Squid can have tentacs or arms missing. Each squid changes internally and their relative maturity determines which organs are formed well enough to be clearly visible and which have lost (or not yet won) their shape and discoloration. Please advise students that they may not see everything shown in the accompanying diagram. Tissues shrink and organs are rapidly distorted. To keep the sample fresh, cover it with a damp paper towel while working so it doesn't dry out so quickly. Finally, this lesson is a tactile experience. You may want to explore this aspect through sensory activities, written descriptions, poetry, and/or artwork. Encourage students to experience the many textures in and outside the squid's body. Moving fingertips along the suckers is recommended too - the suckers do not scrape or hurt when gentle with them. Procedure Place the squid with the back (back) side up in the dissecting pan. This means that you put the side of the funnel down and the fin side up. Make sure the tentacs and arms are facing you. Look for the head, eyes, beak (mouth), arms (8), two longer feeding tentacs, fins, mantle, and skin. Use the lens of the hand to examine the suckers of tentacs and arms, as well as spots on the skin that are chromatophores. What's the difference between arm and tentabre suckers? Where are the suckers located in the feeding tentacs, like the location of the suckers in the arms? How do you account for the different places of the suckers of tentacs and arms? What are chromatophores? Mouth and beak: Find the dark beak the mouth. Open and close the beaks, noting that the ventral beak beak Beak, how is this different from a parrot beak? Before you pull out the pipes, imagine what they'll look like from the inside. Remove the bust with tweezers and place the tubes on dark pointed parts opposite each other. Manipulate them (open and close) as if the squid were eating. What makes them work like this? In order to remove the radula (strip teeth from the calalist of the tongue-like muscle) from inside the mouth, make small incisions on the edge of the mouth. Use tweezers to locate the small, folded, plastic-like radula between your beaks and remove it. It is usually very small, yellow or white in color. What is the function of the radula? Store the radula and beak in water in a small cup if you perform a microscopic examination. Funnel: Turn the body, ventral side up, and look for the funnel (the drained meat tube at the bottom of the head). The squid floats the squirted water into the mantle of the funnel. The direction in which it swims depends on which direction the funnel is directed. Move the funnel and note its elasticity. External anatomy: Check the squid so that the tentacle is far from you at the top of the autopsy tray. Extend the arms, tentacs and fins. Draw and label the outer parts of the squid: arms, tentacle (there are suckers only at the peaks), head, eyes, fins, cape, funnel, tail, suckers, beak (where all are on untouched squid) and mouth. If something is not visible, draw an arrow to show where it should be. If you have time, slice away to open an eyeball and locate the lens, pupil, retina, and iris (colored part of the eye). Look for the creamy white brain in your eyeball. See the following illustration. Opening the cloak: Hold the squid on its back (opposite the funnel). With the help of tweezers, lift the opening to the mantle behind the funnel (near the head) and separate the mantle from the internal organs. Close the tweezers firmly so that pinch the mantle meat to keep it taut, cut along the ventral centerline of the mantle, opening all the way to the tail. Be sure to keep the scissors away from the internal organs so that they are not damaged. Placement and removal of reproductive organs: Locate the gonad (reproductive organ) at the back end (see chart shape and location). When opening female specimens, the large, solid, white nidamental glands are first seen. Males don't have nidamental glands. The glands lay on top of the other internal organs. These glands create a gelatid matrix that surrounds the eggs. In order to proceed further, carefully remove these glands. In females, eggs are jelly-like in a tapered bag at the back end of the mantle. The male genitals drain a white, fluid-filled bag from the back end of the cape. Sperm is stored in thin tubes in an eitic behind and along a gill. Gills: Find the gills. These are long, feather-shaped bodies that are attached to the sides of the mantle and extend to the front half of the mantle. Identify the gill hearts, one at the back end of each gill (they are small, flat and white). Questions: Why are they white and why are our hearts red or purple? The squid has a third heart (a systemic heart) that pumps blood into the rest of the body. Challenge: Why do you have separate hearts for gills only? Digestive system: A long, silvery dark tube at the bottom of the liver (but appears to be on top of the liver because the squid is in reverse position) is the ink bag. Be careful not to break it. Find the stomach and the kaeum. They lie together like a white, silky-looking tube, like a deflated bladder and a coiled bag. The knotted organs, which look like human intestines, are digestive canals for squid. If you're curious about the liver, wait for him to cut it open by the end of the autopsy. It contains many brown, oily liquids that can mask other organs. If possible, open the stomach and examine its contents. Many squid will have bits of partially digested crabs (pink and white pieces) or tiny fish scales and bones. Remove the ink bag: Locate and carefully remove the silvery-black ink bag attached to the intestine. To do this, pinch the opening of the bag (near the back of the funnel) while gently pulling up and cutting the knitting membrane along its length. After cutting about 1/3-1/2 of it, hold the bag with your fingers and pull the bag off the liver. Make sure you don't pierce it. Squid ink stains clothing and skin. Place the bag in a small glass so that you can use it later with gladius (pen). Removal of Gladius (Pen): Gladius is a long, clear feather-shaped structure used to support the mantle and organ attachment. This and the skull, or brain case, fill up the skeleton of the squid. It feels like plastic and made of fabric similar to shrimp shell. There are two ways to remove it: from the tail or from inside the cut cape. To remove from the inside of the open mantle, hold your head and organs firmly and rotate them sideways with your left hand while holding one side of the cape with your right hand and pull it away gently. Pulling out gladius is like removing a splinter from your skin. You may have to cut your connective tissue to keep the gladius in place. Gladius turns out to lie along the back midline of the cloak. Grab the front end of the gladius and gently pull it out of the mantle opening. It can be useful for one person to hold down the lower cloak, while the other removes the gladius. To remove from the end of the tail, rotate the organs to one side and cut the connective tissues. Make sure that the mantle is to the midline to the tip of the tail. Stretch the tail of the gladius and pull it back away from the body. Writing on Gladius (Pen) and Squid Squid: Cut one end of the ink bag open and press the bottom of the cup with tweezers or toothpicks. You can also hold one end and squeeze out the ink with your finger as you toothpaste a tube. This dissolves the ink. Sod the pointy tip (the front end) of gladius into the ink and fill the tip with the dark liquid. Then, using the tip of gladius filled with ink, write your name on the squid's illustration or paper. If there is enough ink, create and type the name of the dissected squid under the image. If the ink looks dry and pasty, add only one drop of water at a time to create liquid ink. While this is an unusual way to write, squid squid is actually used to write and draw in anti ancient times and is used today in some cultures. Unfortunately, it usually fades over time (except for clothes!). Internal anatomy: Drawing, labeling, and identifying the function of the following inner parts of the squid: stomach caecum hearts (systemic and gills) gill genitals ink bag liver (digestive gland) gladius brain eyeball Microscope Slide Option: The following parts of the squid, make excellent specimens for microscopic examination: eggs in the ovaries suckers nida glands tips on the arms and tentacles sperm binding membranes (thinly sliced : mantle, fin , carizom) radula stomach contents of liver fluids skin and chromatophores parts of the eye beak TeachingNote: Most of these are only useful in the dissecting microscope. Questions for further investigation: Identify differences between tentacs and arms. Why are they different? How's the squid's mouth and beak like jaws and teeth? How are they different? How does the squid use the funnel and cape for movement? How does the squid get oxygen out of the water? How does the squid multiply? Why are chromatophores important to squid? What are the squid's relatives? What are the characteristics of cephalopods and molluscs? Why is it difficult to identify the stomach contents? What is the function of fins? What organ systems are identical or different from vertebrates? When you're done, clean the area completely. All equipment is returned and wash your hands. The smell of squid will last for a while. Lemon juice relieves the smell if you find it offensive. To dispose of the sample, wrap it in plastic or a zipper bag and discard it. You might want to feed it to your cat, cut it up for fish bait, or even serve it as tonight's squid. Bon appetite! Visit Clyde's Kitchen on this website for delicious squid recipes! Previous lesson | List of lessons | Next lesson site content | Open page | Home

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