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Grasshopper dissection lab worksheet answer key

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How many segments does your grasshopper have? _____ Compare this number with other grasshoppers in the class. Do they all have the same number of segments? _____ 6. Look at your chest. It is the central area to which all appendices join. The hard cover of the chest is called a shell. 7. Locate the antenna. Are the antennae branched or unbranched? _____ How many antennae are there? _____ 8. Locate the compound eyes. How many eyes does the grasshopper have? _____ 9. Locate the grasshopper's legs. What part of the body are you attached to? _____ (head, chest or abdomen). How many pairs of legs does the grasshopper have? _____ How many legs are jumping? _____ How many legs to walk? _____ 10. Look at the claws at the end of the legs. Do both legs have these claws? _____ 11. Locate the grasshopper's wings. There are actually two sets of wings, one at the top and one below. The upper wing is called the front wing and the lower wing is called the rear wing. Which wing looks most fragile? _____ 12. Rotate the grasshopper and see the parts of the mouth. Find the outer plate more (like an upper lip) called labrum, its opposite being the lower plate (lower lip) called labium. The moving mouth parts that look like antennae are the maxilla. Locate. The jaw is located under the jaw and is used for chewing. Does the jaw open from top to bottom or side to side? _____ Labels the labrum, jaw and jaws in the image. In addition eyes and composite antennae. 13. Raise your wings to find the disc-shaped eardrum underneath. The eardrum works like an eardrum. How many eardrums are in the grasshopper? _____ 14. Look at the abdomen and fine-tune the row of holes along it; these are the spiracles and they work in breathing (breathing). How many spiracles are you counting? _____ 15. The sex of the grasshopper can be determined by looking at the abdomen segment. Females have a large pair of pointed structures called ovipositor, which are used to lay eggs on the ground. Is a grasshopper a male or a female? _____ GRASSHOPPER COLORING Walking Leg Jumping Leg Claws Carapace Hindwing Forewing Tympanum Spiracles Antenna Abdomen Labrum Head Thorax *Choose a color for each structure, color the box and structure Introduction: Insects are arthropods with articulated appendages, segmented bodies and an exoskeleton composed of chitin. Insects are in the Insect class, and are the largest and most diverse group of animals on earth. The genus Romalea is a large grasshopper common in the southeastern United States. Insects have three regions of the body (head, chest and abdomen), 3 pairs of legs attached to the chest, a single pair of antennae attached to the head, parts of the mouth adapted for chewing or sucking, and two pairs of wings. Some insects may have a single pair of wings or have no wings. Insect legs often adapt to dig, crawl, jump or swim. Insects are mostly terrestrial, breathe air that enters small lateral openings in the body called spiracles and circulates in a system of ducts to all organs and tissues. Its parts of the chewing or suction mouth are adapted to feed on plant or animal materials. Classification: Kingdom – Animalia Phylum – Arthropoda Class – Insect Order – Orthoptera Objective: Identify and label the internal and external anatomy of a grasshopper. Materials: laboratory apron, gloves, glasses, dissection pan, dissection kit with forceps and scalpel, t-pins, magnifying glass, preserved grasshoppers, paper, pencil. Procedure (External Anatomy): Examine the entire grasshopper and identify the main subdivisions and body parts. Get a preserved grasshopper and rinse any preservative with water. Place the grasshopper in the dissection pan. Notice that the grasshopper body is divided into 3 regions: the head, chest, and abdomen. Label these in Figure 2. Examine the head and locate the following parts: HEAD antennae (two, thin appendages) Compound eyes (2, large sides) Ocelli (or simple eyes) – 3, small, between the compound eyes Parts of the mouth – Labrum (upper lip), jaws (jaws) under the labrum, maxilla located behind the jaws for to cut and retain food, and the lower lip or labium 1. Labrum 4. Labium 2. Jaws 5. 5. Palps 3. Palps Lipstick 6. Maxilla 7. composite eye 8. Ocelli Label the parts of the mouth, eyes and antenna in Figure 1. Using forceps, remove each of the appendages from the head and attached to table 1. Examine the following appendages in the chest (middle section of the grasshopper body): THORAX legs (the first 2 pairs are for walking and the last pair are for jumping) Wings (the front wings have a corable appearance and protect the hind legs) Using forceps, remove one of the walking legs and identify these parts — the tail cox connects the femur (the thickest part of the leg) to the body of the grasshopper; a slender, thorny tibia connects the femur to the tarsal segments (lower leg part). Label these in Figure 2. Remove a jumping leg and place the walking leg and skip the leg to table 1. Lift both pairs of wings and locate the first abdominal segment. Locate the tympanic membrane or eardrum in the first abdominal segment. Label this in Figure 2. Using a magnifying glass, locate the tiny breathing spals or pores on either side of the abdominal segments. Label these in Figure 2. Determine if your grasshopper is a male or female looking at the end of your abdomen. Females have a conical abdomen that ends in a pointy egg laying tube called an ovipositor. Males have a more rounded abdomen that rotates upwards. Label the ovipositor in Figure 2. ABDOMEN Spiracles (small openings on the side of somites or body segments) Auditory organs (two located laterally in the 1st somite body or segment) Ovipositor (in the female) Observations & Conclusion: Figure 1 – Grasshopper head (Label ALL parts.) Figure 2 – External anatomy of the grasshopper (label ALL parts.) Table 1 – External Column of the Grasshopper (Attach ALL Parts.) Labrum Mandible Maxilla Labium Forewing Hindwing Walking Leg Jumping Leg Sex of Grasshopper Antenna 1. Which region of the insect body is specialized for sensory functions? Explain your answer. 2. What region of the insect body is specialized for movement and explain why? 3. What is the purpose of compound eyes? simple-eyed? 4. List the oral parts of the grasshopper and their functions. 5. How do the ends of the legs adapt to hold the plants? 6. How does the third pair of legs fit to jump? 7. Describe the differences between the two pairs of wings (appearance and function). 8. How does the tympanic membrane help a grasshopper? 9. In what system do the spiracles open in a grasshopper? 10. Do all abdominal segments have spiracles? Are there spiracles in the chest segments? 11. How did you determine the sex of your grasshopper? 12. Explain how grasshoppers dig holes lay their eggs. Eggs. Eggs.