Grasshopper Pre-lab Worksheet

The following worksheet must be successfully completed before you start the actual dissection of the grasshopper.

**Introduction**

1. What % of all animal species are insects? __________________________________
2. Name the phylum for grasshoppers: ________________________________________
3. Name seven common characteristics of all arthropods:
   i. ________________________________________________________________
   ii. _______________________________________________________________
   iii. ______________________________________________________________
   iv. _______________________________________________________________
   v. ________________________________________________________________
   vi. ________________________________________________________________
   vii. ______________________________________________________________
4. What is the scientific name of the grasshopper we are dissecting? _______________

**External Anatomy**

5. Name 4 functions of the exoskeleton
   i. ________________________________________________________________
   ii. _______________________________________________________________
   iii. ______________________________________________________________
   iv. _______________________________________________________________
6. What’s the major disadvantage of an exoskeleton? _____________________________
7. What is the major component of the exoskeleton? _____________________________
8. Name the three distinct body regions: ____________, ____________ & ____________
9. Identify these external features and describe their function/location:
   a. Compound Eye ___________________________________________________
   b. Ocelli ____________________________________________________________
   c. Antenna _________________________________________________________
   d. Labrum _________________________________________________________
   e. Maxilla _________________________________________________________
   f. Mandible ________________________________________________________
   g. Palpi ___________________________________________________________
   h. Tympanum _______________________________________________________
   i. Femur __________________________________________________________
   j. Tibia ____________________________________________________________
k. Tarsus
l. Spiracles
m. Ovipositor

Internal Features
10. Identify these internal features and describe their location, appearance and function:
   a. Brain
   b. Ventral nerve cord
   c. Mouth
   d. Esophagus
   e. Crop
   f. Stomach
   g. Gastric Ceca
   h. Intestine
   i. Rectum
   j. Anus
   k. Malpighian Tubules

The Head
11. How many segments is the head actually made up from?________________________
12. Food is manipulated by what “tongue-like” organ?_______________________________
13. What are the types of eyes?__________________ and ______________________
14. What antenna are sensory structures for which two senses? __________ & __________

The Thorax
15. How many segments is the thorax made from? ______________________
16. How many joints/segments does each leg have? __________________
17. What structure is used by the male to produce mating calls? ________________________

The Abdomen
18. How many segments is the abdomen made from?_______________________________
19. What is the female egg laying structure called?_______________________________

Respiratory System
20. What is the respiratory system of the grasshopper called? _______________________
21. What is the series of tubes used to distribute the air called? ______________________
22. The Tracheal System begins w/ __________________________
23. Can Grasshoppers pump air into the spiracles? ____________________________
Name: _______________________________  Date: ___________   50 points possible

**Digestive System**

24. Food is chewed up into smaller pieces and then moistened by _________________________
25. What muscular organ manipulates the food for swallowing? __________________________
26. Describe the path of food thru the digestive system:
   a. Mouth, __________, __________, __________, __________, __________, __________, __________, __________, __________, __________, and anus. The __________ secrete digestive enzymes into the stomach.

**Circulatory System**

27. What type of circulatory system does the grasshopper have?

**Excretory System**

28. What organs are used to remove nitrogenous wastes (urea)? ________________

**Nervous System**

29. How many ganglions does the grasshopper brain have? ________________
30. Does it have a dorsal or ventral nerve cord? ___________________________

**Reproductive System**

31. How do you tell the difference between the sexes?
   ______________________________________________________
   ______________________________________________________

**The Actual Dissection**

1. From pg 4, you must __________________________ your grasshopper to figure 1.
2. From pg 5, the use of __________________________ will greatly aid in identifying mouth parts.
3. From page 7, Internal Anatomy, In order to dissect what must first be removed? ________________
4. What instrument is recommended to do this? __________________________
5. What must next be done? __________________________
6. How many pins are recommended? __________ What location? __________________________
7. What abdominal segment do you begin your cut? ________________
8. Describe the rest of the cut: _________________________________________________________
    _________________________________________________________
    _________________________________________________________
9. What tool is used to remove the plates of the exoskeleton as they become free? ________________
10. What type of tissue will come off w/ the exoskeleton? __________________________