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CHAPTER 1: The Science of Life

SECTION 1 VOCABULARY

1. **biology:** _____

2. **organization:** _____

3. **cell:** _____

4. **unicellular:** _____

5. **multicellular:** _____

6. **organ:** _____

7. **tissue:** _____

8. **organelle:** _____

9. **biological molecule:** _____

10. **homeostasis:** _____

11. **metabolism:** _____

12. **cell division:** _____

13. **development:** _____

14. **reproduction:** _____

15. **gene:** _____

COMPREHENSION QUESTIONS

1. Biology is the study of _____.
2. List the seven characteristics or qualities that constitute life and give an example of each.
 - a. _____

 - b. _____

 - c. _____

 - d. _____

 - e. _____

 - f. _____

 - g. _____

3. The smallest structural and functional unit of life is the _____.

4. All living organisms exhibit structural and functional organization. Place the terms below in order from simplest to most complex and place an * by the term that indicates the simplest form of life.

Organisms	Tissues	Molecules	Organelles	Organs	Atoms	Cells	Systems
-----------	---------	-----------	------------	--------	-------	-------	---------

- a. _____
 - b. _____
 - c. _____
 - d. _____
 - e. _____
 - f. _____
 - g. _____
 - h. _____
5. In which two ways can living organisms increase in size over time?
 - a. _____
 - b. _____
 6. What are the two types of reproduction seen in living organisms, and how are they different?
 - a. _____
 - b. _____
 7. Phylogenetic diagrams (Tree of Life) are used to help biologists classify (organize) organisms according to their similarities or common characteristics. There are many different classification systems; however, the system we will be using throughout the year organizes all living things into three domains. These domains are:
 - a. _____
 - b. _____
 - c. _____

8. The three domains are made up of six kingdoms. These six kingdoms and their domains are:

- a. _____ Domain: _____
- b. _____ Domain: _____
- c. _____ Domain: _____
- d. _____ Domain: _____
- e. _____ Domain: _____
- f. _____ Domain: _____

9. Kingdoms are then made up of different _____.

10. Number the terms below in order from the most general to the most specific. (See text, p. 338)

- _____ Order _____ Domain _____ Genus _____ Class
_____ Species _____ Phylum _____ Kingdom _____ Family

11. All organisms within a defined geographic area are in relationship with each other in some way or another. This relationship is termed _____.

12. The defined geographic area in which organisms are dependent on each other and interact is called an _____.

13. The specific study of these organisms and their homes is called _____.

14. All living organisms must reproduce in order for the species to survive. Hereditary information is passed from one organism to another in the form of _____.

15. Favorable hereditary traits that allow a species to live and reproduce more successfully are passed from one generation to another. This process is termed _____.

16. Natural selection occurs over time, causing new and genetically different species to emerge. This process is called _____.

17. The steps in the process of scientific inquiry (the scientific method) are listed below. Briefly describe or explain each step on the line provided. Theory is completed for you.

- a. Theory: A well-tested and accepted explanation or model of the natural world
- b. Observation: _____

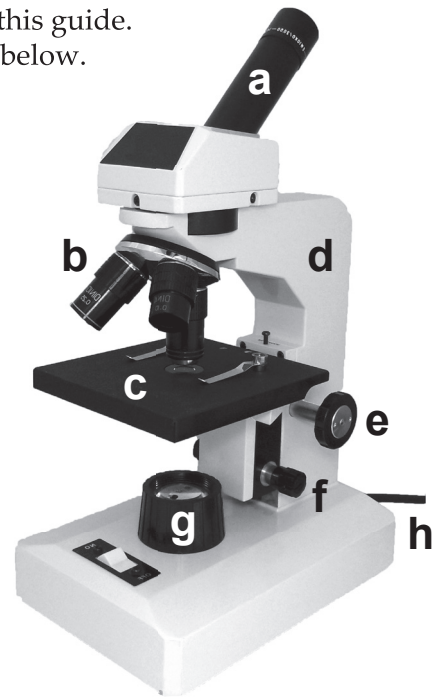
- c. Hypothesis: _____

- d. Prediction: _____
- e. Experiment: _____
- f. Results: _____
- g. Analysis: _____

- h. Conclusions: _____

18. Study the "Parts of a Microscope" diagram in the Appendix of this guide. Then label the parts of the simple compound light microscope below.

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____
- f. _____
- g. _____
- h. _____



19. Review base and derived units.

- a. What is the base unit for distance? _____
- b. What is the base unit for time? _____
- c. What is the derived unit for volume? _____
- d. What is the base unit for mass? _____
- e. What is the accepted unit for temperature? _____
- f. What are the derived units for density? _____

20. Review SI metric prefixes and fill in the abbreviation and value for each.

Prefix	Abbreviation	Value
giga		
mega		
kilo		
hecto		
deka		
base unit		
deci		
centi		
milli		
micro		
nano		
pico		

CHAPTERS 36-38: Invertebrates II

VOCABULARY

Chapter 36, Section 1

1. arthropod: _____

2. appendage: _____

3. chitin: _____

4. compound eye: _____

5. molting: _____

6. trilobite: _____

7. tagma: _____

8. mandible: _____

9. chelicera: _____

Chapter 36, Section 2

10. nauplius: _____

11. cirrus: _____

12. isopod: _____

13. decapod: _____

14. cephalothorax: _____

15. thorax: _____

16. carapace: _____

17. abdomen: _____

18. antenna: _____

19. antennule: _____

20. cheliped: _____

21. swimmeret: _____

22. telson: _____

23. uropod: _____

24. digestive gland: _____

25. green gland: _____

Chapter 36, Section 3

26. arachnid: _____

27. pedipalp: _____

28. spinneret: _____

29. book lung: _____

30. trachea: _____

31. spiracle: _____

32. Malpighian tubule: _____

COMPREHENSION QUESTIONS

Phylum Arthropoda

1. List four animals that belong to the phylum Arthropoda.

2. What three characteristics distinguish arthropods from other animals?

3. List three different examples of jointed appendages seen in arthropods.

4. What is an exoskeleton made up of?

5. Which part of the animal secretes or produces the exoskeleton?

6. Describe one advantage and one disadvantage of an exoskeleton.

7. Describe cephalization in arthropods.

8. What type of circulatory system is seen in arthropods? _____

9. Into what five subphyla are arthropods divided? Give an example of an animal from each.

a. _____

b. _____

c. _____

d. _____

e. _____

10. On what basis are arthropods placed into a specific subphylum? _____

11. What is a tagma? _____

12. What is the difference between an arthropod's mandibles and its chelicerae?

13. Most crustaceans have 16-20 body segments that are fused into several _____.

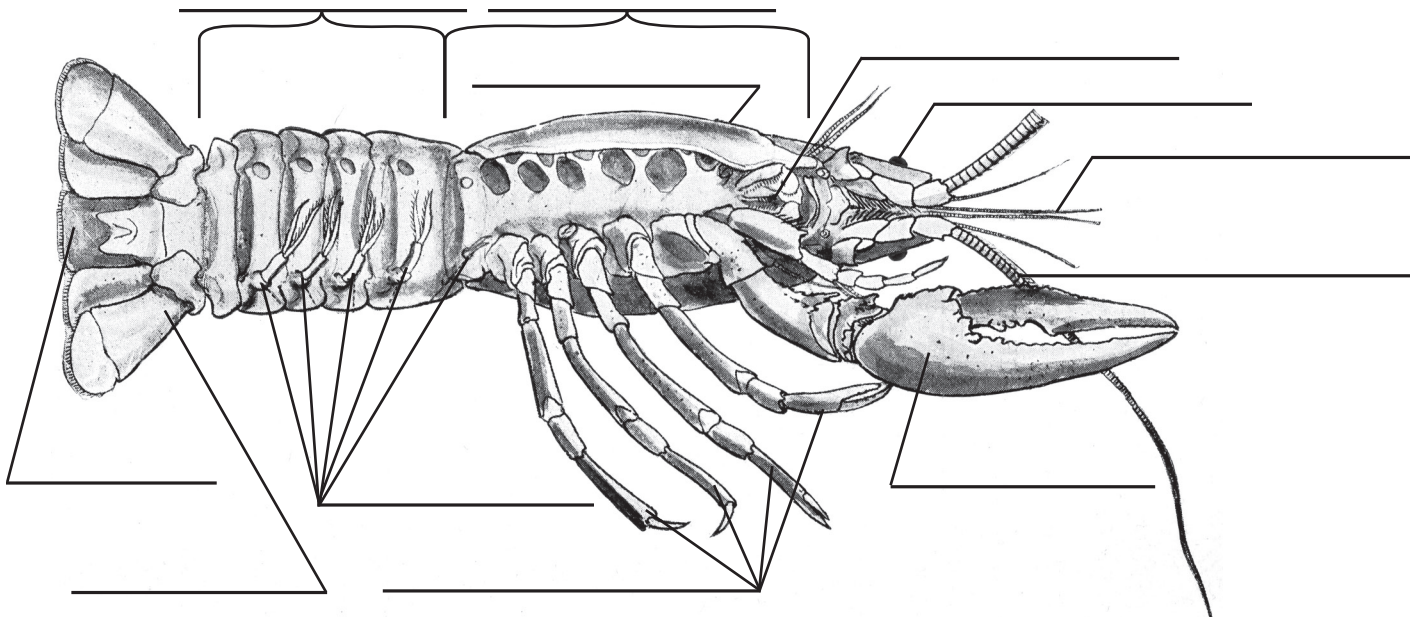
14. How do crustaceans respire?

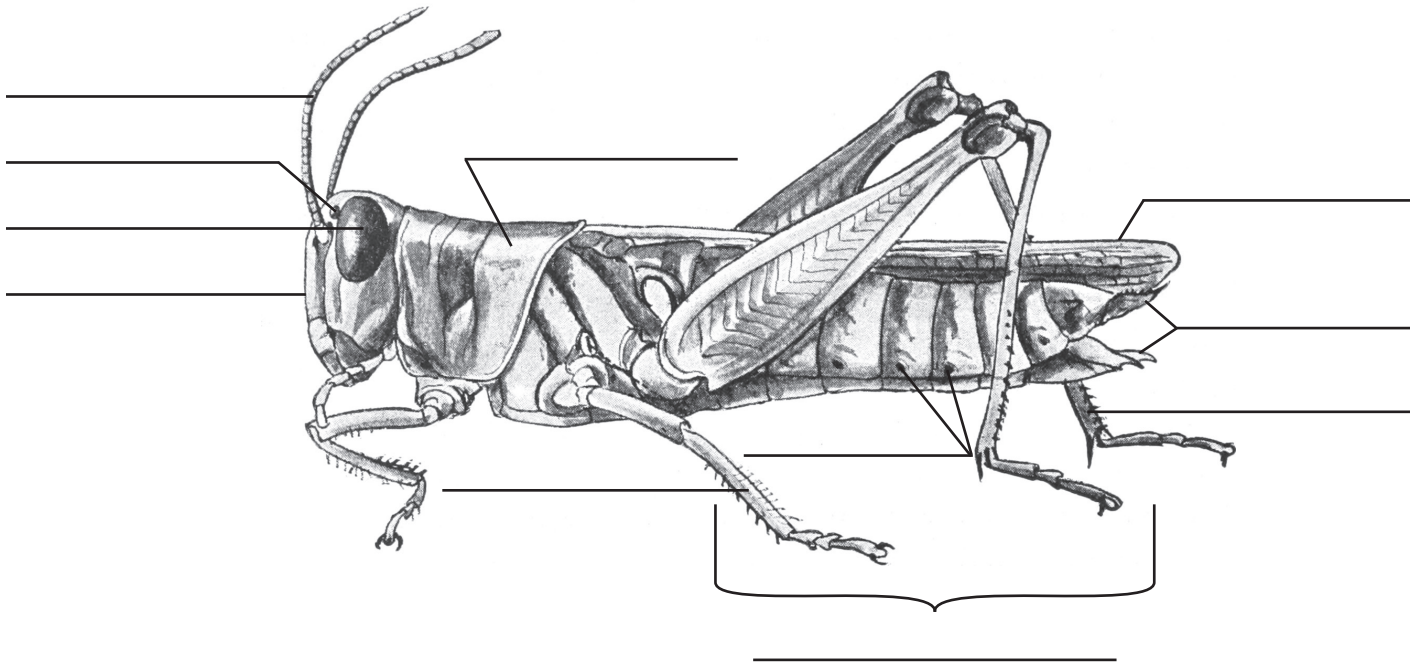
15. What is a nauplius?

16. What are the primary differences between isopods, copepods, and decapods?

17. Label the external structures of the crayfish, and briefly describe the function of each.

- a. Abdomen: _____
- b. Cephalothorax: _____
- c. Compound eye: _____
- d. Appendages (one set attached to each segment):
 - 1. Antennae and antennules: _____
 - 2. Mandibles: _____
 - 3. Maxilla or maxillipeds: _____
 - 4. Walking legs and swimmerets: _____
 - 5. Chelipeds: _____
 - 6. Tail made up of telson and uropods: _____





39. List the structures involved in grasshopper feeding and digestion in order from ingestion to excretion.

40. How does gas exchange occur in the grasshopper?

41. All insects begin life as an egg and undergo several molts before they reach maturity. How is incomplete metamorphosis different from complete metamorphosis?

42. What are the advantages of metamorphosis?
