

Chapter 28 Arthropods and Echinoderms

Section 28–1 Introduction to the Arthropods (pages 715–719)

This section identifies the main features of arthropods. It also describes the important trends in arthropod evolution and explains how growth and development take place in arthropods.

What Is an Arthropod? (page 715)

1. What is the basic body plan of all arthropods? _____

2. A tough body wall that protects and supports the body of arthropods is called a(an) _____.
3. What is chitin? _____

4. Circle the letter of each sentence that is true about arthropod exoskeletons.
 - a. The exoskeletons of many land-dwelling species have a waxy covering.
 - b. All arthropod exoskeletons are the same shape.
 - c. Lobster exoskeletons cannot be crushed by hand.
 - d. An exoskeleton is an external covering.
5. What are appendages? _____

6. Is the following sentence true or false? The appendages of arthropods are jointed.

Evolution of Arthropods (page 716)

7. Where did the first arthropods appear more than 600 million years ago?

8. What are two ways in which arthropods have evolved since they first appeared?
 - a. _____
 - b. _____

9. Circle the letter of each sentence that is true about arthropod evolution.
- a. Most primitive arthropods had only one or two body segments.
 - b. Arthropod appendages evolved into different forms.
 - c. The early body plan was modified gradually.
 - d. Appendages of living arthropods include wings, flippers, and mouthparts.

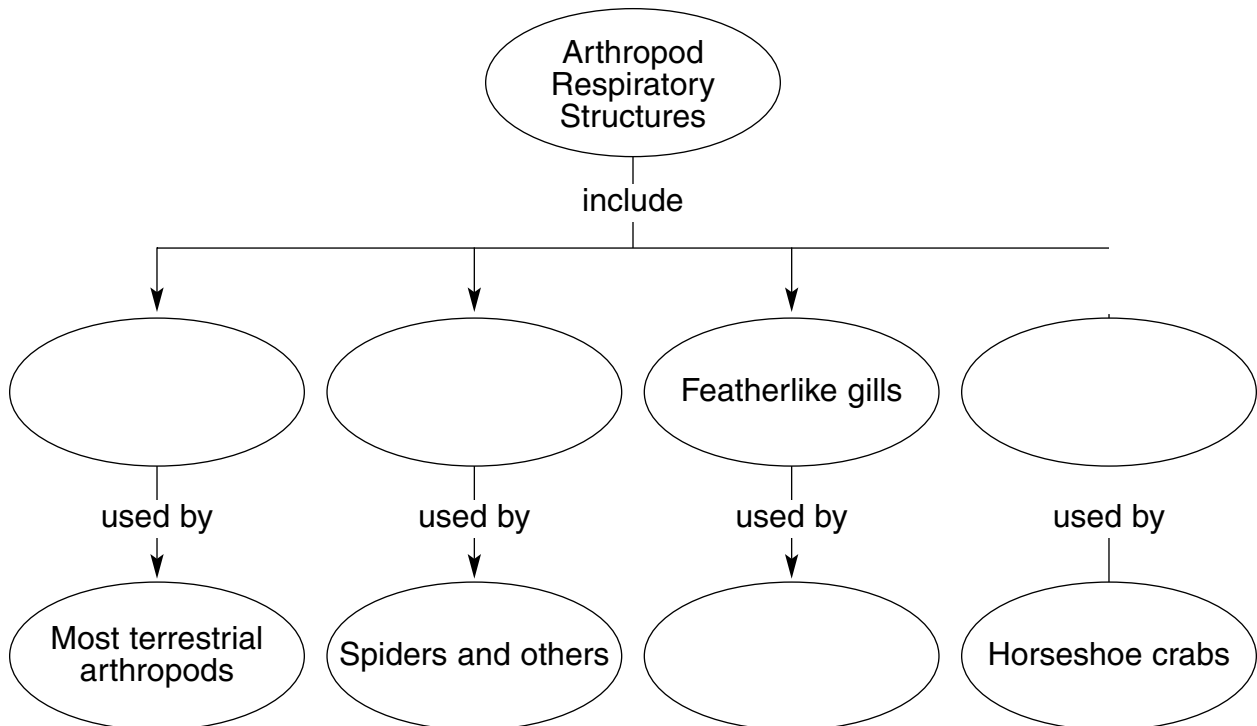
Form and Function in Arthropods (pages 716–719)

10. Is the following sentence true or false? Arthropods include herbivores, carnivores, and omnivores. _____

Match the arthropod structure with its description.

Structure	Description
_____ 11. Tracheal tubes	a. Saclike organs that extract wastes from the blood and add them to feces
_____ 12. Spiracles	b. Network of branching tubes through which arthropods breathe
_____ 13. Book lungs	c. Organs through which horseshoe crabs respire
_____ 14. Book gills	d. Layers of respiratory tissue stacked like the pages of a book through which spiders respire
_____ 15. Malpighian tubules	e. Small openings on the side of the body through which air enters and leaves tracheal tubes

16. Complete the concept map about arthropod respiration.



17. Circle the letter of each sentence that is true about the response to the environment by arthropods.
- a. Most arthropods have sophisticated sense organs.
 - b. All arthropods have a brain.
 - c. Ganglia along a ventral nerve cord coordinate the movements of individual legs.
 - d. Very few arthropods have a well-developed nervous system.
18. How do aquatic arthropods carry out excretion? _____

19. How do arthropods move? _____

20. Circle the letter of each sentence that is true about arthropod reproduction.
- a. Aquatic arthropods have only internal fertilization.
 - b. In some species, males have an organ that places sperm inside females.
 - c. Terrestrial arthropods may have internal or external fertilization.
 - d. In some aquatic species, males shed sperm around eggs released into the environment.

Growth and Development in Arthropods (page 719)

21. When do arthropods undergo periods of molting? _____

22. What occurs in arthropods during molting? _____

