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Section 33–3 Form and Function in Chordates (pages 857–864)

This section explains how the organ systems of the different chordate groups carry out essential life functions.

Feeding (pages 857–858)

1. Most tunicates and all lancelets are _____. They remove plankton from the water that passes through their _____.
2. Circle the letter of the vertebrates that are filter feeders.
   a. tunicates **b.** flamingoes **c.** manta rays **d.** crocodiles
3. What adaptations do vertebrates have to feed on nectar? _____
   _____
4. Is the following sentence true or false? Mammals with sharp canine teeth and incisors are filter feeders. _____
5. Circle the letter of the vertebrates that typically have short digestive tracts that produce enzymes.
   a. herbivores **b.** endotherms **c.** carnivores **d.** ectotherms

Respiration (pages 858–859)

6. Is the following sentence true or false? Generally, aquatic chordates use lungs for respiration. _____
7. List three examples of respiratory adaptations or structures used by chordates in addition to gills and lungs.
   a. _____
   _____
   b. _____
   _____
   c. _____
   _____
8. Describe the basic process of breathing among land vertebrates. _____
   _____
   _____
   _____
   _____
9. Is the following sentence true or false? Mammals typically have more surface area in their lungs than amphibians. _____
10. Bubblelike structures in the lungs that provide an enormous surface area for gas exchange are called _____.

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11. Complete the flowchart that describes the path of water as it moves through a fish. See Figure 33–9 on page 859.

Water flows in through the fish's _____, where muscles pump the water across the _____.

↓

As water passes over the gill filaments, _____ molecules diffuse into blood in the capillaries. At the same time, _____ diffuses from blood into water.

↓

Water and carbon dioxide are pumped out through the _____.

12. Why do mammals need large amounts of oxygen? _____

_____

_____

13. Why are the lungs of birds most efficient? _____

_____

_____

Circulation (pages 860–861)

14. Is the following sentence true or false? Chordates that use gills for respiration have a single-loop circulatory system. _____

15. Identify where the blood is carried in each loop of a double-loop circulatory system.
First loop: _____
Second loop: _____

16. Is the following sentence true or false? In a double-loop system, oxygen-poor blood from the heart is carried to the body. _____

17. In vertebrates with gills, the heart consists of _____ chambers.

18. What is the advantage of the reptilian heart over the amphibian heart? _____

_____

_____

19. Why is a four-chambered heart sometimes described as a double pump? _____

_____

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Excretion (page 861)

20. In nonvertebrate chordates and fishes, _____ play an important role in excretion. However, most vertebrates rely on _____.

21. Circle the letter of each chordate that eliminates nitrogenous wastes as urea.

a. tunicates **c.** birds

b. reptiles **d.** mammals

22. How do vertebrate kidneys help maintain homeostasis? _____

_____

_____

_____

_____

Response (page 862)

23. Is the following sentence true or false? Nonvertebrate chordates have a complex brain with distinct regions. _____

24. Circle the letter of the part of the brain that controls the function of many internal organs.

a. medulla oblongata **c.** olfactory bulbs

b. optic lobes **d.** cerebrum

25. Is the following sentence true or false? The cerebrum and cerebellum are most developed in birds and mammals. _____

Movement (page 863)

26. Although nonvertebrate chordates lack bones, they do have _____.

27. What structures make it possible for vertebrates to control movement? _____

_____

_____

Reproduction (page 864)

28. Is the following sentence true or false? Vertebrate evolution shows a general trend from internal to external fertilization. _____

29. Circle the letter of development in which the eggs develop internally and the embryos receive nutrients from the yolk surrounding them.

a. oviparous **c.** viviparous

b. ovoviviparous **d.** asexual

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WordWise

Use the clues to identify vocabulary terms from Chapter 33. Write the words on the lines. Then, find the terms hidden in the puzzle and circle them.

Clues	Vocabulary Terms
An animal whose body temperature is mainly determined by the temperature of its environment	_____
A flexible, supporting structure that is found only in chordates	_____
Bubblelike structures in the lungs that provide an enormous surface area for gas exchange	_____
A rapid growth in the diversity of a group of organisms is a(an) _____ radiation.	_____
An animal whose body temperature is controlled from within	_____

e c o r m w l e u r d w p l m o h t a r

a p k m n g t n t e w u n k m e t h d p

r l p o e r h d e a t h m l e f t a a b

k e v m a e o o n o t o c h o r d b p a

a l m e k o r t g r e a v k l h y o t l

c t h r o g w h f c e r t a n y l k i v

p u r g t l v e t e r h b s w u k h v m

h e f g a l i r t s h k b g c h i o e i

a s l o m b r m t m r e h t o t c e l a

s e t h d v a l t i p e c t b w r p j m

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