

**Chapter 37 Circulatory and Respiratory Systems**

**Section 37-1 The Circulatory System (pages 943-950)**



**TEKS FOCUS:** 3F History of biology and contributions of scientists; 10A Functions of the circulatory system; 10B Interrelationships of organ systems; 11C Importance of nutrition and exercise on health

*This section describes the circulatory system and its functions.*

**Functions of the Circulatory System (page 943)**

1. Why do large organisms require a circulatory system? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
2. What is a closed circulatory system? \_\_\_\_\_  
 \_\_\_\_\_
3. List the three components of the circulatory system.  
 a. \_\_\_\_\_ b. \_\_\_\_\_ c. \_\_\_\_\_

**The Heart (pages 944-946)**

4. Is the following sentence true or false? The heart is composed almost entirely of muscle. \_\_\_\_\_

*Match each heart structure with its description.*

Structure	Description
_____ 5. pericardium	a. Thick layer of muscle in the walls of the heart
_____ 6. myocardium	b. Sac of tissue that encloses and protects the heart
_____ 7. atrium	c. Upper chamber of the heart
_____ 8. ventricle	d. Lower chamber of the heart

9. The heart pumps about \_\_\_\_\_ times per minute.
10. Dividing the right side of the heart from the left side is a wall called a(an) \_\_\_\_\_.
11. Is the following sentence true or false? The heart functions as four separate pumps. \_\_\_\_\_
12. Complete the compare-and-contrast table.

**THE CIRCULATORY SYSTEM**

Name of Circulatory Pathway	Side of Heart Involved	Route Blood Follows
Pulmonary circulation		From heart to lungs
	Left side	

13. What happens to blood when it reaches the lungs? \_\_\_\_\_  
 \_\_\_\_\_

14. Why is the blood that enters the heart from the systemic circulation oxygen-poor?

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15. Circle the letter of each sentence that is true about blood flow through the heart.

- a. Blood enters the heart through the right and left atria.
- b. Blood enters the heart through the right and left ventricles.
- c. Blood flows from the ventricles to the atria.
- d. Blood flows out of the heart through the right and left atria.

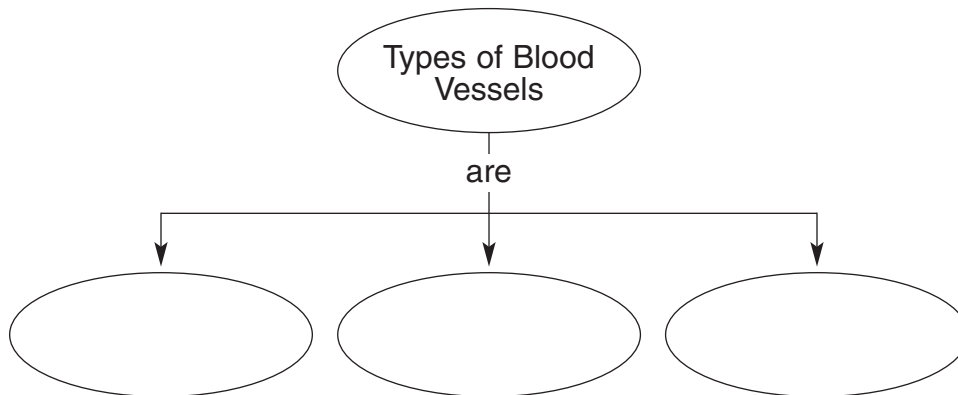
16. Flaps of connective tissue called \_\_\_\_\_ prevent blood from flowing backward in the heart.

17. Each heart contraction begins in a small group of cardiac muscle cells called the \_\_\_\_\_ node.

18. Cells that “set the pace” for the beating of the heart as a whole are also called the \_\_\_\_\_.

### Blood Vessels (pages 946–947)

19. Complete the concept map.



20. Circle the letter of each sentence that is true about arteries.

- a. Most carry oxygen-poor blood.
- b. They can expand under pressure.
- c. They have thin walls.
- d. The largest is the aorta.

21. Is the following sentence true or false? The smallest of the blood vessels are the capillaries. \_\_\_\_\_

22. What work is done in the capillaries? \_\_\_\_\_  
\_\_\_\_\_

23. What keeps blood flowing toward the heart in the largest veins? \_\_\_\_\_  
\_\_\_\_\_

### Blood Pressure (pages 948–949)

24. The force of blood on the walls of arteries is known as \_\_\_\_\_.
25. Is the following sentence true or false? Blood pressure increases when the heart relaxes.  
\_\_\_\_\_

Match each type of blood pressure with the force it measures.

- | Type of Pressure    | Force It Measures                                  |
|---------------------|--|
| _____ 26. systolic  | a. Force of the blood when the ventricles relax    |
| _____ 27. diastolic | b. Force of the blood when the ventricles contract |
28. Is the following sentence true or false? A typical blood pressure reading for a healthy person is 140/80. \_\_\_\_\_
29. How does the autonomic nervous system regulate blood pressure?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
30. How do the kidneys regulate blood pressure? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Diseases of the Circulatory System (pages 949–950)

31. A condition in which fatty deposits build up on the walls of arteries is called \_\_\_\_\_.
32. High blood pressure also is called \_\_\_\_\_.
33. Is the following sentence true or false? High blood pressure increases the risk of heart attack and stroke. \_\_\_\_\_
34. Circle the letter of each sentence that is true about heart attack.
- a. It is caused by atherosclerosis in the coronary arteries.
  - b. It occurs when part of the heart muscle begins to die.
  - c. Its symptoms include nausea and chest pain.
  - d. It requires immediate medical attention.
35. Is the following sentence true or false? A stroke may be caused by a clot in a blood vessel leading to the brain. \_\_\_\_\_
36. List three ways of avoiding cardiovascular diseases.
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_