

3

Chapter Review

the **BIG** idea

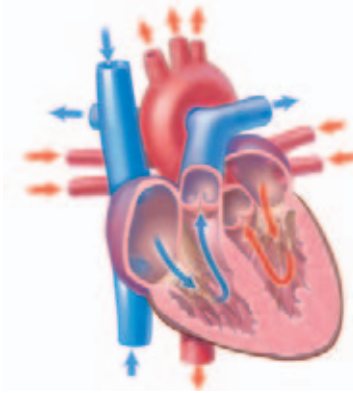
Systems function to transport materials and to defend and protect the body.



CONTENT REVIEW
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KEY CONCEPTS SUMMARY

3.1 The circulatory system transports materials.



The heart, blood vessels, and blood of the circulatory system work together to transport materials from the digestive and respiratory systems to all cells. The blood exerts pressure on the walls of the blood vessels and keeps the blood moving around the body.

VOCABULARY
circulatory system p. 65
blood p. 65
red blood cell p. 67
artery p. 69
vein p. 69
capillary p. 69

3.2 The immune system defends the body.

The immune system defends the body from pathogens. White blood cells identify and attack pathogens that find their way inside the body. The immune system responds to attack with inflammation, fever, and development of immunity.

Types of Pathogens

Disease	Pathogen
colds, chicken pox, hepatitis, AIDS, influenza, mumps, measles, rabies	virus
food poisoning, strep throat, tetanus, tuberculosis, acne, ulcers, Lyme disease	bacteria
athlete's foot, thrush, ring worm	fungus
malaria, parasitic pneumonia, pinworm, lice, scabies	parasites

VOCABULARY
pathogen p. 74
immune system p. 75
antibody p. 75
antigen p. 78
immunity p. 80
vaccine p. 80
antibiotic p. 81

3.3 The integumentary system shields the body.

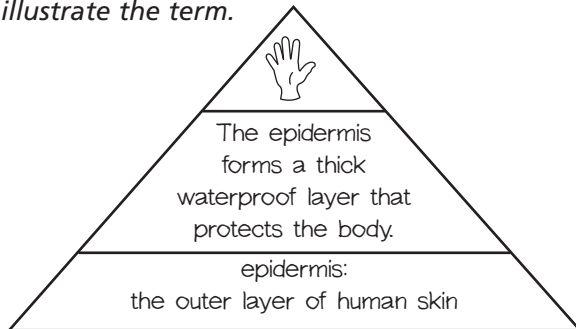


The skin protects the body from harmful materials in the environment, and allows you to sense temperature, pain, touch, and vibration. In most cases the skin is able to heal itself after injury.

VOCABULARY
integumentary system p. 83
epidermis p. 84
dermis p. 84

Reviewing Vocabulary

Draw a word triangle for each of the terms below. Write a term and its definition in the bottom section. In the middle section, write a sentence in which you use the term correctly. In the top section, draw a small picture to illustrate the term.



1. capillary
2. blood
3. dermis
4. antigen

Write a sentence describing the relationship between each pair of terms.

5. pathogen, antibody
6. artery, vein
7. immunity, vaccine

Reviewing Key Concepts

Multiple Choice Choose the letter of the best answer.

8. Which chamber of the heart pumps oxygen-poor blood into the lungs?
 - a. right atrium
 - b. right ventricle
 - c. left atrium
 - d. left ventricle
9. Which blood structures carry blood back to the heart?
 - a. veins
 - b. capillaries
 - c. arteries
 - d. platelets

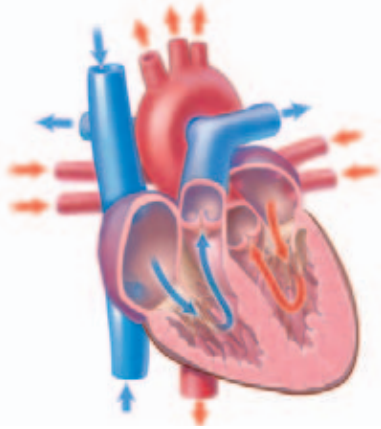
10. The structures in the blood that carry oxygen to the cells of the body are the
 - a. plasma
 - b. platelets
 - c. white blood cells
 - d. red blood cells
11. High blood pressure is unhealthy because it
 - a. does not exert enough pressure on your arteries
 - b. causes your heart to work harder
 - c. does not allow enough oxygen to get to the cells in your body
 - d. causes your veins to collapse
12. Which category of pathogens causes strep throat?
 - a. virus
 - b. bacteria
 - c. fungus
 - d. parasite
13. Which of the following is a function of white blood cells?
 - a. destroying foreign organisms
 - b. providing your body with nutrients
 - c. carrying oxygen to the body's cells
 - d. forming a blood clot
14. Which makes up the integumentary system?
 - a. a network of nerves
 - b. white blood cells and antibodies
 - c. the brain and spinal cord
 - d. the skin, hair, and nails
15. Which structure is found in the epidermis layer of the skin?
 - a. pores
 - b. sweat glands
 - c. surface cells
 - d. oil glands
16. The layer of fatty tissue below the dermis protects the body from
 - a. cold temperatures
 - b. bacteria
 - c. sunburn
 - d. infection

Short Answer Write a short answer to each question.

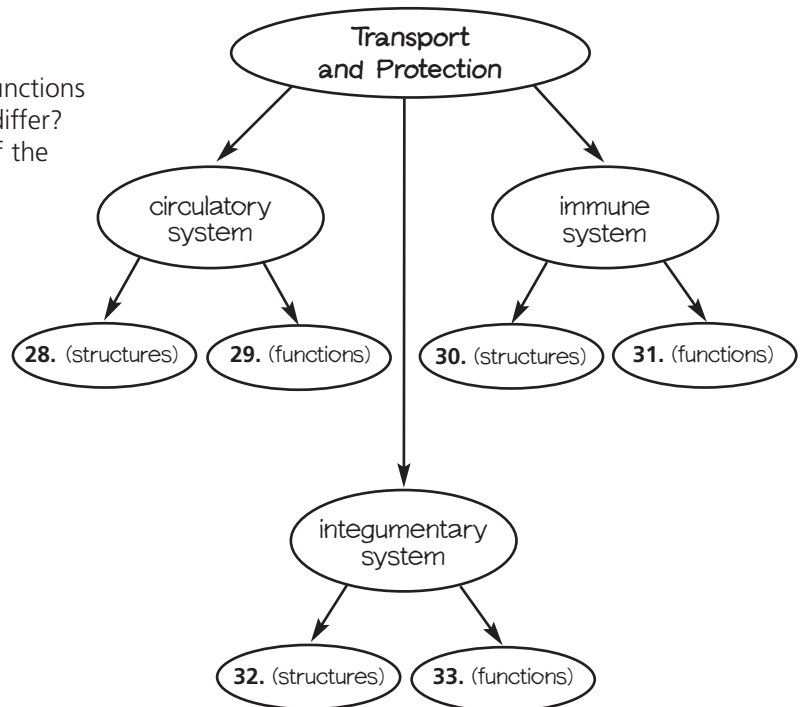
17. What are platelets? Where are they found?
18. What are antibodies? Where are they found?
19. What special structures are found in the dermis layer of the skin?

Thinking Critically

- 20. COMPARE AND CONTRAST** How do the functions of the atria and ventricles of the heart differ? How are they alike? Use this diagram of the heart as a guide.



- 21. APPLY** Veins have one-way valves that push the blood back to the heart. Most arteries do not have valves. Explain how these structures help the circulatory system function.
- 22. PROVIDE EXAMPLES** Describe three structures in the body that help prevent harmful foreign substances from entering the body.
- 23. IDENTIFY CAUSE** HIV is a virus that attacks and destroys the body's T cells. Why is a person who is infected with the HIV virus more susceptible to infection and disease?
- 24. APPLY** You fall and scrape your knee. How does the production of histamines aid the healing of this injury?
- 25. ANALYZE** Describe how the structure of the epidermis helps protect the body from disease.
- 25. SYNTHESIZE** Explain how sweat glands, oil glands, and hair help your body maintain homeostasis.
- 27. HYPOTHESIZE** People with greater concentrations of melanin in their skin are less likely to get skin cancer than people who have lesser concentrations of melanin. Write a hypothesis explaining why this is so.



the BIG idea

- 34. INFER** Look again at the picture on pages 62–63. Now that you have finished the chapter, how would you change or add details to your answer to the question on the photograph?
- 35. SYNTHESIZE** Write a paragraph explaining how the integumentary system and the immune system work together to help your body maintain its homeostasis. Underline these terms in your paragraph.

UNIT PROJECTS

If you need to create graphs or other visuals for your project, be sure you have grid paper, poster board, markers, and other supplies.

Analyzing Data

Choose the letter of the best answer.

This chart shows the amount of time a person can stay in the sun without burning, based on skin type and use of a sunscreen with the SPF shown.

Skin Type	1 hr	2hr	3 hr	4hr	5hr
Very Fair/ Sensitive	15	30	30	45	45
Fair/Sensitive	15	15	30	30	45
Fair	15	15	15	30	30
Medium	8	8	15	15	30
Dark	4	8	8	15	15

- What is the least SPF that a person with very fair skin should use while exposed to the sun?
 - 8
 - 15
 - 30
 - 45
- If a person with a medium skin type is exposed to the sun for 5 hours, which SPF should be used?
 - 4
 - 8
 - 15
 - 30
- Which skin type requires SPF 30 for three hours of sun exposure?
 - fair/sensitive
 - fair
 - medium
 - dark
- Based on the data in the chart, which statement is a reasonable conclusion?
 - People with a fair skin type are less prone to UV damage than those with a dark skin type.
 - The darker the skin type, the more SPF protection a person needs.
 - A person with a medium skin type does not need as much SPF protection as a person with a fair skin type.
 - If exposure to the sun is longer, then a person needs a higher SPF for protection.
- If a person normally burns after 10 minutes with no protection, an SPF 2 would protect that person for 20 minutes. How long would the same person be protected with SPF 15?
 - 1 hour
 - $1\frac{1}{2}$ hours
 - 2 hours
 - $2\frac{1}{2}$ hours

Extended Response

- UV index levels are often broadcast with daily weather reports. A UV index of 0 to 2 indicates that it would take an average person about 60 minutes to burn. A UV index level of 10 indicates that it would take the average person about 10 minutes to burn. Write a paragraph describing some variable conditions that would affect this rate. Include both environmental as well as conditions that would apply to an individual.
- Sun protection factors are numbers on a scale that rate the effectiveness of sunscreen. Without the use of sunscreen, UV rays from the Sun can cause sunburns. People who spend time in the sun without protection, or who get repeated burns are at a higher risk of developing deadly forms of skin cancer. Based on the information in the table and your knowledge of the layers of the skin, design a brochure encouraging people to protect their skin from the sun. Include in your brochure the harmful effects on your skin and ways to protect your skin from harmful UV rays.