

Bones, Muscles, and Skin ▪ *Guided Reading and Study*

Body Organization and Homeostasis

This section tells how the body is organized and describes the four types of tissue in the human body.

Use Target Reading Skills

As you read, make an outline about body organization and homeostasis. Use the red headings for the main ideas and the blue headings for the supporting ideas.

Body Organization and Homeostasis
I. Cells
A. Structures of cells
B.
II. Tissues
III.
IV.
A.
B.
C.

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Body Organization and Homeostasis *(continued)*

Introduction

1. List the levels of organization in the human body, starting with the smallest unit.
 - a. _____
 - b. _____
 - c. _____
 - d. _____

Cells

2. The basic unit of structure and function in a living thing is a(n) _____.
3. Circle the letter of the outside boundary of an animal cell.
 - a. cytoplasm
 - b. nucleus
 - c. tissue
 - d. cell membrane
4. The control center that directs the cell's activities and contains information that determines the cell's form and function is the _____.
5. What is the cytoplasm?

6. Is the following sentence true or false? Cells carry on the processes that keep organisms alive. _____

Tissues

7. What is a tissue?

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8. Complete the table to show the functions and examples of the tissues in the human body.

Tissues in the Human Body		
Tissue	Function	Example
Muscle		
Nervous		
Connective		
Epithelial		

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Organs and Organ Systems

9. A structure that is made up of different kinds of tissues is a(n) _____.

10. Circle the letter of the organ.
- a. muscle cell
 - b. blood
 - c. lungs
 - d. digestive system

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Body Organization and Homeostasis *(continued)*

11. Is the following sentence true or false? An organ has a specific job that is more complex than that of a tissue. _____
12. What is an organ system?

Match the organ system with its function.

Organ Systems	Functions
___ 13. endocrine	a. Takes oxygen into the body
___ 14. circulatory	b. Supports and protects the body
___ 15. excretory	c. Removes wastes
___ 16. respiratory	d. Controls body process by means of chemicals
___ 17. digestive	e. Takes food into the body and breaks it down
___ 18. skeletal	f. Transports materials to and from body cells

Homeostasis

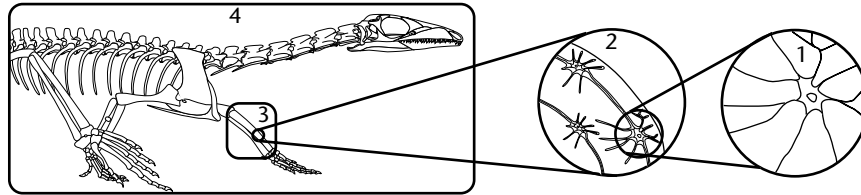
19. The process by which an organism's internal environment is kept stable in spite of changes in the external environment is called _____.
20. How does your body maintain a constant temperature on a hot day?

Bones, Muscles, and Skin ▪ *Review and Reinforce*

Body Organization and Homeostasis

Understanding Main Ideas

The illustration below shows the levels of organization in a reptile. The levels are numbered 1–4, with 4 being the highest level and 1 being the lowest level. Match the following items with the number that represents the lowest appropriate level of organization in the illustration.



1. tissue _____
2. an object consisting of several different tissues _____
3. the smallest unit of the body _____
4. group of organs that operate as a system _____

Building Vocabulary

Fill in the blanks with Key Terms.

5. The _____ is the structure in a cell that contains information that determines the cell's characteristics.
6. _____ tissue makes up organs that are able to contract, or shorten. _____ tissue makes up the organs that send messages to control the body.
7. The inside of the digestive system is lined with _____ tissue.
8. The kidney is a(n) _____. The excretory system is a(n) _____.
9. A(n) _____ is the basic unit of structure and function in a living thing.
10. _____ tissue provides support for your body and connects all its parts.
11. The _____ is the area between the cell membrane and the nucleus; it contains a clear, jellylike substance.

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The Skeletal System

This section describes the skeletal system and its function. It also tells how to keep your bones strong and healthy.

Use Target Reading Skills

Before you read, preview the red headings. In the graphic organizer below, ask a what or a how question for each heading. As you read, answer your questions.

The Skeletal System

Question	Answer
What does the skeleton do?	

What the Skeletal System Does

1. List the five major functions of the skeleton.

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____

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The Skeletal System *(continued)*

2. Circle the letter of the bone that makes up the center of the skeleton.
 - a. skull
 - b. pelvic girdle
 - c. backbone
 - d. femur
3. The 26 small bones that make up the backbone are the _____.
4. How does the skeleton help the body move?

5. Circle the letter of the bone that protects the brain.
 - a. backbone
 - b. pelvic girdle
 - c. ribs
 - d. skull
6. The long bones of the arms and legs make _____.

Joints of the Skeleton

7. What is a joint?

8. What are the two kinds of joints in the body?
 - a. _____
 - b. _____
9. Circle the letter of bones that are held together by immovable joints.
 - a. knee
 - b. ankle
 - c. skull
 - d. shoulder blade

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10. Complete the table to show the four types of movable joints.

Movable Joints		
Joint	Kind of Motion	Where It's Found in the Body
Hinge		
Ball-and-socket		
Pivot		
Gliding		

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11. The bones in movable joints are held together by strong connective tissues called _____.

Bones—Strong and Living

12. Circle the letter of each sentence that is true about bones.

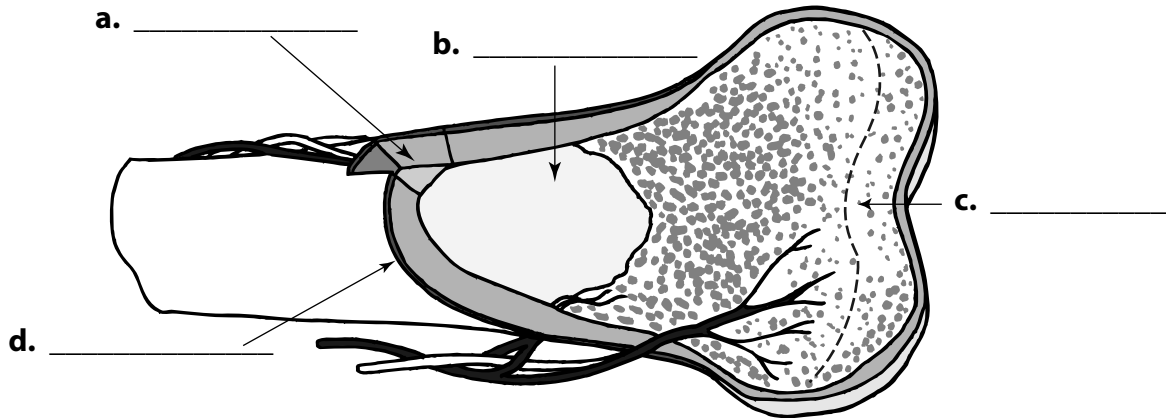
- a. Bones are very strong and lightweight.
- b. Concrete can absorb more force without breaking than bone can.
- c. Bones make up over half of an adult's body weight.
- d. Bones are hard because they contain minerals.

13. When do bone cells form new bone tissue?

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The Skeletal System *(continued)*

14. Label the parts of the bone in the diagram below.



Match each part of a bone with its characteristics.

Bone Parts	Characteristics
___ 15. marrow	a. Where blood vessels and nerves enter and leave the bone
___ 16. outer membrane	b. Has small canals with blood vessels running through
___ 17. compact bone	c. Strong, but lightweight because it has many small spaces within it
___ 18. spongy bone	d. Soft connective tissue in the spaces in bone

19. A connective tissue that is more flexible than bone is called _____.

20. Circle the letter of each sentence that is true about how bones form.

- a. Much of an infant’s skeleton is bone.
- b. As the body grows, the cartilage in the skeleton is replaced with hard bone tissue.
- c. By the time the body stops growing, all of the cartilage has been replaced with bone.
- d. Cartilage covers the ends of many bones in the body of an adult.

Taking Care of Your Bones

21. What can you do to keep your bones healthy? _____

22. A condition in which the body’s bones become weak and break easily is called _____.

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The Skeletal System

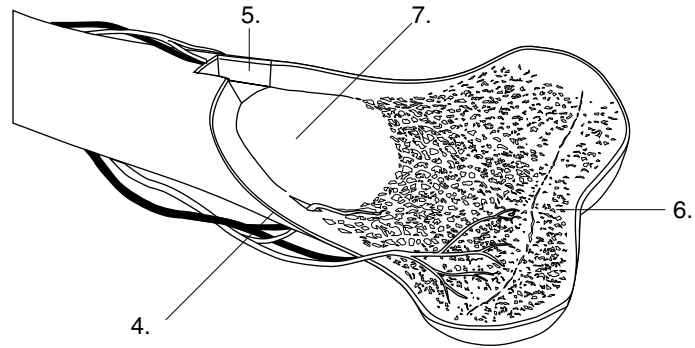
Understanding Main Ideas

Answer the following questions on a separate sheet of paper.

1. Name the five functions of the skeleton.
2. What lifestyle choices help keep bones healthy and strong?
3. What do movable joints enable the body to do? What are the four types of movable joints?

Label the numbered parts of the femur below in the spaces provided.

4. _____
5. _____
6. _____
7. _____



Building Vocabulary

Fill in the blank to complete each statement.

8. A place in the body where two bones come together is a(n) _____.
9. _____ is a condition in which the body's bones become weak and break easily.
10. A(n) _____ is one of the 26 small bones that make up your backbone.
11. The tip of your nose is able to move from side to side because it is made up of a connective tissue that is more flexible than bone. This type of tissue is called _____.
12. A(n) _____ is the strong connective tissue that holds the bones together in a movable joint.

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The Muscular System

This section tells about the three kinds of muscle tissue in the human body, how muscles work to move the body, and how to care for your muscles.

Use Target Reading Skills

Preview Figure 15. Then, in the graphic organizer below, write two questions that you have about the diagram. As you read, answer your questions.

Q. How does skeletal muscle help my body move?
A.
Q.
A.

Types of Muscle

- List the two groups of muscles in the body and describe how they are controlled.
 - _____
 - _____
- Circle the letter of the action that is controlled by involuntary muscles.
 - smiling
 - breathing
 - walking
 - standing up

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3. Complete the table to compare and contrast the three types of muscle tissue in the body.

Types of Muscles			
Muscles	Location in Body	Voluntary or Involuntary	Striated or Not
Skeletal			
	Inside many internal organs		
Cardiac			

4. A strong connective tissue that attaches muscles to bone is a(n) _____.
5. Is the following sentence true or false? Skeletal muscles react quickly and tire easily. _____
6. The repeated contractions of cardiac muscle are called _____.

Muscles at Work

7. When do muscles contract, or become shorter and thicker?

8. Is the following sentence true or false? Muscle cells can extend, or get longer, as well as contract, or get shorter. _____
9. Why must skeletal muscles work in pairs to move a bone?

10. To bend the elbow, the biceps muscle _____ and the triceps muscle returns to its _____.



Bones, Muscles, and Skin ▪ *Review and Reinforce***The Muscular System****Understanding Main Ideas**

Complete the table below to describe the characteristics of each type of muscle. Write yes or no next to each number.

Muscle Types	Voluntary	Involuntary	Reacts quickly	Tires quickly
Skeletal	1.	2.	3.	4.
Smooth	5.	6.	7.	8.
Cardiac	9.	10.	11.	12.

Answer the following questions in the spaces provided.

13. Why do skeletal muscles have to work in pairs?

14. How can you help prevent muscle injuries?

Building Vocabulary

Answer the following questions with a short statement.

15. What types of actions are controlled by smooth muscles? What type of muscle is smooth muscle?

16. What types of actions are controlled by skeletal muscles? What type of muscle is skeletal muscle?

17. How is cardiac muscle similar to both smooth muscle and skeletal muscle?

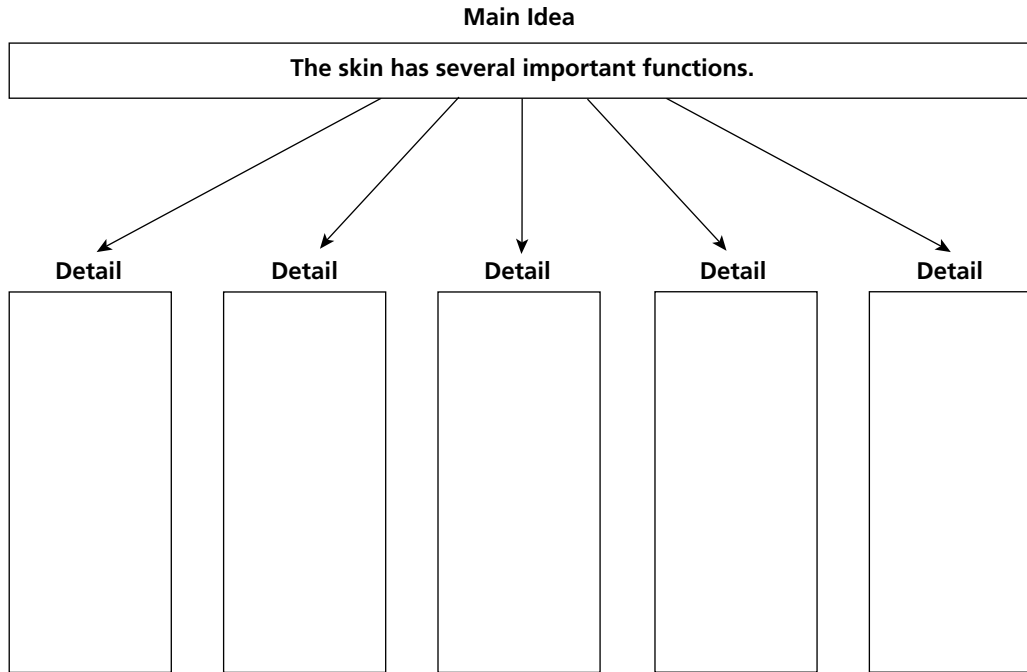
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The Skin

This section explains the structure of skin, what skin does, and how to keep skin healthy.

Use Target Reading Skills

As you read the section titled The Body’s Tough Covering, write the main idea—the biggest or most important idea—in the graphic organizer below. Then, write five supporting details. The supporting details give examples of the main idea.



The Body’s Tough Covering

1. Circle the letter of each sentence that is true about the skin.
 - a. The skin lets disease-causing microorganisms and harmful substances into the body.
 - b. The skin keeps water from escaping from the body.
 - c. The skin produces vitamin C.
 - d. The skin gathers information about the environment.

2. Is the following sentence true or false? To cool the body, blood vessels in the skin enlarge to let more blood run through them to move body heat to the outside. _____

3. Why are pain messages important to the body? _____

4. Skin cells produce _____ in the presence of sunlight.

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The Skin

Understanding Main Ideas

Answer the following questions in the spaces provided.

1. List the functions of the skin.

2. How do the dead cells of the epidermis help the body?

3. What structures does the dermis contain?

4. How can you help to keep your skin healthy?

Building Vocabulary

Use the vocabulary below to label the following diagram.

pore

epidermis

hair follicle

dermis

5. _____

