

Chapter 35 Nervous System

Section 35-1 Human Body Systems (pages 891-896)

Key Concepts

- How is the human body organized?
- What is homeostasis?

Organization of the Body (pages 891-894)

1. List the levels of organization in a multicellular organism, from smallest to largest.

- _____
- _____
- _____
- _____

Match the organ system with its function.

Organ System	Function
_____ 2. Nervous system	a. Stores mineral reserves and provides a site for blood cell formation
_____ 3. Skeletal system	b. Provides oxygen and removes carbon dioxide
_____ 4. Integumentary system	c. Coordinates the body's response to changes in its internal and external environments
_____ 5. Endocrine system	d. Helps produce voluntary movement, circulate blood, and move food
_____ 6. Lymphatic/immune systems	e. Controls growth, development, metabolism, and reproduction
_____ 7. Muscular system	f. Eliminates wastes and maintains homeostasis
_____ 8. Reproductive system	g. Serves as a barrier against infection and injury
_____ 9. Respiratory system	h. Converts food so it can be used by cells
_____ 10. Excretory system	i. Helps protect the body from disease
_____ 11. Circulatory system	j. Produces reproductive cells
_____ 12. Digestive system	k. Brings materials to cells, fights infection, and helps to regulate body temperature

13. What are four types of tissues found in the human body? _____

14. The eye is an example of a(an) _____.

15. Circle the letter of the type of tissue that covers interior and exterior body surfaces.

- | | |
|---------------|---------------|
| a. nervous | c. epithelial |
| b. connective | d. muscle |

16. Circle the letter of the type of tissue that connects body parts.

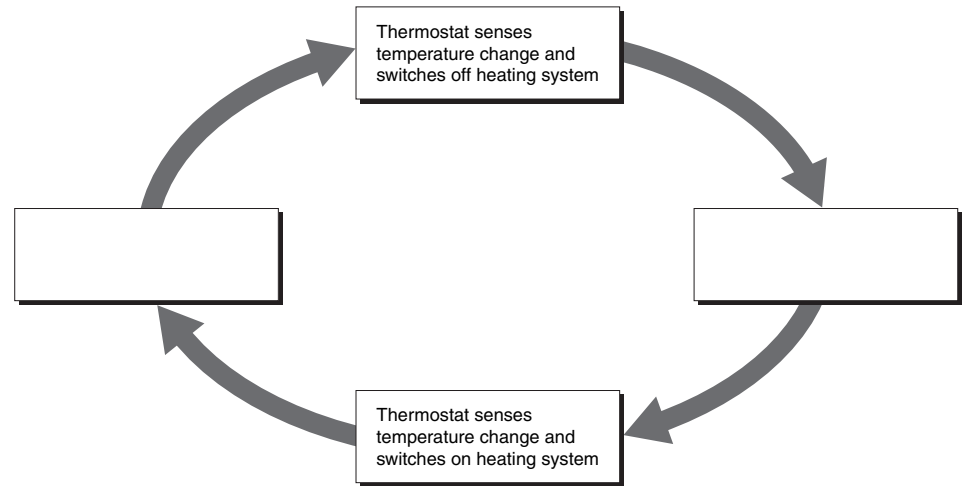
- | | |
|---------------|------------------|
| a. nervous | c. epithelial |
| b. connective | d. integumentary |

Maintaining Homeostasis (pages 895-896)

17. The process of maintaining a controlled, stable internal environment is called _____.

18. The process in which a stimulus produces a response that opposes the original stimulus is referred to as _____.

19. Fill in the missing labels in the diagram to show how a thermostat uses feedback inhibition to maintain a stable temperature in a house.



20. Is the following sentence true or false? The part of the brain that monitors and controls body temperature is the hypothalamus. _____

21. What happens if nerve cells sense that the core body temperature has dropped below 37°C? _____

22. What happens if the body temperature rises too far above 37°C? _____

Section 35-2 The Nervous System (pages 897-900)

Key Concepts

- What are the functions of the nervous system?
- How is the nerve impulse transmitted?

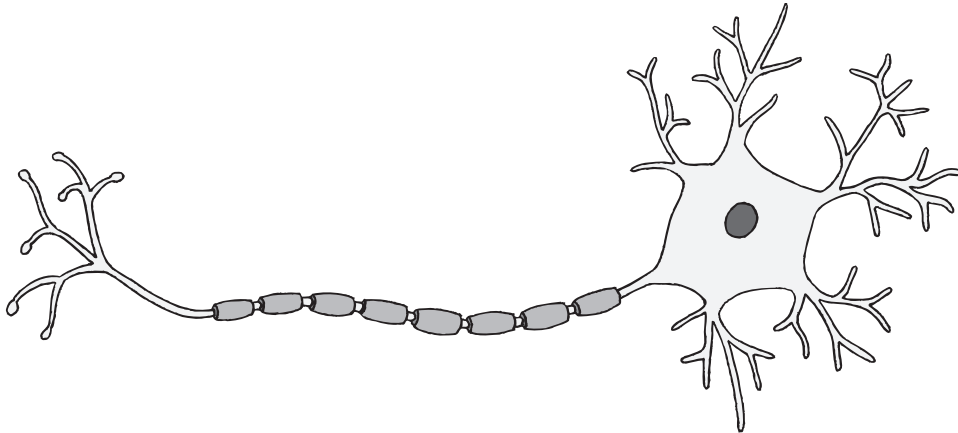
Introduction (page 897)

1. What is the function of the nervous system? _____

Neurons (pages 897-898)

2. How are neurons classified? _____

3. What are three types of neurons?
 a. _____
 b. _____
 c. _____
4. Is the following sentence true or false? Sensory neurons carry impulses from the brain and the spinal cord to muscles and glands. _____
5. Label the following features in the drawing of a neuron: cell body, dendrites, and axon.



6. What is the function of the myelin sheath? _____

The Nerve Impulse (pages 898-899)

7. The electrical charge across the cell membrane of a neuron in its resting state is called its _____.
8. How does a nerve impulse begin? _____

9. Circle the letter of the choice that describes an action potential.
 a. Reversal of charges due to the flow of positive ions into a neuron
 b. Increase in negative ions in a neuron due to the flow of potassium out of the cell
 c. Change to a negative charge due to the flow of sodium ions out of a neuron
 d. Reversal of charges due to the flow of negative ions into a neuron
10. The minimum level of a stimulus that is required to activate a neuron is called the _____.
11. How does a nerve impulse follow the all-or-nothing principle? _____

The Synapse (page 900)

12. What are neurotransmitters? _____

13. Describe what happens when an impulse arrives at an axon terminal.

Reading Skill Practice

When you read about a complex process, representing the process with a diagram can help you understand it better. Make a diagram to show how a nerve impulse is transmitted from one cell to another. Do your work on a separate sheet of paper.

Section 35–3 Divisions of the Nervous System

(pages 901–905)

Key Concepts

- What are the functions of the central nervous system?
- What are the functions of the two divisions of the peripheral nervous system?

Introduction (page 901)

1. What is the function of the central nervous system? _____

The Central Nervous System (page 901)

2. The central nervous system consists of the _____ and the _____.
3. Is the following sentence true or false? Three layers of connective tissue known as meninges protect the brain and spinal cord. _____
4. The brain and spinal cord are bathed and protected by _____.

The Brain (pages 902–903)

Match the part of the brain with its function.

Part of Brain	Function
_____ 5. Cerebrum	a. Coordinates and balances the actions of the muscles
_____ 6. Cerebellum	b. Regulates the flow of information between the brain and the rest of the body
_____ 7. Brain stem	c. Controls voluntary activities of the body
_____ 8. Thalamus	d. Controls hunger, thirst, fatigue, anger, and body temperature
_____ 9. Hypothalamus	e. Receives and relays messages from the sense organs

10. The two hemispheres of the brain are connected by a band of tissue called the _____.
11. Identify the four lobes of the brain.
- a. _____ c. _____
 b. _____ d. _____
12. Is the following sentence true or false? The left hemisphere of the cerebrum controls the body's left side. _____
13. Is the following sentence true or false? The outer layer of the cerebrum is called the cerebral cortex. _____
14. What is gray matter, and where is it found? _____

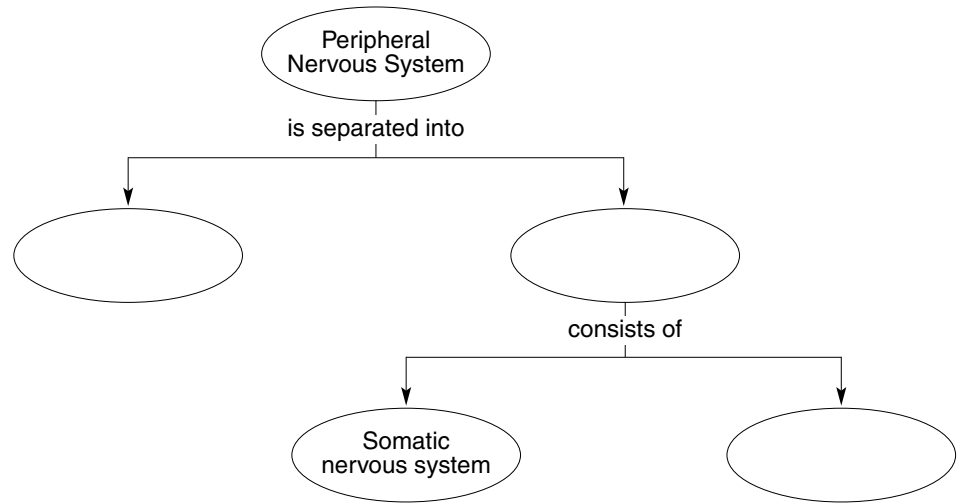
15. The two regions of the brain stem are the _____ and the _____.

The Spinal Cord (page 903)

16. What is the advantage of a reflex? _____

The Peripheral Nervous System (pages 903–904)

17. Circle the letter of each choice that is part of the peripheral nervous system.
- a. cranial nerves c. ganglia
 b. spinal nerves d. spinal cord
18. Complete the concept map.



19. Circle the letter of each activity that is controlled by the somatic nervous system.
- a. Beating of the heart c. Wiggling the toes
 b. Lifting a finger d. Pulling foot away from tack
20. What does the autonomic nervous system regulate? _____

21. Why is it important to have two systems that control the same organs? _____

