

**The Nervous System** ▪ *Guided Reading and Study*

## How the Nervous System Works

*This section describes what the nervous system does in the body. It also tells how nerve impulses travel.*

### Use Target Reading Skills

*Before you read, preview Figure 3 in your text. Then, write two questions that you have about the diagram in the graphic organizer below. As you read, answer your questions.*

The Path of a Nerve Impulse	
Q.	What is a sensory neuron?
A.	
Q.	
A.	

### Functions of the Nervous System

1. List three jobs of the nervous system.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  
2. Is the following sentence true or false? You can move without your nervous system. \_\_\_\_\_

**The Nervous System** ▪ *Guided Reading and Study*

**How the Nervous System Works** *(continued)*

- 3. From what two places does the nervous system receive information?  
a. \_\_\_\_\_ b. \_\_\_\_\_
- 4. Circle the letter of a change in the environment that can make an organism react.
  - a. response
  - b. stimulus
  - c. homeostasis
  - d. nerve impulse
- 5. Is the following true or false? All nervous system responses are voluntary, or under your control. \_\_\_\_\_
- 6. How does the nervous system help maintain homeostasis?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**The Neuron**

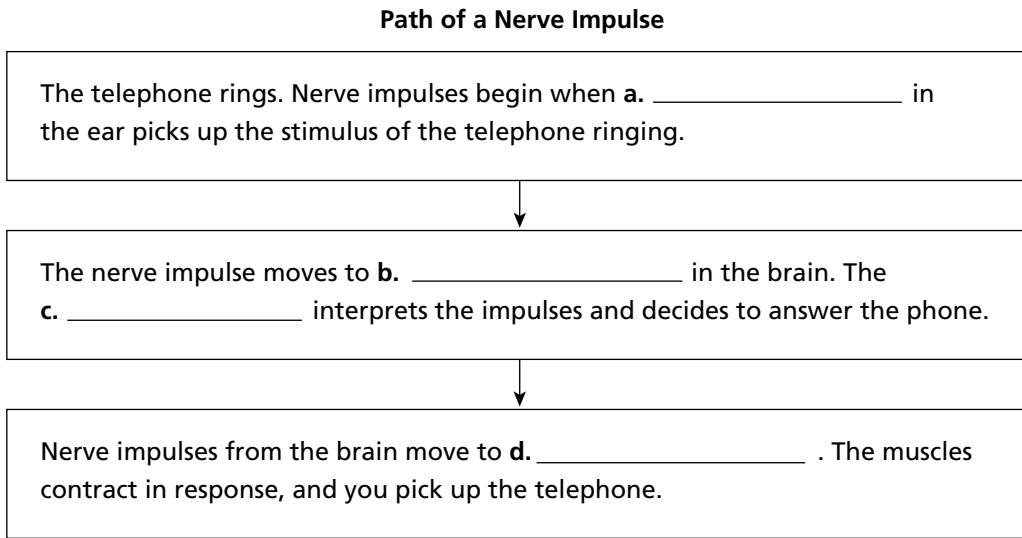
Match each term with its definition.

Terms	Definitions
___ 7. axon	a. The message that a nerve cell carries
___ 8. dendrite	b. An extension from a nerve cell that carries impulses toward the nerve cell
___ 9. neuron	c. An extension from a nerve cell that carries impulses away from the nerve cell
___ 10. nerve impulse	d. A cell that carries information through the nervous system

- 11. Is the following sentence true or false? A neuron can have only one axon.  
\_\_\_\_\_
- 12. A bundle of nerve fibers is called a(n) \_\_\_\_\_.

**The Nervous System** ▪ *Guided Reading and Study*

13. Complete the flowchart to show the path of a nerve impulse.



**How a Nerve Impulse Travels**

- 14. The junction where one neuron can transfer an impulse to another structure is called a(n) \_\_\_\_\_.
- 15. How does a nerve impulse cross the gap between the axon and the next structure?

---

---

**The Nervous System** ▪ *Review and Reinforce*

# How the Nervous System Works

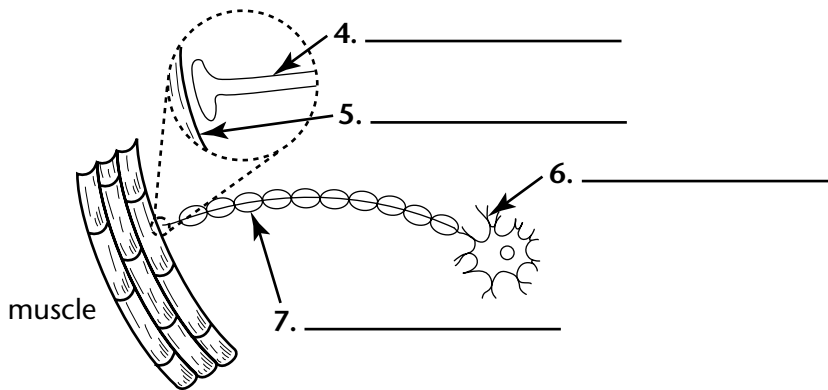
## Understanding Main Ideas

Answer the following questions on a separate sheet of paper.

1. What are three main functions of the nervous system? Give an example of each.
2. What are the three kinds of neurons? How do they work together to produce a response to an environmental stimulus? Use an example in your explanation.
3. How does a message travel across the gap at a synapse?

## Building Vocabulary

Label the diagram below with the axon, axon tip, dendrite, and synapse.



Fill in the blank to complete each statement.

8. A(n) \_\_\_\_\_ is what your body does in reaction to a stimulus.
9. A bundle of nerve fibers is called a(n) \_\_\_\_\_.
10. The message that a neuron carries is called a(n) \_\_\_\_\_.
11. Any change or signal in the environment that can make an organism react is a(n) \_\_\_\_\_.
12. A cell that carries information through your nervous system is called a(n) \_\_\_\_\_.

**The Nervous System** ▪ *Guided Reading and Study*

## **Divisions of the Nervous System**

*This section explains the two major parts of the nervous system. It also describes what a reflex is.*

### **Use Target Reading Skills**

*Write a definition of each of Key Term in your own words below.*

central nervous system

---

---

peripheral nervous system

---

---

brain

---

---

spinal cord

---

---

cerebrum

---

---

cerebellum

---

---

brain stem

---

---

somatic nervous system

---

---

autonomic nervous system

---

---

reflex

---

---

concussion

---

---

**The Nervous System** ▪ *Guided Reading and Study*

**Central Nervous System**

1. Is the following sentence true or false? The central nervous system is the control center of the body. \_\_\_\_\_
2. The part of the central nervous system that controls most functions in the body is the \_\_\_\_\_.
3. The thick column of nerve tissue that links the brain to most of the nerves is the \_\_\_\_\_.

**The Brain and Spinal Cord**

4. Is the following sentence true or false? Neurons in the brain are only interneurons. \_\_\_\_\_
5. What helps protect the brain from injury?
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_

Match the parts of the brain with their functions. Each part of the brain may be used more than once.

<b>Functions</b>	<b>Parts of the Brain</b>
____ 6. Coordinates the actions of the muscles	a. cerebrum
____ 7. Controls involuntary body actions, such as breathing	b. cerebellum
____ 8. Interprets input from the senses	c. brain stem
____ 9. Gives the body its sense of balance	
____ 10. Carries out learning, remembering, and making judgments	



**The Nervous System** ▪ *Guided Reading and Study*

**Divisions of the Nervous System** *(continued)*

11. Is the following sentence true or false? The right half of the cerebrum controls the right side of the body. \_\_\_\_\_
12. Creativity and artistic ability are usually associated with the \_\_\_\_\_ side of the cerebrum.
13. The spinal cord is the link between the \_\_\_\_\_ and the \_\_\_\_\_.
14. What protects the spinal cord?
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_

**Peripheral Nervous System**

15. What does the peripheral nervous system consist of?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
16. What is the function of the two groups of nerves making up the peripheral nervous system?  
Somatic nervous system: \_\_\_\_\_  
Autonomic nervous system: \_\_\_\_\_

**The Nervous System** ▪ *Guided Reading and Study*

**Reflexes**

17. What is a reflex?

---

---

---

18. Circle the letter of each sentence that is true about reflexes.

- a. In some reflex actions, the spinal cord, rather than the brain, directs the muscles to contract.
- b. Reflexes protect you from getting hurt badly.
- c. Nerve impulses move to the brain faster than they do to the spinal cord.
- d. The reflex action takes longer than it does for you to feel pain.

**Nervous System Injuries**

19. A bruiselike injury of the brain is called a(n) \_\_\_\_\_.

20. What can you do to decrease your chances of getting a brain injury?

---

---

---

21. What happens when the spinal cord is cut or crushed?

---

---

---

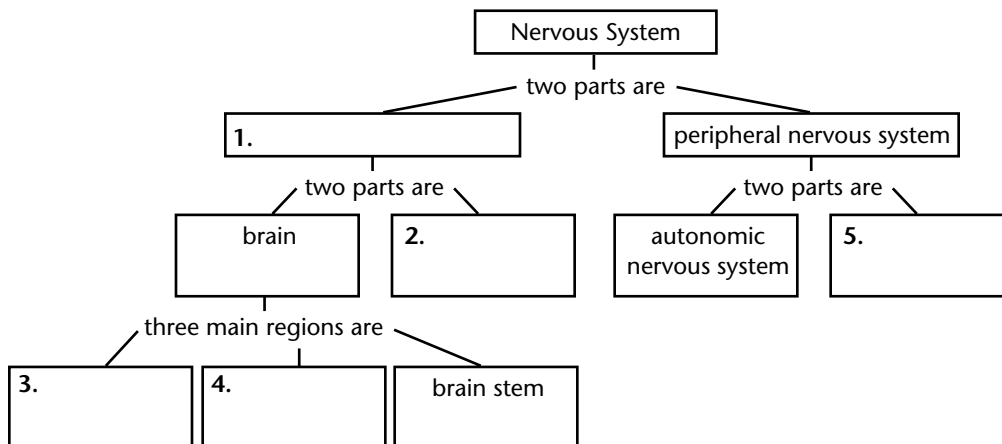
---

**The Nervous System** ▪ *Review and Reinforce*

# Divisions of the Nervous System

## Understanding Main Ideas

For items 1–5, complete the following concept map.



Answer the following questions on a separate sheet of paper.

6. What is the function of the central nervous system?
7. What is the peripheral nervous system and what is its function?
8. What is the function of the somatic nervous system?
9. What is the function of the autonomic nervous system?

## Building Vocabulary

Match each term with its definition by writing the letter of the correct definition in the right column on the line beside the term in the left column.

- |   |  |
|---|--|
| <p>___ 10. spinal cord</p> <p>___ 11. reflex</p> <p>___ 12. cerebellum</p> <p>___ 13. concussion</p> <p>___ 14. brain</p> <p>___ 15. brain stem</p> <p>___ 16. cerebrum</p> | <p>a. the part of the brain that controls the body's involuntary activities</p> <p>b. the part of the brain that interprets input from the senses, controls the movement of skeletal muscles, and carries out complex mental processes</p> <p>c. a bruise-like injury of the brain</p> <p>d. an automatic response that occurs very rapidly and without conscious control</p> <p>e. the part of the central nervous system that controls most body functions</p> <p>f. the part of the brain that coordinates the actions of your muscles and helps you keep your balance</p> <p>g. a thick column of nerve tissue</p> |
|---|--|