

LESSON 13

neuron

cerebrum

brain stem

automatic nervous system

nerve

sense organ

voluntary nervous system

reflex

spinal cord

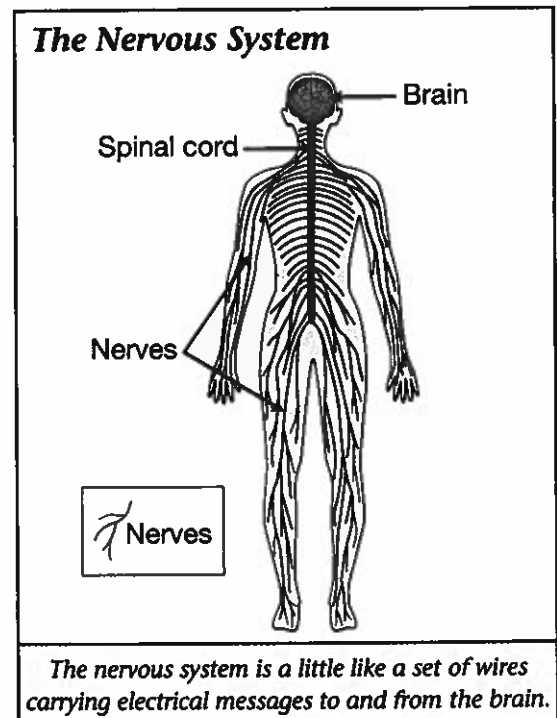
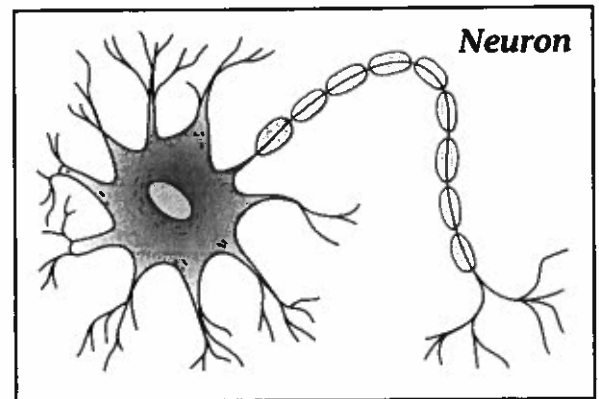
cerebellum

Your senses provide you with information about what's around you. What allows your body to respond to what you see, hear, taste, touch, and smell? Read this selection to learn about the function of the nervous system.

The Nervous System

The nervous system allows people to respond to what is around them. The brain is the control center of the nervous system. The brain is made up of neurons. A **neuron** is a special body cell that can send and receive messages. A bundle of neurons makes up a **nerve**.

Working with the brain is a cable of nerves inside the backbone. This cable, called the **spinal cord**, connects the brain to the nerves in the rest of the body, such as in the hands, skin, and eyes. Almost every message about inner and outer body reactions goes through both the spinal cord and the brain.

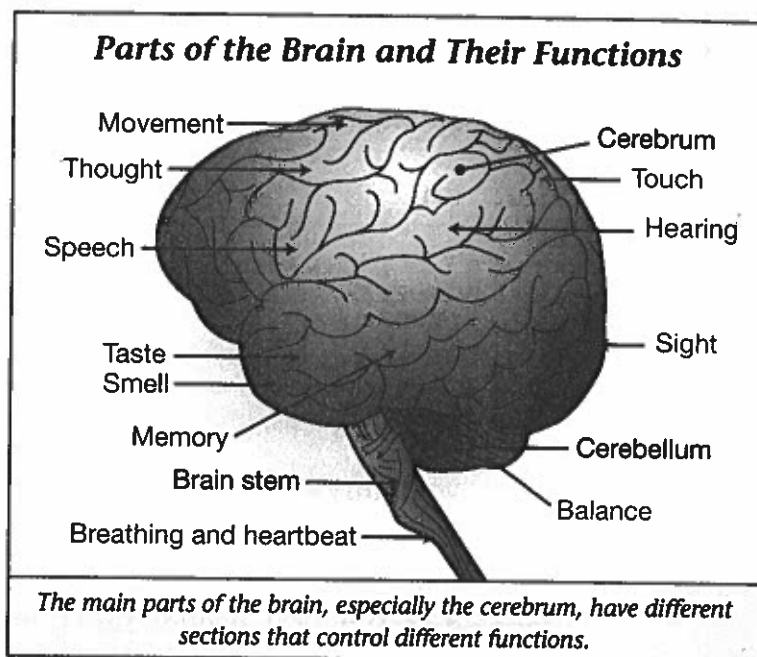


Parts of the Brain

Different parts of the brain do different jobs. The **cerebrum** is the largest part of the brain. Its main job is to control functions such as thought, speech, and memory. Some parts of the cerebrum interpret messages from sense organs. A **sense organ**, such as the eye, is a body part that senses, or experiences, things outside the body. Other parts of the cerebrum help control movement.

The **cerebellum** helps to maintain balance during movement. The cerebrum sends the orders for movement to the cerebellum. The cerebellum then organizes the orders so that the muscle movements are smooth.

The **brain stem** is at the base of the skull. The lower part of the brain stem controls breathing and the beating of the heart. It also controls swallowing, the processing of food, and other body functions that happen without thought.



Automatic and Voluntary Reactions

The nervous system can be divided into two parts. The **voluntary nervous system** allows people to react to what's around them. It controls actions in response to something outside of the body. The **automatic nervous system** controls functions of the inner body that are not under thought control. These include such things as heartbeat, digestion, and breathing.

Reflex Reactions

Sometimes, neurons act without messages from the brain. The spinal cord and the body's neurons bypass the brain. This results in a quick movement that is not thought out, such as sneezing or blinking. This type of automatic response is a **reflex**.

My Science Vocabulary

Go to page 98 to list other words you have learned about the nervous system.



neuron	cerebrum	brain stem	automatic nervous system
nerve	sense organ	voluntary nervous system	reflex
spinal cord	cerebellum		

A. Match each word with its meaning. Write the letter of the correct meaning on the line in front of each word.

- | | |
|-----------------------------------|--|
| 1. _____ automatic nervous system | a. a bundle of neurons |
| 2. _____ nerve | b. a body part, such as the eye, that senses things outside the body |
| 3. _____ reflex | c. the part of the brain, at the base of the skull, that controls heartbeat |
| 4. _____ voluntary nervous system | d. a special body cell that can send and receive messages |
| 5. _____ cerebrum | e. the part of the nervous system that controls inner body functions not under thought control |
| 6. _____ sense organ | f. the largest part of the brain, which controls thought, speech, and memory |
| 7. _____ neuron | g. the cable of nerves inside the backbone |
| 8. _____ spinal cord | h. the part of the nervous system that allows people to react to what's around them |
| 9. _____ cerebellum | i. a quick, automatic response that occurs when neurons and the spinal cord bypass the brain |
| 10. _____ brain stem | j. the part of the brain that helps maintain balance by making muscle movements smooth |



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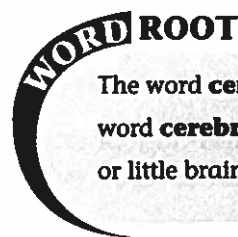
B. Circle the word that makes sense in each sentence. Then write the word.

1. Inside the backbone is a cable of nerves called the (spinal cord, brain stem).

2. A bundle of neurons make up a (nerve, reflex). _____
3. Some parts of the brain's (cerebrum, cerebellum) interpret messages from sense organs. _____
4. Many inner body functions happen without thought because of the (automatic nervous system, cerebellum). _____
5. The eye is a (spinal cord, sense organ). _____
6. People can act in response to things that happen around them because of their (brain stem, voluntary nervous system). _____
7. The lower part of the (brain stem, cerebrum) controls breathing and heartbeat.

8. A message to act quickly that is sent between the neurons and the spinal cord is a (cerebellum, reflex). _____
9. A body cell that sends and receives messages is a (cerebellum, neuron).

10. Muscle movements are kept smooth by the (cerebellum, spinal cord).



The word **cerebellum** is based on the Latin word **cerebrum** and means "little cerebrum, or little brain."



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C. Choose the correct vocabulary word to complete each sentence.

1. The brain is connected to nerves in the rest of the body by the _____ inside the backbone.
2. The nose is a _____ that experiences smells in the environment.
3. Controlling thought, speech, and memory is the main job of the _____.
4. The part of the nervous system that allows people to react to what's around them is the _____.
5. A response that is not thought out and happens without input from the brain is a _____.
6. Many neurons grouped together make up a _____.
7. The part of the brain that helps maintain balance during movement is the _____.
8. The part of the nervous system that controls inner body functions without thought is the _____.
9. At the base of the skull, the _____ controls such actions as swallowing and processing food.
10. A special cell in the body called a _____ sends and receives messages.

