Chapter 38 Standardized Test Prep

TEST TIP When using a graph to answer a question, read the graph's title and the labels on the graph's axes. For graphs that show a change in some variable over time, keep in mind that the steepness and direction of a curve indicate the relative rate of change at a given point in time.

Science Concepts

1. The central nervous system includes
- **A** only the brain.
- **B** the brain and the spinal cord.
- **C** the brain, the spinal cord, and the cranial nerves.
- **D** the brain, the spinal cord, the cranial nerves, and the spinal nerves.

2. A typical neuron has
- **F** a cell body but no nucleus.
- **G** nuclei in each of its cellular extensions.
- **H** a single nucleus within the cell body.
- **J** a single nucleus that carries a signal to an another cell.

3. Nerve impulses sent from sensory receptors enter the brain and are routed to the appropriate area of the cerebral cortex by the
- **A** cerebellum.
- **B** thalamus.
- **C** brainstem.
- **D** hypothalamus.

4. Traumatic injuries that cause damage to the brain or spinal cord
- **F** are always life threatening.
- **G** cannot be repaired.
- **H** are most common in young children.
- **J** are usually fatal.

5. Which of the following is true about a spinal reflex?
- **A** It is a voluntary contraction of muscles.
- **B** It is an involuntary response to a stimulus.
- **C** It increases blood flow to muscles.
- **D** It is controlled by the brain.

6. Which cells in the body can conduct electrical signals?
- **F** muscle cells
- **G** stem cells
- **H** somatic cells
- **J** neurons

7. What specialized neurons detect stimuli, such as sound and light?
- **A** axons
- **B** sensory receptors
- **C** thalamus and hypothalamus
- **D** motor neurons

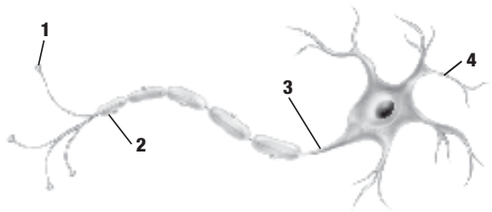
Math Skills

Brain Region	Total mass in grams (g)	Percentage of total mass (%)
Entire cortex	1058 g	100%
Frontal lobe	422 g	
Temporal lobe	237 g	
Parietal lobe	205 g	
Occipital lobe	194 g	

8. Calculating Percentages Create a table like the one shown and use the data provided to calculate the percentage of the cerebral cortex that is found in each of its lobes. What is the percentage of the frontal and parietal lobes combined?
- **F** 59.3%
- **G** 40.7%
- **H** 62.3%
- **J** 37.7%

Using Science Graphics

Use the diagram to answer the following questions.



9. Which structure is a site where the neuron receives information from other neurons?
- **A** 1
- **B** 2
- **C** 3
- **D** 4

10. Which structure increases the speed at which the axon conducts action potentials?
- **F** 1
- **G** 2
- **H** 3
- **J** 4

State Resources



For specific resources for your state, visit go.hrw.com and type in the keyword **HSHSTR**.

Test Practice with Guided Reading Development

Answers

1. B	**2.** H	**3.** B
4. G	**5.** B	**6.** J
7. B	**8.** F	**9.** D
10. G		

TEST DOCTOR

Question 2 Students must understand the location and function of the nucleus in a nerve cell. **F** is incorrect, because neurons have a nucleus. **G** is incorrect, because the single nucleus is located within the cell body. **H** is correct! **J** is incorrect because the nucleus is not involved in the transmission of impulses.

Question 3 Students must know the functions of brain parts. **A** is incorrect because the cerebellum is on the "receiving end" of processed information. **B** is correct. The thalamus is the processing center for sensory information. **C** is incorrect, because the brainstem is not a "processing" structure. **D** is incorrect, because the hypothalamus detects changes in body temperature.

Question 7 **A** is incorrect because axons are parts of neurons. **B** is correct. Sensory receptors detect stimuli. **C** is incorrect, because the thalamus and hypothalamus are parts of the brain that process and react to stimuli. **D** is incorrect because motor neurons stimulate muscles to cause movement.

Question 9 Students must be able to interpret **Figure 7.** **A** is incorrect, because 1 points to an axon terminal. **B** is incorrect because 2 points to a myelin sheath. **C** is incorrect because 3 points to the axon. **D** is correct because 4 points to the dendrite, which receives impulses.