

11. Refer to Figure 7-2, showing a reflex arc, as you complete this exercise. First, briefly answer the following questions by inserting your responses in the spaces provided.

1. What is the stimulus? \_\_\_\_\_
2. What tissue is the effector? \_\_\_\_\_
3. How many synapses occur in this reflex arc? \_\_\_\_\_

Next, select different colors for each of the following structures and use them to color in the coding circles and corresponding structures in the diagram. Finally, draw arrows on the figure indicating the direction of impulse transmission through this reflex pathway.

- |                       |                 |                       |                    |
|-----------------------|-----------------|-----------------------|--------------------|
| <input type="radio"/> | Receptor region | <input type="radio"/> | Association neuron |
| <input type="radio"/> | Afferent neuron | <input type="radio"/> | Efferent neuron    |
| <input type="radio"/> | Effector        |                       |                    |

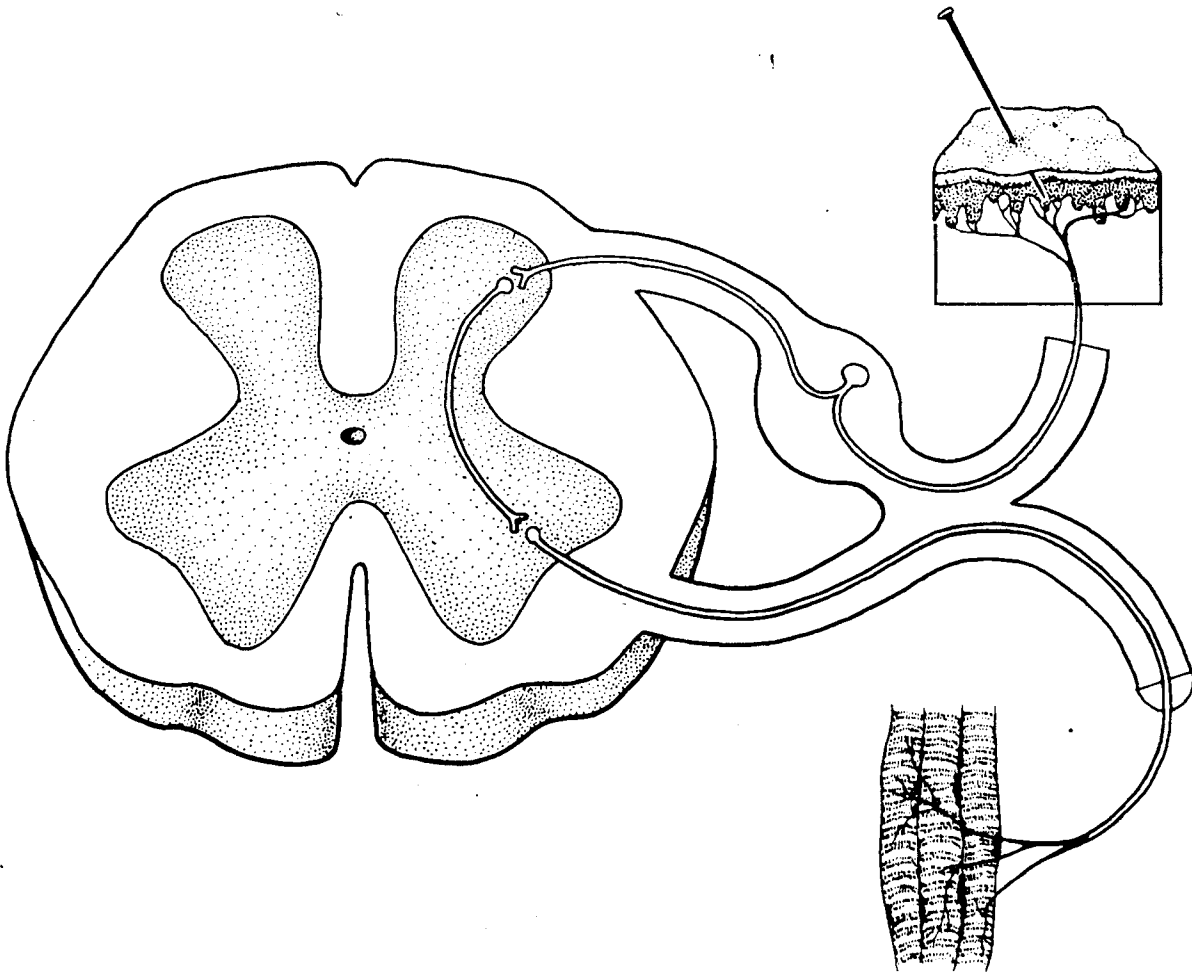


Figure 7-2

26. Figure 7-6 is a cross-sectional view of the spinal cord. First, select different colors to identify the following structures and use them to color the coding circles and corresponding structures in the figure.

- Pia mater     
  Dura mater     
  Arachnoid

Then, identify the areas listed in the key choices by inserting the correct choices/letter next to the appropriate leader line on the figure.

**KEY CHOICES:**

- |                           |                         |                 |
|---------------------------|-------------------------|-----------------|
| A. Central canal          | D. Dorsal root          | G. Ventral horn |
| B. Column of white matter | E. Dorsal root ganglion | H. Ventral root |
| C. Dorsal horn            | F. Spinal nerve         |                 |

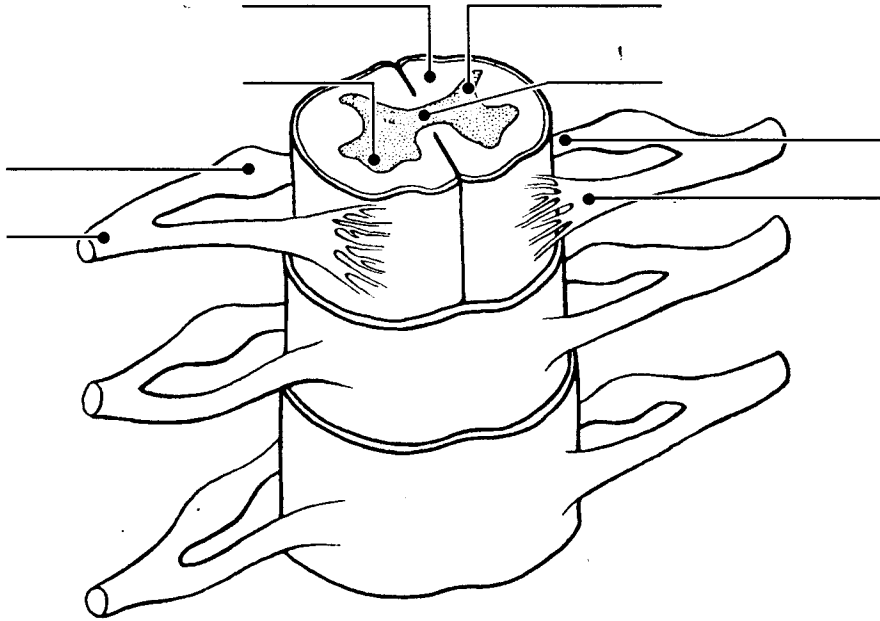


Figure 7-6

16. Figure 7-3 is a diagram of the right lateral view of the human brain. First, match the letters on the diagram with the following list of terms and insert the appropriate letters in the answer blanks. Then, select different colors for each of the areas of the brain provided with a color-coding circle and use them to color in the coding circles and corresponding structures in the diagram. If an identified area is part of a lobe, use the color you selected for the lobe but use *stripes* for that area.

- |                              |                           |                               |                 |
|------------------------------|---------------------------|-------------------------------|-----------------|
| ___ 1. <input type="radio"/> | Frontal lobe              | ___ 7. <input type="radio"/>  | Lateral fissure |
| ___ 2. <input type="radio"/> | Parietal lobe             | ___ 8. <input type="radio"/>  | Central fissure |
| ___ 3. <input type="radio"/> | Temporal lobe             | ___ 9. <input type="radio"/>  | Cerebellum      |
| ___ 4. <input type="radio"/> | Precentral gyrus          | ___ 10. <input type="radio"/> | Medulla         |
| ___ 5. <input type="radio"/> | Parieto-occipital fissure | ___ 11. <input type="radio"/> | Occipital lobe  |
| ___ 6. <input type="radio"/> | Postcentral gyrus         | ___ 12. <input type="radio"/> | Pons            |

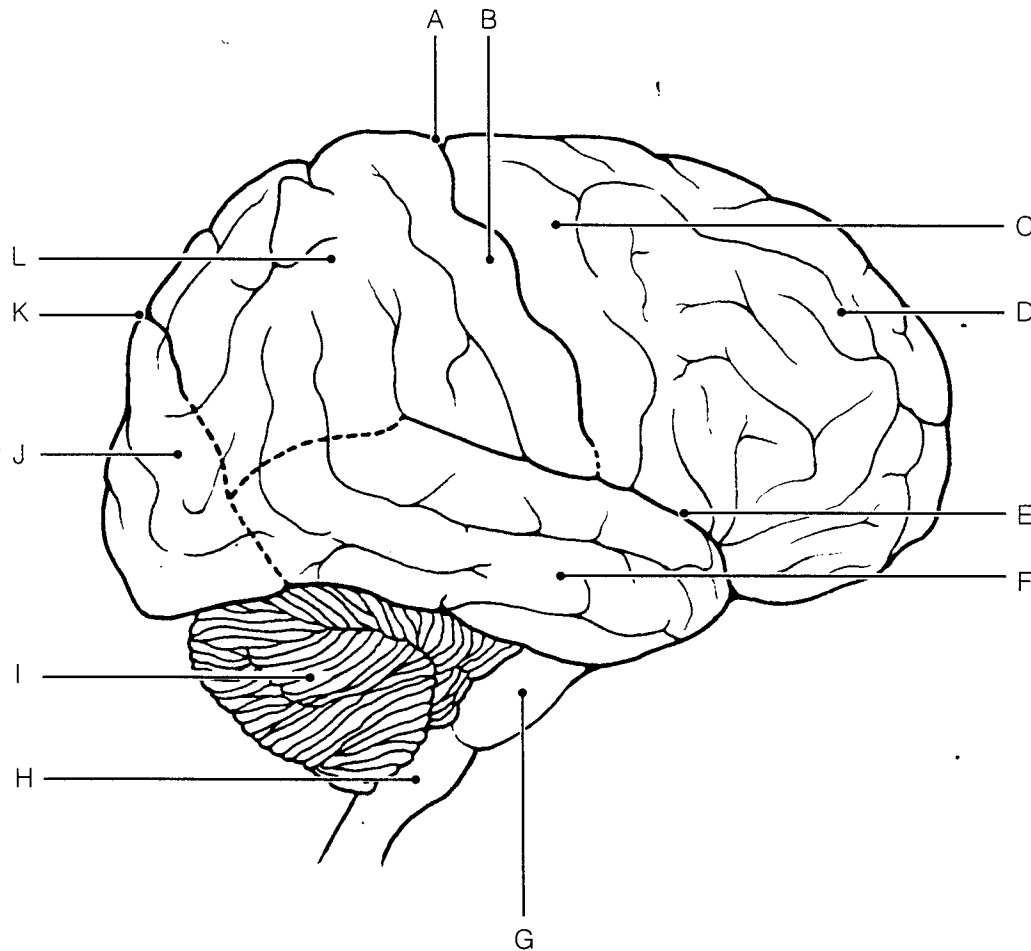


Figure 7-3

## Chapter 7. Nervous System

17. Figure 7-4 is a diagram of the sagittal view of the human brain. First, match the letters on the diagram with the following list of terms and insert the appropriate letter in each answer blank. Then, color the brain-stem areas blue and the areas where cerebrospinal fluid is found yellow.

- |       |                         |       |                       |
|-------|-------------------------|-------|-----------------------|
| _____ | 1. Cerebellum           | _____ | 9. Hypothalamus       |
| _____ | 2. Cerebral aqueduct    | _____ | 10. Medulla oblongata |
| _____ | 3. Cerebral hemisphere  | _____ | 11. Optic chiasma     |
| _____ | 4. Cerebral peduncle    | _____ | 12. Pineal body       |
| _____ | 5. Choroid plexus       | _____ | 13. Pituitary gland   |
| _____ | 6. Corpora quadrigemina | _____ | 14. Pons              |
| _____ | 7. Corpus callosum      | _____ | 15. Thalamus          |
| _____ | 8. Fourth ventricle     |       |                       |

18. Referring to the brain areas listed in Exercise 17, match the appropriate brain structures with the following descriptions. Insert the correct terms in the answer blanks.

- |       |   |
|-------|---|
| _____ | 1. Site of regulation of water balance and body temperature   |
| _____ | 2. Reflex centers involved in regulating respiratory rhythm in conjunction with lower brain stem centers                      |
| _____ | 3. Responsible for the regulation of posture and coordination of skeletal muscle movements                                    |
| _____ | 4. Important relay station for afferent fibers traveling to the sensory cortex for interpretation                             |
| _____ | 5. Contains autonomic centers, which regulate blood pressure and respiratory rhythm, as well as coughing and sneezing centers |
| _____ | 6. Large fiber tract connecting the cerebral hemispheres  |
| _____ | 7. Connects the third and fourth ventricles   |
| _____ | 8. Encloses the third ventricle   |
| _____ | 9. Forms the cerebrospinal fluid  |
| _____ | 10. Midbrain area that is largely fiber tracts; bulges anteriorly   |
| _____ | 11. Part of the limbic system; contains centers for many drives (rage, pleasure, hunger, sex, etc.)                           |

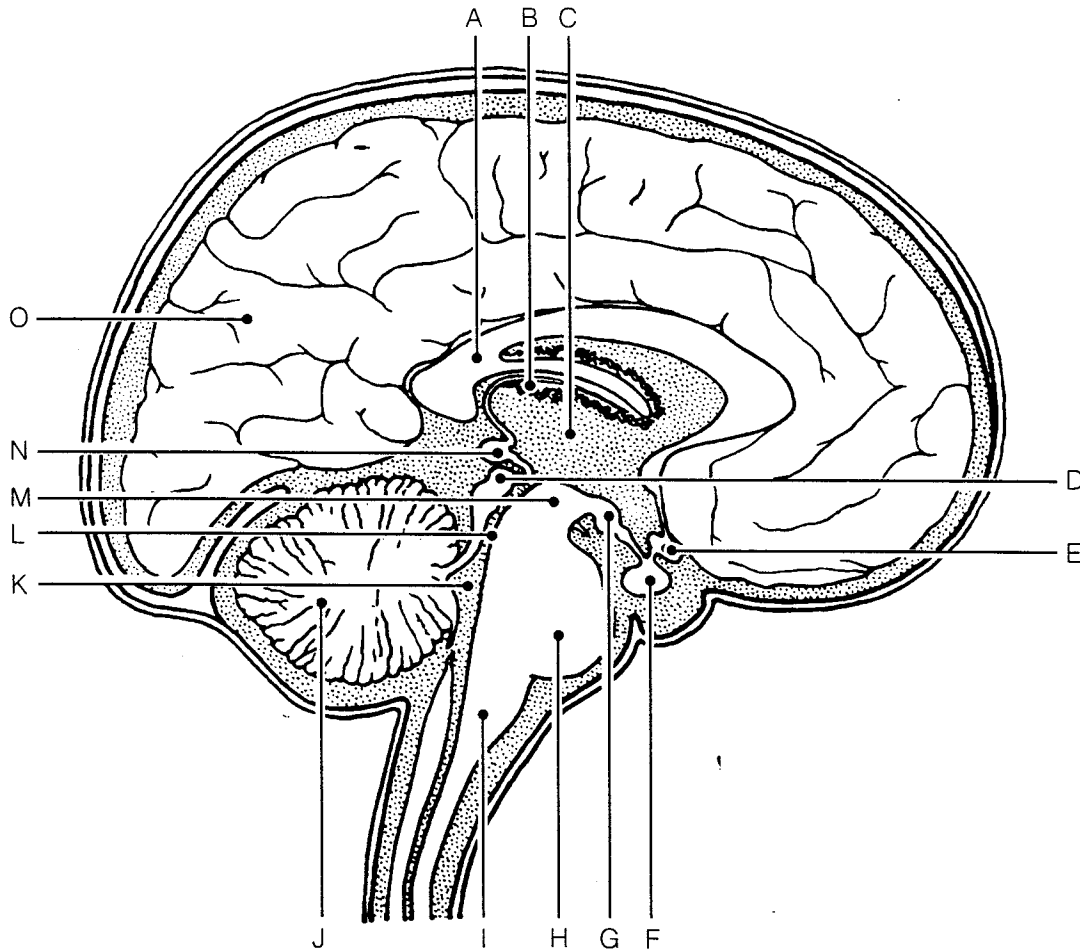


Figure 7-4

19. For each of the following statements that is true, insert *T* in the answer blank. If any of the statements are false, correct the underlined term by inserting the correct term in the answer blank.

- \_\_\_\_\_ 1. The primary sensory area of the cerebral hemisphere(s) is found in the precentral gyrus.
- \_\_\_\_\_ 2. Cortical areas involved in audition are found in the occipital lobe.
- \_\_\_\_\_ 3. The primary motor area in the temporal lobe is involved in the initiation of voluntary movements.
- \_\_\_\_\_ 4. A specialized motor speech area located at the base of the precentral gyrus is called Wernicke's area.
- \_\_\_\_\_ 5. The right cerebral hemisphere receives sensory input from the right side of the body.
- \_\_\_\_\_ 6. The pyramidal tract is the major descending voluntary motor tract. ➤

## Chapter 7. Nervous System

- \_\_\_\_\_ 7. Damage to the thalamus impairs consciousness and the awake/sleep cycles.
- \_\_\_\_\_ 8. A flat EEG is evidence of clinical death.
- \_\_\_\_\_ 9. Beta waves are recorded when an individual is awake and relaxed.

### Protection of the CNS—Meninges and Cerebrospinal Fluid

20. Identify the meningeal (or associated) structures described here.

- \_\_\_\_\_ 1. Outermost covering of the brain, composed of tough fibrous connective tissue
- \_\_\_\_\_ 2. Innermost covering of the brain; delicate and vascular
- \_\_\_\_\_ 3. Structures that return cerebrospinal fluid to the venous blood in the dural sinuses
- \_\_\_\_\_ 4. Middle meningeal layer; like a cobweb in structure
- \_\_\_\_\_ 5. Its outer layer forms the periosteum of the skull

21. Figure 7-5 shows a frontal view of the meninges of the brain at the level of the superior sagittal (dural) sinus. First, label the *arachnoid villi* on the figure. Then, select different colors for each of the following structures and use them to color the coding circles and corresponding structures in the diagram.

- |  |  |
|--|--|
| <input type="radio"/> Dura mater         | <input type="radio"/> Pia mater          |
| <input type="radio"/> Arachnoid membrane | <input type="radio"/> Subarachnoid space |

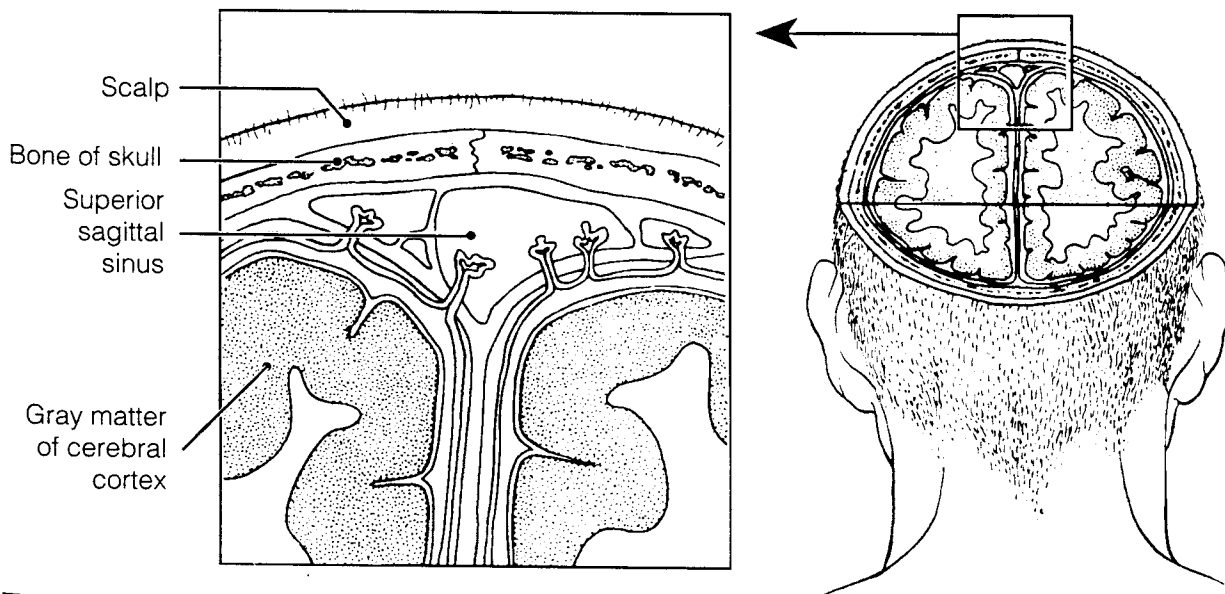


Figure 7-5