

You only have to do the exercises with this icon

SELECT ANIMATION
Divisions of Brain **PLAY**

After viewing the animation, answer these questions:

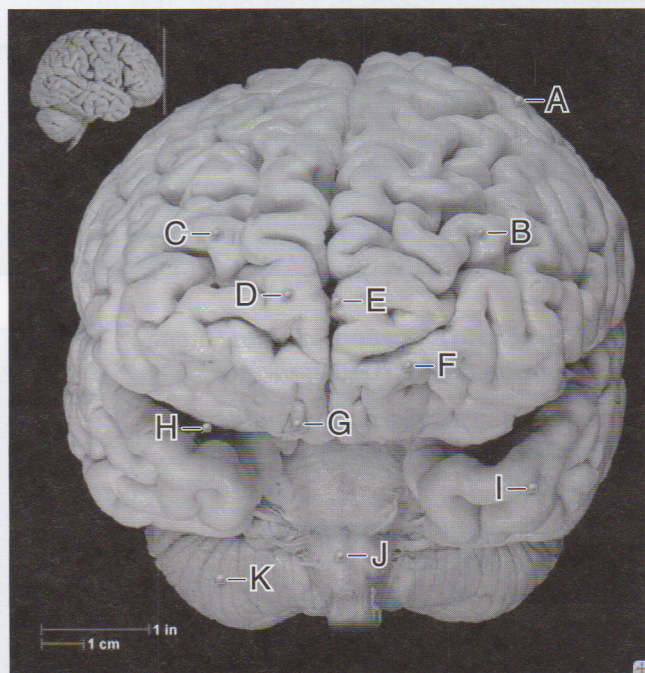
1. Name the four regions of the brain.
2. Describe the cerebrum.
3. How many cerebral hemispheres exist?
4. Name the five lobes of the cerebral hemispheres.
5. The cerebrum is considered _____ responsible for _____.
6. The cerebellum is composed of _____.
7. The primary function of the cerebellum is _____.
8. The diencephalon is composed of three structures. What are they, and what are their functions?
9. Name and describe the three divisions of the brainstem.
10. Name the functions of each division of the brainstem.
11. Where do the cerebellar hemispheres attach to the brainstem?
12. The medulla oblongata extends from _____.
13. The medulla oblongata is continuous with _____.

The Brain Start Here

EXERCISE 7.1:
Nervous System—Brain, Coronal View

SELECT TOPIC Brain **SELECT VIEW** Coronal

- Click **LAYER 1** in the **LAYER CONTROLS** window, and you will see the following image:



HEADS UP!

There are two images visible in the **IMAGE AREA**, the large image with the identification pins and a smaller image in the top-left corner. This second, smaller image is to show you the plane of section, which allows you to keep the larger image in perspective.

- Mouse-over the pins on the screen to find the information necessary to identify the following structures:

- A. _____
- B. _____
- C. _____
- D. _____
- E. _____
- F. _____
- G. _____
- H. _____

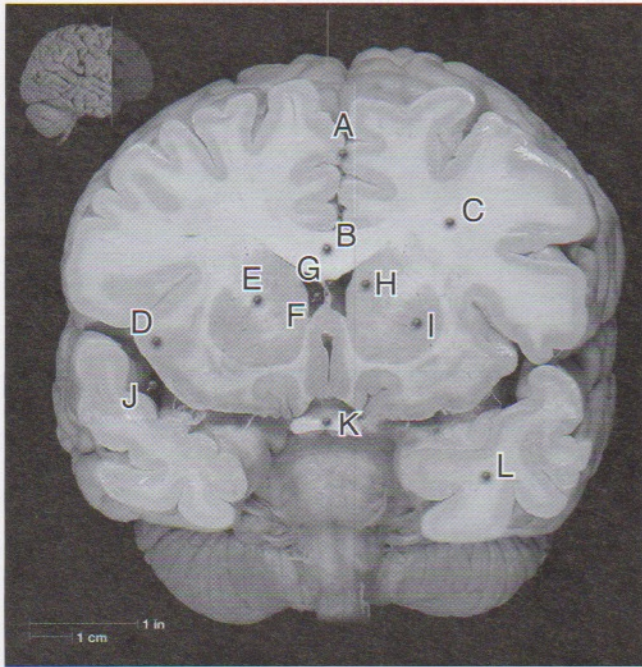
- I. _____
- J. _____
- K. _____

CHECK POINT

Brain, Coronal View

1. Name the deep grooves that separate the temporal lobes from the frontal and parietal lobes.
2. Name the deep groove that separates the right and left cerebral hemispheres.
3. Name the site of synapse for the olfactory neurons after they pass through the cribriform plate.

• Click **LAYER 2** in the **LAYER CONTROLS** window, and you will see the following image:



• Mouse-over the pins on the screen to find the information necessary to identify the following structures:

- A. _____
- B. _____
- C. _____
- D. _____
- E. _____
- F. _____
- G. _____
- H. _____
- I. _____
- J. _____

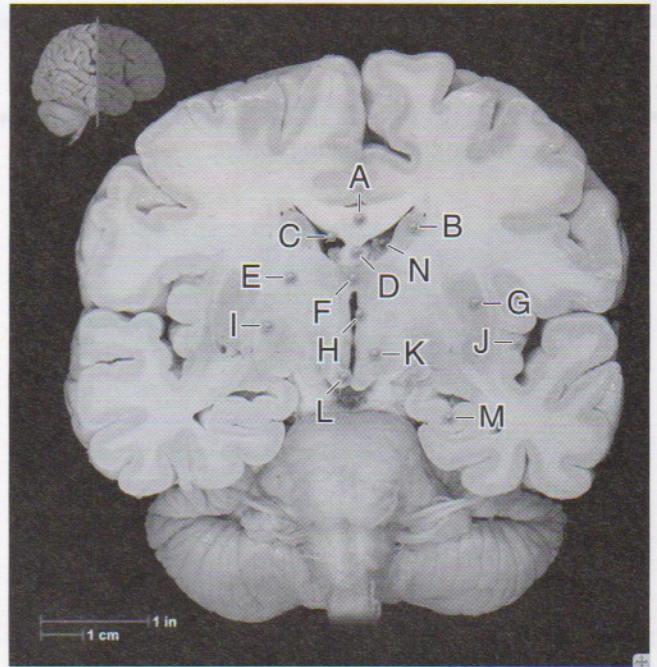
- K. _____
- L. _____

CHECK POINT

Brain, Coronal View, continued

4. What is the term for unmyelinated nervous tissue?
5. What is the term for the collection of myelinated axons in the brain?
6. What is the large myelinated fiber tract that connects the right and left cerebral hemispheres?

• Click **LAYER 3** in the **LAYER CONTROLS** window, and you will see the following image:



• Mouse-over the pins on the screen to find the information necessary to identify the following structures:

- A. _____
- B. _____
- C. _____
- D. _____
- E. _____
- F. _____
- G. _____
- H. _____
- I. _____
- J. _____

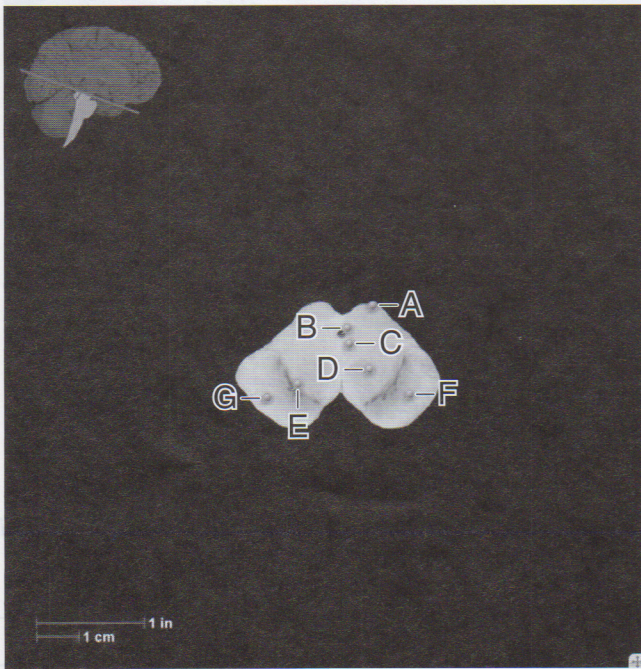
- K. _____
 - L. _____
 - M. _____
- Nonnervous System Structure (blue pin)**
- N. _____

CHECK POINT

Brain, Coronal View, continued

7. Name the paired, rounded projections involved in regulation of autonomic functions, emotional behavior, and memory.
8. Name the structure located in the cerebral ventricles that is the site of the production of cerebrospinal fluid (CSF).
9. Name the structure that is primarily for the relay of sensory information to the cerebral cortex.

- Click **LAYER 4** in the **LAYER CONTROLS** window, and you will see the following image:



- Mouse-over the pins on the screen to find the information necessary to identify the following structures:

- A. _____
- B. _____
- C. _____

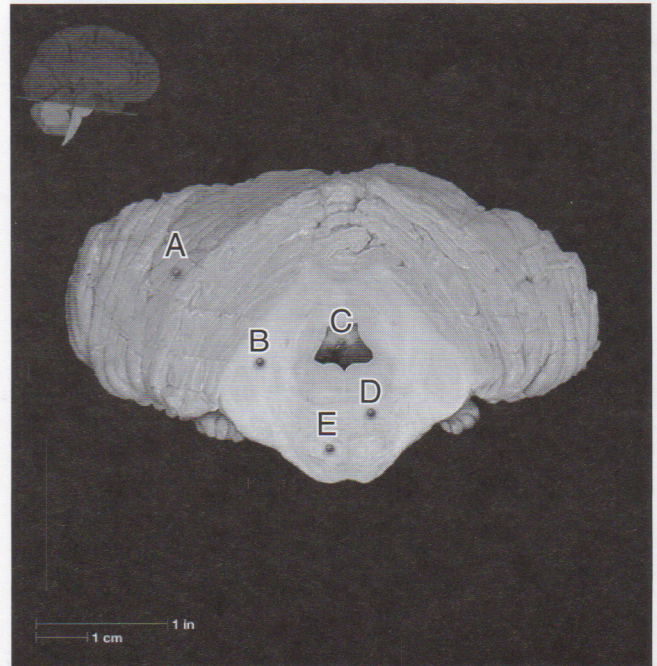
- D. _____
- E. _____
- F. _____
- G. _____

CHECK POINT

Brain, Coronal View, continued

10. Name the structure that coordinates orienting movements of the eyes and head.
11. Name the narrow midline channel between the third and fourth ventricles.
12. Name the structure involved with suppression and modulation of pain.

- Click **LAYER 5** in the **LAYER CONTROLS** window, and you will see the following image:



- Mouse-over the pins on the screen to find the information necessary to identify the following structures:

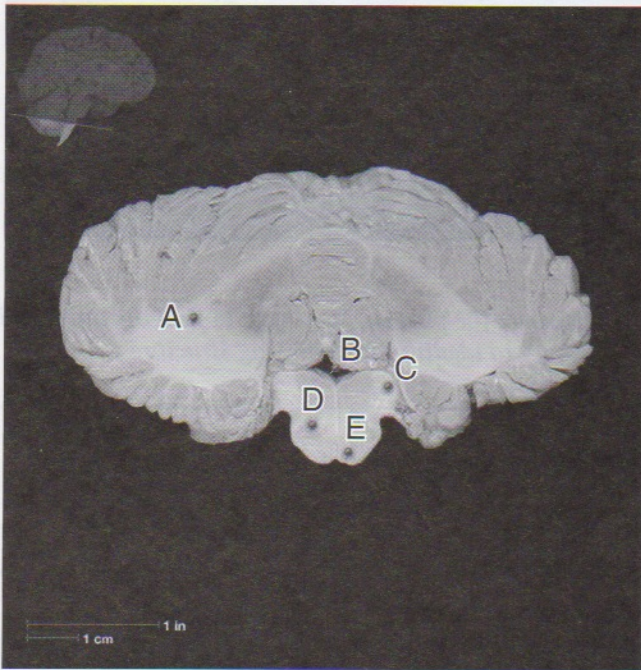
- A. _____
- B. _____
- C. _____
- D. _____
- E. _____

CHECK POINT

Brain, Coronal View, *continued*

13. Name the structure that controls voluntary movement.
14. Name the major afferent pathway for information from the motor cortex to the cerebellum.
15. Name the cerebrospinal fluid-filled pyramidal cavity that is continuous with the cerebral aqueduct and the central canal of the spinal cord.

- Click **LAYER 6** in the **LAYER CONTROLS** window, and you will see the following image:



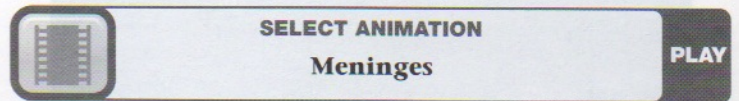
- Mouse-over the pins on the screen to find the information necessary to identify the following structures:

- A. _____
- B. _____
- C. _____
- D. _____
- E. _____

CHECK POINT

Brain, Coronal View, *continued*

16. Name the structure that processes and sends information to the cerebellum from many CNS nuclei and skeletal muscle proprioceptors.
17. Name the structure of the medulla oblongata that controls voluntary movement.
18. Name the structure that carries information about muscle performance from the spinal cord to the cerebellum.



After viewing the animation, answer these questions:


1. List the three meninges in order from superficial to deep.
2. Name the two layers of the most superficial of the meninges.
3. Name the structures formed where these two layers split.
4. Name the space located between the middle and deepest meninges. What fills this space?

Self-Quiz

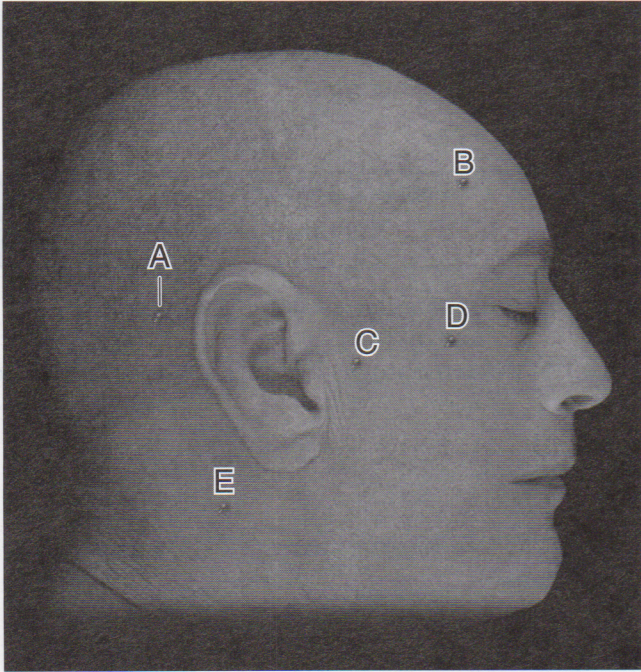
Take this opportunity to check your progress by taking the **QUIZ**. See the **Introduction Chapter** for a reminder on how to access the **QUIZ** for this Study Area.

EXERCISE 7.2:

Nervous System—Brain, Lateral View

	SELECT TOPIC	SELECT VIEW
	Brain	Lateral

- Click **LAYER 1** in the **LAYER CONTROLS** window, and you will see the following image:



- Mouse-over the pins on the screen to find the information necessary to identify the following structures:

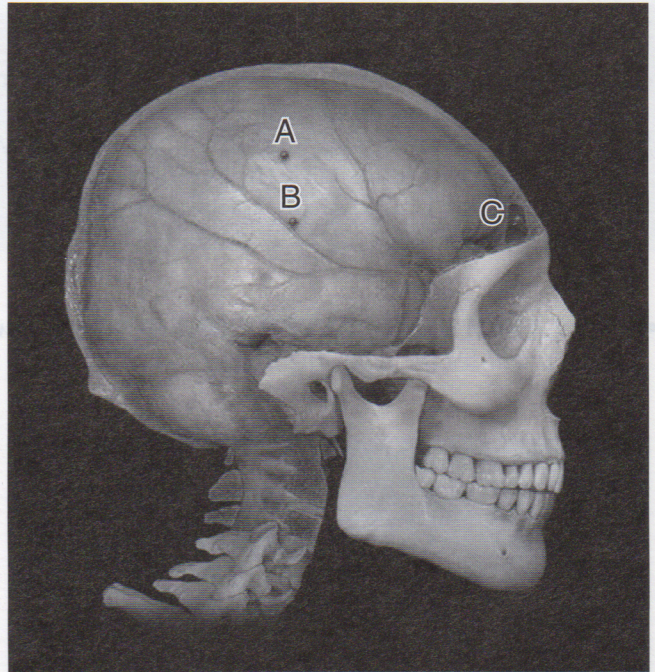
- A. _____
- B. _____
- C. _____
- D. _____
- E. _____

CHECK POINT

Brain, Lateral View

1. What is a dermatome?
2. The skin of the superior face is innervated by which nerve?
3. The external ear is innervated by which nerve?

- Click **LAYER 3** in the **LAYER CONTROLS** window, and you will see the following image:



- Mouse-over the pins on the screen to find the information necessary to identify the following structures:

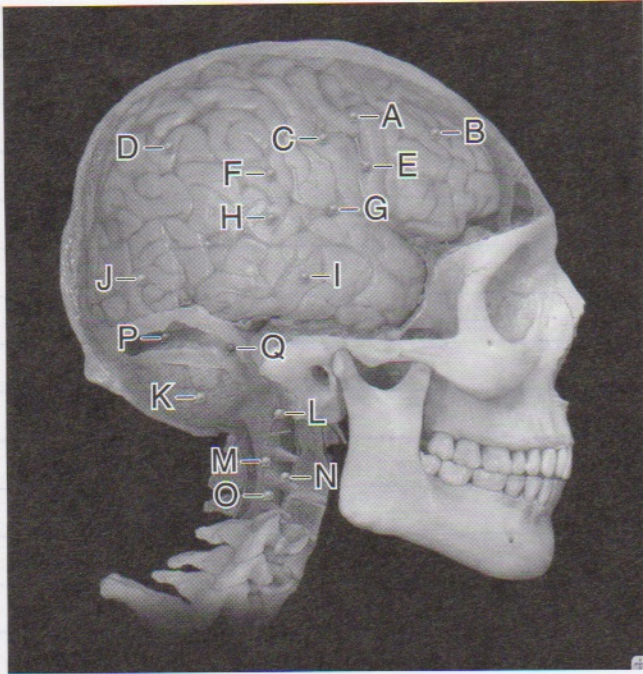
- A. _____
- Nonnervous System Structures (blue pins)**
- B. _____
 - C. _____

CHECK POINT

Brain, Lateral View, continued

4. Name the paired mucous membrane-lined cavities within the frontal bone.
5. Name the most external of the meninges.
6. Name an artery that courses between the dura mater and the cranium.

- Click **LAYER 4** in the **LAYER CONTROLS** window, and you will see the following image:



- Mouse-over the pins on the screen to find the information necessary to identify the following structures:

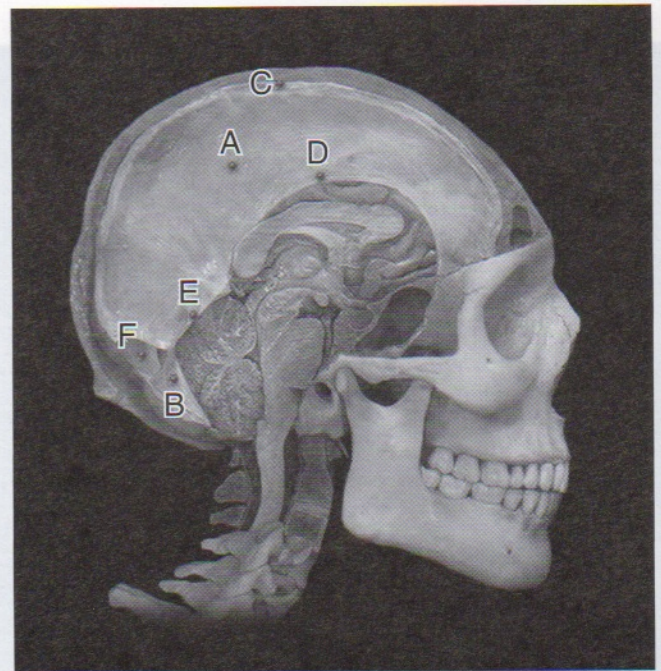
- A. _____
 - B. _____
 - C. _____
 - D. _____
 - E. _____
 - F. _____
 - G. _____
 - H. _____
 - I. _____
 - J. _____
 - K. _____
 - L. _____
 - M. _____
 - N. _____
 - O. _____
- Nonnervous System Structures (blue pins)**
- P. _____
 - Q. _____

CHECK POINT

Brain, Lateral View, *continued*

- Name the distinct fold at the posterior border of the frontal lobe that controls voluntary movement.
- Name the distinct fold at the anterior border of the parietal lobe that receives somatosensory information from the body.
- Name the groove that forms the boundary between the frontal and parietal lobes.

- Click **LAYER 5** in the **LAYER CONTROLS** window, and you will see the following image:



- Mouse-over the pins on the screen to find the information necessary to identify the following structures:

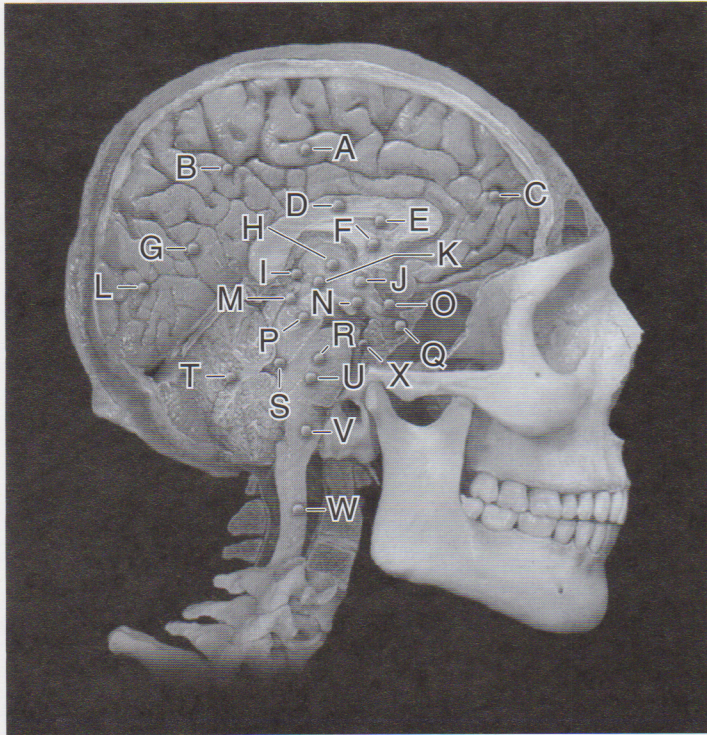
- A. _____
 - B. _____
- Nonnervous System Structures (blue pins)**
- C. _____
 - D. _____
 - E. _____
 - F. _____

CHECK POINT

Brain, Lateral View, continued

10. Name the large, crescent-shaped fold of the dura mater that separates the two cerebral hemispheres.
11. Name the structure that contains arachnoid granulations. What is the function of these granulations?
12. The confluence of the sinuses is the meeting point for four different sinuses. What are they?

• Click **LAYER 6** in the **LAYER CONTROLS** window, and you will see the following image:



• Mouse-over the pins on the screen to find the information necessary to identify the following structures:

- A. _____
- B. _____
- C. _____
- D. _____
- E. _____

- F. _____
 - G. _____
 - H. _____
 - I. _____
 - J. _____
 - K. _____
 - L. _____
 - M. _____
 - N. _____
 - O. _____
 - P. _____
 - Q. _____
 - R. _____
 - S. _____
 - T. _____
 - U. _____
 - V. _____
 - W. _____
- Nonnervous System Structure (pin)**
- X. _____

CHECK POINT

Brain, Lateral View, continued

13. Name the groove that separates the parietal and occipital lobes of the brain.
14. Name the pea-sized endocrine gland attached to the roof of the third ventricle. What hormone does it secrete?
15. Name the narrow cerebrospinal fluid-filled channel between the third and fourth ventricles.

Self-Quiz

Take this opportunity to check your progress by taking the **QUIZ**. See the **Introduction Chapter** for a reminder on how to access the **QUIZ** for this Study Area.

EXERCISE 7.3:

Nervous System—Brain, Superior View



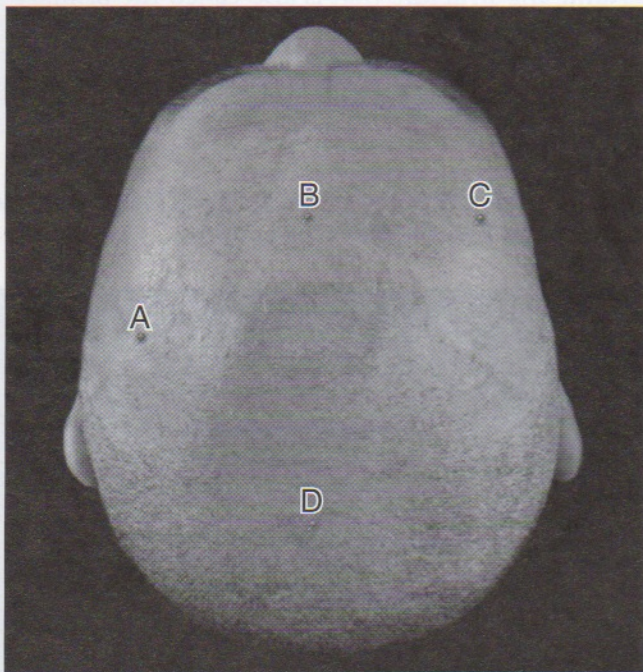
SELECT TOPIC

Brain

SELECT VIEW

Superior

- Click **LAYER 1** in the **LAYER CONTROLS** window, and you will see the following image:



- Mouse-over the pins on the screen to find the information necessary to identify the following structures:

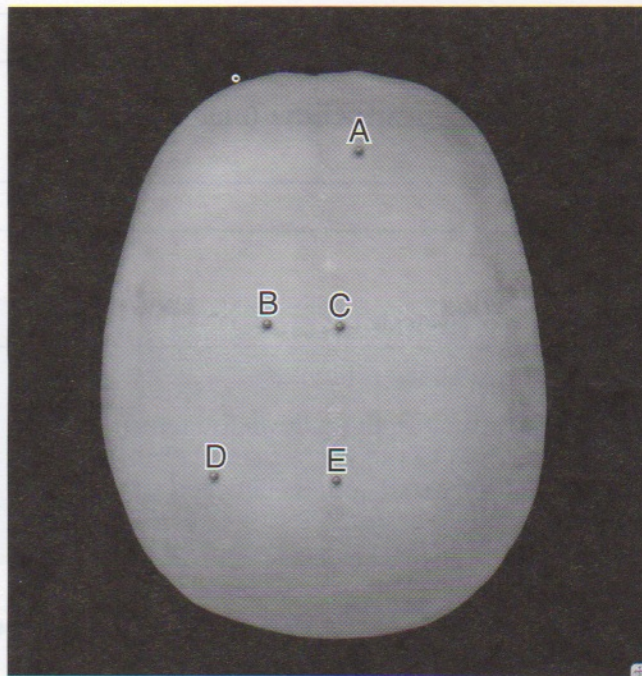
- A. _____
- B. _____
- C. _____
- D. _____

CHECK POINT

Brain, Superior View

- Name the spinal nerve that innervates the posterior scalp.
- Name the nerve that innervates the skin over the temple and the anterior portion of the external ear.
- Name the nerve that innervates the skin over the anterior scalp and forehead.

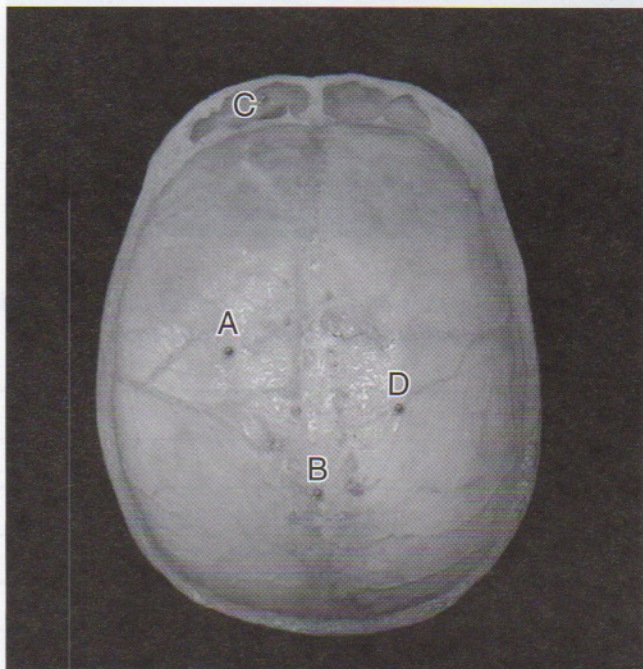
- Click **LAYER 2** in the **LAYER CONTROLS** window, and you will see the following image:



- Mouse-over the pins on the screen to find the information necessary to identify the following structures:

- A. _____
- B. _____
- C. _____
- D. _____
- E. _____

- Click **LAYER 3** in the **LAYER CONTROLS** window, and you will see the following image:



- Mouse-over the pins on the screen to find the information necessary to identify the following structures:

A. _____
 B. _____

Nonnervous System Structures (blue pins)

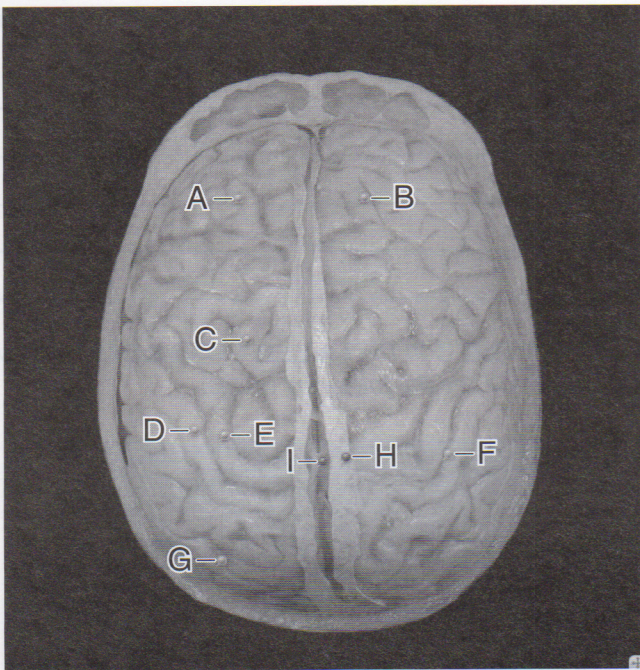
C. _____
 D. _____

CHECK POINT

Brain, Superior View, continued

4. Name the structure that allows the return of cerebrospinal fluid to the venous circulation.
5. Name an artery that courses between the dura mater and the cranium.

- Click **LAYER 4** in the **LAYER CONTROLS** window, and you will see the following image:



- Mouse-over the pins on the screen to find the information necessary to identify the following structures:

A. _____
 B. _____
 C. _____
 D. _____
 E. _____
 F. _____
 G. _____
 H. _____

Nonnervous System Structures (blue pins)

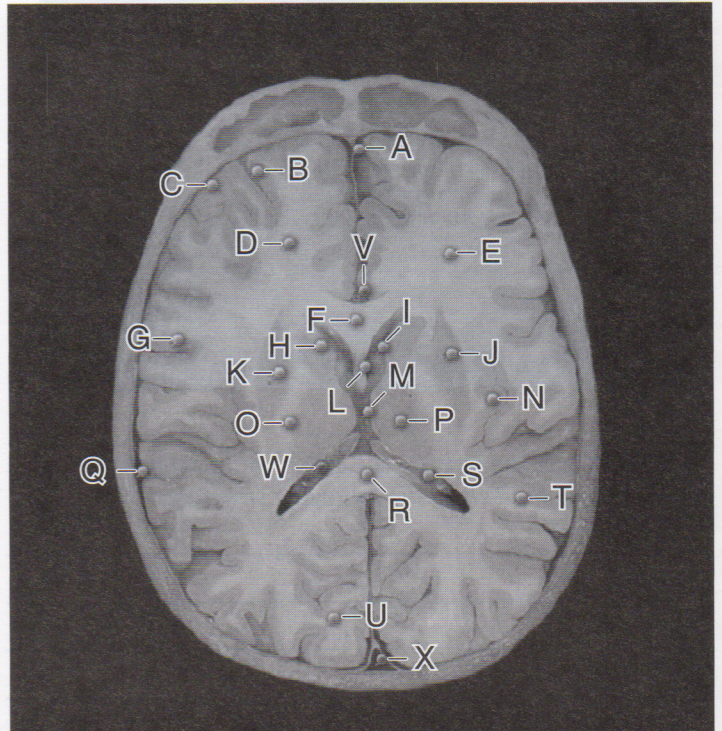
I. _____

CHECK POINT

Brain, Superior View, continued

6. Name an unpaired dural venous sinus that terminates at the confluence of sinuses.
7. Name the structure that is also called the primary motor cortex.
8. Name the structure that is also called the primary somatosensory cortex.

- Click **LAYER 5** in the **LAYER CONTROLS** window, and you will see the following image:



- Mouse-over the pins on the screen to find the information necessary to identify the following structures:

A. _____
 B. _____
 C. _____
 D. _____
 E. _____
 F. _____
 G. _____
 H. _____
 I. _____
 J. _____

- K. _____
- L. _____
- M. _____
- N. _____
- O. _____
- P. _____
- Q. _____
- R. _____
- S. _____
- T. _____
- U. _____

Nonnervous System Structures (blue pins)

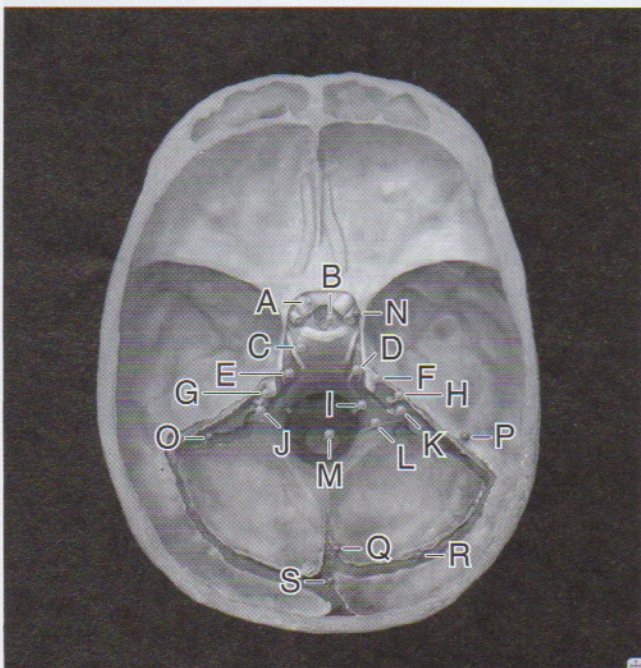
- V. _____
- W. _____
- X. _____

CHECK POINT

Brain, Superior View, continued

9. The cerebral ventricles are lined with tufts of capillaries covered by specialized ependymal cells. What are these tufts called?
10. Both the superior sagittal sinus and the inferior sagittal sinus are located in the margins of the _____.
11. Name the midline cavity that separates the right and left halves of the diencephalon.

• Click **LAYER 6** in the **LAYER CONTROLS** window, and you will see the following image:



• Mouse-over the pins on the screen to find the information necessary to identify the following structures:

- A. _____
- B. _____
- C. _____
- D. _____
- E. _____
- F. _____
- G. _____
- H. _____
- I. _____
- J. _____
- K. _____
- L. _____
- M. _____

Nonnervous System Structures (blue pins)

- N. _____
- O. _____
- P. _____
- Q. _____
- R. _____
- S. _____

CHECK POINT

Brain, Superior View, continued

12. Name the point of attachment of the pituitary gland to the hypothalamus.
13. Name the S-shaped groove on the inner aspect of the temporal bone.
14. Name the cranial nerve that controls the superior oblique muscle.

Self-Quiz

Take this opportunity to check your progress by taking the **QUIZ**. See the **Introduction Chapter** for a reminder on how to access the **QUIZ** for this Study Area.

SELECT ANIMATION

Brain Ventricles Fly-through

PLAY

After viewing the animation, answer these questions:

1. Name the four ventricles of the brain.
2. Describe the lateral ventricles. Where are they located?
3. Describe the third ventricle. How does it connect to the lateral ventricles?
4. Describe the cerebral aqueduct.
5. Describe the fourth ventricle. Where is it located?
6. Where is CSF located? How and where is it produced?
7. Describe the circulation of CSF.

SELECT ANIMATION

CSF Flow

PLAY

After viewing the animation, answer these questions:

1. In what brain structures would you expect to find (CSF)?
2. Where is this CSF produced?
3. What structure produces the CSF?
4. Beginning in the lateral ventricles, trace the flow of CSF.
5. What are arachnoid granulations?

SELECT ANIMATION

Dural Sinus Blood Flow

PLAY

After viewing the animation, answer these questions:

1. What are the dural venous sinuses?
2. Where are they located?
3. Name the two dural sinuses located along the midline.
4. Name the three sinuses that unite at the confluence of sinuses.
5. What vessels do the sigmoid sinuses become?

EXERCISE 7.4:

Nervous System—Brain, Inferior View



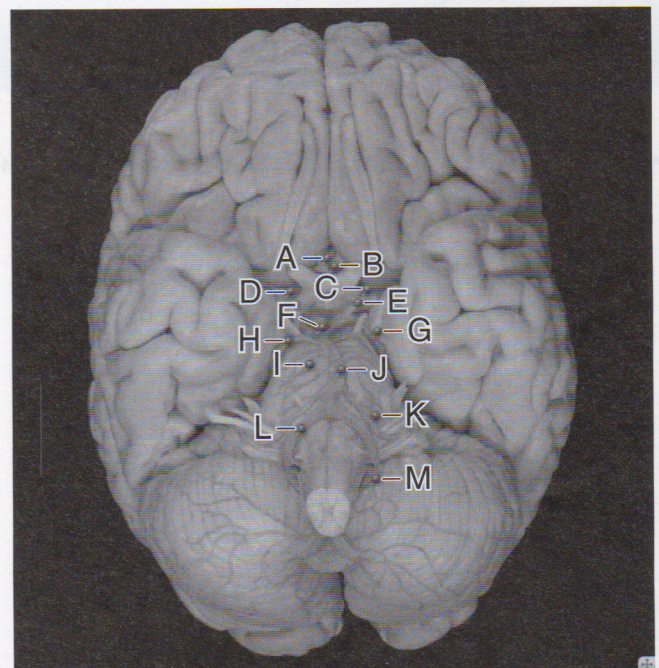
SELECT TOPIC

Brain

SELECT VIEW

Inferior

- Click **LAYER 1** in the **LAYER CONTROLS** window, and you will see the following image:



- Mouse-over the pins on the screen to find the information necessary to identify the following nonnervous system structures:

A. _____

B. _____

C. _____

D. _____

E. _____

F. _____

G. _____

H. _____

I. _____

J. _____

K. _____

L. _____

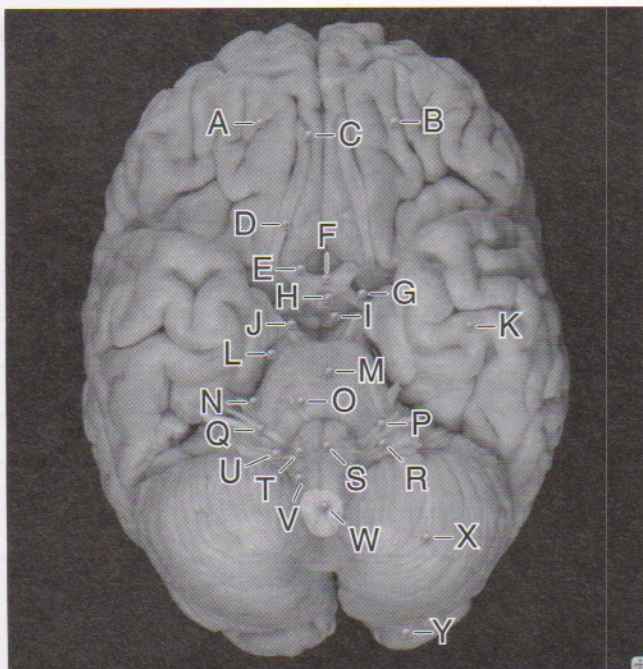
M. _____

CHECK POINT

Brain, Inferior View

1. Name the circular anastomosis on the ventral surface of the brain also referred to as the "Circle of Willis."
2. Name the artery that passes through the transverse foramina of the cervical vertebrae.
3. Name the unpaired midline artery that ascends on the anterior surface of the pons.

- Click **LAYER 2** in the **LAYER CONTROLS** window, and you will see the following image:



- Mouse-over the pins on the screen to find the information necessary to identify the following structures:

A. _____

B. _____

C. _____

D. _____

E. _____

F. _____

G. _____

H. _____

I. _____

J. _____

K. _____

L. _____

M. _____

N. _____

O. _____

P. _____

Q. _____

R. _____

S. _____

T. _____

U. _____

V. _____

W. _____

X. _____

Y. _____

CHECK POINT

Brain, Inferior View, continued


4. Name the crossing white-matter tract between the optic nerve and the optic tracts.
5. Name the brain structure whose name means bridge.
6. Name the most caudal portion of the brain. What are its functions?

Self-Quiz

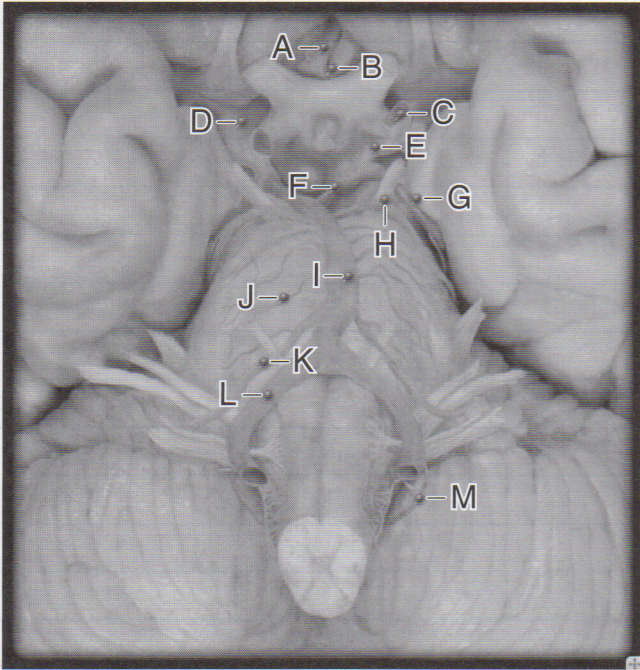
Take this opportunity to check your progress by taking the **QUIZ**. See the **Introduction Chapter** for a reminder on how to access the **QUIZ** for this Study Area.

EXERCISE 7.5:

Nervous System—Brain, Inferior View (close-up)

	SELECT TOPIC	SELECT VIEW
	Brain	Inferior (close-up)

• Click **LAYER 1** in the **LAYER CONTROLS** window, and you will see the following image:



• Mouse-over the pins on the screen to find the information necessary to identify the following nonnervous system structures:

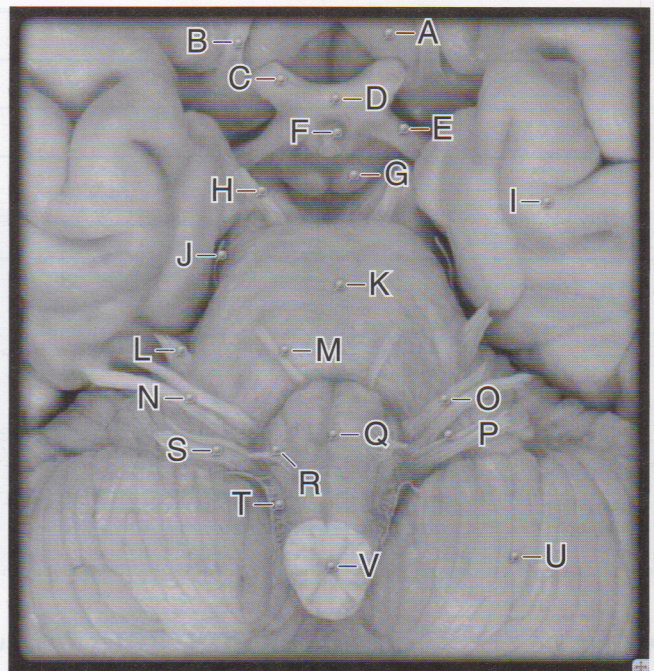
- A. _____
- B. _____
- C. _____
- D. _____
- E. _____
- F. _____
- G. _____
- H. _____
- I. _____
- J. _____
- K. _____
- L. _____
- M. _____

CHECK POINT

Brain, Inferior View (close-up)

1. Name the artery whose significant branches include the ophthalmic, anterior cerebral, and middle cerebral arteries.
2. Name the artery whose major branches include the pontine and superior cerebellar arteries.
3. Name the artery whose numerous branches course laterally across the surface of the pons.

• Click **LAYER 2** in the **LAYER CONTROLS** window, and you will see the following image:



• Mouse-over the pins on the screen to find the information necessary to identify the following structures:

- A. _____
- B. _____
- C. _____
- D. _____
- E. _____
- F. _____
- G. _____
- H. _____
- I. _____
- J. _____

This is the last exercise. Use the back of this page to letters after "J".