

CONCEPT: CENTRAL NERVOUS SYSTEM

CNS: Composition

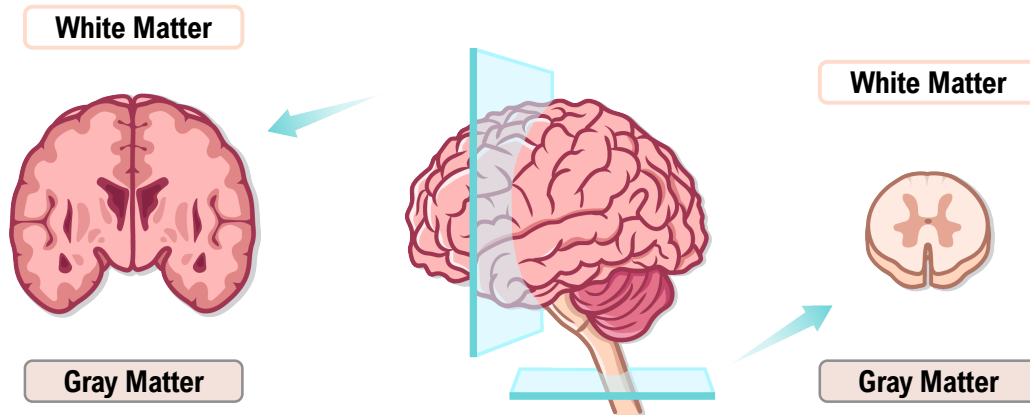
◆ The nervous tissue that makes up the brain & spinal cord is composed of ____ types of matter.

1. White Matter: Myelinated ____.

2. Gray Matter: Un____ed neuron bodies and dendrites.

◆ **Brain:** ____er layer of gray matter known as the cortex; ____er layer of white matter.

◆ **Spinal Cord:** ____er layer of white matter; ____ gray matter.



EXAMPLE

Which of these statements about the composition of the CNS is correct?

- a) White matter is optimized for transferring signals because it's more insulated.
- b) All cortical areas of the brain are concentrated in its center.
- c) White matter contains more myelinated dendrites than gray matter.
- d) White matter insulates the outer regions of both the brain and the spinal cord.

CONCEPT: CENTRAL NERVOUS SYSTEM

Major Regions of the Brain

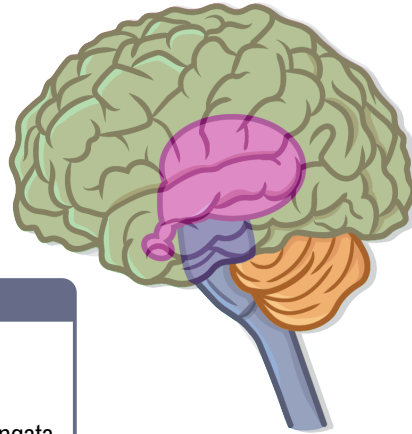
- ◆ Brain coordinates most of the body activities and is the center of all _____, memory, judgment, and emotion.
- ◆ The brain can be divided into ____ major regions.

1. Cerebrum

- ▶ Largest part on superior side.
- ▶ Controls all sensory & motor activity.
- ▶ Divided into ____ lobes.

3. Brainstem

- ▶ _____ of the brain.
- ▶ Vital involuntary functions.
- ▶ Midbrain, pons, & medulla oblongata.



2. Diencephalon

- ▶ _____ part of the brain.
- ▶ Relay for all sensory & motor information.
- ▶ Thalamus, epi- & hypo-.

4. Cerebellum

- ▶ _____ posterior side.
- ▶ Integrates sensory perception with motor activity.

EXAMPLE

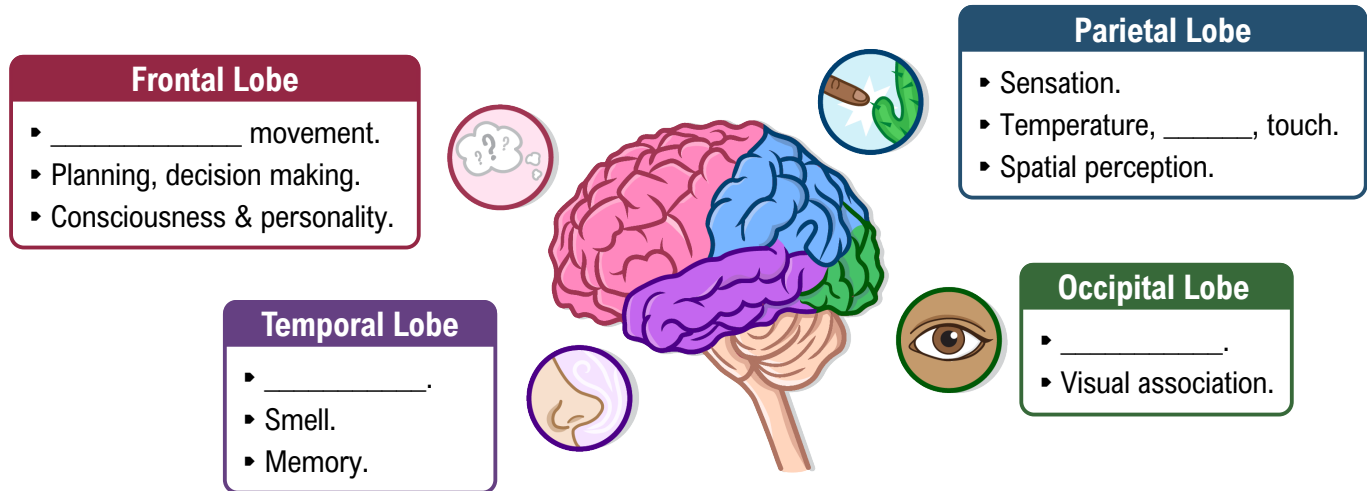
Complete the following statements with directional terms: Superior (S), inferior (I), anterior (A), and posterior (P).

- a) Diencephalon is ____ to the cerebrum.
- b) Brainstem is ____ to the cerebellum.
- c) Diencephalon is ____ to brain stem.
- d) Cerebellum is the most ____ part of the brain.

CONCEPT: CENTRAL NERVOUS SYSTEM

Lobes of the Cerebrum

◆ The cerebrum consists of ____ lobes, named after the respective cranial bones that overlie them.



EXAMPLE

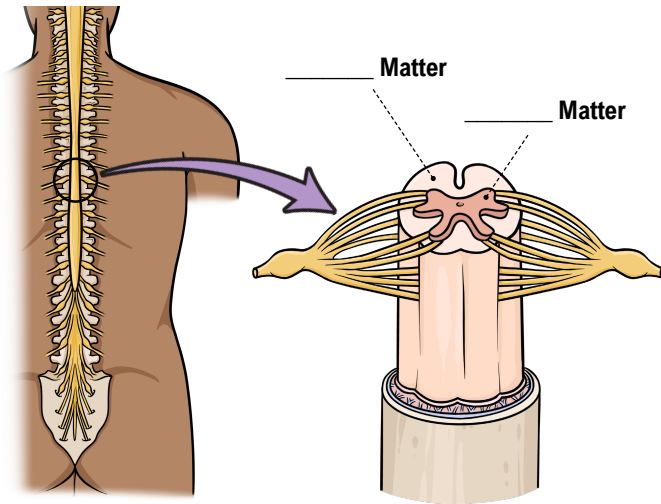
Which of the following statements is incorrect?

- a) Frontal lobe is the most anterior part of cerebrum and responsible for decision making.
- b) Parietal lobe is cerebrum's anterior part and controls spatial perception.
- c) Temporal lobes are on the lateral sides and control hearing.
- d) Occipital lobe is the most posterior part of cerebrum and controls vision.

CONCEPT: CENTRAL NERVOUS SYSTEM

CNS: Spinal Cord

- ◆ Column of _____ tissue: **gray matter** core surrounded by **white matter**.
- ◆ **Tracts**: Bundles of nerve _____ in **white matter**, interconnect parts of CNS.
 - **Ascending Tracts**: carry _____ information up to the brain.
 - **Descending Tracts**: carry _____ information down from the brain.



EXAMPLE

Identify which of the following statements is incorrect.

- a) Tracts are bundles of myelinated nerve fibers found in the central nervous system.
- b) Dura mater is a tough membrane that encases all parts of the spinal cord.
- c) The gray matter of the spinal cord is surrounded by the white matter.
- d) Descending tracts are responsible for the transmission of sensory information.

PRACTICE

Identify each of the following statements as either true (T) or false (F).

- a) ____ Cerebrum is the largest and most superior part of the brain and controls planning and decision making.
- b) ____ The top part of the spinal cord is protected by cranial bones while the rest is encased in the spinal cavity.
- c) ____ Tracts are an essential CNS component and help with the transfer of information between different parts.
- d) ____ The occipital lobe is located inside diencephalon and lies superior and posterior to the cerebellum.