


How is the Nervous System Organized?

Chapter 3
Neuroscience



Class Objectives

- What is the Nervous System?
- What are the 3 divisions of the brain?
 - Hind-brain
 - Mid-brain
 - Forebrain

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What is the Nervous System?

- The *Nervous System* is the body's main

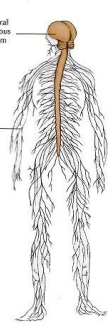
- This consists of structures and organs that facilitate _____

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The Nervous System

- Central Nervous System (CNS)


- Peripheral Nervous System (PNS)
 - The main function of the PNS is



Central nervous system

Peripheral nervous system

CNS-Spinal Cord



- The spinal cord transmits signals from the sensory organs, muscles and glands to the brain.

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The spinal cord is like a

between the brain and the rest of the body.

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Spinal cord communication

- Communicates with the body below the head through *sensory* and *motor neurons*

- _____ (afferent neurons)
 - Carry information about touch, pain, and other senses _____

- Motor neurons (_____ neurons)
 - Transmit impulses _____

Did you know...?

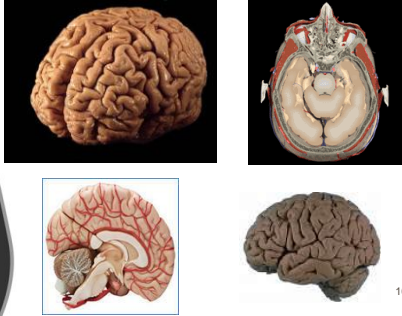
- There are about 3 million miles of axons in the human brain
- Information travels in the nerves at speeds up to 268 miles per hour!



How much do you know about YOUR brain??

Structures of the brain

What observations can you make about the brain?



Looking at the Brain

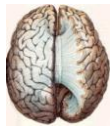
- The exterior covering (cortex) of the brain is wrinkled which _____

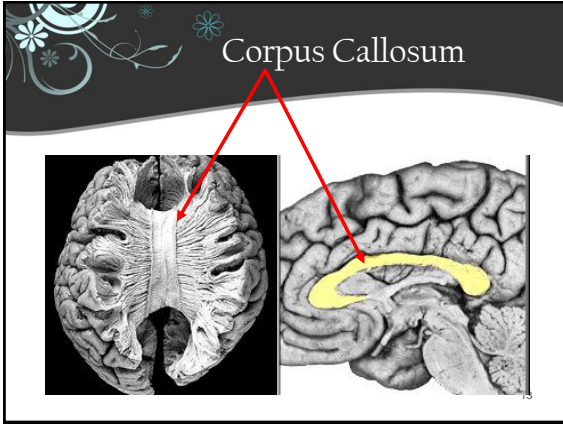
- The brain is divided into 2 hemispheres
 - Right and left hemispheres

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The hemispheres of the brain are connected

- The _____ connects these hemispheres and allows _____





- Damage to the Corpus Callosum results in two independent brains in one skull
- _____
allowed researchers to discover _____

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Split Brain Research

- This research showed that each hemisphere of the brain is *specialized*
 - The *right brain* is associated _____

 - The *left brain* is associated with _____

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Why are they different?

•More _____ have a larger proportion of the brain taken up by the cerebral cortex.

•The _____ made up of four lobes, is involved in many complex brain functions including:

- memory
- perceptual awareness
- "thinking"
- language and consciousness

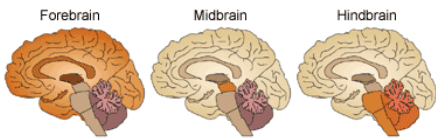
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Does bigger mean smarter?



Three Divisions of the Brain

- Hindbrain
- Midbrain
- Forebrain



The Hindbrain

- This is the _____
- The structures in the lower brain tend to be responsible for basic, _____
- Includes the cerebellum, Pons, and medulla

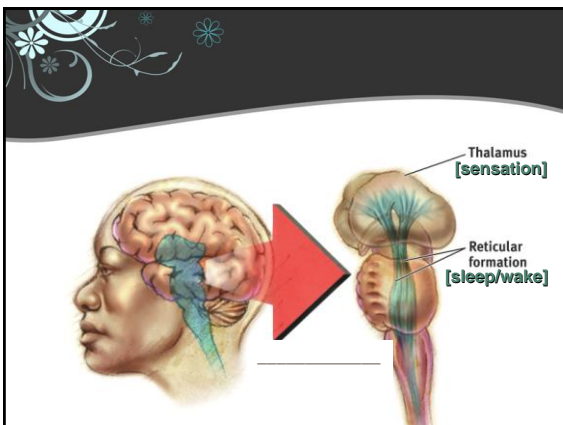
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The Hindbrain



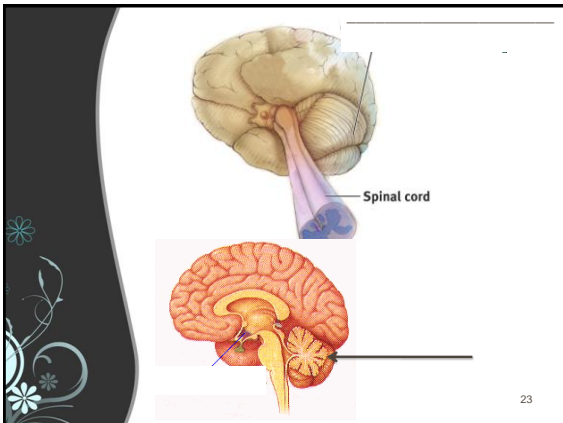
- The Medulla is the most primitive and lowest portion of the hindbrain (Part of the brain stem).

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- Pons- provides link (“bridge”)between the medulla and the cerebellum and rest of brain
- Cerebellum- “Little brain” – attached to back surface of brain stem.

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Next Class...

- More on the brain!

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