

The Brain...continued

Where do complex thought and behavior come from?

Class Objectives

- @ Identify and discuss the mid brain and forebrain.
- @ Identify and discuss structures of the mid brain and forebrain
- @ Discuss how these structures influence behavior

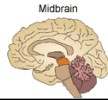
Concept Check

Did you get it?

- @ What is the main function or purpose of the nervous system?

The Midbrain

- Ⓞ The midbrain helps us orient our eye and body movements to _____
- Coordination of visual and auditory reflexes
- Ⓞ The _____ (RF) runs through the hindbrain and midbrain.
- Ⓞ This finger-shaped structure filters incoming sensory information and _____



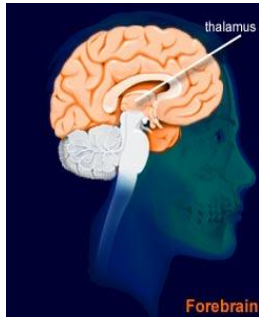


The Forebrain

- Ⓞ This the _____
- _____
- Ⓞ This area of the brain is associated with _____
- _____
- The ability to concentrate, elaboration of thought, judgment and inhibition.

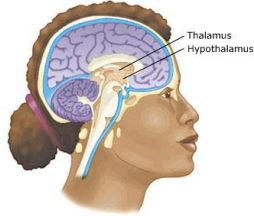
Forebrain

- Ⓞ The *Thalamus* is a large structure of forebrain that acts a routing station or air-traffic controller.
- Ⓞ _____
- _____
- from the CNS before it reaches the cerebral cortex



② _____ is a pea-sized structure that controls many complex behaviors such as eating, drinking and sexual activity.

- ✓ _____
- ✓ _____
- ✓ _____
- ✓ _____



Where do my emotions come from?

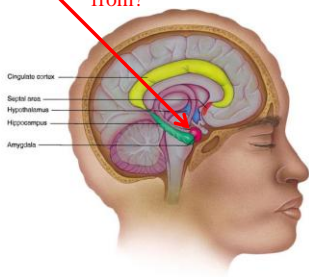
② The limbic system is an interconnected group of structures that are especially significant in emotions, memory, and social behavior.

② _____

② The limbic system also includes the _____

The Limbic System

Where does aggression come from?



Amygdala



Can pleasure take us over?

@ _____ Research has shown that rats who received electrical stimulation will repeatedly press a lever which activates this region-producing pleasure (Olds & Milner, 1954).

@ _____

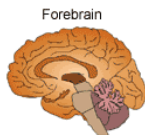
@ Recent research suggests that there is a link between _____ and the stimulation of these areas (Volvow et al., 2002).

Cerebral Cortex

@ The cerebral cortex is responsible for the most complex mental activities including learning,

@ This area is made up of four lobes:

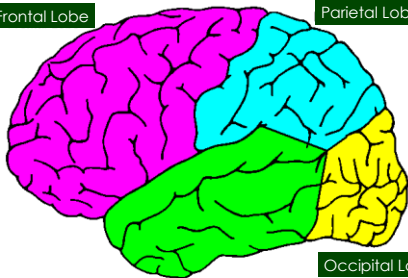
- Occipital Lobe
- Parietal Lobe
- Temporal Lobe
- Frontal Lobe



Four Lobes of the Brain

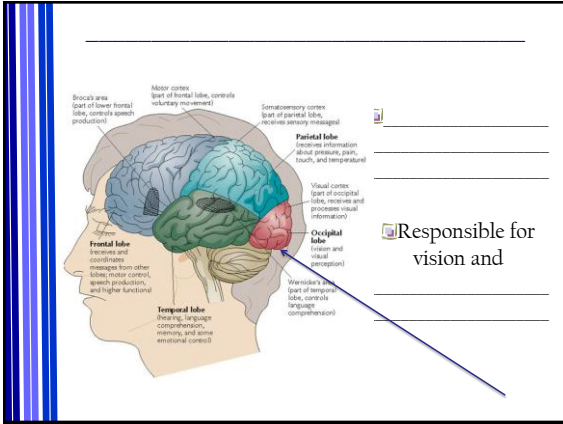
Frontal Lobe

Parietal Lobe



Temporal Lobe

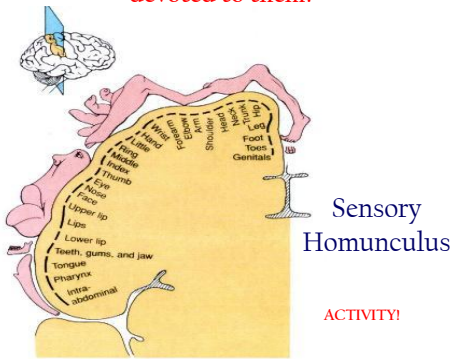
Occipital Lobe



Parietal Lobe

- Ⓞ Parietal Lobe is the area that is specialized for the body senses and body image
- Ⓞ The parietal lobe is involved with processing information related to _____
- Ⓞ Includes the _____, a band of tissue on the front of the parietal lobe
- Each area of the *primary somatosensory cortex* receives information about touch in different body areas.

What areas of the body have the most cortex devoted to them?



Ⓢ Larger areas are devoted to touch in the most sensitive parts of the body such as

Ⓢ Smaller areas are devoted to touch in less sensitive parts of the body such as





Temporal Lobe



Ⓢ The main processing area for _____

Ⓢ Is the main processing area for some of the complex aspects of vision

Ⓢ Involved in aspects of learning, memory, and emotions

Frontal Lobe

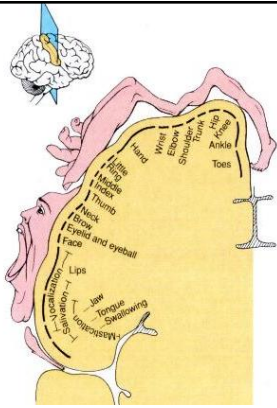
Ⓢ Includes the *Primary Motor Cortex*, which controls fine movements such _____

Ⓢ Each area of the primary motor cortex controls _____

- Larger areas are devoted to precise movements of the tongue and fingers

- Smaller areas are devoted to movements of the shoulders and elbows

Motor Homunculus



Frontal Lobe Continued...

Ⓞ Includes the Prefrontal Cortex

- Critical for planning movements and for certain aspects of memory, problem solving, emotion, complex thought

Next Class...

Ⓞ How do we learn?
