AP Psychology 12 Ms Carey

Biological Bases of Behaviour

Unit 3B: THE BRAIN

Chapter Objectives:

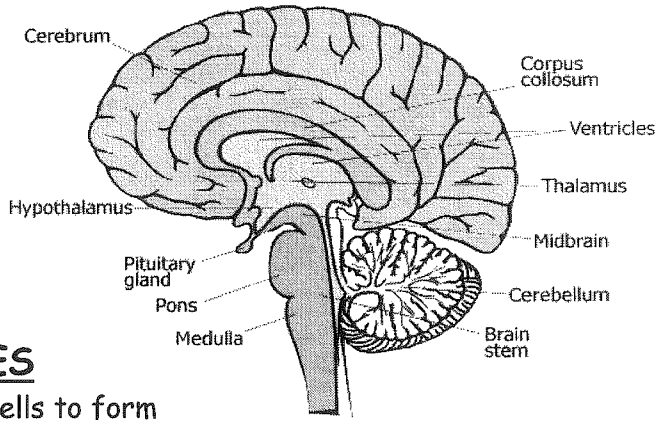
- Explain the tools of discovery (Recording Brain Activity)
- Identify and explain the older brain structures
- Identify the structures and functions of the Cerebral Cortex
- Explain Brain Plasticity
- Explain how our Divided Brain works & splitting the brain
- Identify right vs. left brain differences
- Explain the brain and consciousness (cognitive neuroscience and dual processing)

THE BRAIN

The brain is our most amazing organ and it was not until recently that we even knew how many parts of it work.

Tools of Brain Discovery:

- EEG
- CT Scan
- PET Scan
- MRI



LOWER LEVEL BRAIN STRUCTURES

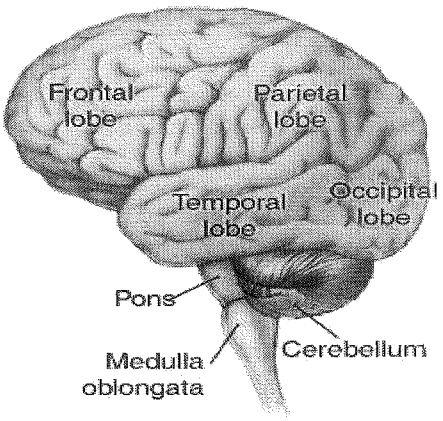
The brainstem begins where the spinal cord swells to form the **Medulla**, which controls heartbeat and breathing. Within the brainstem, the reticular formation controls arousal. Atop the brainstem is the **Thalamus**, the brain's sensory switchboard. The **cerebellum**, attached to the rear of the brainstem, coordinates muscle movement.

Between the brainstem and the cerebral cortex is the **limbic system**, which is linked to memory, emotions, and drives. One of it's neural centers, the **amygdala**, is involved in responses of aggression and fear. Another, the **hypothalamus**, is involved in various bodily maintenance functions, pleasurable rewards, and the control of the hormonal system.

THE CEREBRAL CORTEX

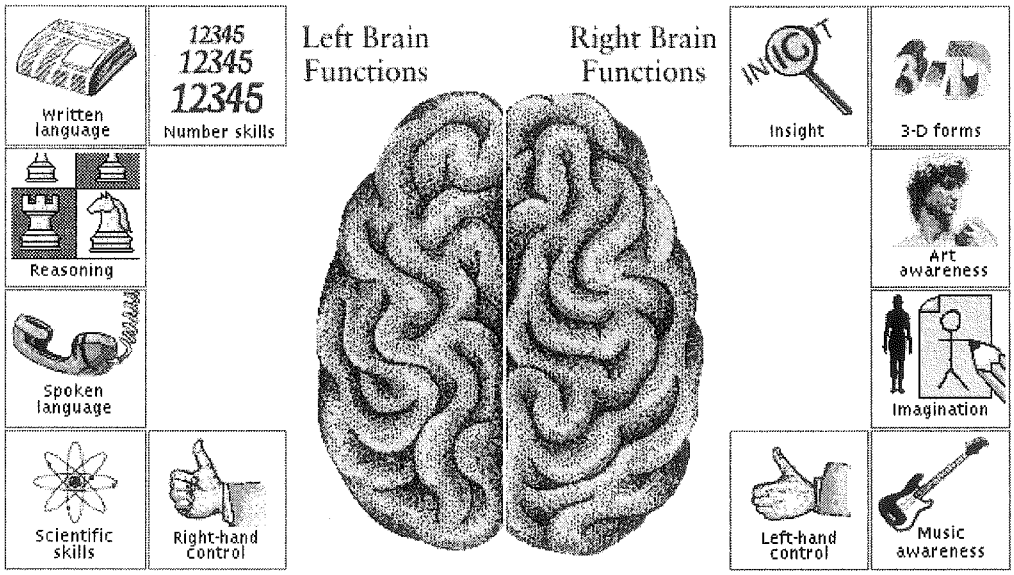
Each hemisphere of the cerebral cortex, the neural Fabric that covers the hemispheres, has FOUR Geographic areas:

1. The Frontal Lobe
2. Parietal Lobe
3. Occipital Lobe
4. Temporal Lobe



Small, well-defined regions within these lobes control muscle movement and receive information from the body senses. However, most of the cerebral cortex-its association areas- is uncommitted to such functions and is therefore free to process other information.

OUR DIVIDED BRAINS:



Question: Within what brain region would damage be most likely to disrupt your ability to skip rope? Your ability to sense tastes and sounds? In what brain region would damage perhaps leave you in coma?