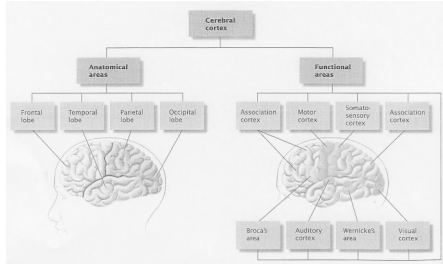
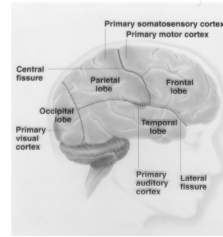


Cerebral Cortex



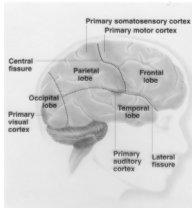
Cerebrum: lobes



Occipital – primary visual cortex
 – Beginning of visual processing;
 info on size and color of things

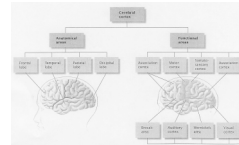
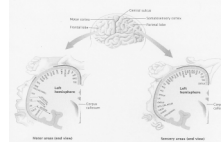
Parietal – primary sensory cortex (also lies in occipital and parietal)
 – Somatosensory cortex: receives info from the skin about touch, pain and temperature

Cerebrum: lobes cont.



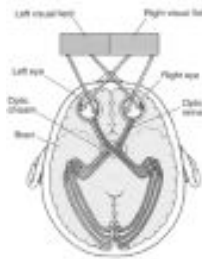
- **Temporal –primary auditory cortex**
 - Also assists with memory, especially visual memory & language comprehension
- **Frontal – Speech, reasoning, emotions, executive functions, & primary motor cortex**

Other areas of Cortex



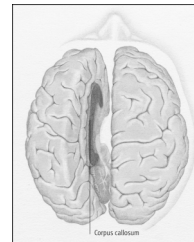
- **Motor cortex mirrors the somatosensory cortex**
 - Example: facial movement area of brain is close to the facial sensory area
- **Association areas: 3/4ths of cerebral cortex for integrating information & not responsible for any specific sensory or muscular function**

Right Brain/Left Brain Lateralization



- **Most sensory and motor pathways cross over as they enter and leave the brain**
- **Left hemisphere receives information and controls the right side of the body and vice versa**

Right/Left Brain Lateralization



- **Two halves connected by the corpus callosum; each side of the brain shares info with the other**
- **Each hemisphere specializes**
 - **Left hemisphere – verbal processing: language, speech, reading, writing**
 - **Right hemisphere – nonverbal processing: spatial, musical, visual recognition**

Split brain research

- Split-brain surgery: severing of corpus callosum (e.g., to control for seizure when severe disorder)
- Discovered each hemisphere of brain has specialized functions (left - language & right - spatial skills)
- Usually both sides of brain work together
- What happens if split?

Split Brain

- Video

Chemistry of Psychology

- Neurotransmitters revisited
- More than 100 different NTs have been discovered
 - 3 main categories: small molecules, peptides and gases
 - Small molecules and 1 peptide - our focus
- Small molecule NTs occur in CNS and PNS

Neurotransmitters & their functions

| Neurotransmitter | Function | Malfunction Example |
|---------------------|---|---|
| Acetylcholine (ACh) | Movement and memory | Undersupply marks Alzheimer's |
| Dopamine (DA) | Influences movement and reward | Excess linked to schizophrenia; inadequate DA - Parkinson's Disease |
| Norepinephrine | Arousal, mood, sleep, learning | Undersupply linked to depression |
| Serotonin | Affects mood, hunger, sleep and arousal | Undersupply linked to depression |

Neurotransmitters

- Video

A peptide NT: Endorphins

- How endorphins were discovered
- Candace Pert: why would the brain be equipped to process morphine UNLESS the nervous system had its own counterpart to morphine
- Produced in response to pain and vigorous exercise

Endocrine System

- Cells of endocrine organs, or glands, communicate by secreting chemicals called hormones – chemical messengers secreted by glands into the bloodstream
 - Affect target organs throughout the body
 - Example: estrogen and androgens
- Pituitary – “master gland”
 - Stimulates action of other endocrine organs throughout the body

