

1. Cerebral White Matter
 1. fibers
 1. association- w/in hemispheres
 2. commissural- between hemispheres
 3. projection- to PNS
2. Basal Nuclei
 1. corpus striatum = caudate & lentiform nuclei
 2. relay motor activity from cortex
3. Diencephalon
 1. central core of forebrain
 1. Thalamus- "inner room"
 1. nuclei that connect to cortex
 1. sensation, motor activities, cortical arousal, learning & memory
 2. "gateway to cortex"
 2. Hypothalamus
 1. nuclei
 2. pituitary gland
 3. functions: primarily homeostasis
 1. autonomic control center- heart rate, breathing, gut motility
 2. emotional & behavioral center
 3. body temperature regulation
 4. food intake regulation
 5. water balance
 6. sleep wake cycles
 7. endocrine center
 3. Epithalamus
 1. pineal gland- environmental integration
 2. choroid plexus- CSF production
4. Brain Stem
 1. structure & functions
 1. deep gray matter surrounded by white matter fiber tracts
 2. programmed autonomic behaviors
 3. gateway
 4. nuclei associated with 12 cranial nerves
 2. segments
 1. mid-brain
 1. startle reflexes
 2. most superior part of CNS with motor neurons
 2. pons ("bridge")
 1. conduction tracts
 2. motor cortex to cerebellum
 3. pneumotaxic center
 3. medulla oblongata
 1. decussation- crossover
 2. equilibrium
 3. visceral motor nuclei
 1. cardiovascular center
 2. respiratory centers
 3. other centers
 1. vomiting
 2. hiccuping
 3. swallowing
 4. coughing
 5. sneezing
5. Cerebellum
 1. coordinated movements
 1. motor cortex
 2. brain stem nuclei
 3. sensory nuclei
 2. somatotopy
6. Functional Systems
 1. long distance networks
 2. hard to localize
 3. limbic
 1. emotional or affective (feelings) brain
 2. links to cortex or cognitive brain
 4. reticular formation
 1. widespread axonal connections
 2. governs arousal of brain
 3. reticular activating system
 4. alertness & filtering
7. Protection
 1. skull
 2. meninges
 1. dura mater
 2. arachnoid membrane
 3. pia mater
 3. cerebrospinal fluid (CSF)
 1. secreted by choroid plexus in ventricles
 2. reabsorbed by arachnoid villus
 4. blood brain barrier