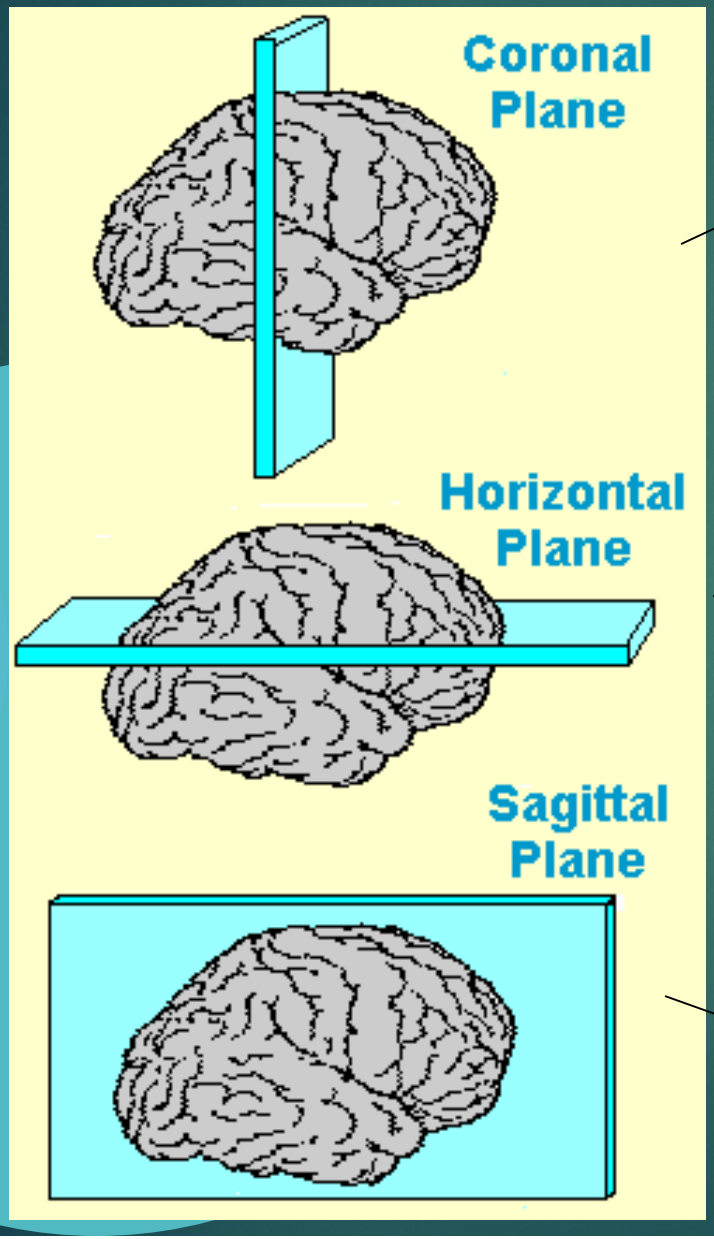
Introduction to Brain

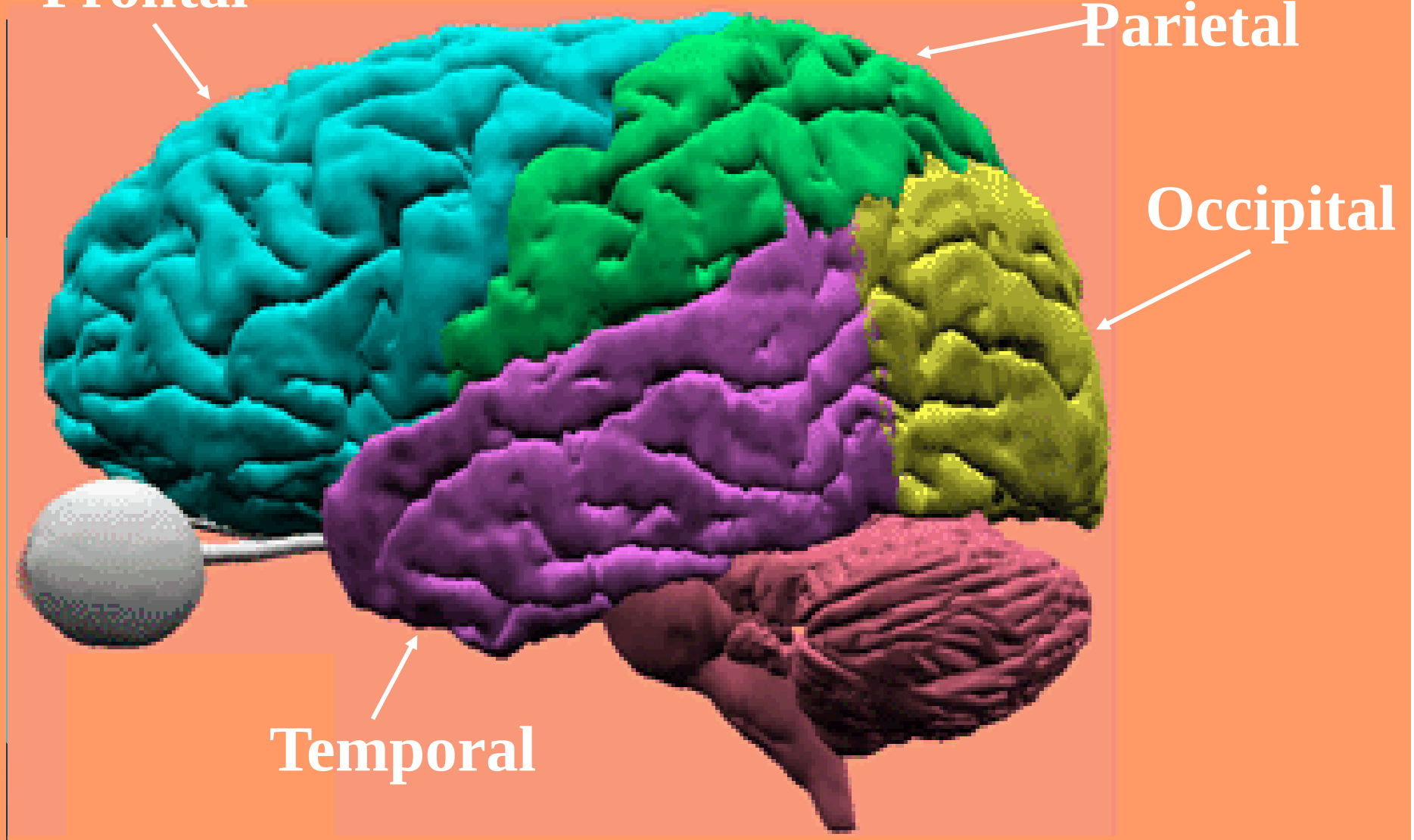
- **H-126**
- **30 August 2017**

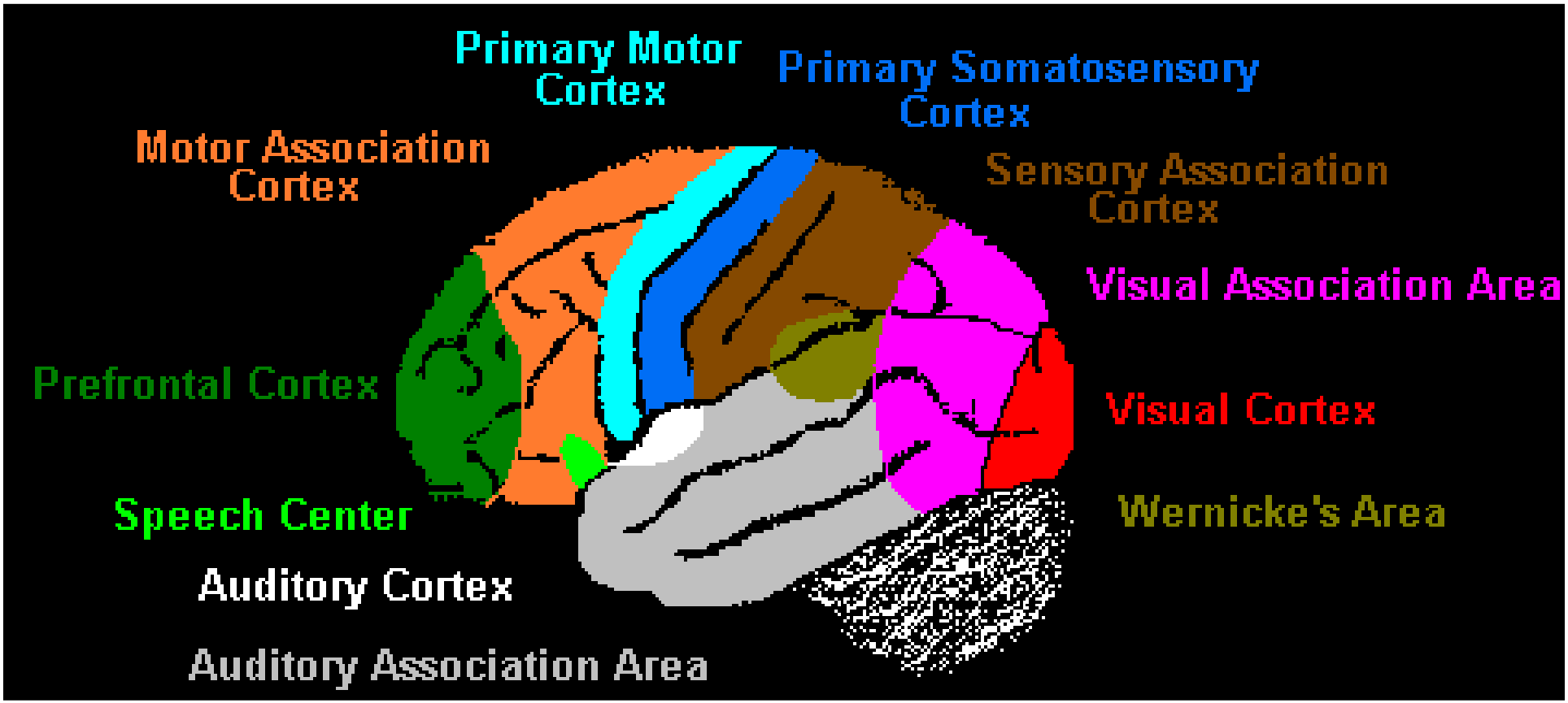
Basic neuroanatomy - orientation


Coronal Plane
Horizontal Plane
Sagittal Plane

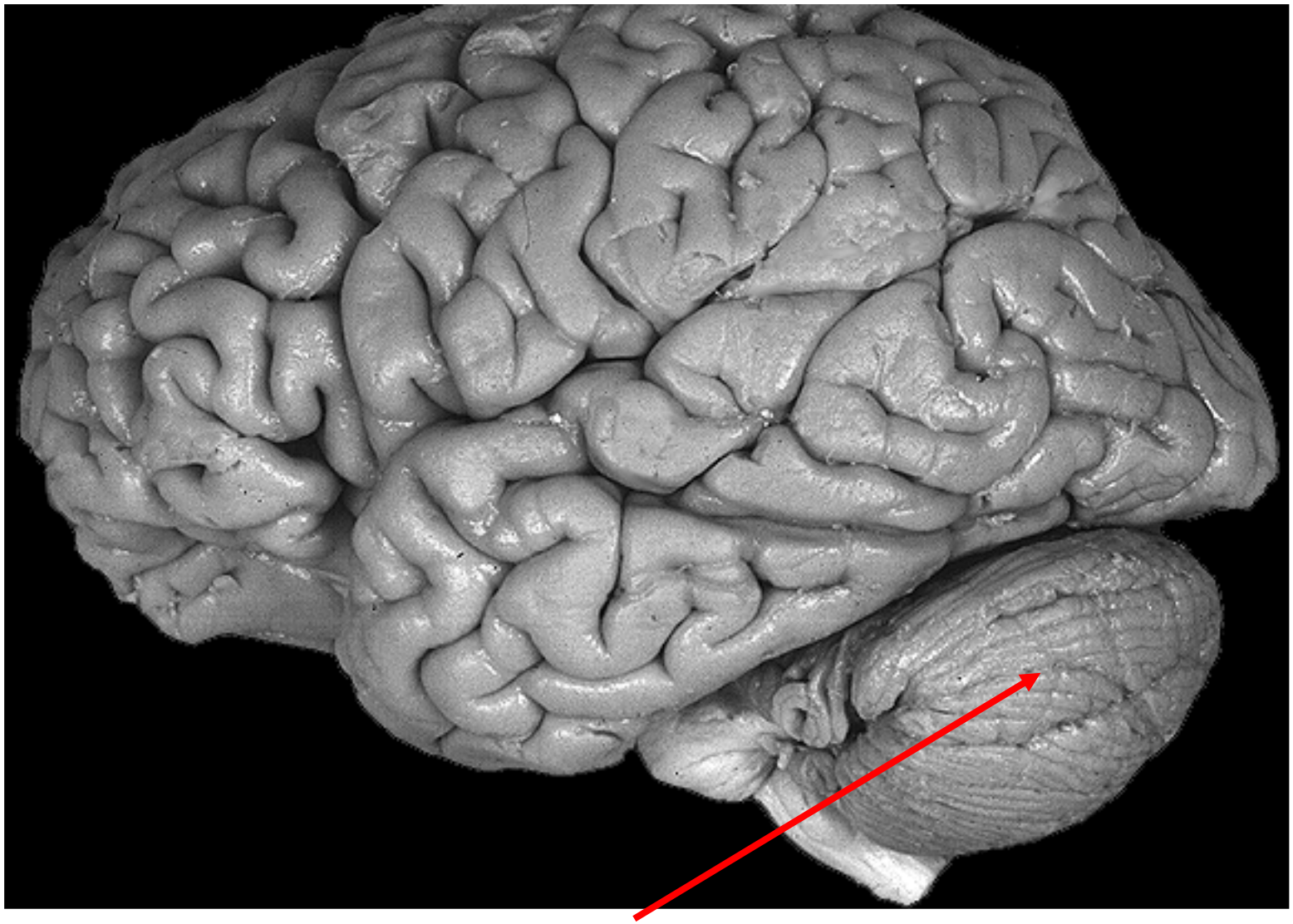
Basic neuroanatomy - regions

Lobes of the Cerebral Cortex



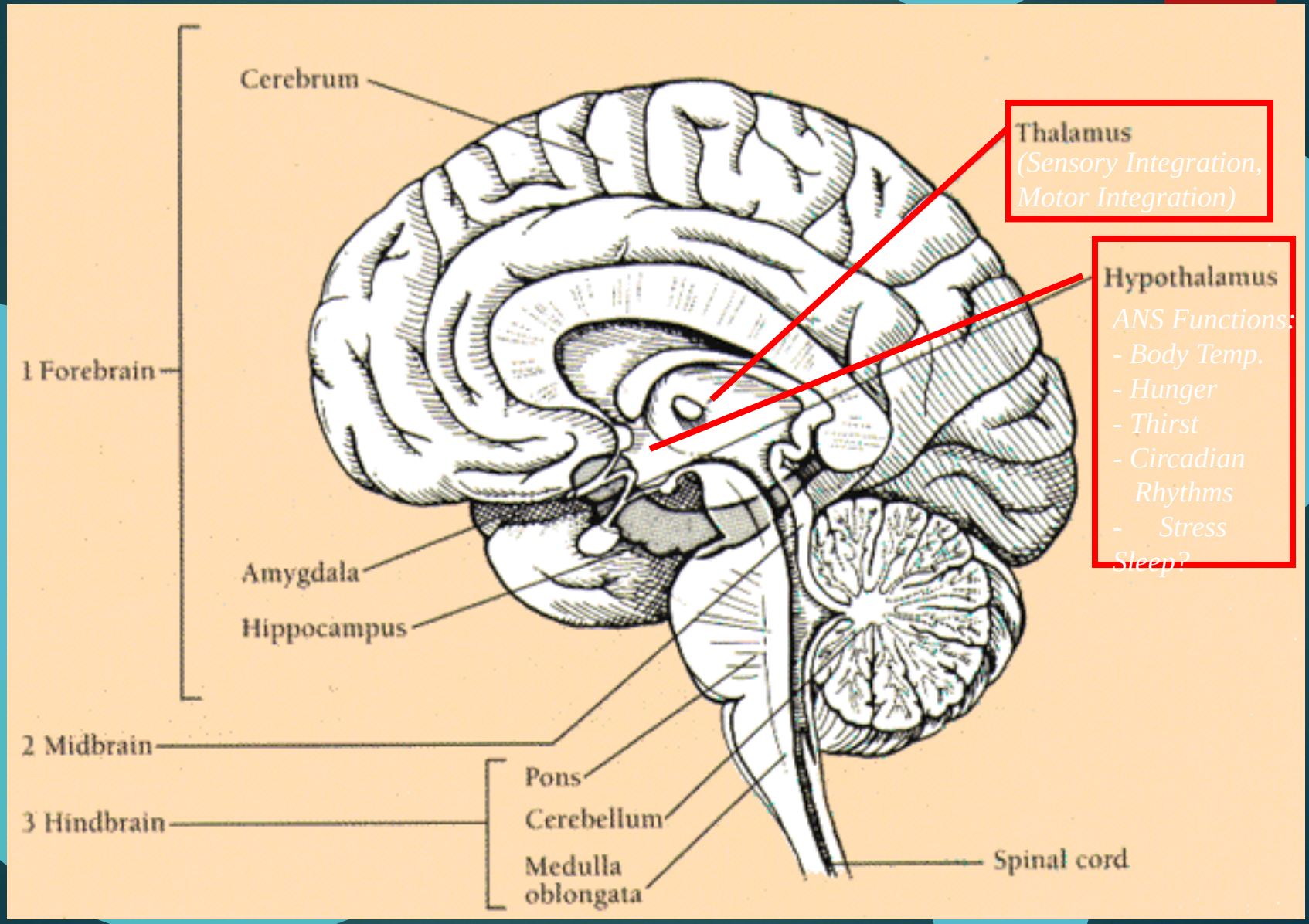

Primary Motor Cortex
Primary Somatosensory Cortex
Motor Association Cortex
Sensory Association Cortex
Visual Association Area
Prefrontal Cortex
Visual Cortex
Speech Center
Wernicke's Area
Auditory Cortex
Auditory Association Area

Cerebellum



Movement, Balance, Posture

Diencephalon



Limbic System

Mood, Emotion, Motivation, Memory

Amygdala

Hippocampus

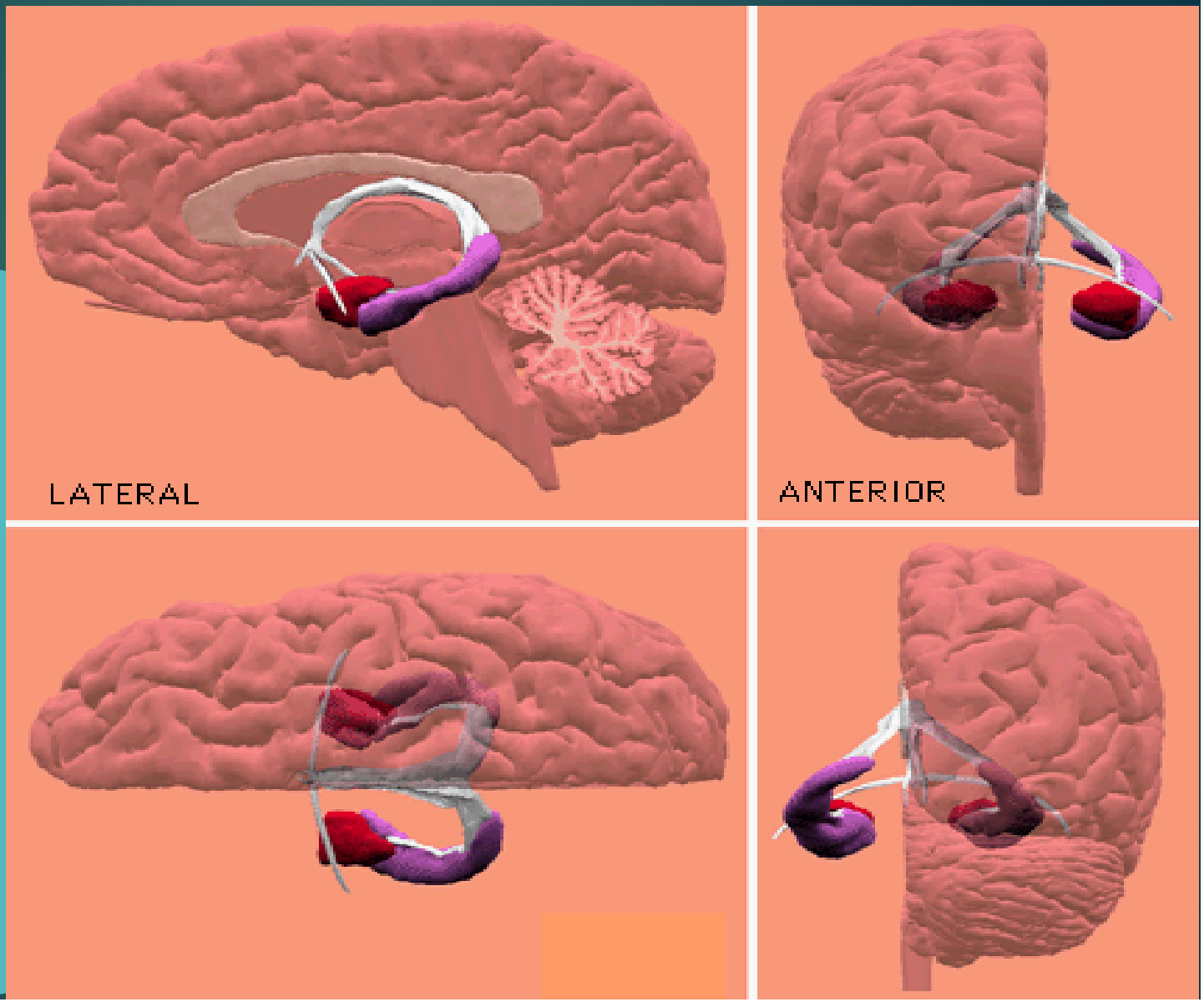
Fornix

Septal Nuclei

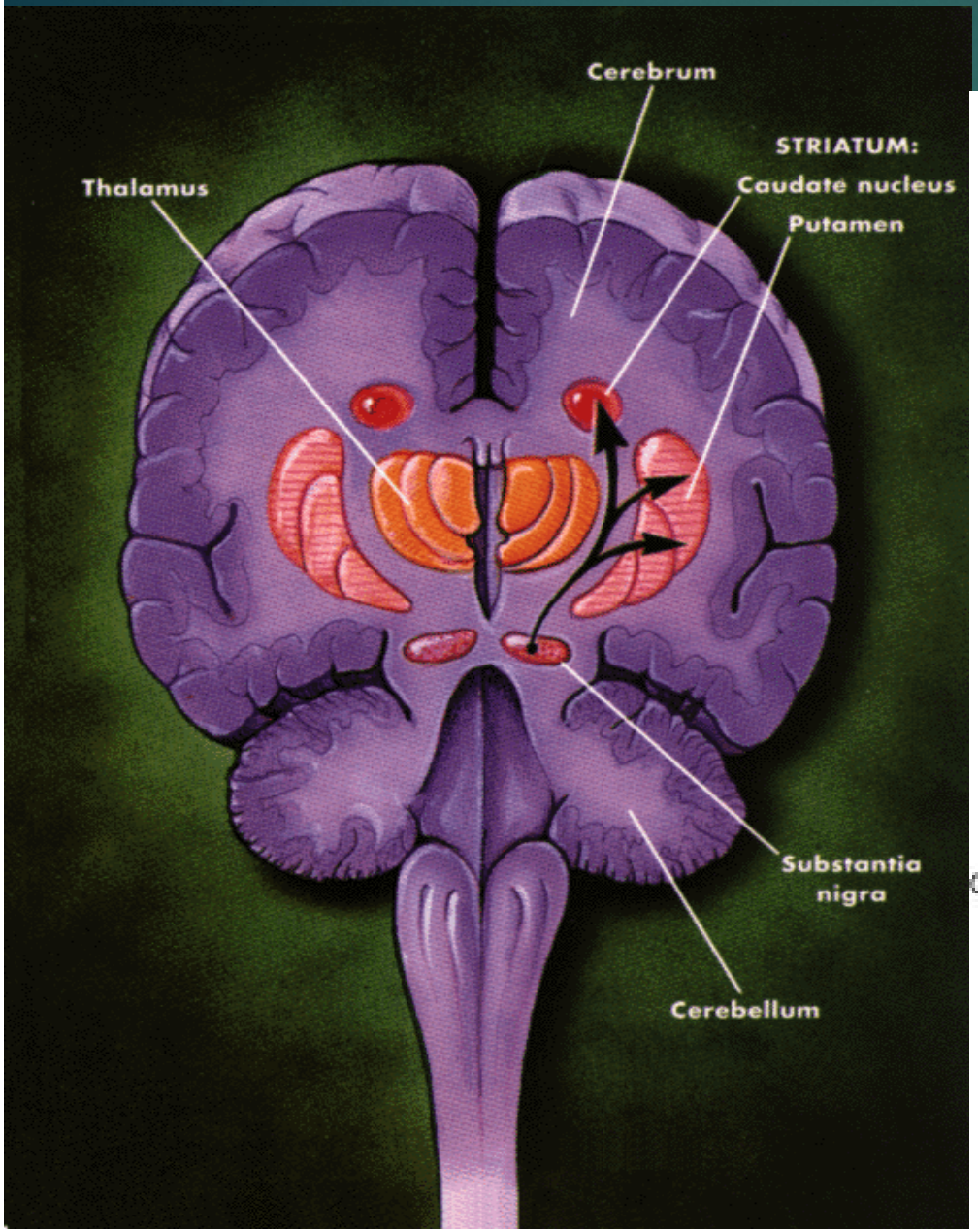
Mammillary Bodies

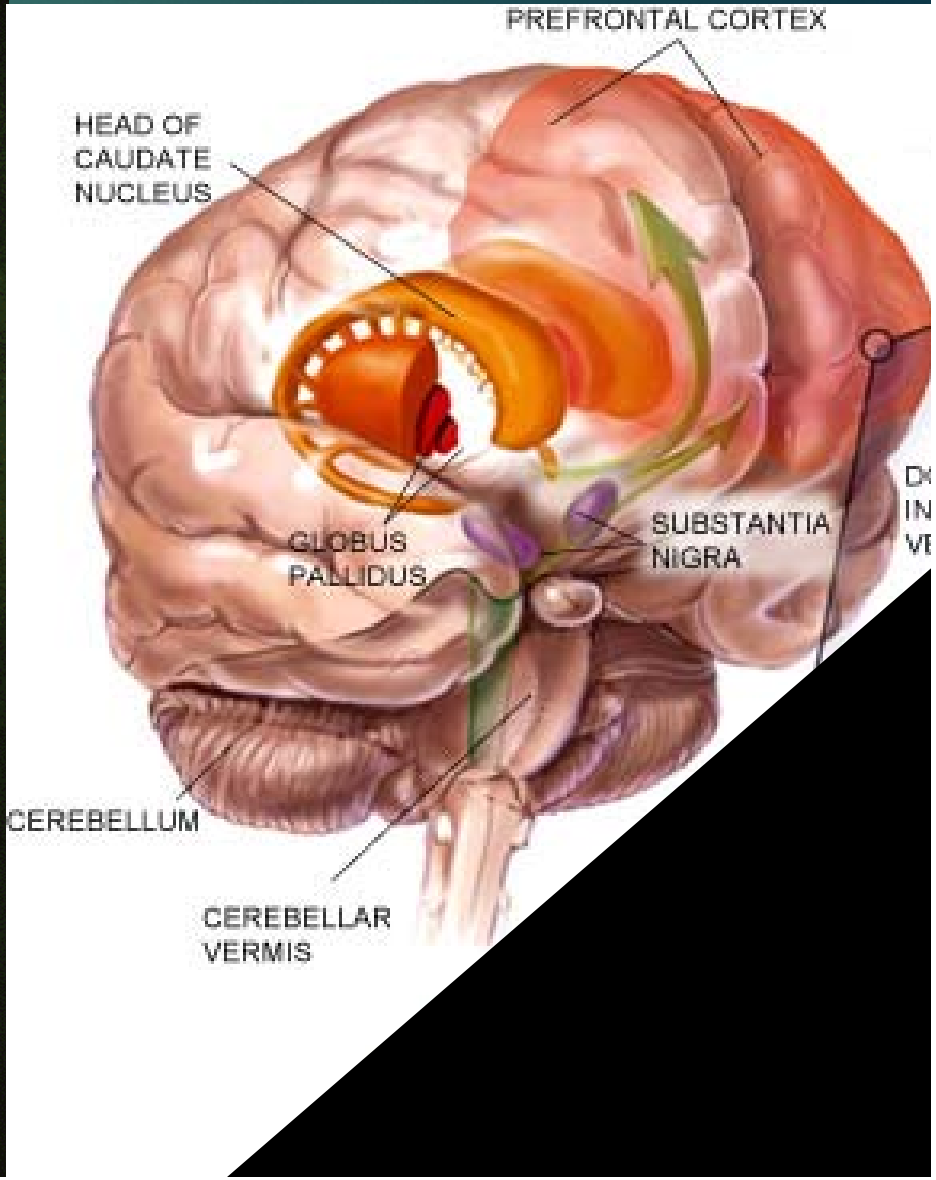
Cingulate Gyrus

Olfactory Bulb



Basal Ganglia





Function-Structure Relations (in broad brush strokes)

- Brain is built in bottom-up fashion, with sensory and motor areas coming on line before social-emotional and cognitive areas
- As you will see when we discuss brain *development*, brain is built in inside-out fashion, beginning with brain stem and mid brain and ventricular system, moving out to include diencephalon (hypothalamus and thalamus) and then cerebral cortex

Function-Structure Relations (con't)

- Cerebellum – fine, coordinated movement; balance
- Occipital cortex – vision
- Auditory cortex – hearing, language
- Parietal cortex – spatial ability, attention
- Temporal lobe – higher vision, memory, emotion
- Frontal lobe
  - Motor and premotor cortex – motor functions
  - Prefrontal cortex – higher cognitive functions; cognitive control

Enough...

- How do you build a brain?