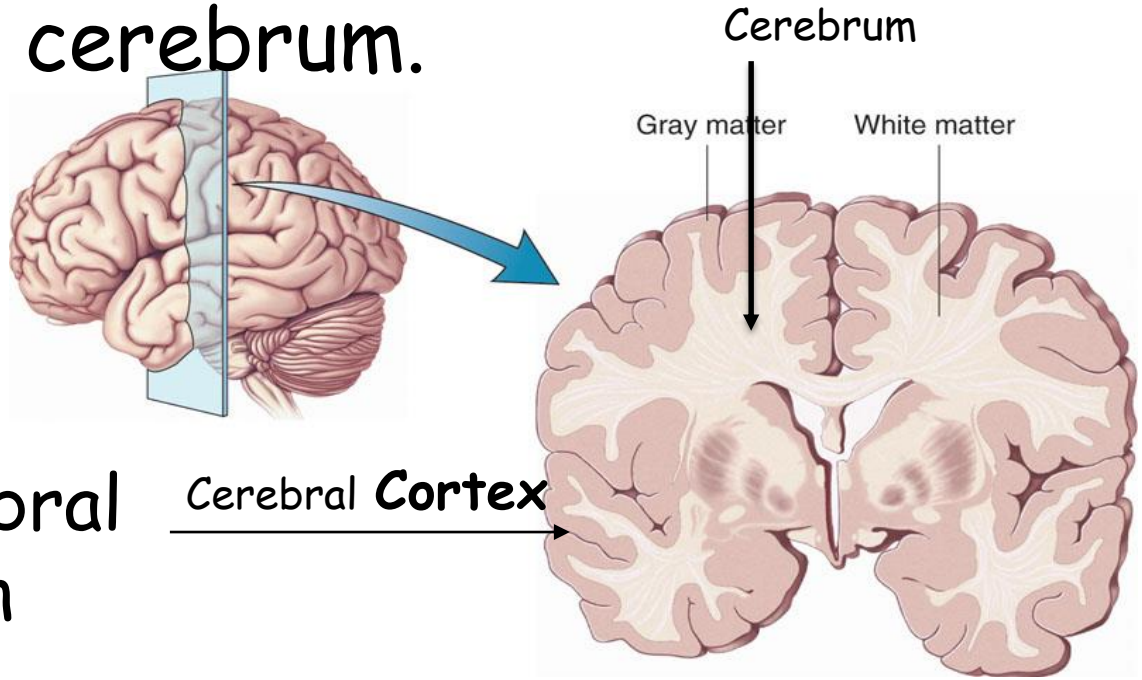
Cerebrum –The largest division of the brain. It is divided into two hemispheres, each of which is divided into four lobes.

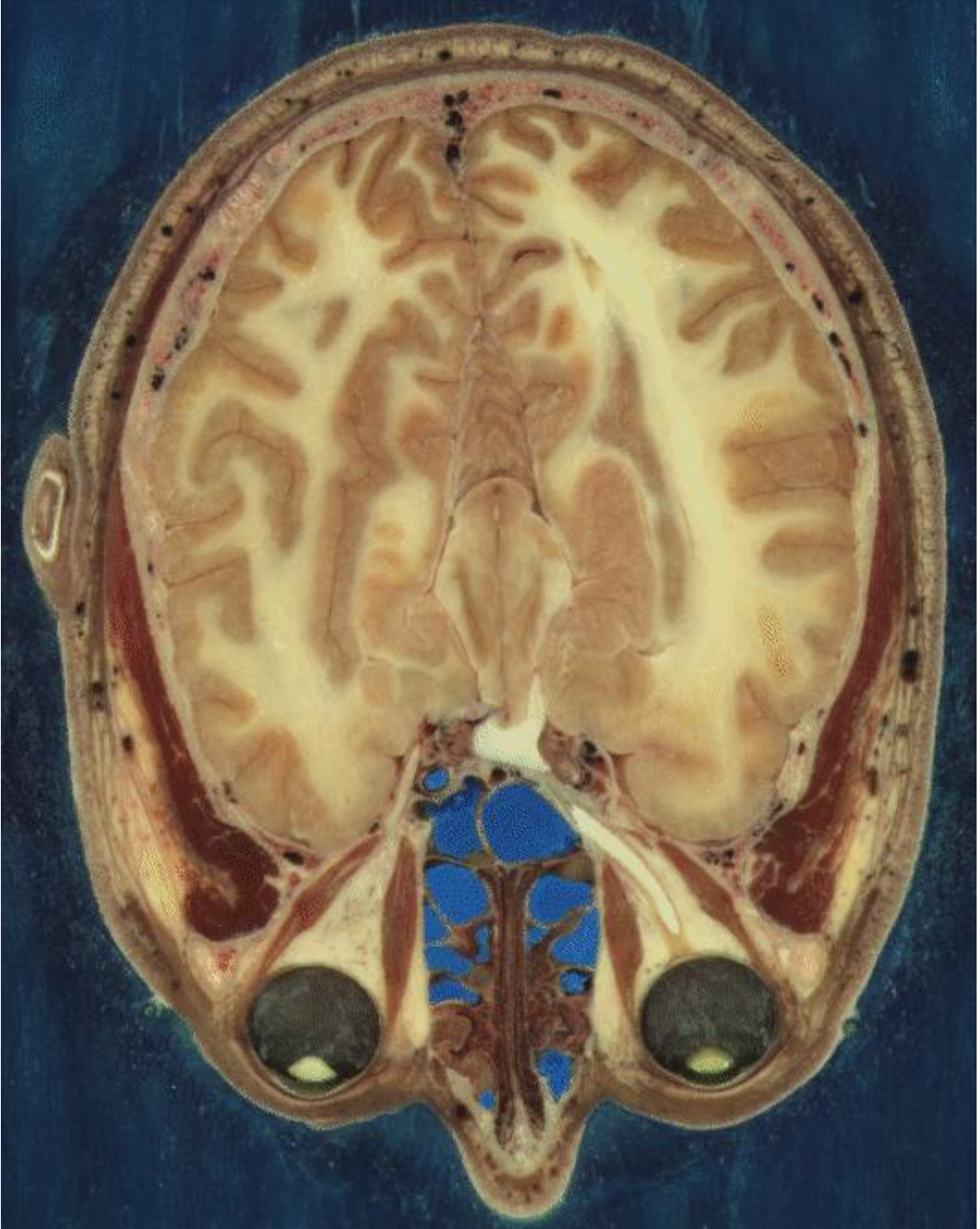
Cerebral Cortex - The outermost layer of gray matter making up the visible aspect of the cerebrum.



Neurons in cerebral cortex: 16.5 billion.

Glial cells in cerebral cortex: 60 billion

- Receives and processes sensory information.
- Made up of densely packed neurons we call "gray matter."
- Glial Cells: support brain cells, creates myelin, is involved with learning and thinking, they "clean up" NT's and ions. *"Neural nannies"*



White matter

- 60% of brain
- Myelinated (causes color)
- Transmission to and from grey, and from grey to other parts of the body

Gray matter

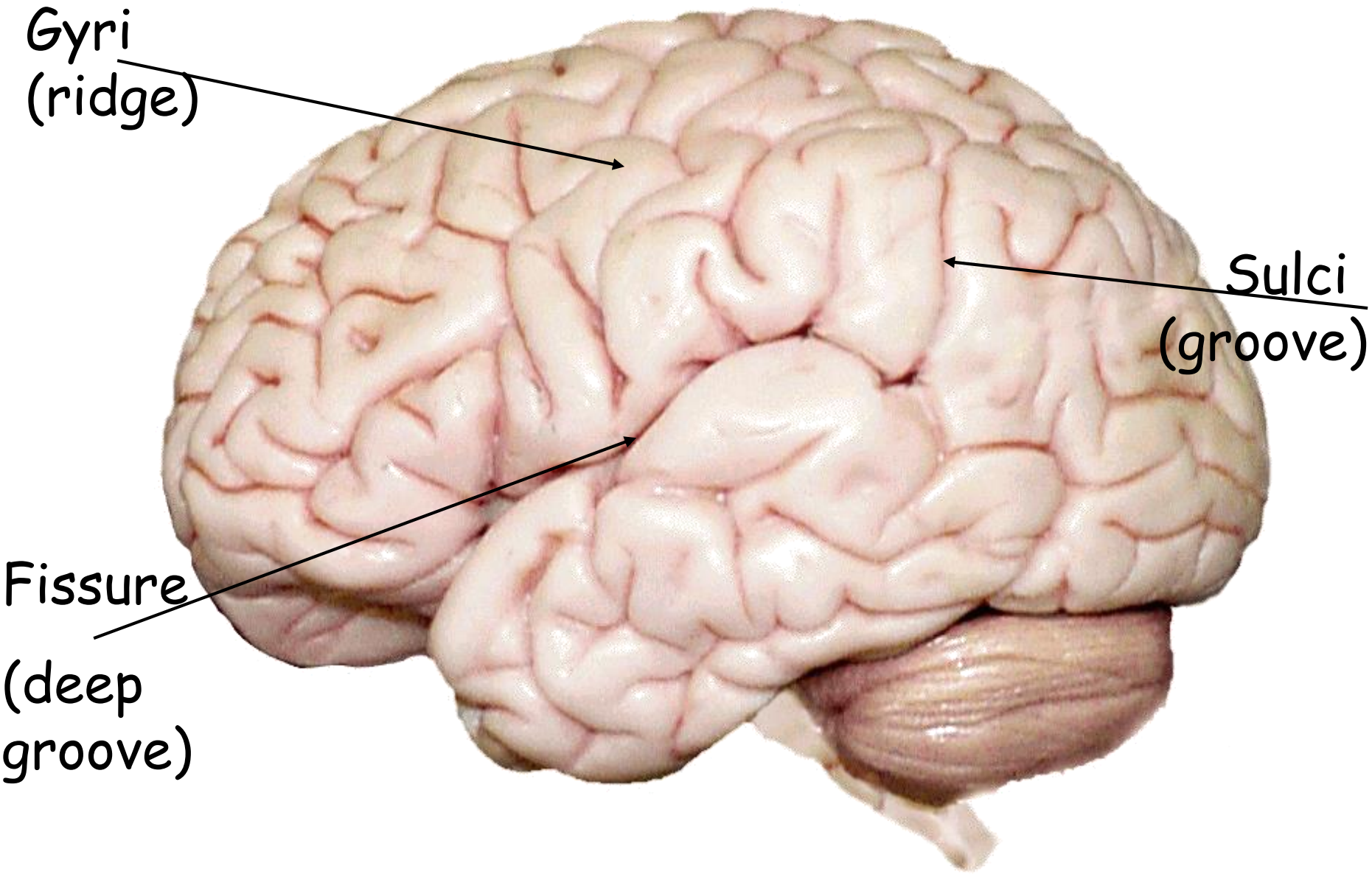
- 40% of brain
- grey nuclei causes color
- no myelin
- processing and
  - "decisions"

Cerebral Features:

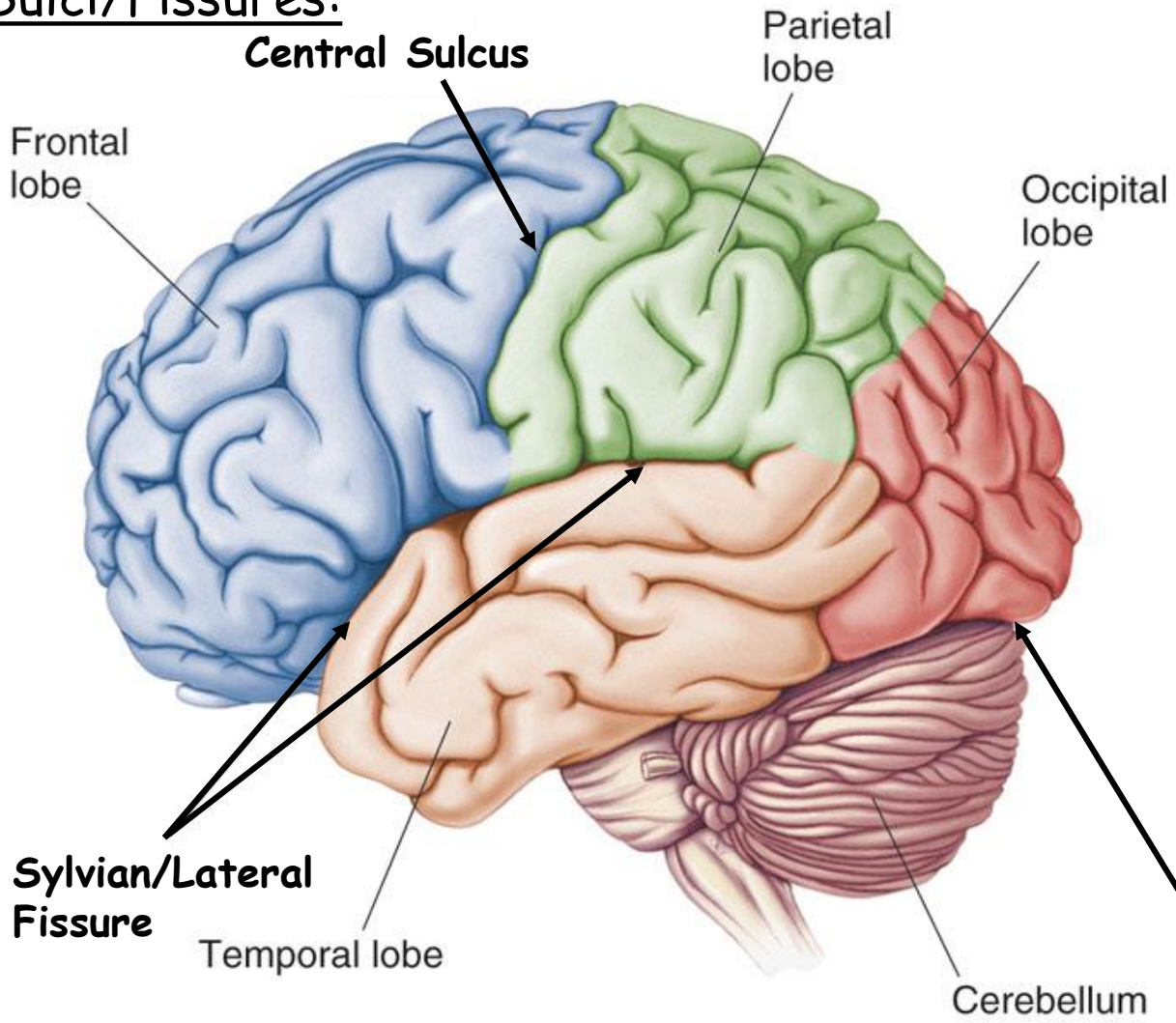
- **Gyri** – Elevated ridges "winding" around the brain.

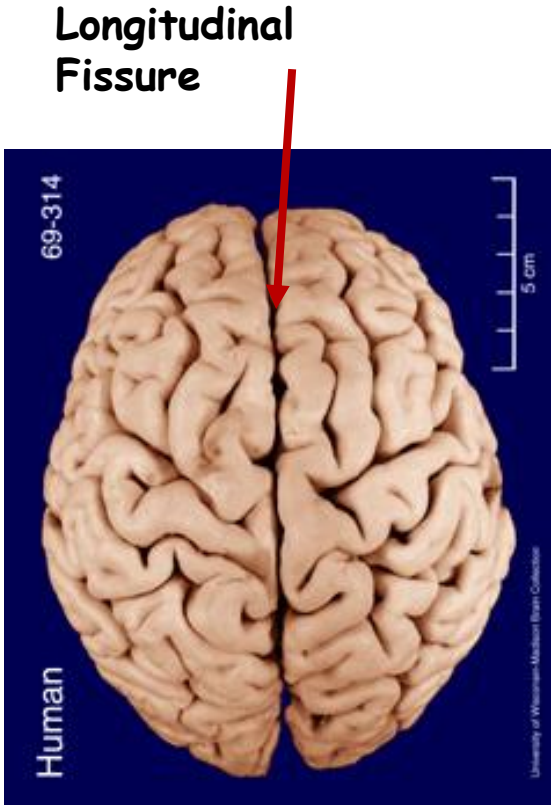
- **Sulci** – Small grooves dividing the gyri
  - **Central Sulcus** – Divides the Frontal Lobe from the Parietal Lobe

- **Fissures** – Deep grooves, generally dividing large regions/lobes of the brain
  - **Longitudinal Fissure** – Divides the two Cerebral Hemispheres
  - **Transverse Fissure** – Separates the Cerebrum from the Cerebellum
  - **Sylvian/Lateral Fissure** – Divides the Temporal Lobe from the Frontal and Parietal Lobes


Gyri
(ridge)
Sulci
(groove)
Fissure
(deep
groove)

Specific Sulci/Fissures:



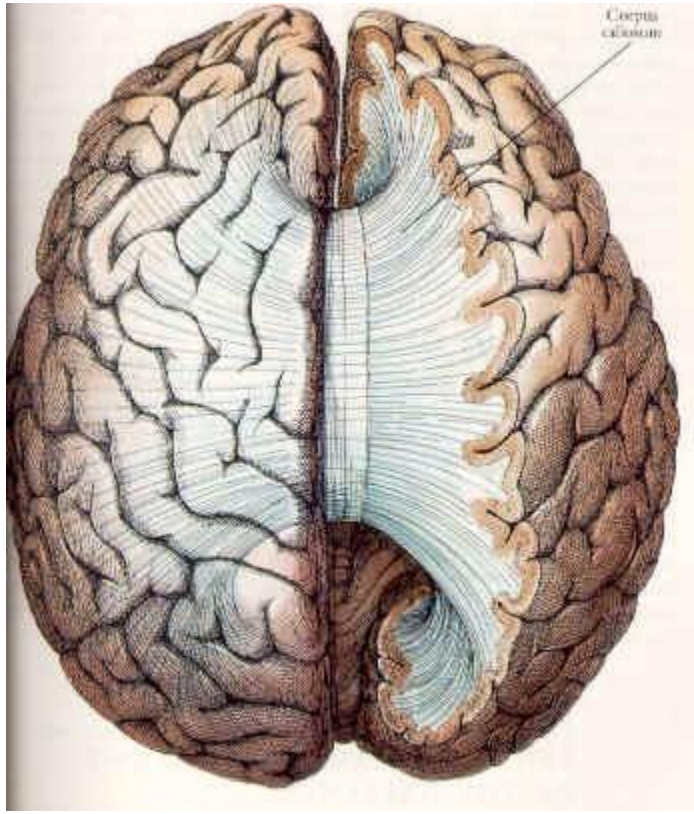


Cerebral Cortex Principles

Lateralization

- The two different cerebral hemispheres (halves of the brain) DO differ

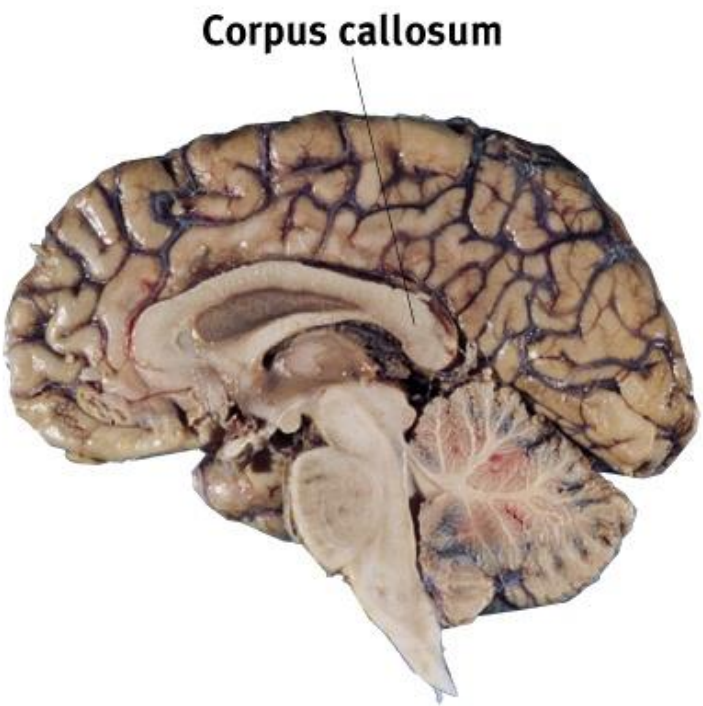
- The hemispheres are connected via the *corpus callosum*



Cerebral Cortex Principles

The Corpus Callosum

- Largest white matter structure in the brain.
- Neural fibers connecting left and right lobes.



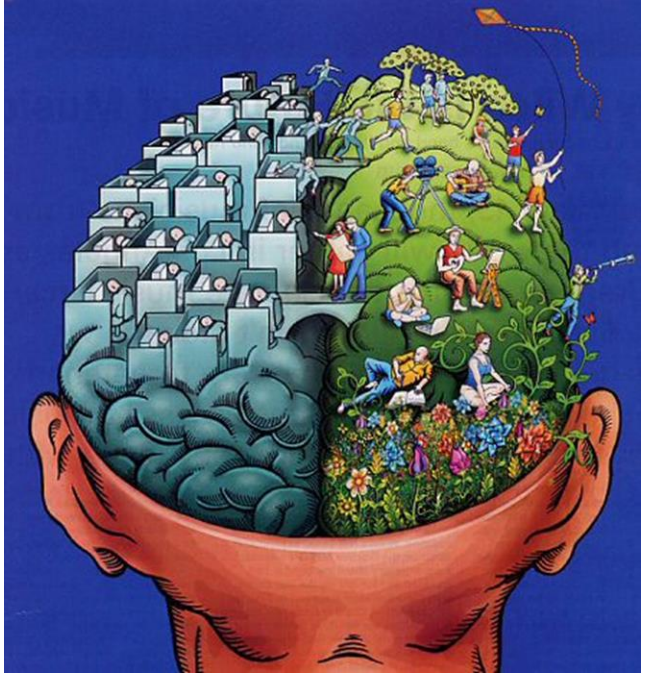
- Allows communication between hemispheres.
- Primary function is to connect grey areas together with neural impulses.

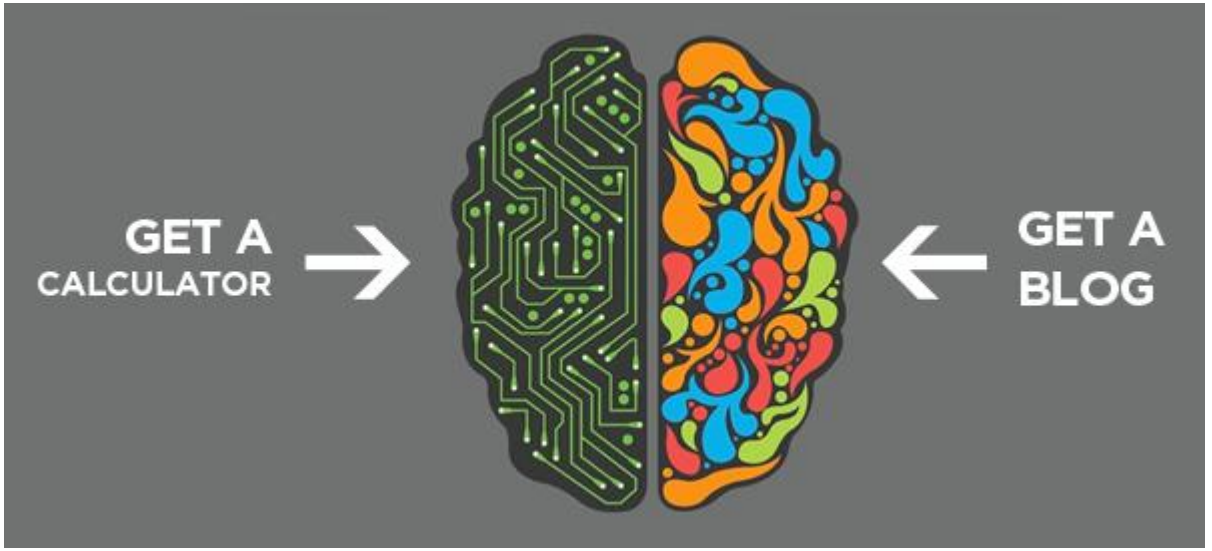
Cerebral Cortex Principles

- ***contralaterality***—the right half of your brain controls the left half of your body and vice versa. (contralateral control.)
- **Localization of function**
  - Specific mental processes are correlated with discrete regions of the brain.
    - Explicit memory encoding ?????
    - "talking" to the endocrine system?????
    - Forming words *We will find out*
    - Thinking of words *We will find out*
- **Hemispheric Specialization (lateralization)**
  - Each lobe of the brain has specialized functions *(Have to be careful with this one.)*

Common Myths

- There is a lot of "pop psychology" about hemispheric specialization
- Broad statements like 'the left brain is logical and the right brain is creative' are almost always gross over-generalizations





MYTHS:

•Lefties are better at spatial and creative tasks.

•Righties are better at logic.