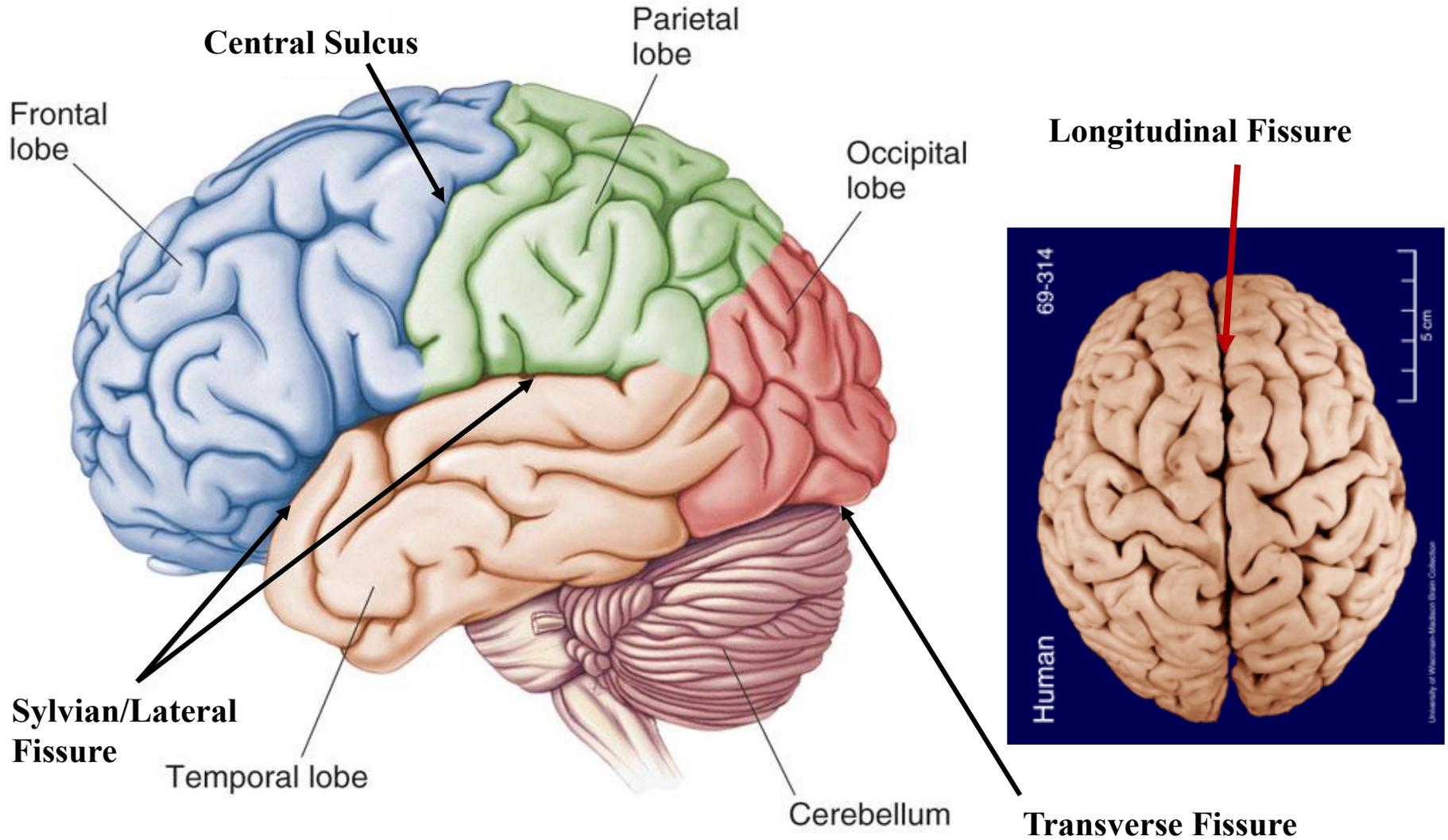


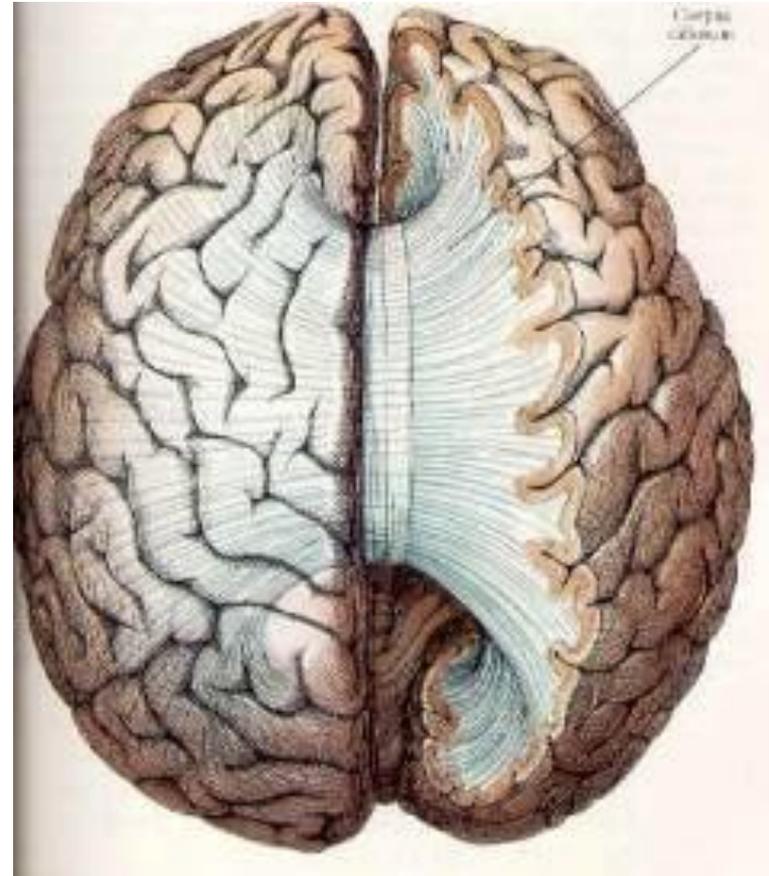
## Specific Sulci/Fissures:



# Cerebral Cortex Principles

## Lateralization

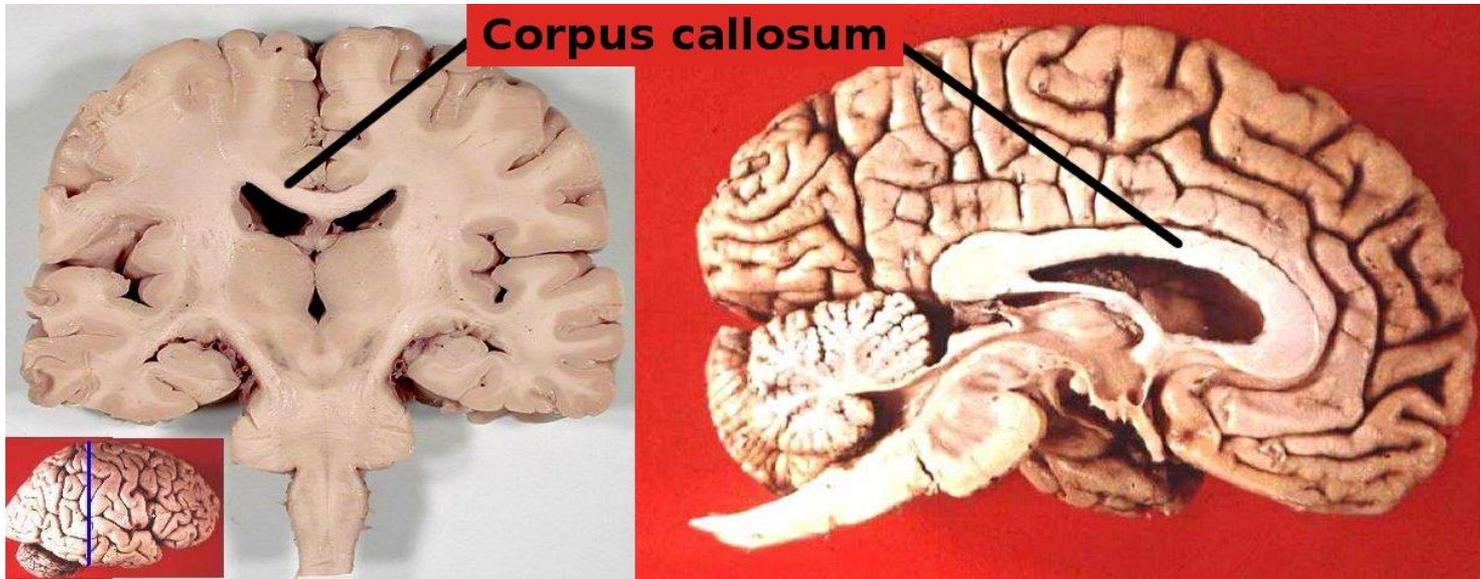
- ❑ The two different cerebral hemispheres (halves of the brain) DO differ.
- ❑ The hemispheres are connected via the corpus callosum.



# Cerebral Cortex Principles

## CORPUS CALLOSUM

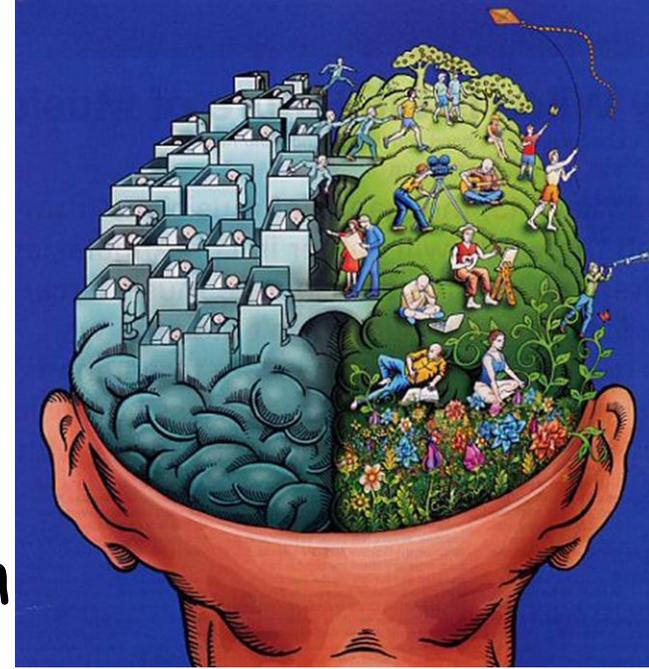
- Largest white matter structure in the brain.
- Neural fibers connecting left and right lobes.
- Allows communication between hemispheres.
- Primary function is to connect gray areas together with neural impulses.



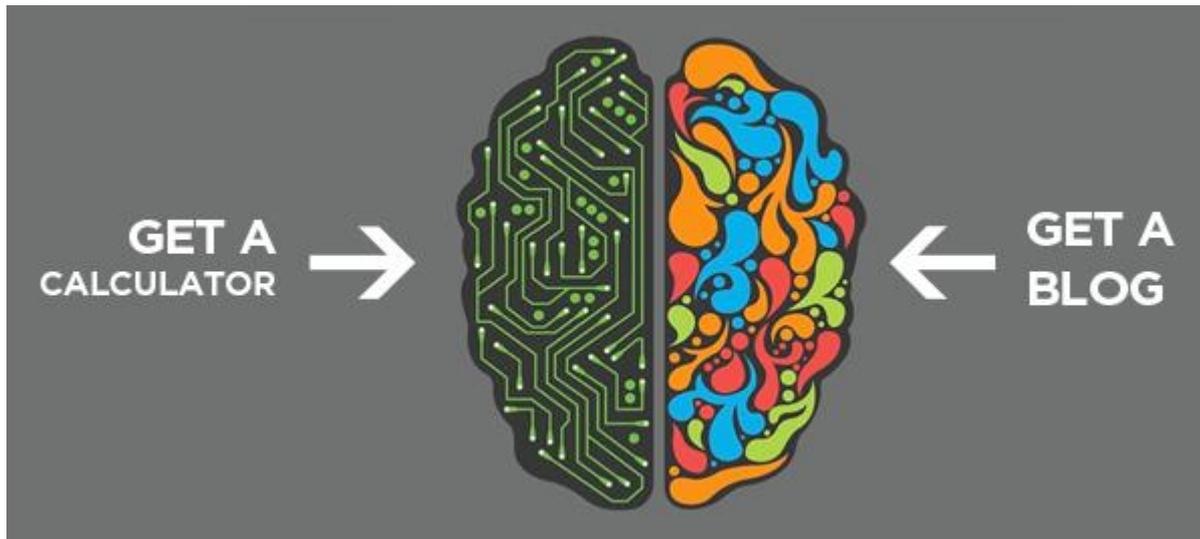
# Cerebral Cortex Principles

- **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.



# Hemispheric Specialization

Traditional understanding:

**Left side processes:**

- **Speech**
- Analysis
- Time
- Sequence

**It Recognizes:**

- Letters
- Numbers
- Words

**Right side processes:**

- Creativity
- Patterns
- Spatial Awareness
- Context

**It Recognizes:**

- **Faces**
- Places
- Objects

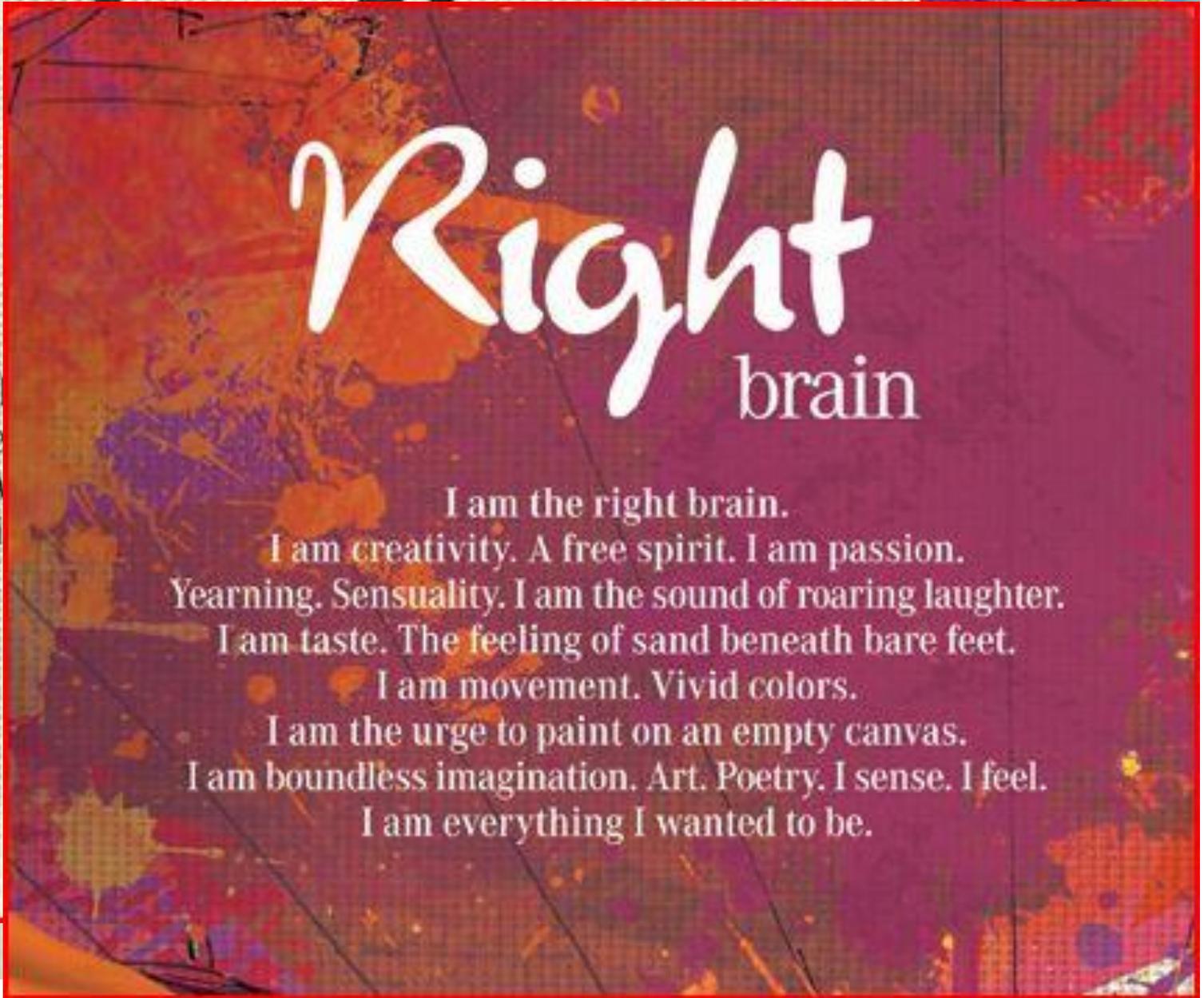
# The left brain/right brain myth in advertising



I love the  
A  
Always i  
Realistic. I

# Right brain

I am the right brain.  
I am creativity. A free spirit. I am passion.  
Yearning. Sensuality. I am the sound of roaring laughter.  
I am taste. The feeling of sand beneath bare feet.  
I am movement. Vivid colors.  
I am the urge to paint on an empty canvas.  
I am boundless imagination. Art. Poetry. I sense. I feel.  
I am everything I wanted to be.

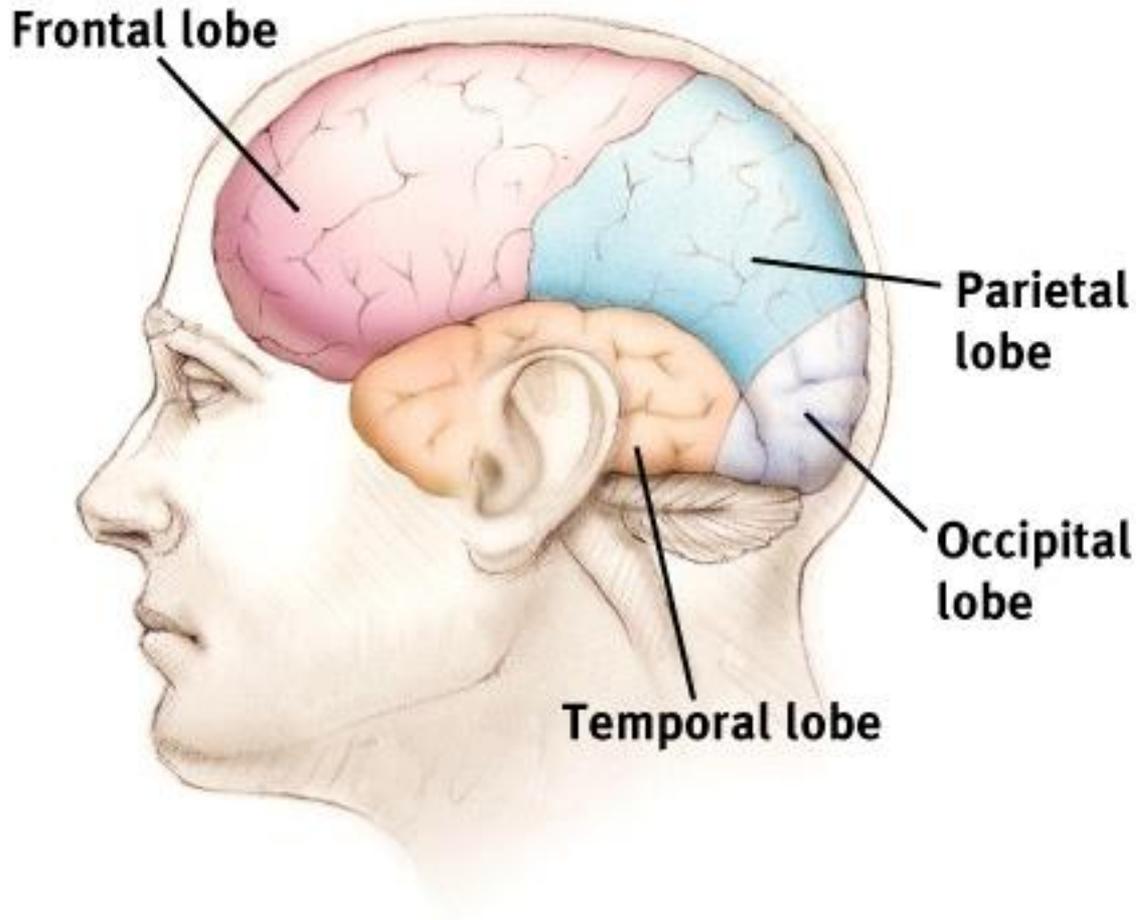




# Hemispheric Specialization

- While there are some specialized functions in certain hemispheres of the brain, it is an oversimplification to say that one is "right-brained" or "left-brained."
- The two hemispheres do NOT operate independently; they communicate constantly, mostly via the corpus callosum
- "There are many more similarities between the hemispheres than differences."
- To completely lose a particular mental faculty, a person normally needs to suffer damage to a particular area in both the left and right hemispheres.

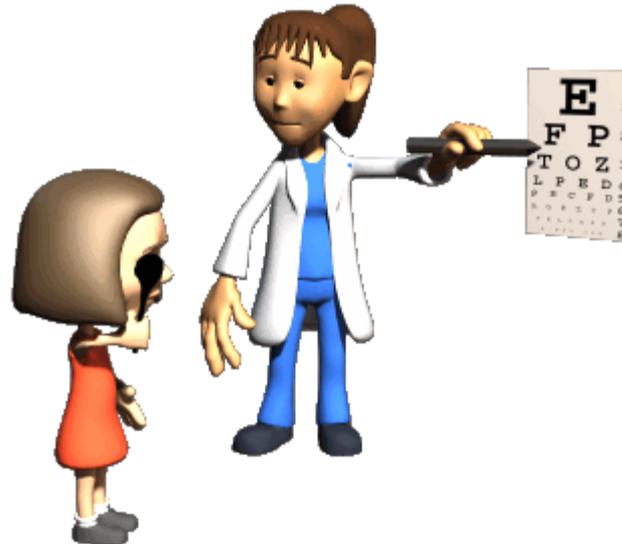
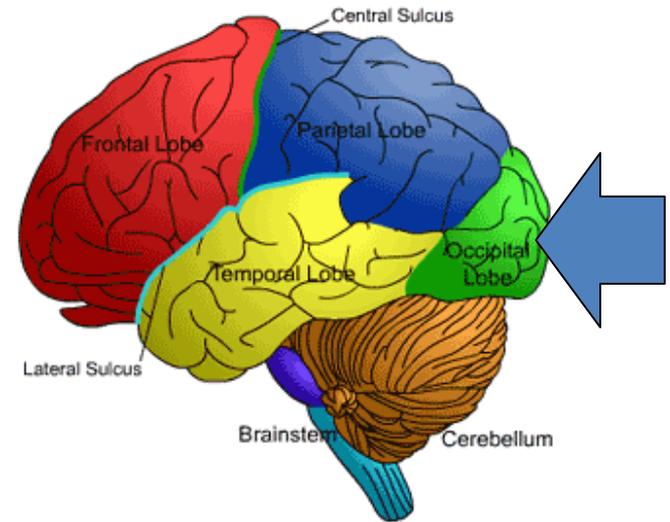
# The Cerebral Cortex is made up of four Lobes.



# Structure of the Cortex

- occipital lobe: brain lobe at the back of the head
  - responsible primarily for vision
  - Contains **Visual Cortex**: Processes and interprets messages from our eyes into images we can understand

Figure AB-11: Lobes of the Brain

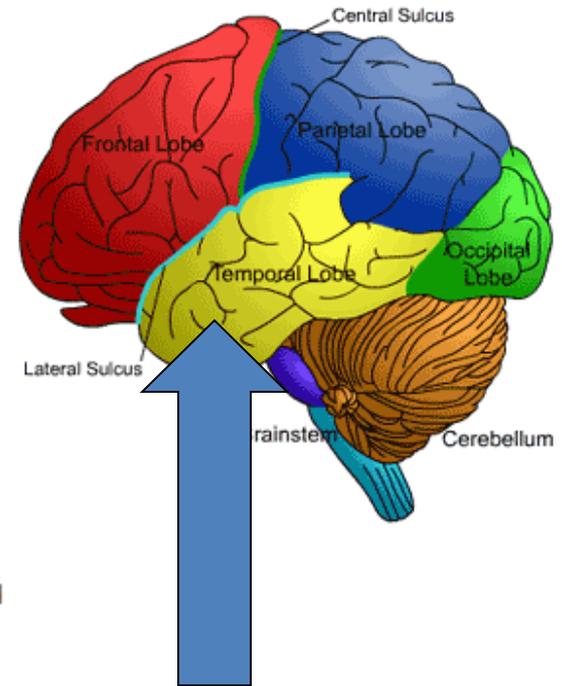


# Structure of the Cortex

- temporal lobe: the brain lobe under the temples, in front of the ears
  - many functions, including processing sounds, committing information to memory, and comprehending language
- Sound is interpreted in **Auditory Cortex**.
- Processes faces in Facial recognition system [right side only]



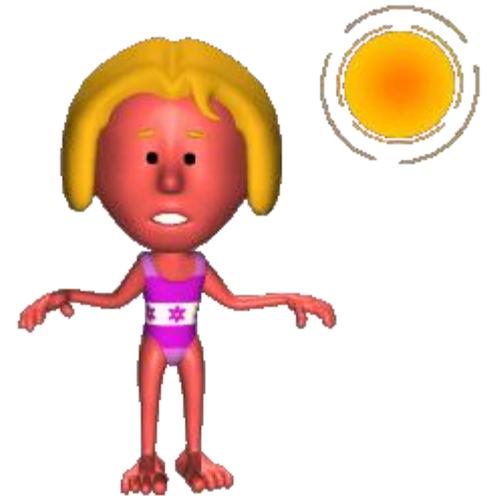
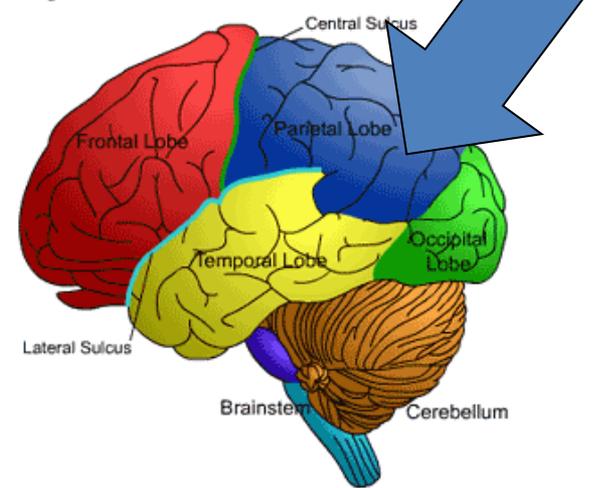
Figure AB-11: Lobes of the Brain



# Structure of the Cortex

- parietal lobe: brain lobe at the top and center/rear of the head
- Contains **SomatoSensory Cortex**: receives incoming touch sensations from rest of the body.
- Most of the Parietal Lobes are made up of **Association Areas**, which integrates sensations.

Figure AB-11: Lobes of the Brain

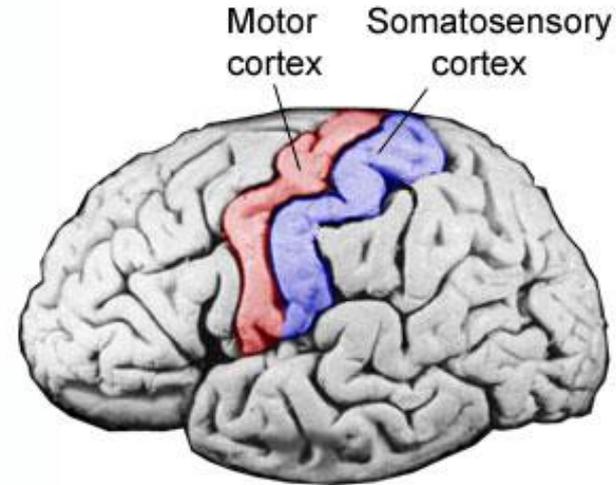


# Structure of the Cortex

- sensory cortex (a.k.a. somatosensory strip): the gyrus immediately behind the central sulcus
  - registers sensation on the body, and is organized by body part

Homunculus literally means "little person,"

Figure F-3: Motor and Somatosensory Cortex



Homunculus

# Structure of the Cortex

- What do you notice about the proportion depicted in the aforementioned homunculus?
- The more sensitive the body part, the greater the area devoted to the body part.

