The Cerebral Cortex

Where does complex thought and behavior come from?

How are they different?

• In humans, ______________ of the brain's weight
  - compared with just 30 to 40 percent in most other mammals.

• The larger cortex of mammals offers
  ___________________________________________
  ___________________________________________
  - Making them more adaptable.

Did you know?...

• The brain of an elephant weighs about 10.5 lbs and an adult human brain weighs about 3 lbs.

• Einstein's brain was similar in size to other humans except in the region that is responsible for math and spatial perception. In that region, his brain was 35% wider than average.

• The total surface area of the cerebral cortex is about 2500 sq. cm (~2.5 sq. ft).

• Your brain consists of about 100 billion neurons.
Cerebral Cortex

• The cerebral cortex is responsible for the most high-level functions, including learning, remembering, thinking, and consciousness.

• This area is made up of four lobes:
  - Frontal Lobe
  - Temporal Lobe

Four Lobes of the Brain

The Sensory and Motor Cortex
Motor Cortex

• The Motor Cortex is the area at the rear of the frontal lobes that control

• Each area of the motor cortex controls a

  - Larger areas are devoted to precise movements of the tongue and fingers
  - Smaller areas are devoted to movements of the shoulders and elbows
The **Sensory Cortex** is a band of tissue on the front of the

Each area of the **sensory cortex** receives information

The more sensitive the body region, the larger the sensory cortex area devoted to it.

- Larger areas are devoted to touch in the most sensitive parts of the body such as
- Smaller areas are devoted to touch in less sensitive parts of the body such as the
Sensory Cortex

- Visual information is received in the ________________________
- Sound is processed in the ________________________ by the temporal lobe

The brain controls the sensation and the movements of the body

Each body part will always have an area of cortex devoted to its movements and sensation

Association Areas

- These areas (found in all four lobes) ________________________
- They link sensory inputs with stored memories, which is very important for thinking!
Association Areas

• These areas in the frontal lobes are involved in higher cognitive functions such as______________________________________________________________

• reasoning skills are associated with the parietal lobes

• The right temporal lobe enables us to_______________________

What’s Next?

Consciousness