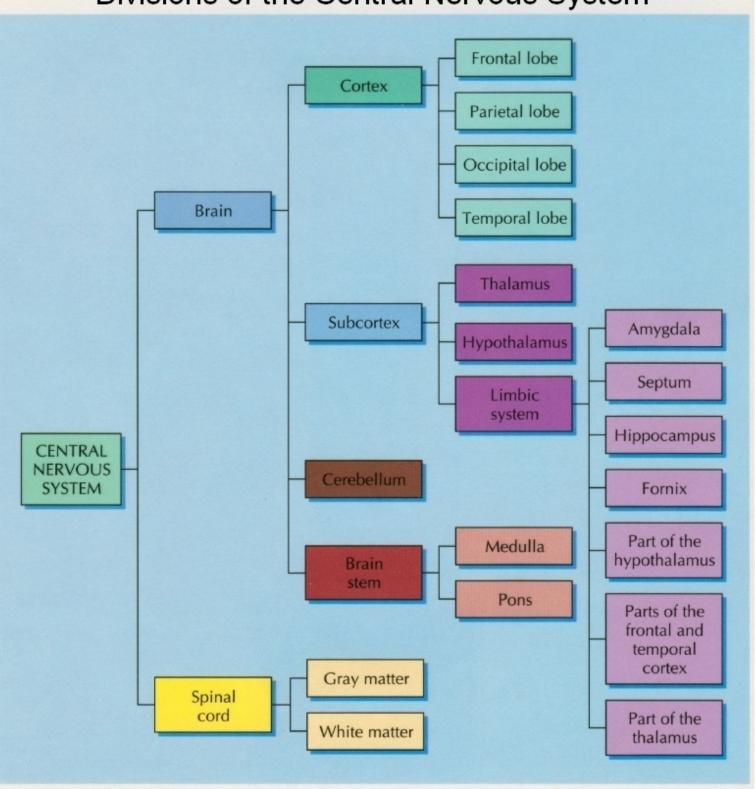
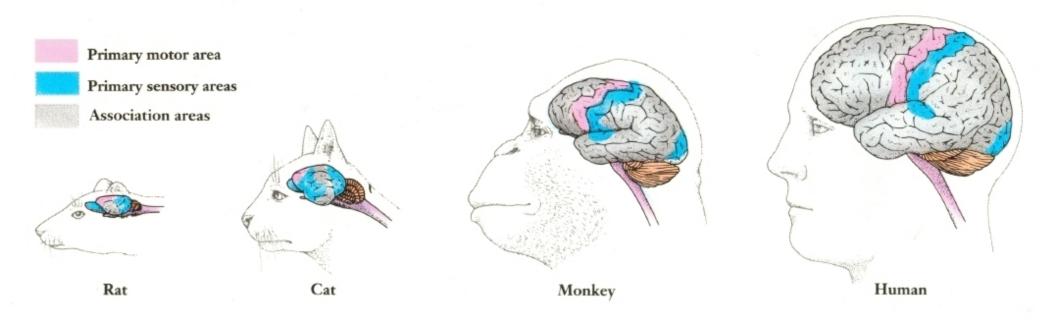
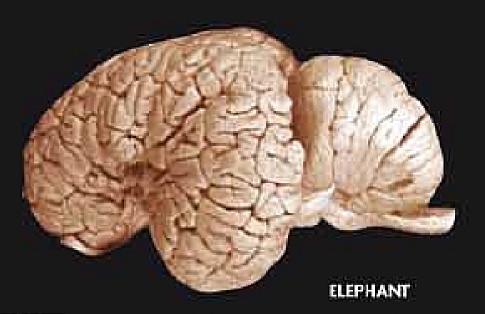
## Divisions of the Central Nervous System



# Comparison of Mammalian Brains





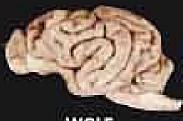


### **BRAIN SIZE AND SHAPE**

One striking aspect of mammalian brain evolution is the development of the cortex. This outer layer has evolved to serve the particular needs of each species, and therefore varies dramatically between one animal and another. A few mammals, such as humans, elephants, and dolphins, have a disproportionately large cortex compared to most mammals.



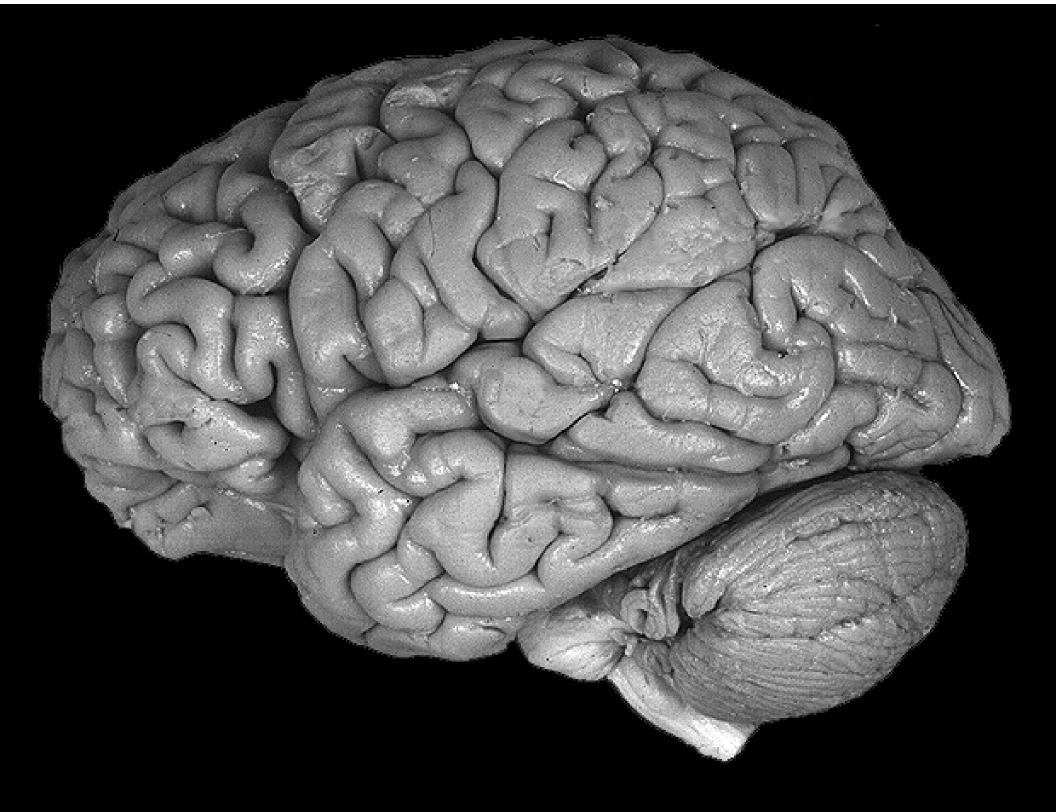


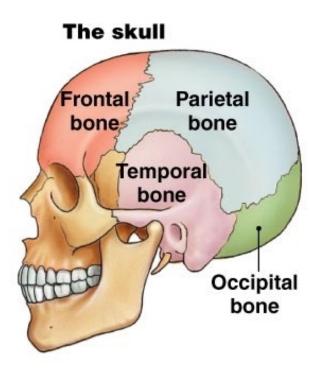


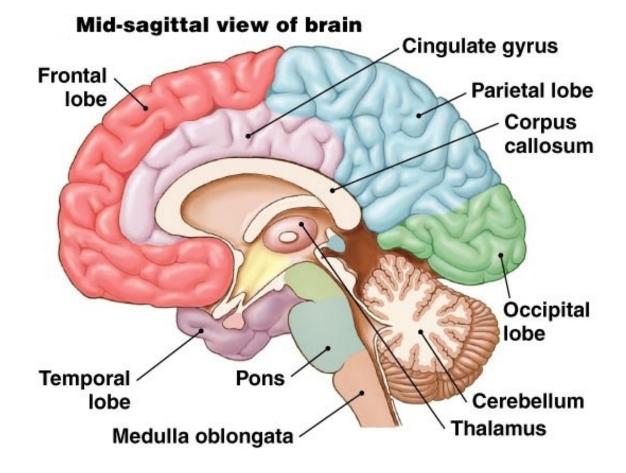
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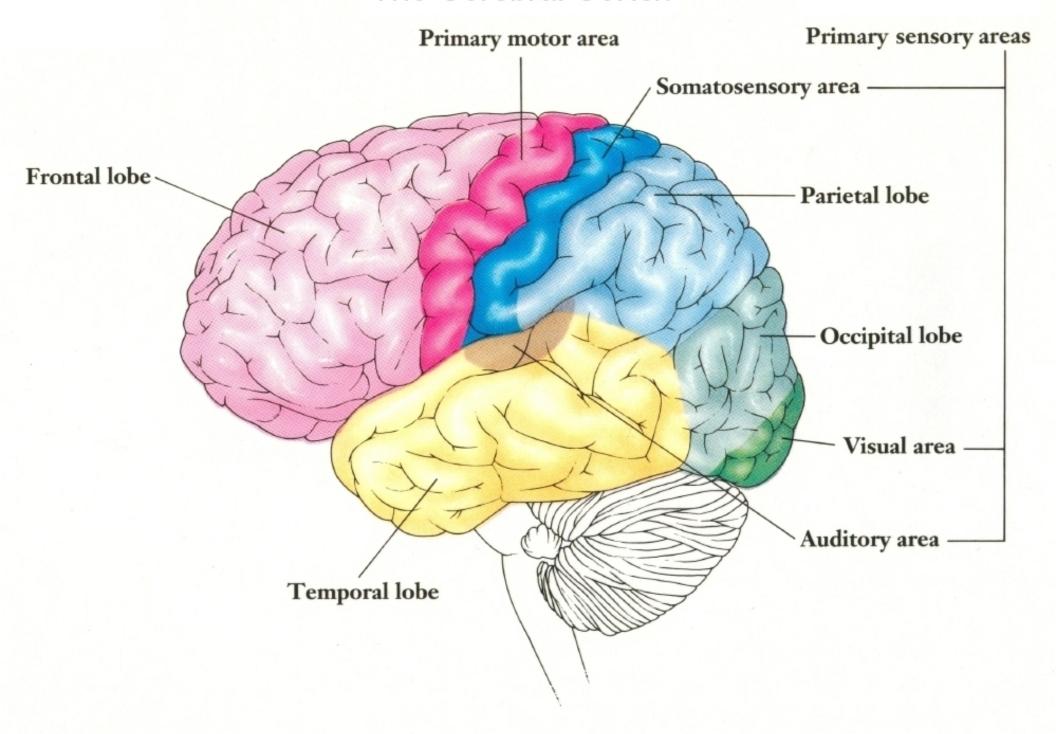
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### The Cerebral Cortex



#### Central fissure

Separates the primary somatosensory cortex from the primary motor cortex

#### Primary somatosensory cortex

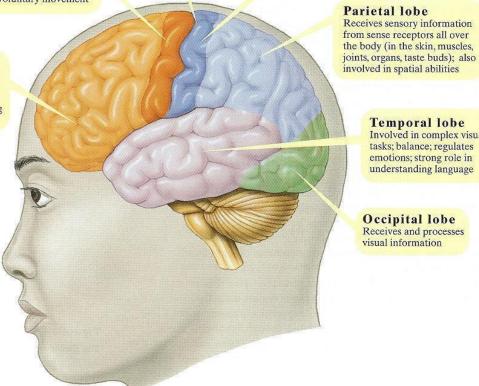
Registers sensory messages from the entire body

#### Primary motor cortex

Part of the frontal lobe; sends messages to muscles and glands; key role in voluntary movement

#### Frontal lobe

Coordinates messages from the other cerebral lobes; involved in complex problem-solving tasks



#### Temporal lobe

Involved in complex visual tasks; balance; regulates emotions; strong role in understanding language

#### Occipital lobe

Receives and processes visual information

The four lobes of the cerebral cortex. Deep fissures in the cortex separate these areas or lobes. Also shown are the primary somatosensorv and motor areas.

cerebral cortex The outer surface of the two cerebral hemispheres that regulates most complex behavior.

association areas Areas of the cerebral cortex where incoming messages from the separate senses are combined into meaningful impressions and outgoing messages from the motor areas are integrated.

frontal lobe Part of the cerebral cortex that is responsible for voluntary movement; it is also important for attention, goal-directed behavior, and appropriate emotional experiences.

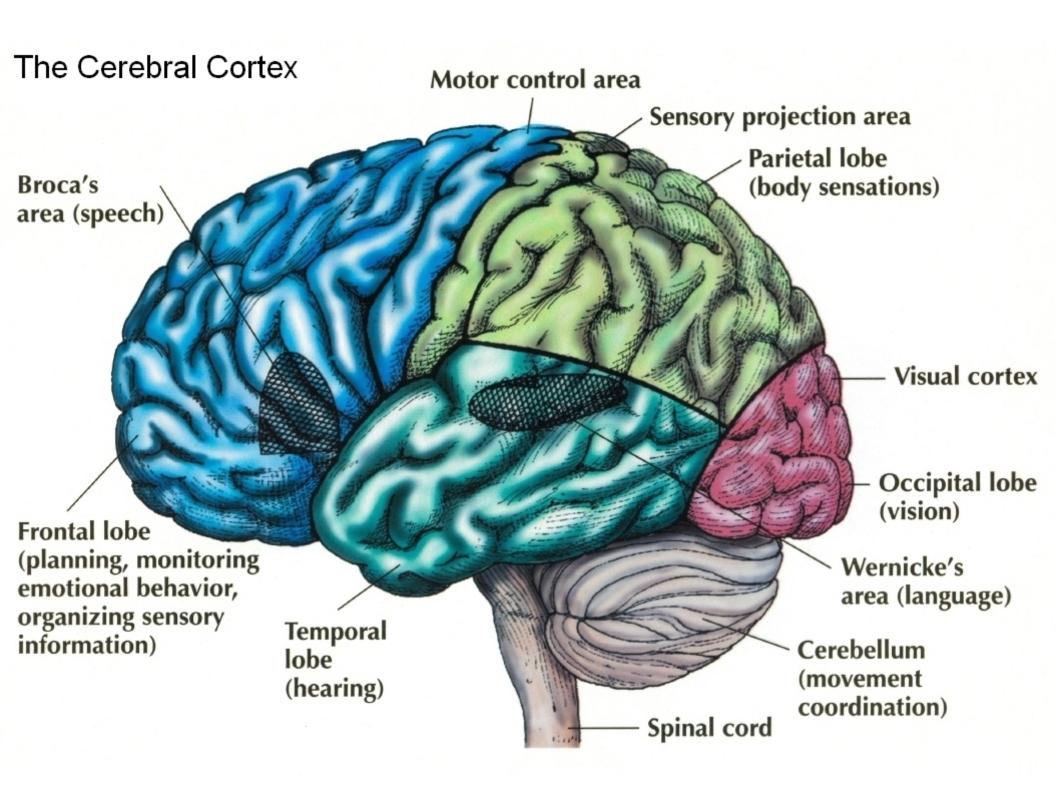
primary motor cortex The section of each frontal lobe responsible for voluntary movement.

primary somatosensory cortex Area of the parietal lobe where messages from the sense receptors are registered.

parietal lobe Part of the cerebral cortex that receives sensory information from throughout the body.

temporal lobe Part of the cerebral hemisphere that helps regulate hearing, balance and equilibrium, and certain emotions and motivations.

occipital lobe Part of the cerebral hemisphere that receives and interprets visual information.



### The Cerebral Cortex

