Areas of the Brain

Area:	Function:
Frontal Lobe	Motor control, problem solving, and speech production(Broca's area)
Parietal Lobe	Body orientation, sensory discrimination, and touch perception
Temporal Lobe	Auditory processing, Memory, information retrieval, language comprehension(Wernicke's area)
Occipital Lobe	Visual reception and interpretaion
Cerebellum	Balance and coordination
Brainstem	Breathing, heart rate, and temperature

Cerebral Cortex

The most prominent part of the brain. The cellular layers on the outer surface of cerebral hemispheres. Divided in half and connected by to bundles of axons: the **corpus callopsum** and **anterior commisure**.

Frontal Lobe

Contains the **prefrontal cortex**, **Broca's Area**, and **precentral gyrus**. Emotional control center and home of our personality. Plays a role in motor control, problem solving, and speech production.

Prefrontal Cortex

Integration center for all sensory information and other areas of the cortex, higher cognitive function, and decision making.

Precentral Gyrus

Primary motor cortex: fine motor movement

Parietal Lobe

Contains the **Postcentral Gyrus**. Role in touch sensations, muscle-stretch receptors, joint receptors. Processing and integrating information about eye, head, and body positions from muscles and joints. Role in spatial and numerical processing.

Postcentral Gyrus

Primary somatosensory cortex

Temporal Lobe

The lateral portions of each hemispheres by temples. Role in auditory information/processing spoken language, and aspects of vision. Contains **Wernicke's Area**.

Occipital Lobe

Contains the **Striate Cortex**. Role in visual input. Damage causes cortical blindness.

Striate Cortex

Primary Visual Cortex

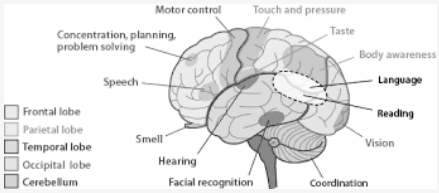
Central Sulcus

Prominent landmark of the brain, separating the parietal lobe from the frontal lobe and the primary motor cortex from the primary somatosensory cortex.

Divisions of the Central Nervous System

The Brain:		
Forebrain	Telencephalon	Isocortex, Basal Ganglia, Limbic System
	Diencephalon	Thalamus and Hypothalamus
Midbrain	Mesencephalon	
Hindbrain	Metancephalon	Cerebellum and Pons
	Myelencephalon	Medulla
The Spinal Cord		

Areas of the Brain



Corpus Callosum

Thick band of nerve fibers that connect the two hemispheres.

Anterior Commissure

Works with the posterior commissure to link the two cerebral hemispheres of the brain and also interconnects the amygdalas and temporal lobes, contributing to the role of memory, emotion, speech and hearing.

Cerebellum

Regulates motor movement, balance, and coordination. It is important for shifting between auditory and visual stimuli.

Pons

Part of the brainstem that links your brain to your spinal cord. Handles unconscious processes, such as your sleep-wake cycle.

Medulla

Where your cardiovascular and respiratory systems link together. Controls heart rate, breathing, blood pressure, and more.

Brainstem

Contains the hindbrain and the midbrain(-excluding the cerebellum). Regulates most of the body's automatic functions that are essential for life.

Striatum

Contains neuronal activity related to movements, rewards and the conjunction of both movement and reward. Striatal neurons show activity related to the preparation, initiation and execution of movements

Ventral Tegmental Area(VTA)

Regulates reward consumptions, learning, memory, and addiction behaviors through mediating dopamine release.

Reticular Formation

Represents the archaic core of those pathways connecting the spinal cord and the brain. It subserves autonomic, motor, sensory, behavioral, cognitive, and mood-related functions.

The Limbic System

Olfactory Bulb

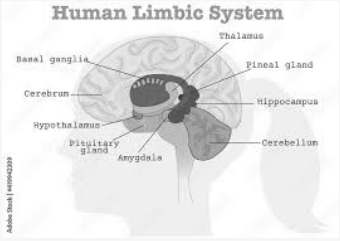
Hypothalamus

Hippocampus

Amygdala

Cingulate Gyrus

The Limbic System



Thalamus

Subcortical structure that is the relay station between the sensory organs and cortex. Plays a role in sleep, wakefulness, consciousness, learning and memory.

Hypothalamus

Subcortical structure near the base of the brain. Conveys messages to the pituitary gland to alter the release of hormones. Plays a role in eating, drinking, sexual behaviors, and other motivated behaviors.

Pituitary Gland

Hormone producing gland at the base of the hypothalamus.

Basal Ganglia

Comprised of the **caudate nucleus**, **the putamen**, and **the globus pallidus**. Plays a role in planning motor movement, aspects of memory and emotional expression, attention, and language planning.

Hippocampus

Limbic system structure located between the thalamus and the cerebral cortex. Stores certain types of memory, particularly new events. **Area of neurogenesis.**

Amygdala

Two almond shaped nuclei within the temporal lobes. Processing fearful and threatening stimuli. Includes threat detection and activation of fear-related behaviors in response to a threat.

Pineal Gland

Main function is to receive information about the state of the light-dark cycle from the environment and convey this information by the production and secretion of the hormone melatonin

Anatomy of Cut Brain