**Interneurons:** Are connector neurons, they create connection between sensory or motor neurons and CNS.

**Glial cells**:Are non-neuronal cells that maintain homeostasis, form myelin, and provide support and protection for neurons in the central nervous system and peripheral nervous system.

**Astrocyte**: Star shaped glial cells in brain and spinal cord. It support and help communication between the neurons. Astrocytes give structure to the brain and hold things in the place, they are responsible for brain injuries repair.

**Blood brain barrier:**The Blood Brain Barrier separates blood that circulates throughout the body from brain fluid in the central nervous system.

**Oligodendrocytes:** The main function is providing support and insulation to axons in the CNS. They provide myelin for interneon of the brain.

**Microglial:** They act as the first and main form of active immune defense in the central nervous system. **Ependymal cells**: These cells line the CSF-filled ventricles in the brain and the central canal of the spinal cord. They separate CSF from interstitial fluid. Capillaries interact with ependymal cell to produce CSF.

**Protection of CNS:** The meninges are the three layers starting from outside dura mater, arachnoid mater and pia mater.

**Dura mater:** Is a tough layer. It composed of two layers outer layer and inner layer. Space between these two layers form Dural venous sinuses.

**Arachnoid mater:** Space beneath arachnoid is filled with cerebrospinal fluid (CSF). CSF exit from subarachnoid through arachnoid villus.

**Choroid Plexus:** pia matter work with the ependymal cell to make CSF.

**Pia mater:** Very thin layer which tightly follows brain surface. Contains lots of small capillaries.

**Spinal cord**: The spinal cord is the most important structure between the body and the brain.

**Brain stem:** The stem-like part of the base of the brain that is connected to the spinal cord. It controls the messages between the brain and other parts of body and it also controls basic body functions such as breathing, swallowing, heart rate, and blood pressure.

Brain has different lobes such as: frontal lobes, temporal lobes, parietal lobes and occipital lobes.

**Vertical column of brain:** we have 6 layers of gray mater but only 5 layers is functional. The more vertical column we have the more preside, accurate and detail we can get and store the information. Our mouth, hands and genital area have the most vertical column

**Frontal lobes:** Is responsible for motor functions, short-term memory, emotion, voluntary movement, IQ, personality, problem solving and expressing language.

**Temporal lobe**: Hearing, long term memory, music and initiation of verbal.

**Occipital lobe**: perception and vision

**Parietal lobe:** sensory strip location, perception, touch, ability to draw, and reading and writing, calculations. So it’s function is mainly kinesthetic and sensory.

**Limbic system:** papezs circuit (it’s a brain declusative circuit). As information being repeated you bring the information from your short-term memory to your long term memory.

**Brain Hemispheres:** Brain has two cerebral hemispheres and they are separated by a groove, which make it to right and left hemispheres.

**Hippocampus:** Is the small organ and forms an important part of the limbic system. This region regulates emotion and is associate with long-term memory.

**Cerebellum**: It receives information from the sensory system, the spinal cord and other parts of the brain. It regulates motor movements. The cerebellum coordinates voluntary movements.

**Thalamus**: The thalamus is a structure in the middle of the brain. It is located between the cerebral cortex and the midbrain. It works to correlate several important processes, including consciousness,

sleep, and sensory interpretation. It is basically the mixing center of different parts of the brain and it ties different parts of the brain together.

**Corpus callosum:** divide the two hemisphere of brain.

**Cerebral cortex:** composed of gray matter and white matter.

**Preaquaductant gray:** area of midbrain for fear response and it’s not conscious. Example: when you scream without thinking.