**Gray Matter (GM)**

Location: Found in the outermost portions of the brain and primarily present in the brain's cortex.

Composition: Composed largely of neuron cell bodies, dendrites, and synapses.

Function: It is actively involved in processing information and is crucial for various brain functions such as muscle control, sensory perception like seeing and hearing, memory, emotions, and speech.

**White Matter (WM)**

Location: Lies underneath the gray matter and makes up a large part of the deeper sections of the brain.

Composition: Primarily composed of myelinated axons, which are nerve fibers covered in a sheath of a fatty substance called myelin. The myelin gives white matter its white color.

Function: It is responsible for transmitting signals between different parts of the brain and from the brain to different parts of the body. It essentially facilitates communication within the brain, helping to quickly relay information from one brain region to another.

**Cerebrospinal Fluid (CSF)**

Location: Found in the spaces around and within the brain and spinal cord, like the ventricles in the brain and the central canal of the spinal cord.

Composition: A clear, colorless liquid that is primarily water, but it also contains various salts and proteins.

Function: Its primary roles are to cushion and protect the brain and spinal cord, to provide a buoyant support to these structures, and to remove waste products. It also plays a role in maintaining a stable environment in the central nervous system by helping to regulate the levels of different substances and removing waste products.

**In Medical Imagery**

Gray Matter: Often appears darker on T1-weighted MRI images compared to white matter.

White Matter: Appears lighter or white on T1-weighted MRI images.

Cerebrospinal Fluid: Generally appears dark on T1-weighted MRI and can appear white or very light on T2-weighted images.