**Amnesia:** Memory loss.

**Amygdala:** A gray-matter structure in the front portion of the temporal lobe.

**Anterior:** Toward the front of the body.

**Anterograde amnesia:** Inability to remember new information for more than a few seconds; anterograde amnesia is a primary characteristic of Korsakoff's syndrome.

**Atom:** Once believed to be indivisible, atoms are the primary unit of matter composing elements. An atom consists primarily of a nucleus, which contains protons and neutrons, and electrons that orbit the nucleus. The number of protons, neutrons, and electrons is different for each element. An atom of a specific element is the smallest unit that exhibits all the characteristics and properties of that element.

**Axial:** Relating to or situated in the central part of the body. In imaging, an axial image is one that is obtained by rotating around the axis of the body.

**Axon:** Part of a neuron consisting of a single fiber that carries nerve impulses from the neuron to other cells.

**Basal ganglia:** A group of gray-matter structures at the base of the cerebral hemispheres that are involved in motor control.

**Caudate nucleus:** A curved mass of gray matter that is part of the basal ganglia and protrudes into the lateral ventricle. The caudate nucleus plays a major role in voluntary motor activity.

**Cell body:** The part of a nerve cell that contains the nucleus.

**Cerebellum:** The structure at the base of the brain that is involved in the control of muscle tone, balance, and sensorimotor coordination.

**Cerebral cortex:** The outer layer of gray matter covering the cerebrum. The cortex contains areas for processing sensory information and for controlling motor functions, speech, higher...
cognitive functions, emotions, behavior, and memory.

**Cerebral hemispheres:** The two halves of the *cerebrum* that comprise the *cerebral cortex*, the underlying white matter, and the *basal ganglia*. Each hemisphere primarily controls the sensory input and motor functions of the opposite half of the body.

**Cerebrospinal fluid (CSF):** The clear fluid that fills the cavities (i.e., *ventricles*) within the brain and that surrounds the brain and spinal cord.

**Cerebrum:** The largest portion of the brain; includes the *cerebral hemispheres*.

**Compound:** In chemistry, a substance composed of two or more different elements that are chemically combined.

**Corpus callosum:** The tract of nerve fibers connecting the two cerebral hemispheres.

**Cortex:** The outer layer of an organ.

**Dementia:** A condition of global intellectual impairment, including the loss of abstract thinking and memory, personality changes, breakdown of social skills, and other disturbances of higher cognitive functioning.

**Dendrite:** The branched projections of a neuron that receive nerve impulses from other cells. Most neurons have more than one dendrite.

**Diencephalon:** The area of the brain located beneath the *cerebral cortex* consisting of the *thalamus* and the *hypothalamus*.

**Element:** A substance composed of only one kind of atom.

**Fissure:** A deep sulcus.

**Frontal lobes:** The anterior region of the *cerebrum*.

**Gray matter:** Brain tissue composed mostly of *dendrites* and *cell bodies* that makes up the outer surface of the *cerebral cortex* as well as portions of the brain at the base of the *cerebral hemispheres*.

**Gyrus (Gyri):** The ridges of rounded, convoluted brain tissue that forms the cerebral hemispheres.

**Hippocampus:** A region of the *temporal lobe* that is thought to play a role in learning and memory as well as in alcohol withdrawal seizures.

**Histology:** The science of the detailed structure of cells, tissues, and organs in relation to their function.

**Hypothalamus:** An important part of the limbic system with many regulatory functions, including the control of motivation and emotional behavior. The hypothalamus is located in the diencephalon.

**Inferior:** In anatomy, situated nearer to the bottom (i.e., in humans, toward the soles of the feet).

**Isotope:** An isotope is one of two or more atoms that have the same number of protons (i.e., are chemically identical) but have different numbers of neutrons.

**Korsakoff’s syndrome:** An organic brain syndrome associated with prolonged, heavy ingestion of alcohol, characterized by anterograde amnesia. Also see Wernicke-Korsakoff syndrome (WKS).

Two views of the human brain showing the location of the ventricles.
Lenticular (lentiform) nuclei: Part of the basal ganglia comprising the putamen and the globus pallidus. Two sets of lenticular nuclei exist, one in each hemisphere of the brain.

Magnetic field: A physical field that arises from an electric charge in motion or from a magnet, producing a force that attracts particles of specific elements.

Mammillary body: A paired brain structure located near the hypothalamus that is involved in memory and in the control of autonomic (i.e., involuntary) body functions.

Morphology: The biological study of the form and structure of organisms.

Nucleus: The center structure of a cell or of an atom.

Neuron: A nerve cell, which is made up of a cell body, an axon, and one or more dendrites.

Neurotransmitter: A chemical messenger released by a neuron to carry a signal to adjacent neurons.

Occipital lobe: The part of the cerebrum at the rear of each hemisphere, separated from the parietal lobe by the parieto-occipital sulcus; the surface of the occipital lobe is involved in vision.

Orbitofrontal cortex: The part of the cerebral cortex covering the base of the frontal lobes.

Parietal lobe (region): The region of the cerebral cortex, located in the middle part of the cerebral hemispheres, that mainly receives information not from the sensory organs but from receptors in or near the body surface. It is separated from the occipital lobe by the parieto-occipital sulcus.

Posterior: Toward the rear of the body.

Prefrontal cortex: The most anterior section of the frontal cortex; involved in memory processes, specifically in delayed response tasks.

Radio wave: An electromagnetic wave having a frequency between approximately 10 kilohertz and 300,000 megahertz; a key component of imaging technology.

Radioisotope: An isotope that changes to a more stable state by emitting particles (i.e., radiation) from its nucleus.

Receptor: A structure in the wall or interior of a nerve cell or other cell that recognizes and binds to neurotransmitters and other chemical messengers.

Sulci (Sulcus): The grooves or furrows on the surface of the brain.

Superior: In anatomy, situated nearer to the top of the head.

Sylvian fissure: The deepest and most prominent of the fissures in the cerebral cortex.

Temporal lobe: The region of the cerebral cortex forming part of the sides and bottom of the brain on each side. This region is involved in sensory processing, language functions, and emotions.

Thalamus: The gray-matter structure that forms part of the diencephalon, the brain’s relay center to the cerebral cortex.

Thiamine: Vitamin B₁; a deficiency in this vitamin has been linked to Korsakoff’s syndrome.

Tomography: The technology of making an image of thin slices of tissue within the body.

Ventricles: A normal cavity (e.g., in the brain or heart). In the brain, the ventricles are filled with cerebrospinal fluid.

Vermis: The structure located between the two halves of the cerebellum that is important for controlling particular motor functions.

Wernicke-Korsakoff syndrome (WKS): A neurological disorder thought to be caused by thiamine deficiency. WKS is characterized by impairments in memory (e.g., anterograde amnesia) as well as deficits in abstraction and problem-solving. Wernicke’s encephalopathy is an acute condition characterized by general confusion and incoherent speech. It may or may not precede Korsakoff’s syndrome.

White matter: Brain tissue composed mainly of axons.