

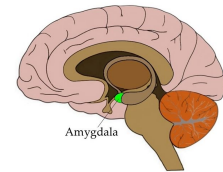
# The Ultimate Neuroanatomy and Histology

## Glossary

### The Terms: Neuroanatomy

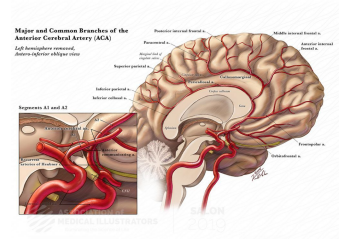
**1. Amygdala (limbic system):** A structure in the forebrain which is considered as an important component of the limbic system and plays a central role in emotional learning, particularly within the context of fear.

Photo courtesy of [neuroscientificallychallenged.com](http://neuroscientificallychallenged.com)



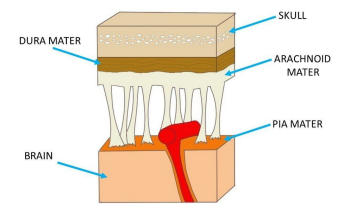
**2. Anterior cerebral artery:** One of the pair of arteries on the brain which supplies oxygenated blood to most midline portions of the frontal lobes and superior medial parietal lobes.

Photo courtesy of [meetings.ami.org](http://meetings.ami.org)



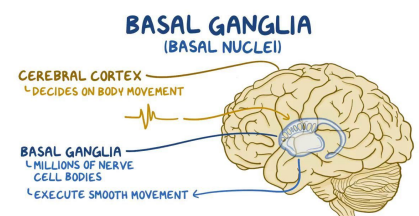
**3. Arachnoid mater:** A thin membrane of the brain and spinal cord that lies between the dura mater and pia mater. Hematomas can develop within the subarachnoid space.

Photo courtesy of [neuroscientificallychallenged.com](http://neuroscientificallychallenged.com)



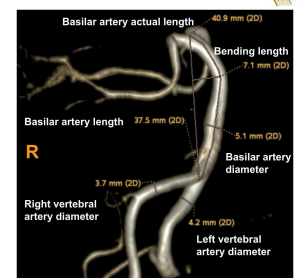
**4. Basal ganglia:** A group of structures found deep within cerebral hemispheres that control voluntary motor movements, procedural learning, habit learning, eye movements, cognition, and emotion.

Photo courtesy of [osmosis.org](http://osmosis.org)



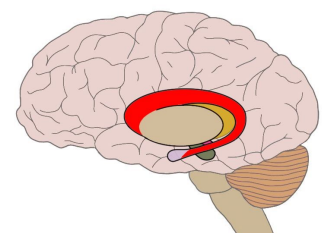
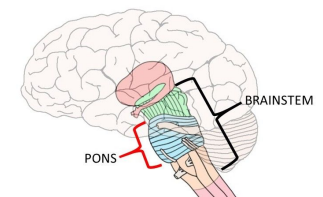
**5. Basilar artery:** Formed where two vertebral arteries join at the base of the skull. After that it carries oxygenated blood to the cerebellum, brainstem, and occipital lobes.

Photo courtesy of [frontiersin.org](http://frontiersin.org)



**6. Brainstem:** Controls the flow of messages between the brain and the rest of the body as well as basic body functions: breathing, swallowing, heart rate, blood pressure, & consciousness.

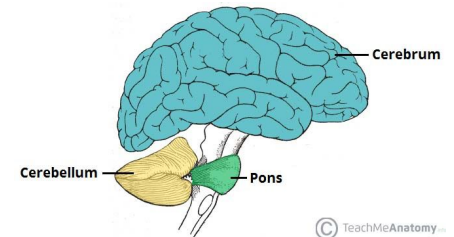
Photo courtesy of [neuroscientificallychallenged.com](http://neuroscientificallychallenged.com)



**7. Caudate nucleus:** Plays a vital role in how the brain learns, specifically the storing and processing of memories. It functions as a feedback processor, which means that it uses information from past experiences to influence future actions.

Photo courtesy of [neuroscientificallychallenged.com](http://neuroscientificallychallenged.com)

**8. Cerebellum:** Cerebellum means “little brain.” Which receives information from the sensory systems, the spinal cord, and other parts of the brain. Then regulates motor movements (posture, balance, coordination, speech, etc.). Photo courtesy of [teachmeanatomy.info](http://teachmeanatomy.info)



**9. Cerebral cortex**

**10. Cerebral peduncle**

**11. Choroid Plexus**

**12. Circle of Willis (arterial system)**

**13. Corpus callosum**

**14. Cortex**

**15. Dentate gyrus**

## 16. Dura mater

**17. Epidural space:** The space where the spinal cord lays inside of the vertebral bone absorbs shock to protect the dura, and other contents of the spinal cord.

Image courtesy of [spineuniverse.com](http://spineuniverse.com)

**18. Epineurium:** The outermost layer of connective tissue that encloses a nerve, preventing injury and overstretching (since they are mostly found around joints).

Image courtesy of [studyblue.com](http://studyblue.com)

**19. Fourth ventricle:** A cavity that contains cerebrospinal fluid located in the upper part of the medulla, and contains cerebrospinal fluid. It provides cushioning to the brain, which prevents trauma. (Bonus: helps to form the central canal).

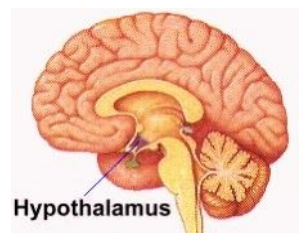
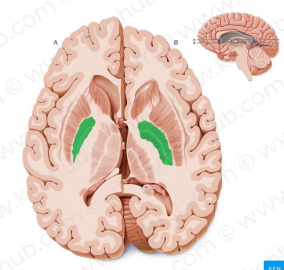
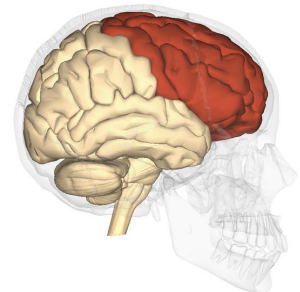
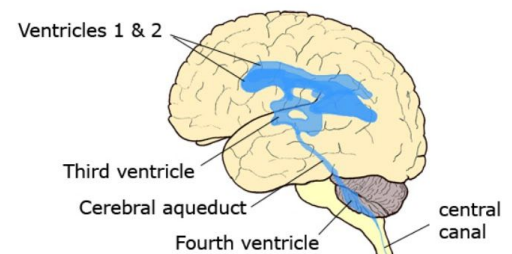
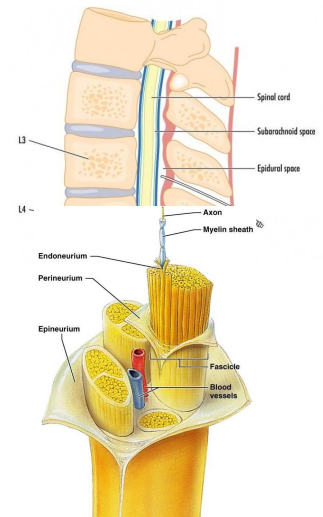
Image courtesy of [inside.ucumberlands.edu](http://inside.ucumberlands.edu)

**20. Frontal lobe:** Controls cognitive functions and aspects of personality such as memory, problem solving, social skills, etc. It also contains Broca's area, which is responsible for formulating words and allowing you to speak.

Image courtesy of [jonlieffmd.com](http://jonlieffmd.com)

**21. Globus pallidus (forms nucleus lentiformis with putamen):** A cluster of neurons from the basal ganglia that is responsible for regulating voluntary movements.

Image courtesy of [kenhub.com](http://kenhub.com)



**22. Hypothalamus:** This regulates the activities of your ANS (autonomic nervous system), controls your pituitary gland through the secretion of neurohormones, and is responsible for maintaining homeostasis in the body.

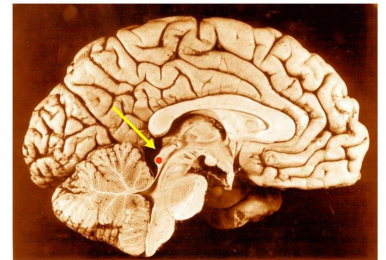
Image courtesy of [confluence.crbs.ucsd.edu](http://confluence.crbs.ucsd.edu)

**23. Hippocampus (medial temporal lobe):** A portion of the temporal lobe that is responsible for the retention of long-term memories, experiences, and knowledge. The hippocampus has no connection to short-term memory. (How it functions is still unknown.)

Image courtesy of [ucdavis.edu](http://ucdavis.edu)

**24. Inferior colliculi:** The auditory center of the body. A portion of the midbrain that gathers almost all auditory signals in order to recognize different frequencies and discriminate between pitches.

Image courtesy of [Wikipedia.org](http://Wikipedia.org)



**25. Inferior temporal gyrus:** Closely connected to the inferior occipital gyrus. This area contains higher levels of the ventral stream for visual processing, which allows for the effective processing of complex images such as 3-D spheres etc.

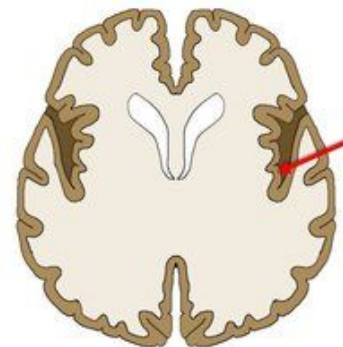
Photo courtesy of

[https://en.wikipedia.org/wiki/Inferior\\_temporal\\_gyrus](https://en.wikipedia.org/wiki/Inferior_temporal_gyrus)

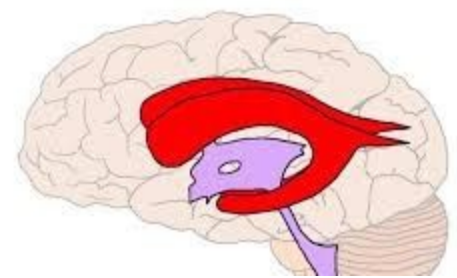


**26. Insular cortex:** Found in part of the cerebral cortex, and also known as the insula. It is responsible for the ability to perceive a wide range of thoughts and behavior. Although its exact role is unknown, researchers have come to attribute the insula with the grand title of being the cornerstone of individual self awareness.

Photo courtesy of [neuroscientificallychallenged.com](http://neuroscientificallychallenged.com)



**27. Lateral ventricles:** There is one lateral ventricle for each hemisphere (left and right). They are found in the



large cavities of the cerebral hemispheres. The two lateral ventricles (consist of cerebrospinal fluid that provide cushioning for the brain, help to circulate nutrients, and remove waste.

Photo courtesy of [neuroscientificallychallenged.com](https://neuroscientificallychallenged.com)

Info courtesy of <https://www.healthline.com/human-body-maps/lateral-ventricles#1>

**28. Locus coeruleus:** It is a nucleus found in the Pons. Its function is to be the primary production site of norepinephrine physiological chemicals in the brain. The locus coeruleus then sends norepinephrines to every part of the brain except for the basal ganglia. The significance of the locus coeruleus nuclei has been directly associated with heightened vigilance and attention. While, A decreased amount of locus coeruleus nuclei have been associated with forms of memory loss diseases, such as Alzheimer's and Parkinson's disease.

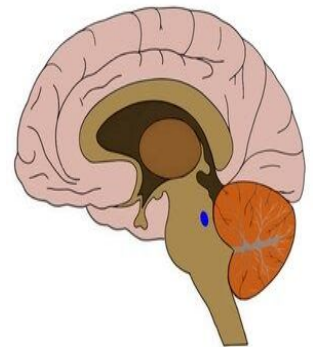
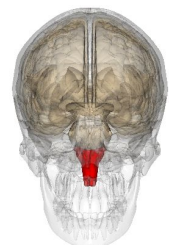


Photo courtesy of [neuroscientificallychallenged.com](https://neuroscientificallychallenged.com)

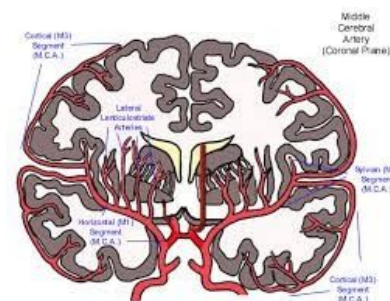
**29. Medulla oblongata:** The lowest part of the brain. Its function is to regulate breathing, sneezing, and swallowing. It also serves as the control center for the heart and lungs.

Photo courtesy of

[https://commons.wikimedia.org/wiki/File:Medulla\\_oblongata.gif](https://commons.wikimedia.org/wiki/File:Medulla_oblongata.gif)



**30. Middle cerebral artery:** The middle cerebral artery is one of three major arteries that connect through the brain. It is in charge of supplying the cerebellum region of the brain, anterior temporal lobes, and the insular cortices with blood. Photo courtesy of

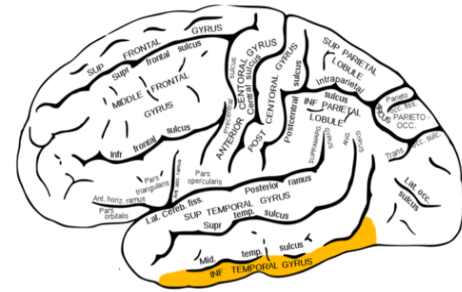


<http://www.meddean.luc.edu/lumen/MedEd/Neuro/neurovasc/navigation/mca.htm>



**31. Middle temporal gyrus\*:** The middle temporal gyrus is a part of the cortex covering the middle side of the temporal lobe. It is also thought to be involved in and crucial for visual processing and visual object recognition.

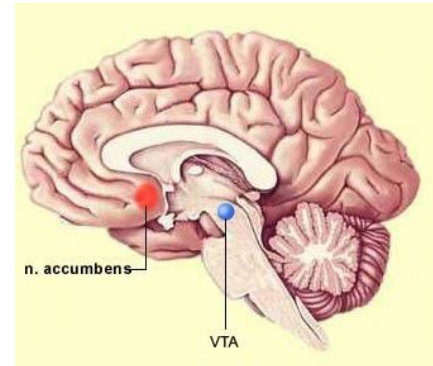
Photo courtesy of [neuroscientificallychallenged.com](http://neuroscientificallychallenged.com)



**32. Nucleus accumbens:** The nucleus accumbens is found in an area of the brain called the basal forebrain and is considered to be a part of the basal ganglia. The nucleus accumbens is involved in controlling the reward and punishment areas of the brain. Also, the nucleus accumbens plays a significant role in multiple psychotic problems related to addiction and depression.

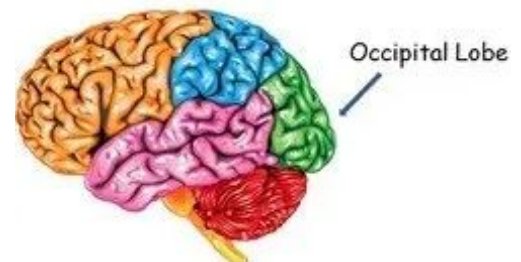
Photo courtesy of

<https://human-memory.net/nucleus-accumbens/>



**33. Occipital lobe:** The occipital lobe is one of the 4 major lobes of the cerebrum, and it is located at the back of the head. Visual information from the eyes is processed in the primary visual cortex, which is located within the occipital lobe.

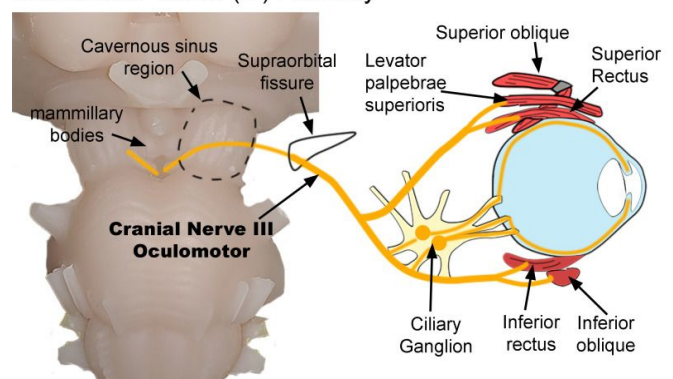
Photo courtesy of [brainmadesimple.com](http://brainmadesimple.com)



**34. Oculomotor (III) nerve:** The oculomotor nerve is the third of 12 pairs of nerves emerging from the brain. It is known as a “cranial nerve” and is responsible for lifting the eyelid and adjusting the amount of light that enters the eye through pupil constriction.

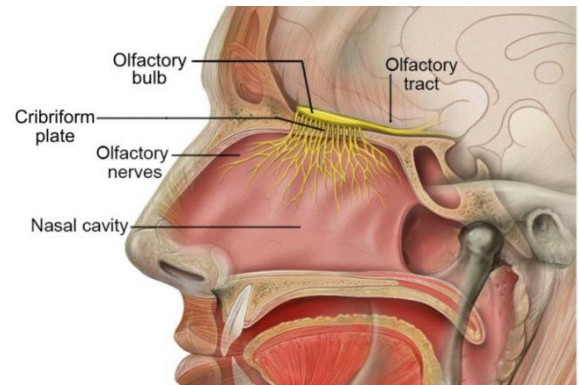
Photo courtesy of Neuroanatomy, Cranial Nerve 3 (Oculomotor)

Oculomotor Nerve (III) Pathway



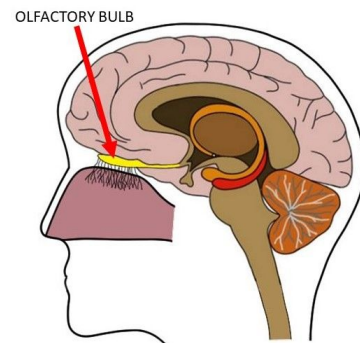
**35. Olfactory (I) nerve:** The olfactory nerve is the first of 12 pairs of nerves emerging from the brain. It is considered a “cranial nerve” and it carries sensory information regarding smell from the nasal cavity to the brain.

Photo courtesy of [www.discovermagazine.com](http://www.discovermagazine.com)



**36. Olfactory bulb:** The olfactory bulb is a structure at the front of the brain that receives sensory information about smell from receptor cells in the nasal cavity. It is a highly organized structure, and odour processing occurs within it.

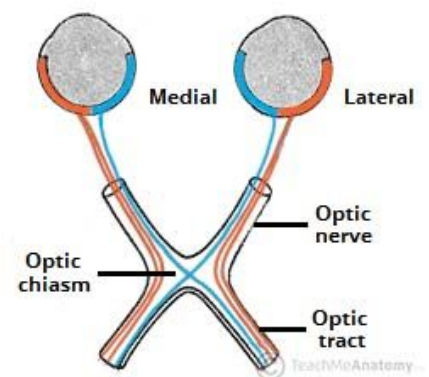
Photo courtesy of [www.neuroscientificallychallenged.com](http://www.neuroscientificallychallenged.com)



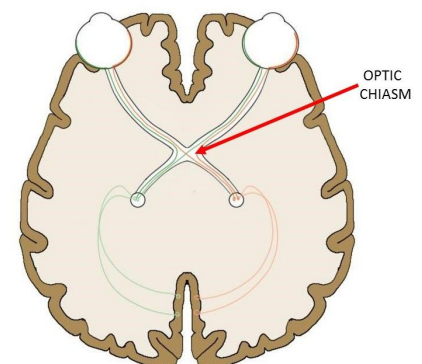
**37. Olfactory tract:** The olfactory tract is a term that describes the bundle of nerve fibres which connect the olfactory bulb in the forebrain with the olfactory nuclei and the olfactory cortex in the brain's temporal lobe.

**38. Optic (II) nerve:** The optic nerve is the second of 12 pairs of cranial nerves emerging from the brain. It is formed by the axons of ganglion cells. It carries visual information from the retina (located in the eye) to the occipital lobe of the brain.

Photo courtesy of [teachmeanatomy.info](http://teachmeanatomy.info)



**39. Optic chiasm:** Visual information from the left eye is carried by the optic tract and optic radiation to the right hemisphere of the brain, while visual information from the right eye is carried by the other optic tract and optic radiation to the left hemisphere.

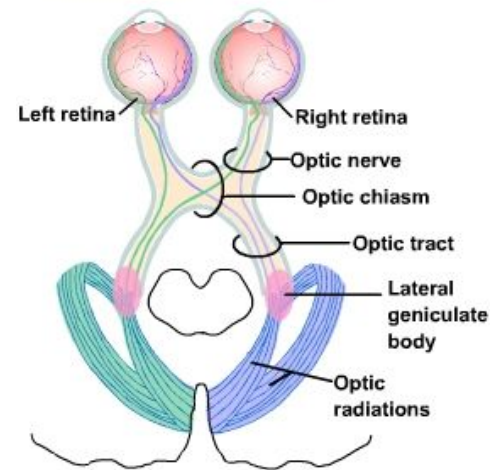


of the brain. The point where the 2 optic nerves cross is called the optic chiasm, and it allows the visual cortex to receive information from both eyes simultaneously.

Photo courtesy of [www.neuroscientificallychallenged.com](http://www.neuroscientificallychallenged.com)

**40. Optic radiation:** The optic radiation consists of axons from the neurons in the lateral geniculate nucleus (a source that receives major sensory input from the retina) to the primary visual cortex. It serves to transmit visual input from the lateral geniculate nucleus to the primary visual cortex within the occipital lobe.

Photo courtesy of [nba.uth.tmc.edu/neuroscience](http://nba.uth.tmc.edu/neuroscience)

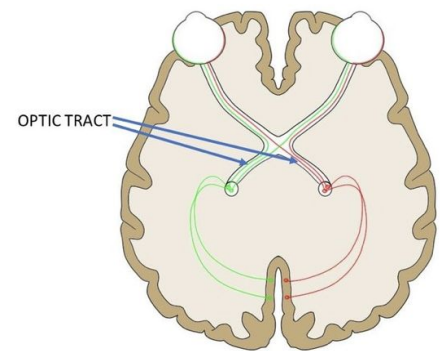




**41. Optic tract:** Refers to the partially decussated (point at which fibres cross midline) fibres of the optic nerve at the optic chiasm. It serves to convey visual information from the optic chiasm to the lateral geniculate nuclei.

Photo courtesy of

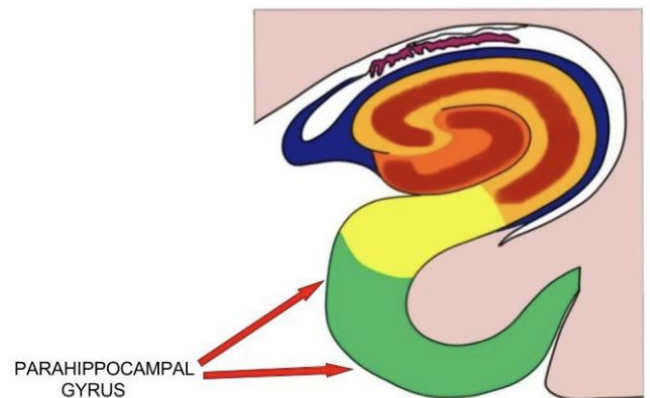
<https://www.neuroscientificallychallenged.com>



**42. Parahippocampal gyrus:** It is the gyrus that surrounds the hippocampus. It is important to memory as it contains the entorhinal cortex, which provides most of its input to the hippocampus.

Photo courtesy of

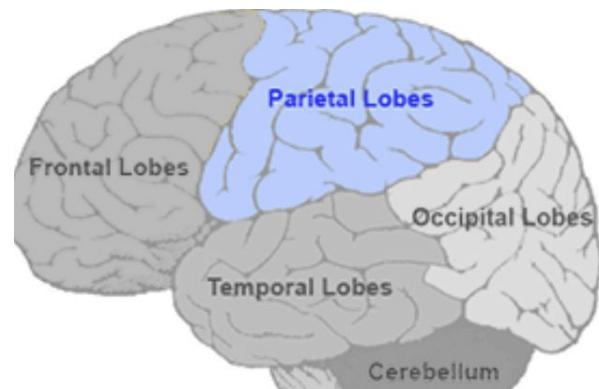
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**43. Parietal lobe:** Positioned behind the frontal lobes and above the temporal lobes, it is one of the four main lobes of the cerebral cortex. Its primary function concerns processing sensory information and interpreting visual information.

Photo courtesy of:

<https://www.health.qld.gov.au>



**44. Pia mater:** It is the innermost layer of the meninges. It serves as a barrier and aids in the production of cerebrospinal fluid.

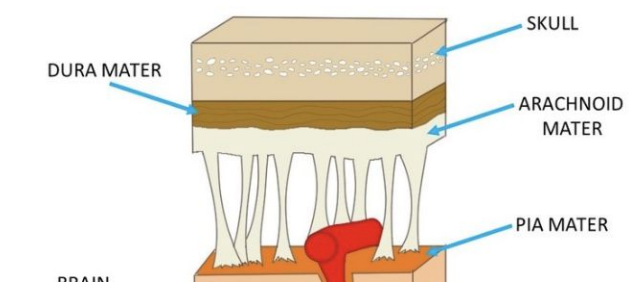
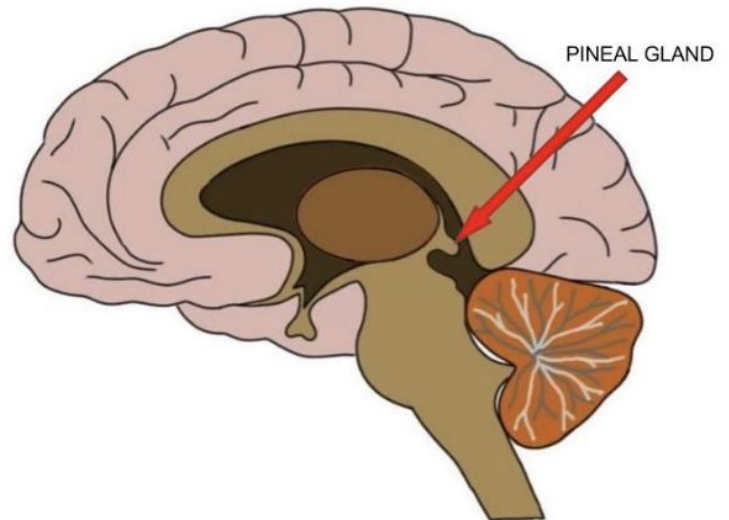


Photo courtesy of <https://www.neuroscientificallychallenged.com>

**45. Pineal body:** AKA pineal gland, it sits in the midline of the brain and is considered part of the epithalamus. Its function is not entirely known. However, it deals with the secretion of melatonin, thus deals with circadian rhythm.

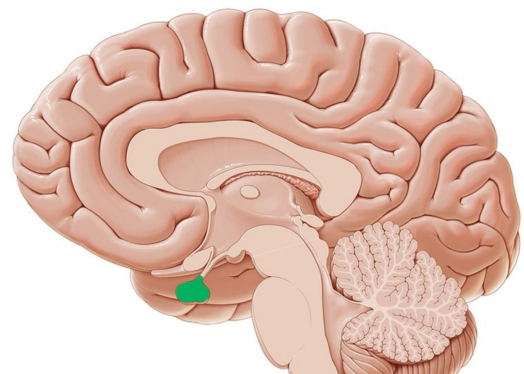
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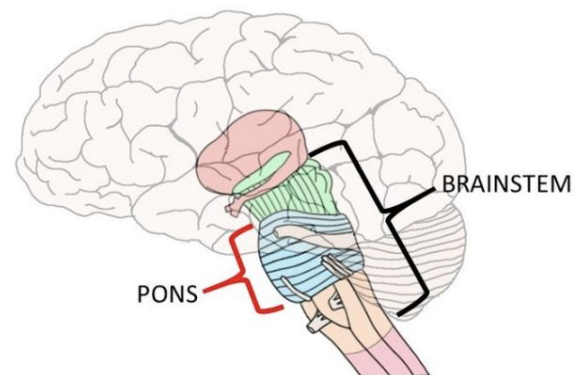
**46. Pituitary gland (hypophysis) :** Pea-sized gland that is called the “master gland” because it controls the activity of most other hormone-secreting glands.

Photo courtesy of <https://www.kenhub.com>



**47. Pons:** One of the three major components of the brainstem, along with the medulla and midbrain. It serves as a relay center for the cerebellum and the rest of the body. It also has many nuclei that deal with autonomic functions such as breathing.

Photo courtesy of



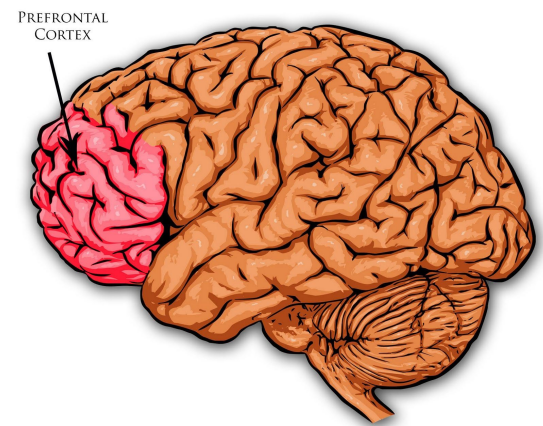
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**48. Posterior cerebral artery:** It is one of a pair of arteries that supply oxygenated blood to the occipital lobe. It is considered one of the main three cerebral arteries of the brain.

#### **49. Prefrontal cortex**

The prefrontal cortex is located in the frontal lobe of the brain. This part of the brain contributes to one's personality and executive functions. There are three parts of the prefrontal cortex: the medial prefrontal cortex, the orbital prefrontal cortex, and the lateral prefrontal cortex.

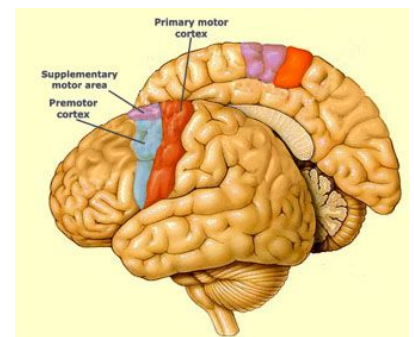
Photo Courtesy of <https://medium.com/>



#### **50. Premotor cortex**

The premotor cortex is located anterior to the primary motor cortex of the brain. The premotor cortex prepares the muscles in the body for the precise movements the muscles need to make. The premotor cortex can also help guide decisions based on information gathered by the sense organs.

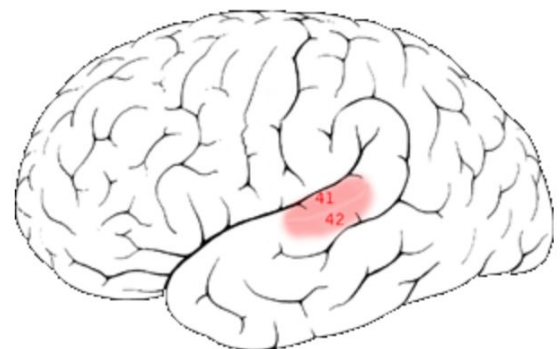
Photo Courtesy of <https://thebrain.mcgill.ca/>



#### **51. Primary auditory cortex**

The primary auditory cortex is a part of the cerebral cortex that assists with the recognition and perception of tone and pitch.

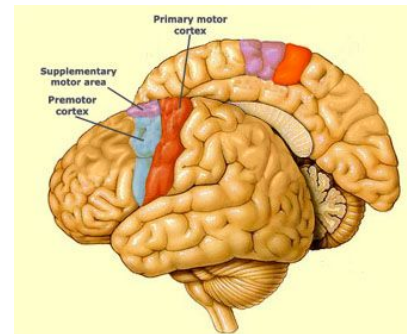
Photo Courtesy of <https://operativeneurosurgery.com/>



## 52. Primary motor cortex

The primary motor cortex creates impulses that execute voluntary movement of the body.

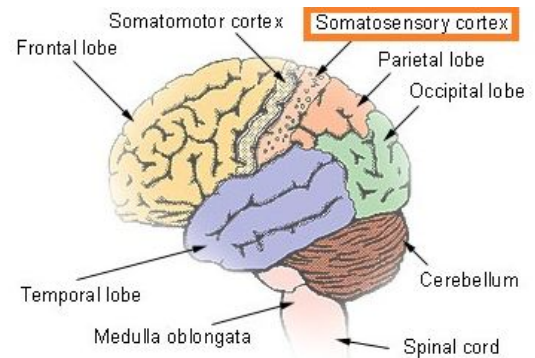
Photo Courtesy of <https://thebrain.mcgill.ca/>



## 53. Primary somatosensory cortex

The primary somatosensory cortex is responsible for receiving and processing sensory information that comes from the body. The somatosensory cortex is located in the parietal lobe of the brain.

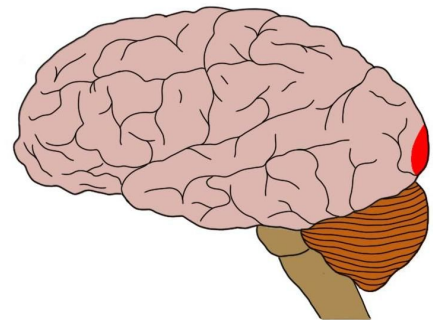
Photo Courtesy of <https://theeducationlife.com/>



## 54. Primary visual cortex (V1)

The primary visual cortex is located in the occipital lobe of the brain. The primary visual cortex processes visual stimuli detected by the retina in each eye. This visual information is carried to the brain by the optic nerve.

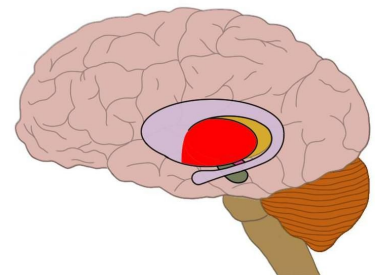
Photo Courtesy of <https://www.neuroscientificallychallenged.com/>



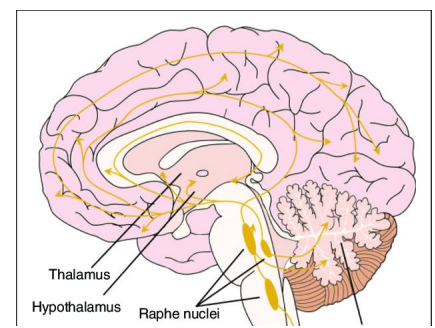
## 55. Putamen

The putamen is part of the basal ganglia in the brain and helps with the movement of limbs.

Photo Courtesy of <https://www.neuroscientificallychallenged.com/>



## 56. Raphe nuclei





The raphe nuclei are a group of cells that are found in the brain stem. These nuclei can decrease the release of serotonin.

Photo Courtesy of <https://www.researchgate.net>

**57. Spinal canal:** A cerebrospinal fluid-filled hollow passage formed by the foramen of the vertebrae through which the spinal cord runs; nerve roots branch out from each side of the canal and form a horse-like tail at the end of the canal

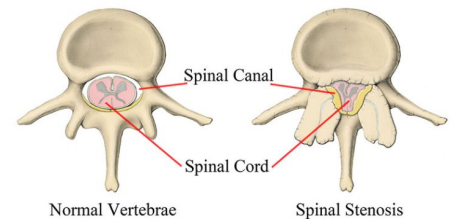


Photo courtesy of [sandiegonucca.com](http://sandiegonucca.com)

**59. Subarachnoid space:** space between the arachnoid membrane and pia mater that is filled with delicate connective tissue trabeculae and intercommunicating channels containing cerebrospinal fluid

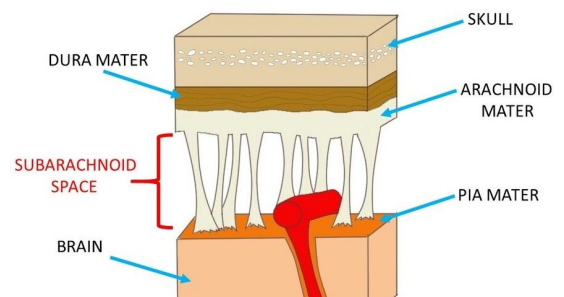


Photo courtesy of [neuroscientificallychallenged.com](http://neuroscientificallychallenged.com)

**60. Subdural space:** potential space that could exist between the dura mater and the inner arachnoid mater if bleeding from a bridging vein strips the dura from the arachnoid mater

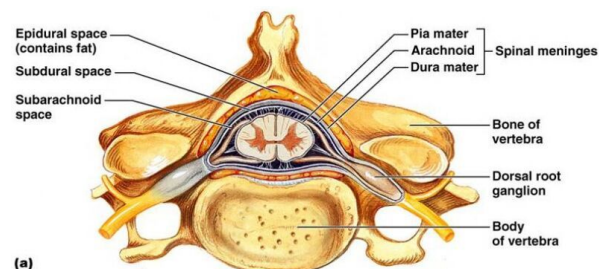


Photo courtesy of [anatomynote.com](http://anatomynote.com)

**61. Substantia nigra:** a part of the basal ganglia; substantia nigra pars compacta contains many dopaminergic neurons, whose degeneration is associated with Parkinson's disease, and substantia nigra pars reticulata contains many GABA neurons

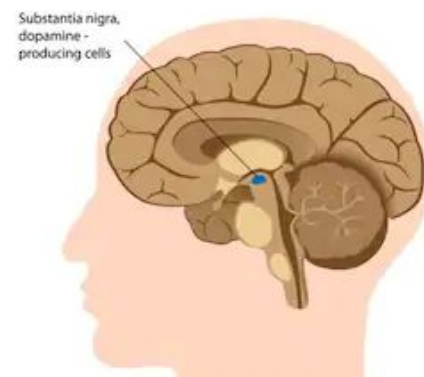
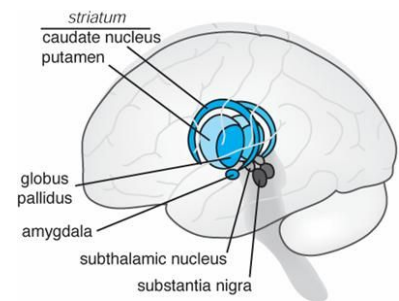




Photo courtesy of [shutterstock.com](https://www.shutterstock.com)

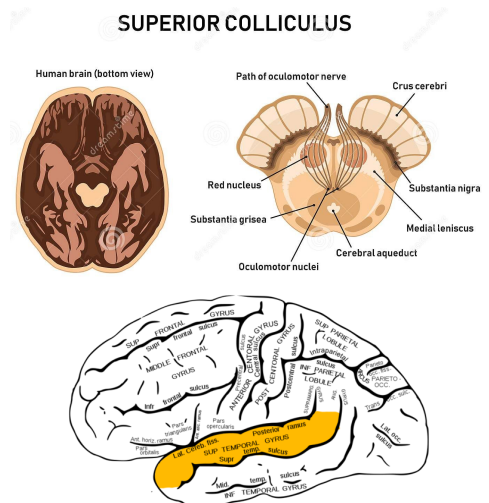
**62. Subthalamic nuclei:** paired structures that are part of the basal ganglia; contain excitatory glutamate neurons; a loss of its inhibition can lead to chorea-like symptoms of Huntington's disease

Photo courtesy of [biotele.com](https://www.biotele.com)



**63. Superior colliculus:** part of the midbrain; helps with orientation of the head and eyes; upper layer receives retinal signals, lower layer process signals from various other neural structures

Photo courtesy of [dreamstime.com](https://www.dreamstime.com)

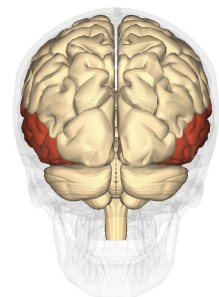


**64. Superior temporal gyrus:** responsible for processing object-/space-related information, non-verbal social perception; involved in speech perception and production

Photo courtesy of [en.wikipedia.org](https://en.wikipedia.org)

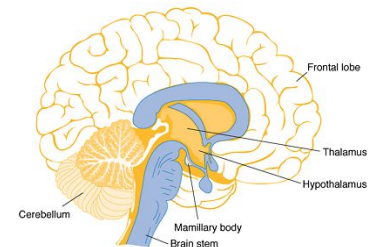
## 65. Temporal lobe

The Temporal lobes are a pair of lobes that sit behind the ear. Process auditory information and derive it into language, emotion, and memories. They also are responsible for declarative memory, which includes episodic (event-related) and semantic (fact-related) memory. The dominant temporal lobe is usually on the left side, and functions in understanding language and remembering verbal information. The non-dominant lobe, usually on the right side, functions in remembering non-verbal information.



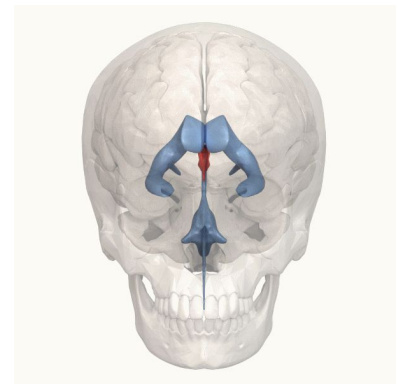
## 66. Thalamus

The Thalamus is a grey matter structure located at the top of the brain stem and surrounds the third ventricle. The function of the thalamus is to relay motor and sensory signals to the cerebral cortex. It also has a wide variety of other functions such as sleep and alertness.



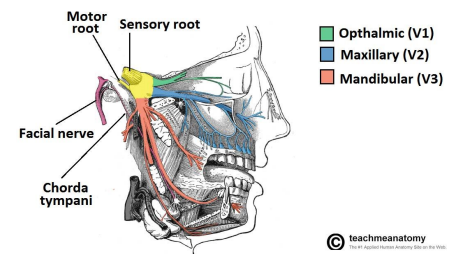
## 67. Third ventricle

The third ventricle is one of four ventricles in the mammalian brain. All four ventricles are cavities filled with fluid. The third ventricle's functions are to protect the brain from injury, transport nutrients, and to send and receive messages from the lateral ventricles. The third ventricle is located in the middle of the two halves of the brain, and it is surrounded by the hypothalamus and thalamus.



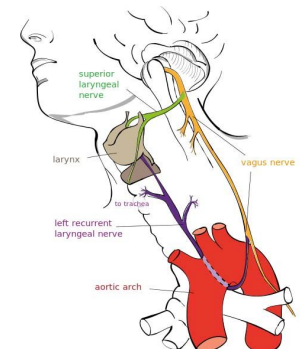
## 68. Trigeminal (V) nerve

The Trigeminal nerve is responsible for sensations in the face and for motor functions like biting and chewing. The trigeminal nerve is the fifth cranial nerve and it has three branches: the ophthalmic (sensory), maxillary (sensory) and mandibular (motor and sensory) branches.



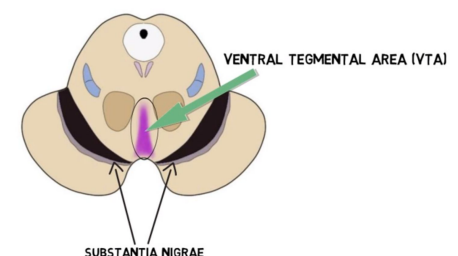
## 69. Vagus (X) nerve

The Vagus nerve, or the 10th cranial nerve, is the longest and most complex cranial nerve. It has a variety of important functions such as to regulate heart rate, blood pressure, sweating, digestion, and forms of speaking.



## 70. Ventral tegmental area (VTA)

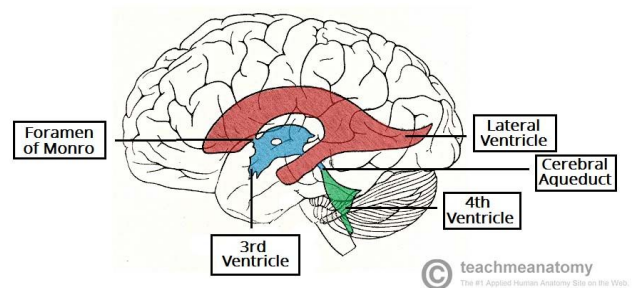
The ventral tegmental area is found in the area known as the midbrain, next to the substantia nigra. The VTA has many neurons, but is primarily known for its large amount of dopamine neurons. It is one of the two main



areas of dopamine neurons in the brain, the other being the substantia nigrae. Dopamine travels from the VTA to other parts of the brain.

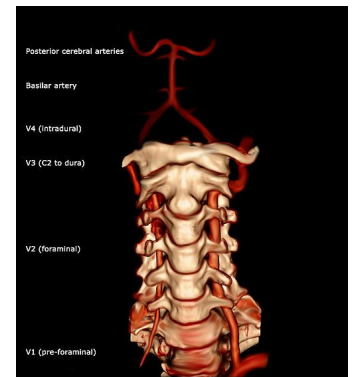
## 71. Ventricular system

The Ventricular system consists of the 4 ventricles, which are fluid-filled cavities in the brain. Each ventricle is lined with a membrane called the choroid plexus which secretes cerebrospinal fluid which flows through the liquids and through the brain: the main function of the ventricular system. Cerebrospinal fluid has many functions: It surrounds the brain and suspends the brain in fluid, which reduces the strain of gravity and it flows through the brain to remove toxins and regulate the extracellular environments of neurons.



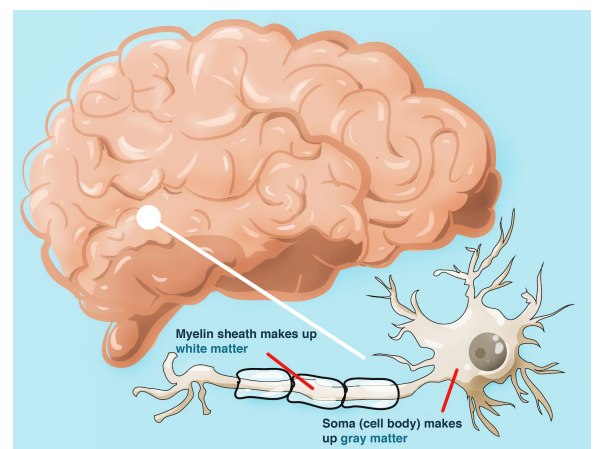
## 72. Vertebral artery

The vertebral arteries are the major arteries of the neck. They arise from the upper aspect of the subclavian artery and run vertically, passing the vertebrae. It then runs down the other side of the vertebrae. The vertebral artery's function is to provide blood to the upper spinal cord, brainstem, cerebellum, and posterior part of the brain.



## 73. White matter

White matter takes up nearly half the brain and is made up of bundles of axons. They connect gray matter regions to each other and transmit information via electrical signals. These axons are covered in myelin sheaths which speed up the electrical signals. White matter makes transmitting information throughout the brain faster and easier. Problems with white matter can lead to diseases such as Alzheimer's and Multiple Sclerosis due to lack of electrochemical conductivity.



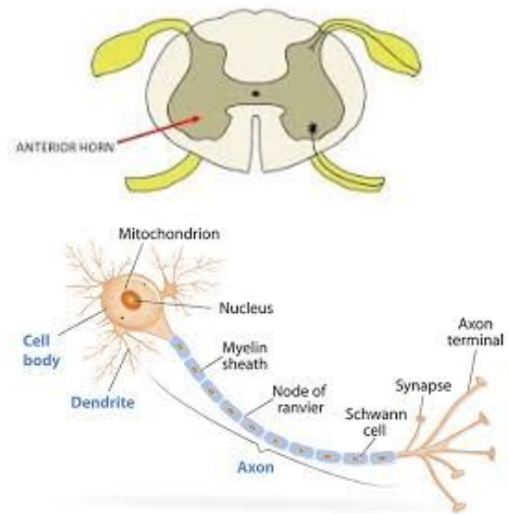
## **The Terms: Histology**

### **1. Anterior Horn**

The anterior horn of the spinal cord (AKA the anterior cornu) contains the cell bodies of motor neurons that affect the skeletal muscles.

Photo courtesy of

[www.verywellhealth.com](http://www.verywellhealth.com)



### **2. Axons**

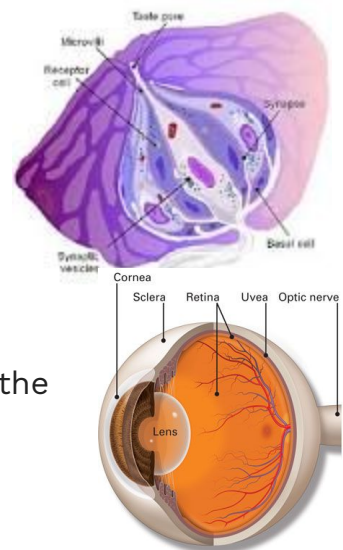
The long, threadlike part of a nerve cell along which impulses are conducted from the cell body to other cells.

Photo courtesy of <https://qbi.uq.edu.au/>

### **3. Basal cells of the Taste Bud**

Basal cells (AKA type IV cells) are round cells that reside near the base of taste buds. They are newly-generated precursors to taste cells, and differentiate into mature taste cells.

Photo courtesy of <https://www.ncbi.nlm.nih.gov/>



### **4. Choroid**

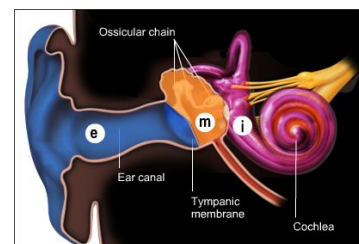
The pigmented vascular layer of the eyeball between the retina and the sclera.

Photo courtesy of <https://www.aao.org/>

### **5. Cochlea**

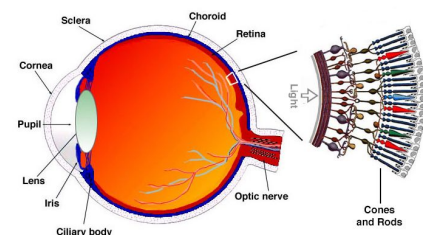
The spiral cavity of the inner ear that contains the organ of Corti, which produces nerve impulses in response to sound vibrations processed by hair-like cilia.

Photo courtesy of <http://www.cochlea.org/>



### **6. Cones**

Cones are photoreceptors in the retinas of vertebrate eyes (human eyes). They respond differently to light of different wavelengths, and are thus responsible for color vision. They





function best in relatively bright light (as opposed to rod cells, which work better in dim light).

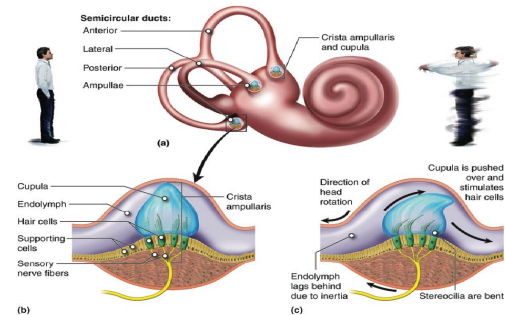
Photo courtesy of <http://www.blueconemonochromacy.org/>

## 7. Crista Ampullaris

The crista ampullaris is the sensory organ of rotation. They're found in the ampullae of each of the semicircular canals of the inner ear, so there are 3 pairs in total. The function is to sense angular acceleration and deceleration.

Photo courtesy of

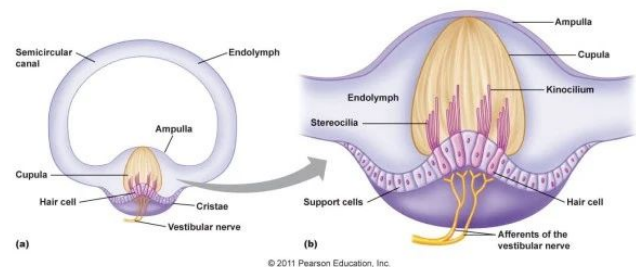
<https://www.openassembly.com/>



## 8. Cupula

The cupula (AKA ampullary cupula) is small, inverted cup or dome-shaped structure in the vestibular system, providing the sense of spatial orientation. The cupula is located within the ampullae of each of the three semicircular canals.

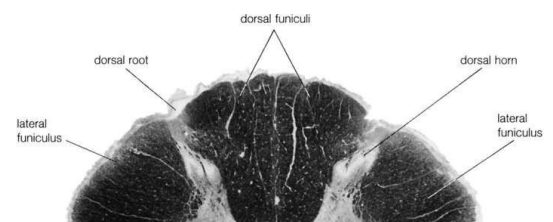
Photo courtesy of <http://www.vestibular.today/>



## 9. Dorsal Horn

Located at the back of the spinal cord the central grey matter forms two arms, each called a Dorsal Horn. The dorsal horns contain the cell bodies of sensory neurons. Two arms located at the front of the spinal cord, central grey matter are called *ventral horns*. They contain the cell bodies of motor neurons.

Photo courtesy of <https://www.britannica.com/>



## 10. Dorsal root ganglion

A cluster of cell bodies in the dorsal root of a spinal nerve. The dorsal root ganglia contain cell bodies for sensory nerves that carry sensory information to the spinal cord.

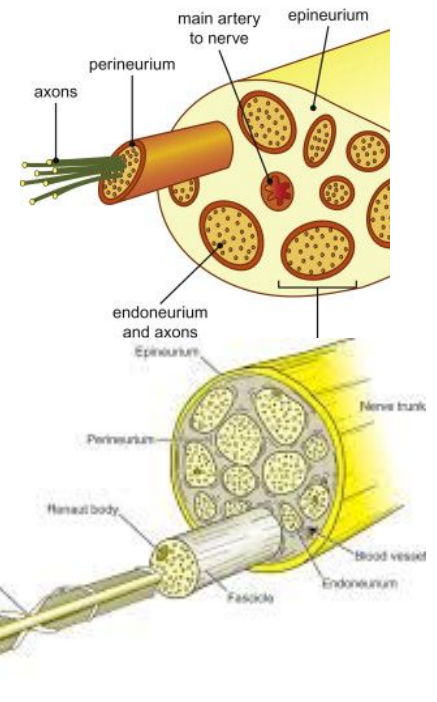
Photo courtesy of <https://embryology.med.unsw.edu.au/>



### 11. Endoneurium

The endoneurium is a space bounded by the perineurium and includes the nerve fibres, supporting glia, and extracellular matrix containing collagen.

Photo courtesy of <https://www.sciencedirect.com/>



### 12. Epineurium

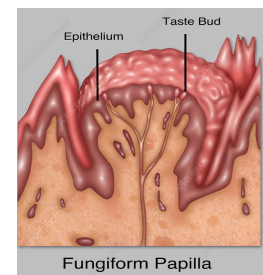
Epineurium is the interfascicular connective tissue layer. It lies between and around the secondary fascicles and forms a sheath encircling all peripheral nerve trunks. The epineurium is a continuation of the dura mater that extends to the ends of the peripheral nerves. Functionally, the epineurium has a double role: the internal epineurium keeps the fascicles apart and the external epineurium forms a well-defined sheath around the fascicles.

Photo courtesy of <https://www.sciencedirect.com/>

### 13. Fungiform papilla

Fungiform papillae are epithelial taste organs that form on the tongue, requiring differentiation of papillae and inter-papilla epithelium

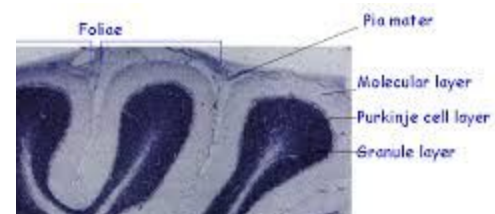
Photo courtesy of <https://www.sciencephoto.com/>



### 14. Ganglion cells of the Retina

A type of neuron located near the inner surface (the ganglion cell layer) of the retina of the eye. It receives visual information from photoreceptors via two intermediate neuron types: bipolar cells and retina amacrine cells.

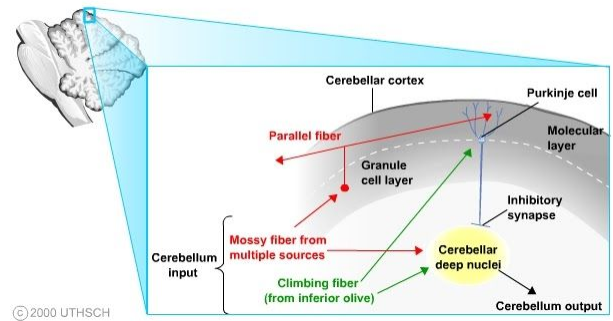
Photo courtesy of [www.britannica.com](http://www.britannica.com)



## 15. Granule cell layer of the Cerebellum

Cerebellar granule cells form the thick granular layer of the cerebellar cortex. The most popular concept of their function was proposed by David Marr, who suggested that they could encode combinations of mossy fiber inputs.

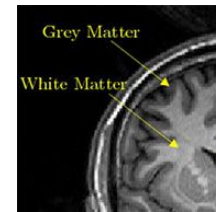
Photo courtesy of <http://staff.um.edu.mt/>



## 16. Grey matter

Grey matter, which has a pinkish-grey color in the living brain, contains the cell bodies, dendrites and axon terminals of neurons, so it is where all synapses are.

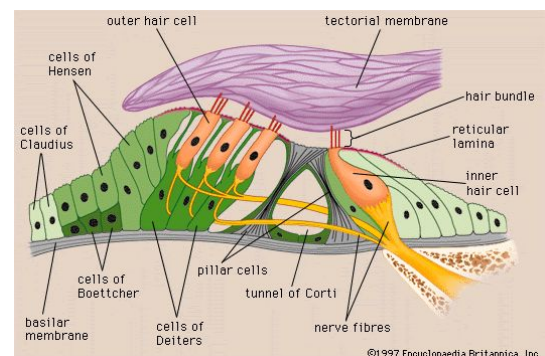
Photo courtesy of [www.hydroassoc.org](http://www.hydroassoc.org)



## 17. Hair cells of the Organ of Corti

The Organ of Corti rests on the surface of the basilar membrane, and is composed of inner hair cells and outer hair cells. The “hairs” are actually stereocilia, and movement of the “hairs” of inner hair cells opens ion channels and releases neurotransmitters, which carries auditory information to the brain. Outer hair cells extend our hearing range, improve frequency selectivity, and amplify sounds.

Image courtesy of [www.britannica.com](http://www.britannica.com)



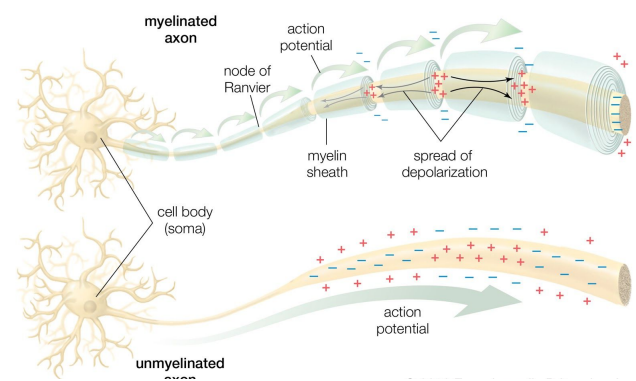
## 18. Molecular layer of the Cerebellum

The molecular layer is the outermost layer of the cerebellum and mostly composed of axons of granule cells and dendrites of Purkinje cell. Purkinje cells are positioned perpendicular to granule fibers. Image courtesy of [nba.uth.tmc.edu](http://nba.uth.tmc.edu)

## 19. Neuroepithelial cells of the Taste Bud

## 20. Node of Ranvier

Gaps in the myelin sheath between Schwann cells where the axon is exposed. Exposed areas of the axon are where ions travel



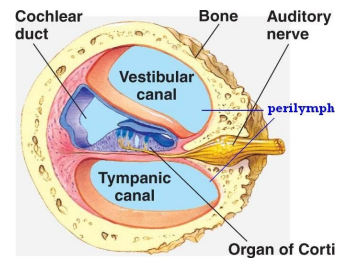
between extracellular and intracellular spaces to create an action potential, and spacing of Nodes allow for fast travel of an action potential. Image courtesy of britannica.com

## 21. Olfactory epithelium

Lines the surface of the nasal cavity. Embedded with olfactory receptor cells that depolarize in the presence of odors and trigger an action potential.

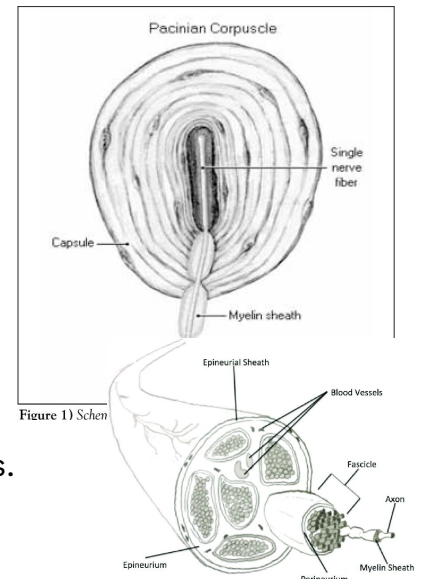
## 22. Organ of Corti

Receptor organ of the cochlea that lies on top of the basilar membrane. Contains hair cells that convert sound waves to electrical signals. Image courtesy of <http://flipper.diff.org/>



## 23. Pacinian Corpuscle

They are sensory mechanoreceptors that are located in the hypodermis. It has a structure made up of concentric ring layers of epithelial cells similar to an onion. The spinning of an outer ring layer caused by a deep push or poke allows for sodium ions to enter into the afferent nerve fiber that lies in the center of the ring, which generates an action potential. It requires a constantly changing stimulus to keep generating the action potential.



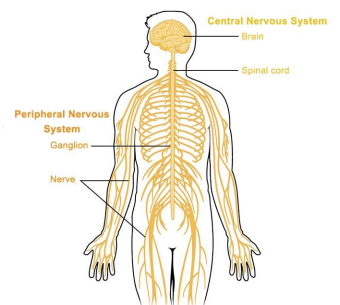
## 24. Perineurium

A protective sheath that surrounds fascicles within nerves. Image courtesy of researchgate.net

## 25. Peripheral nerve

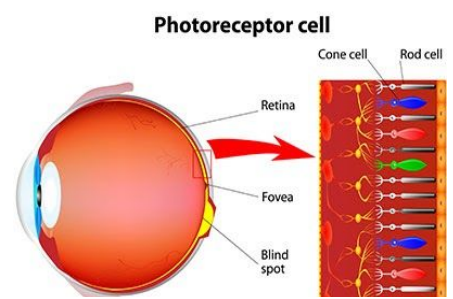
The peripheral nervous system refers to parts of the nervous system outside the brain and spinal cord. It includes the cranial nerves, spinal nerves and their roots and branches, peripheral nerves, and neuromuscular junctions.

Photo Courtesy of <https://qbi.uq.edu.au/>



## 26. Photoreceptor cells

Special cells in the eye's retina that are responsible for converting light into signals that are sent to the brain.



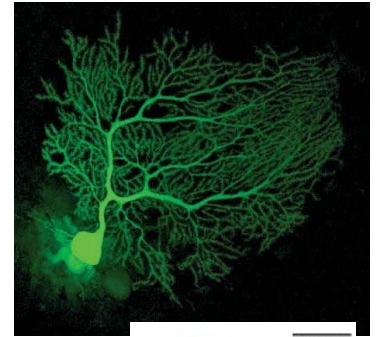
Photoreceptors give us our color vision and night vision. There are two types of photoreceptor cells: rods and cones.

Photo Courtesy of <https://www.aao.org/>

### 27. Purkinje cell of the Cerebellum

Purkinje cell, a large neuron with many branching extensions is found in the cortex of the cerebellum of the brain and plays a fundamental role in controlling motor movement. These cells were first discovered in 1837 by Czech physiologist Jan Evangelista Purkinje.

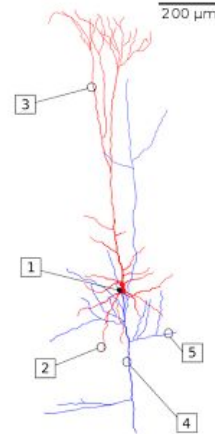
Photo Courtesy of <https://www.britannica.com/>



### 28. Pyramidal neurons of the Hippocampus

Pyramidal cells, or pyramidal neurons, are a type of multipolar neuron found in areas of the brain including the cerebral cortex, the hippocampus, and the amygdala. Pyramidal neurons are the primary excitation units of the mammalian prefrontal cortex and the corticospinal tract.

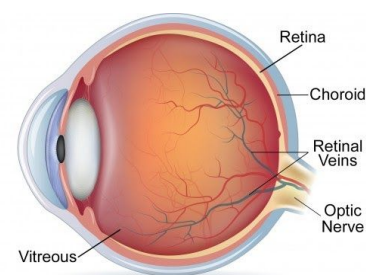
Photo Courtesy of <https://www.wikipedia.org/>



### 29. Retina

A layer at the back of the eyeball containing cells that are sensitive to light and that trigger nerve impulses. These impulses pass via the optic nerve to the brain, where a visual image is formed.

Photo Courtesy of <https://www.vmrinstitute.com/>



### 30. Rods

Rod cells are photoreceptor cells in the retina of the eye that can function in less intense light than the other type of visual photoreceptor cells, Cones. Rods are usually found concentrated at the outer edges of the retina and are used in peripheral vision.

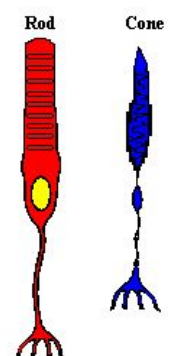


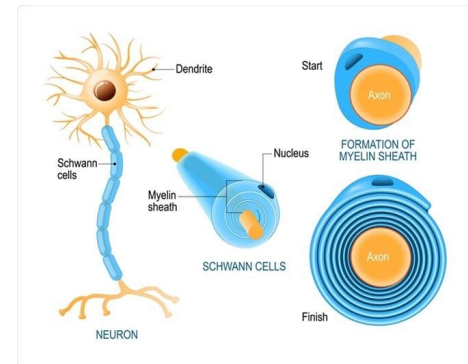


Photo Courtesy of <https://faculty.washington.edu/>

### 31. Schwann cells

They are myelin-secreting glial cells that spirally wrap around an axon of the peripheral nervous system to form the myelin sheath

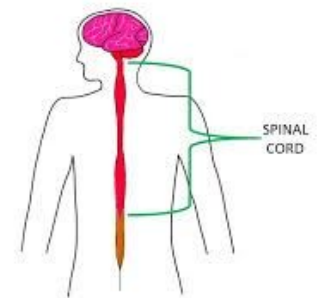
Photo Courtesy of <https://www.news-medical.net/>



### 32. Spinal canal

The cylindrical bundle of nerve fibers and associated tissue which is enclosed in the spine and connects nearly all parts of the body to the brain, with which it forms the central nervous system.

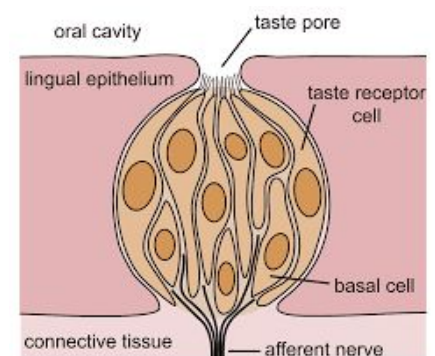
Photo Courtesy of <https://www.neuroscientificallychallenged.com/>



### 33. Taste Buds

Any of the clusters of bulbous nerve endings on the tongue and in the lining of the mouth which provide the sense of taste.

Photo Courtesy of <https://www.wikipedia.org/>



### 34. White matter

White tissue is a brain matter that contains myelinated nerve fibers. The white matter is white due to the color of myelin, or the insulation that covers nerve fibers.

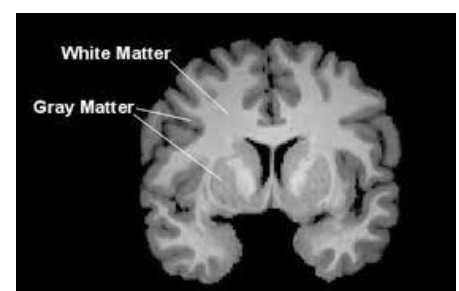




Photo Courtesy of <https://www.hydroassoc.org>