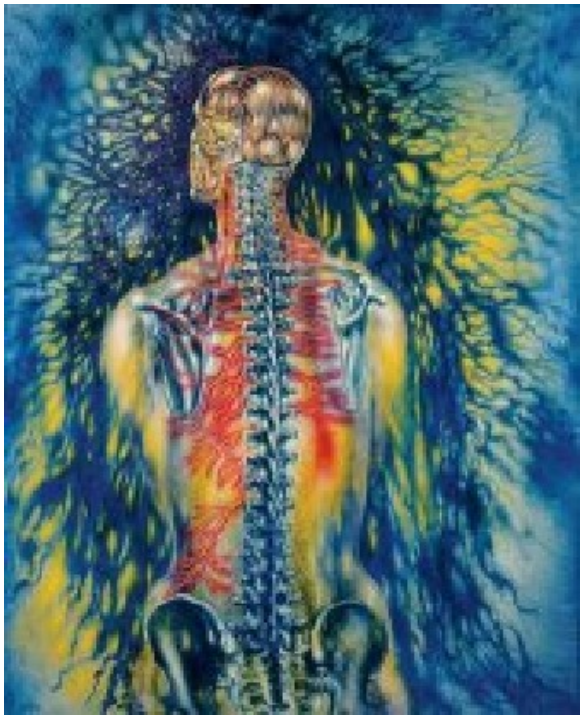
49a A&P: Nervous System - Synaptic Transmission and Central Nervous System



49a A&P: Nervous System - Synaptic Transmission and Central Nervous System

Class Outline

5 minutes	Attendance, Breath of Arrival, and Reminders
10 minutes	Lecture:
25 minutes	Lecture:
15 minutes	Active study skills:
60 minutes	Total

49a A&P: Nervous System - Synaptic Transmission and Central Nervous System

Class Reminders

ABMP Exam Coach

- "Access your ABMP account" using instructions on page A-74
- Familiarize yourself with the ABMP Exam Coach "Study Subjects" section
- Preview the preparation assignments for MBLEx Prep classes (74a, 75a, 80a, 81a, 84a, 86a, 87a)

Assignments:

- 50b Business: Marketing. B-55 for ABMP.com 'Website Builder' instructions
- 53a Internship Review Questions - due before class starts
- 55a Review Questions – due before class starts

Quizzes and Exams:

- 52a Kinesiology Quiz (brachialis, brachioradialis, flexor digitorum superficialis, and extensor digitorum)

Practical Work:

- 56a and 56b – Internship Orientation and Mock Internship – ***dress like an Intern***

Preparation for upcoming classes:

- 49b Side-lying and Pregnancy Massage: Technique Demo and Practice (Bring 3 pillows - standard size; bring 4 pillowcases - standard size)

  This class cannot be made up in the make-up room. To schedule a sit-in, please contact the Student Administrator.

Classroom Rules

Punctuality - everybody's time is precious

- Be ready to learn at the start of class; we'll have you out of here on time
- Tardiness: arriving late, returning late after breaks, leaving during class, leaving early

The following are not allowed:

- Bare feet
- Side talking
- Lying down
- Inappropriate clothing
- Food or drink except water
- Phones that are visible in the classroom, bathrooms, or internship

You will receive one verbal warning, then you'll have to leave the room.

Flexor Digitorum Superficialis, Trail Guide Page 142

A Flex the second through fifth fingers (metacarpophalangeal and proximal interphalangeal joints)

Flex the wrist (radiocarpal joint)



O Common flexor tendon from medial epicondyle of humerus

Ulnar collateral ligament

Coronoid process of ulna

Interosseous membrane

Proximal shaft of radius

I Sides of middle phalanges of second through fifth fingers

Anterior View

Flexor Digitorum Superficialis

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Flexor Digitorum Superficialis, page 142

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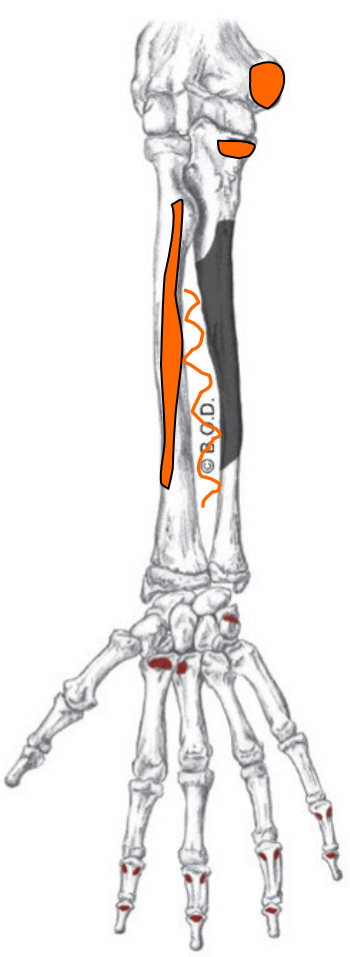
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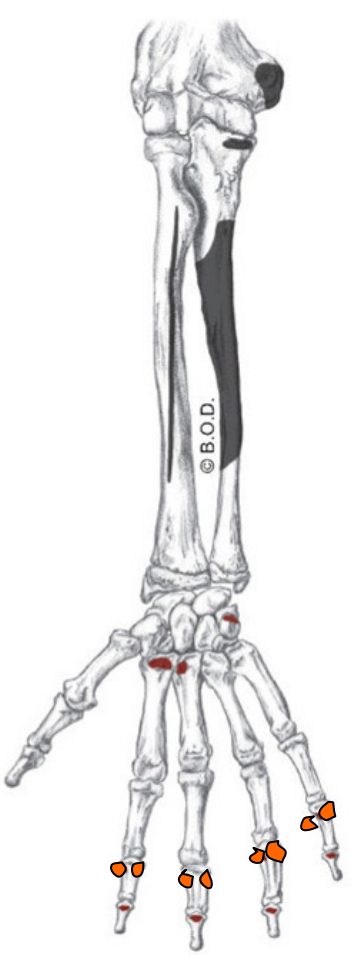
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Anterior View

49a A&P: Nervous System - Synaptic Transmission and Central Nervous System

Packet E - 103

Synapse

Synapse

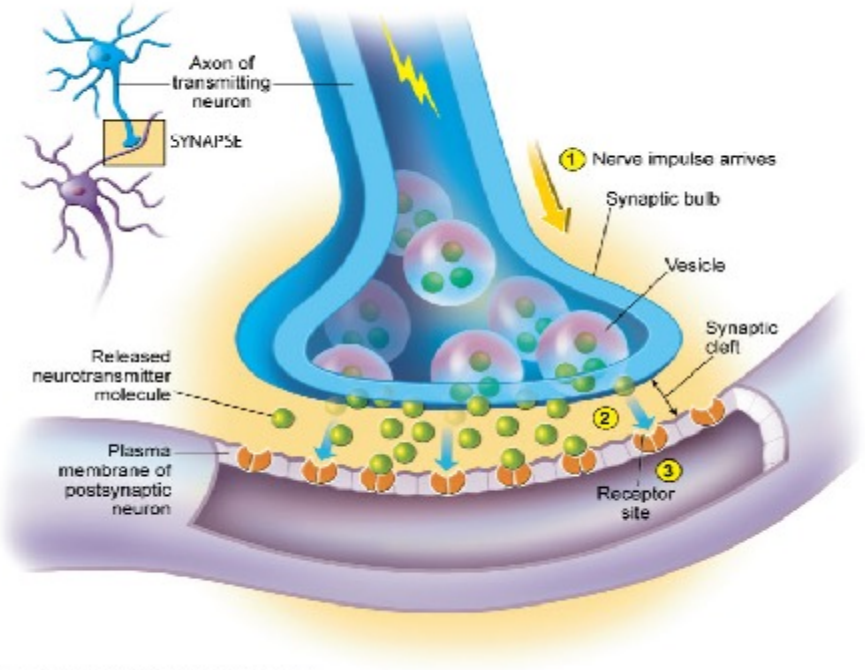
Synaptic bulb

Synaptic cleft

Synaptic vesicle

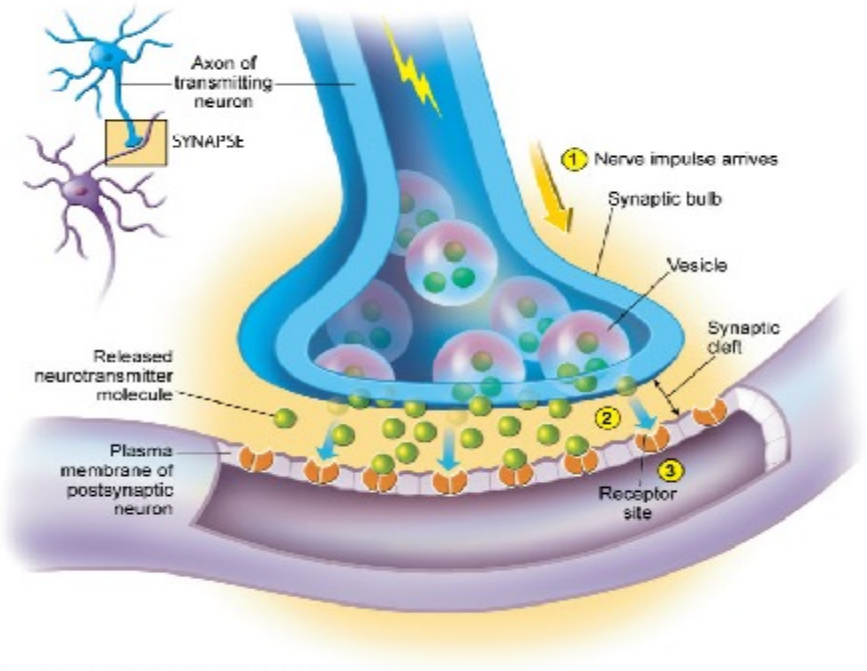
Synapse

Synapse ___Junction___ between two neurons or between a neuron and a muscle or gland.



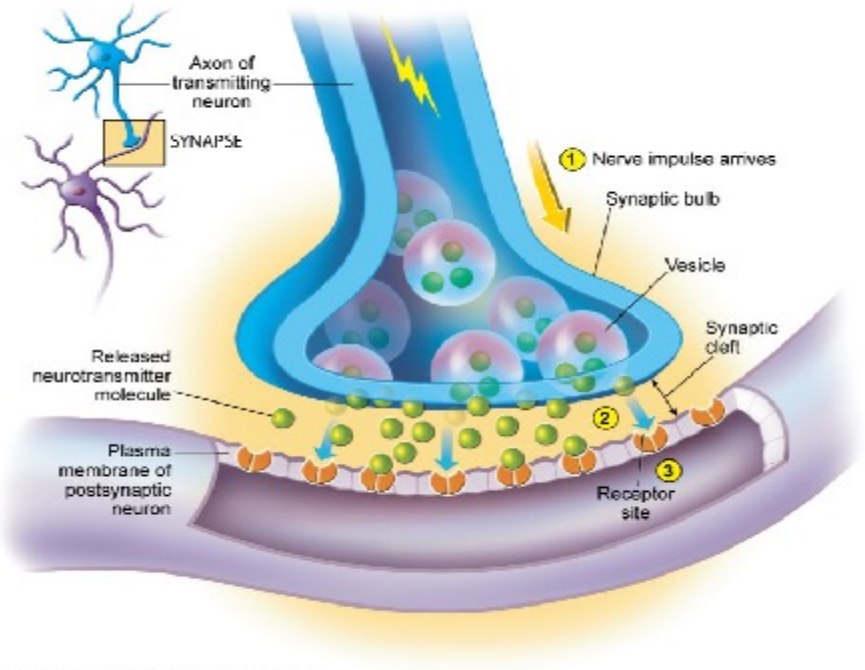
Synaptic Structures

Synaptic bulb Small bulb-like structure on the ends of telodendria. Contains synaptic ____vesicles____.



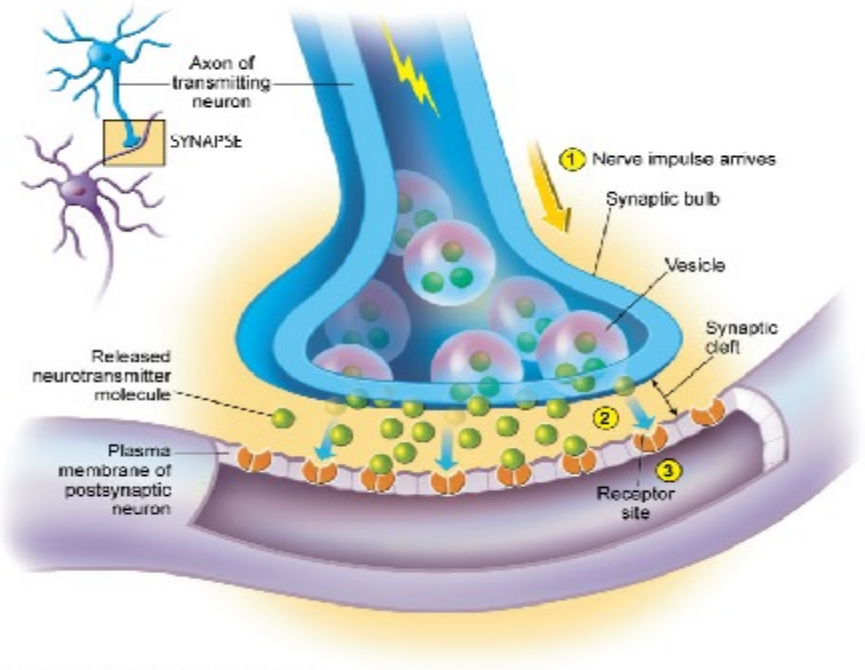
Synaptic Structures

Synaptic cleft (AKA: synaptic gap) Space between two neurons, or between a neuron and a muscle or gland.



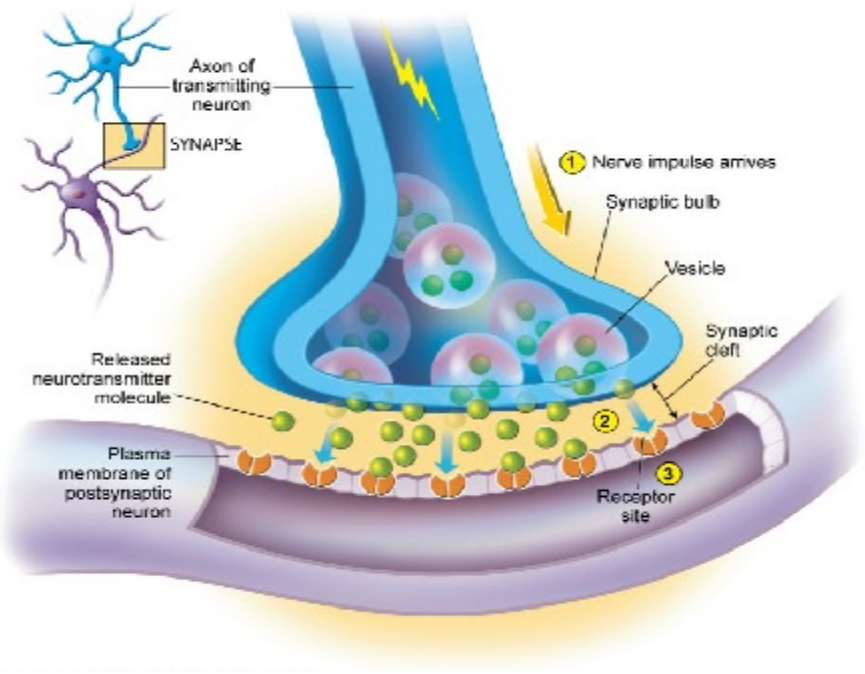
Synaptic Structures

Synaptic vesicle Sac-like structure located within the synaptic bulbs that contains neurotransmitters.



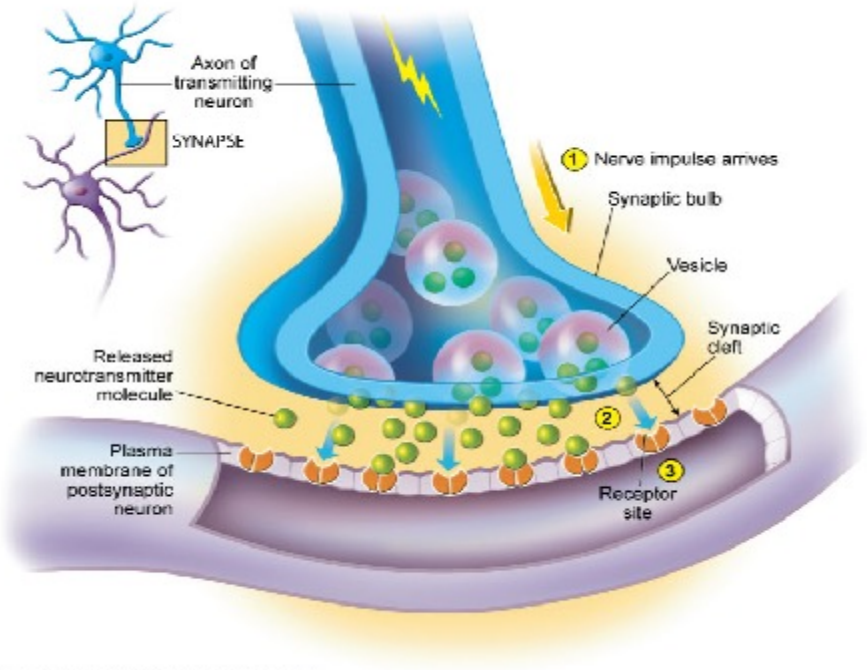
Synaptic Transmission

1. A nerve impulse travels down an ___axon___ to a synaptic bulb.



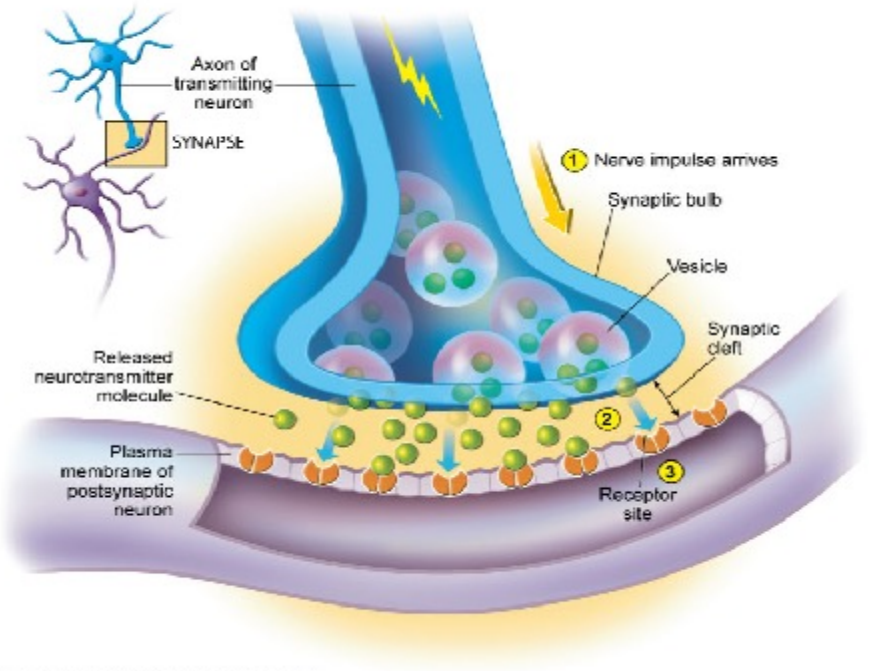
Synaptic Transmission

2. Neurotransmitters travel across the synaptic ___cleft____.



Synaptic Transmission

3. The neurotransmitters ____bind____ with receptor sites which bring about either an excitatory or inhibitory response depending on which neurotransmitter is being used.



Neurotransmitters

Neurotransmitter Collective term for chemical _____messengers_____ involved in nerve impulse transmission.

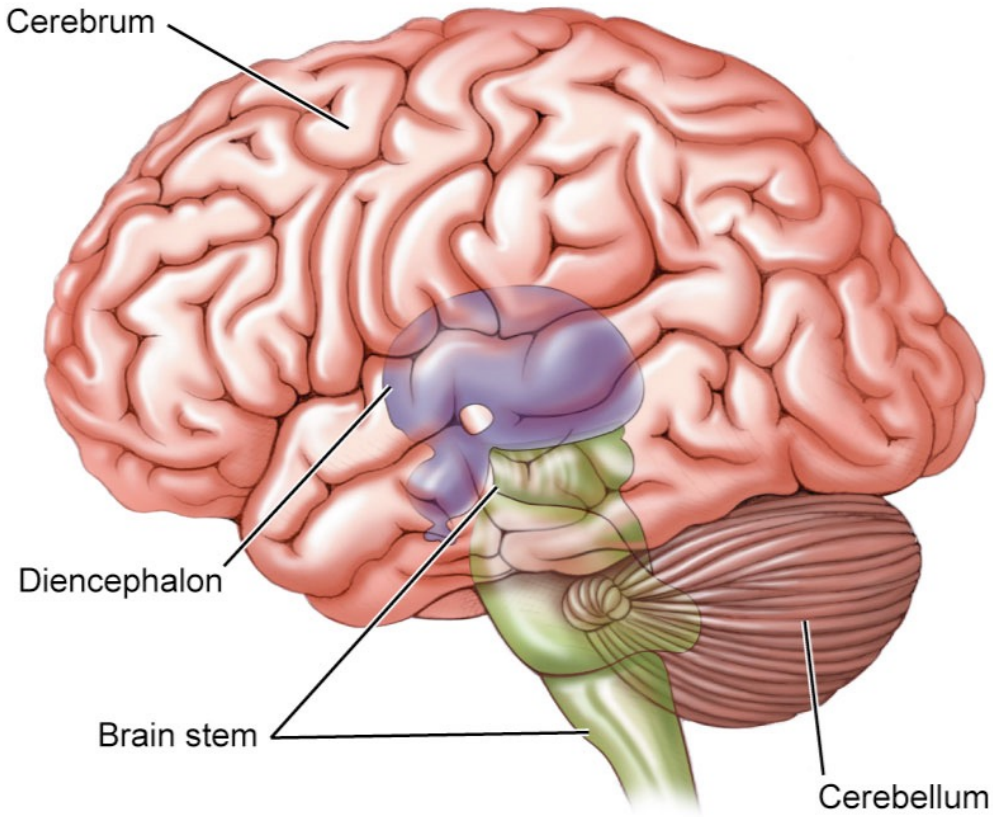
Some examples:

Acetylcholine	muscle contraction
Epinephrine	regulates fight or flight
Histamine	inflammatory responses
Endorphins	pain-reduction

Et cetera . . . .

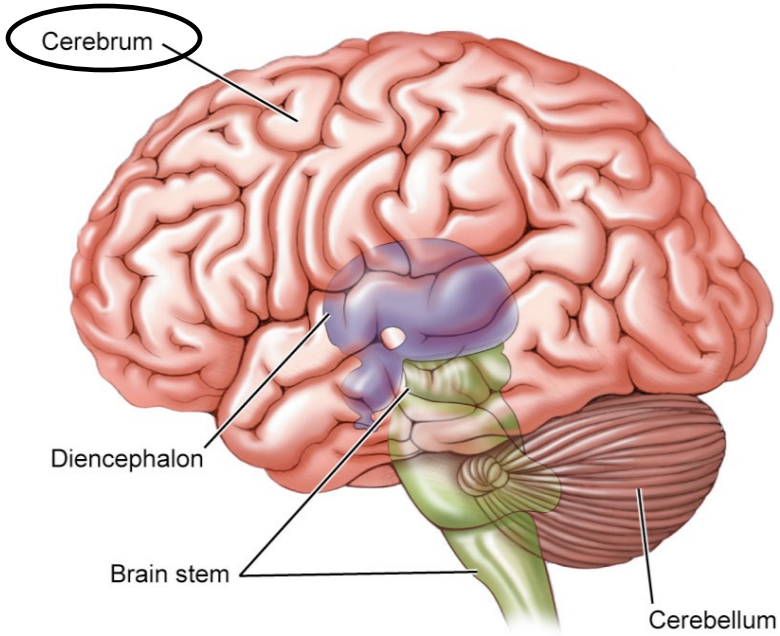
Brain

Brain Central nervous system organ that contains an estimated __100__ billion cells and is divided into 4 major regions.



Cerebrum

Cerebrum Largest part of the brain. Where vision, smell, taste, and body movements are consciously perceived. Where skeletal muscle movements are initiated. Where _____emotional_____ and intellectual processes occur.



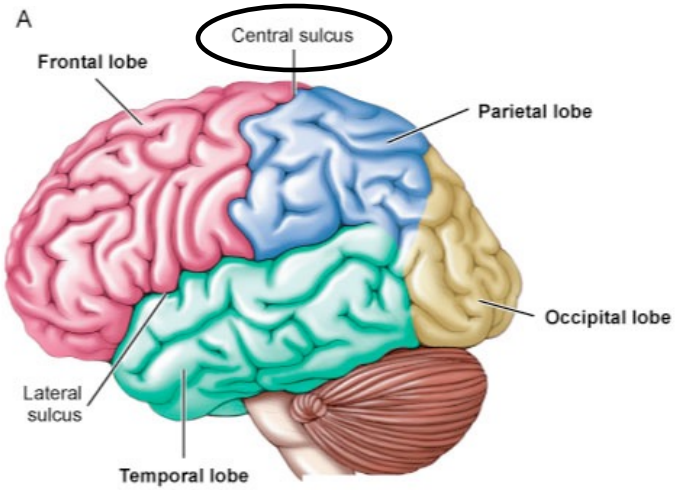
Cerebrum

Limbic system Part of the cerebrum that governs emotional aspects of behavior needed for ___survival___, such as sexual feelings, rage, and docility.

Cerebrum

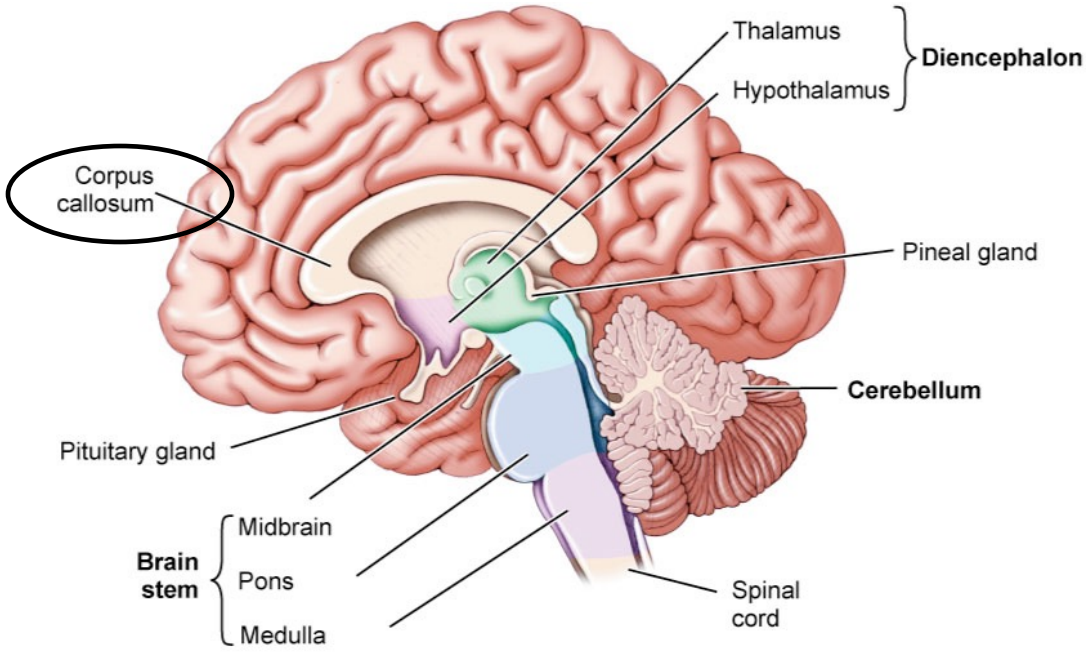
Sulci (s. sulcus) Grooves in the outer layer of the cerebrum.

Gyri (s. gyrus) Elevated ridges of cerebrum tissue.



Cerebrum

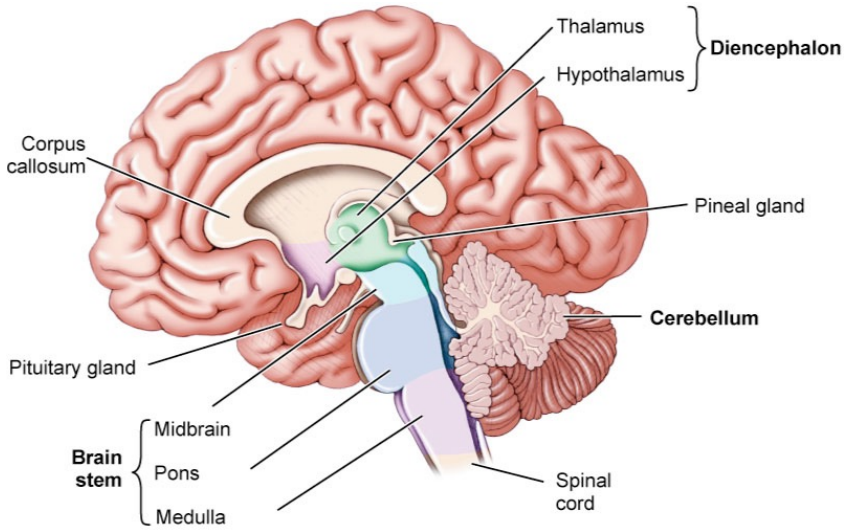
Corpus callosum Large fibrous bundles of transverse fibers which provide a communication pathway for impulses to move from one hemisphere to the other.



Cerebrum

Left hemisphere Cerebral hemisphere that specializes in:

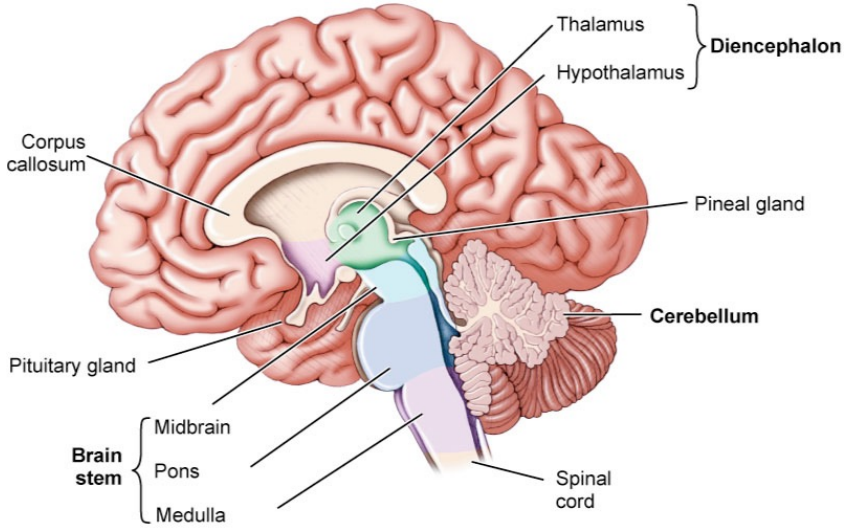
- Receptive and expressive language
- Math
- Reasoning
- Analytical skills



Cerebrum

Right hemisphere Cerebral hemisphere that specializes in:

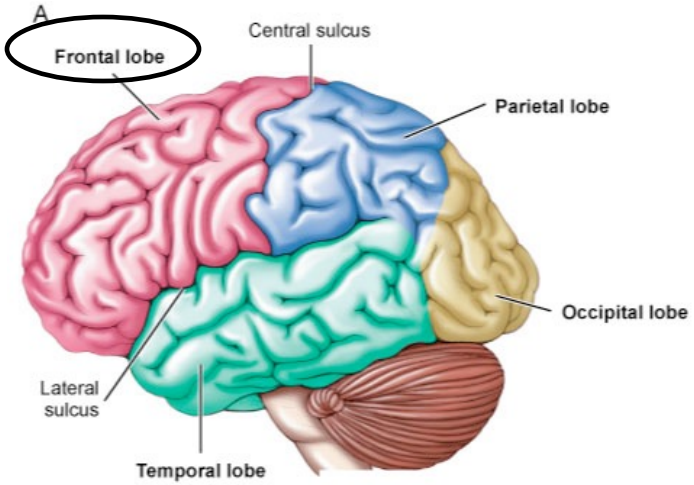
- Sound perception
- Art
- Emotional expression
- Perception and visualization of spatial relationships



Cerebrum

Frontal Lobe Cerebral lobe that regulates:

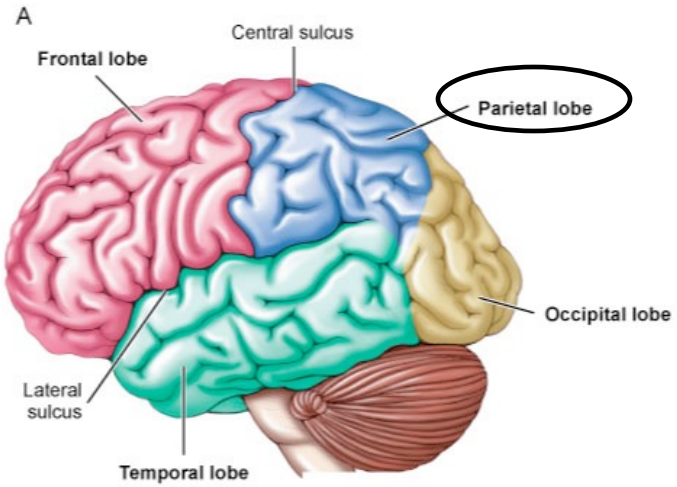
- Motor output
- Cognition
- Speech production (Broca's area, left hemisphere)



Cerebrum

Parietal lobe Cerebral lobe that governs somatosensory input (particularly skin and muscles), and receives information about:

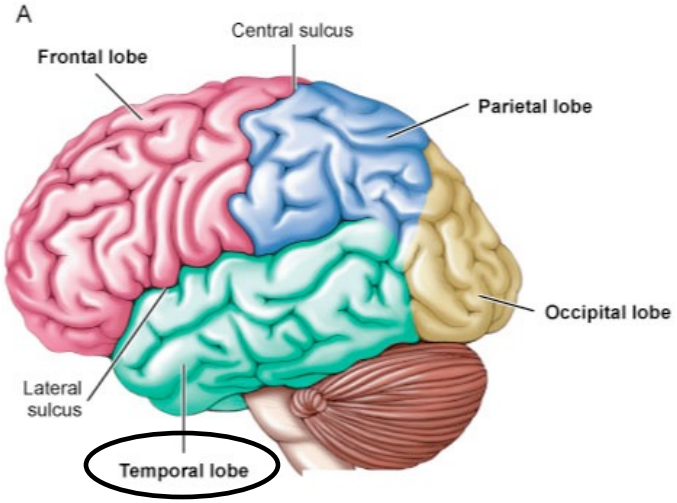
- Proprioception
- Reading
- Taste



Cerebrum

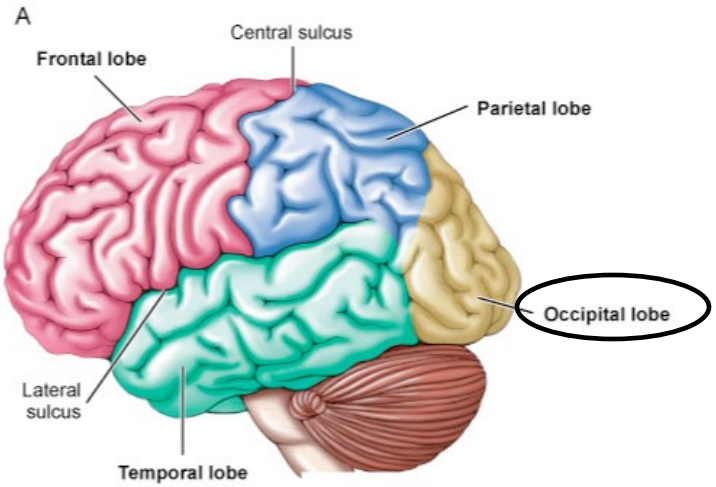
Temporal lobe Cerebral lobe that houses:

- Auditory areas
- Olfactory areas
- Wernicke area (language comprehension, left hemisphere)



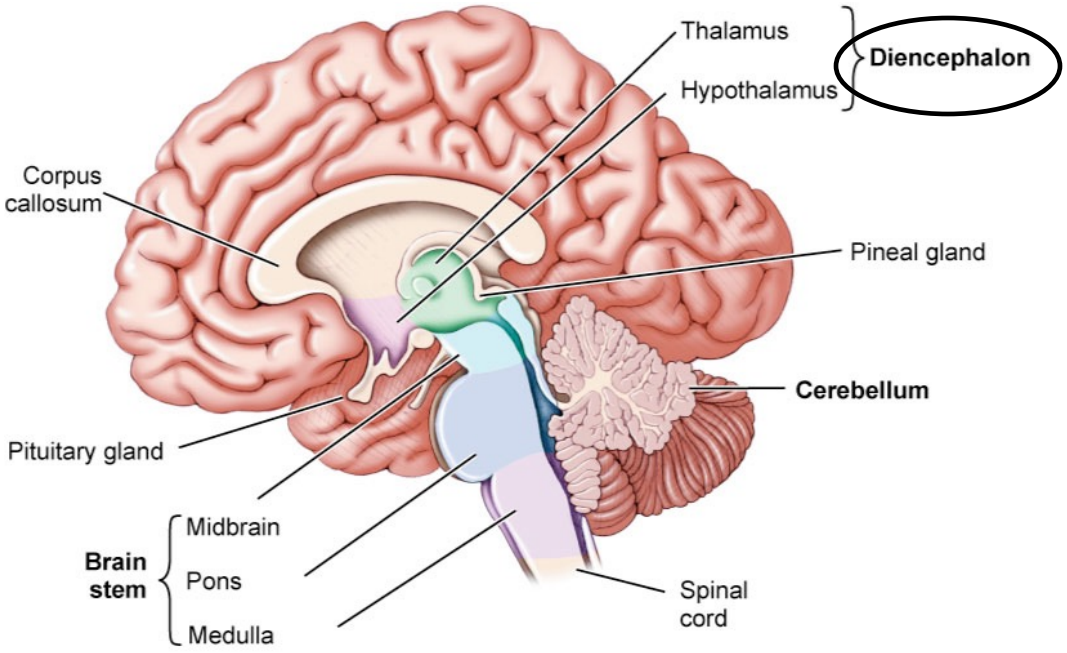
Cerebrum

Occipital lobe Cerebral lobe that contains centers for visual input.



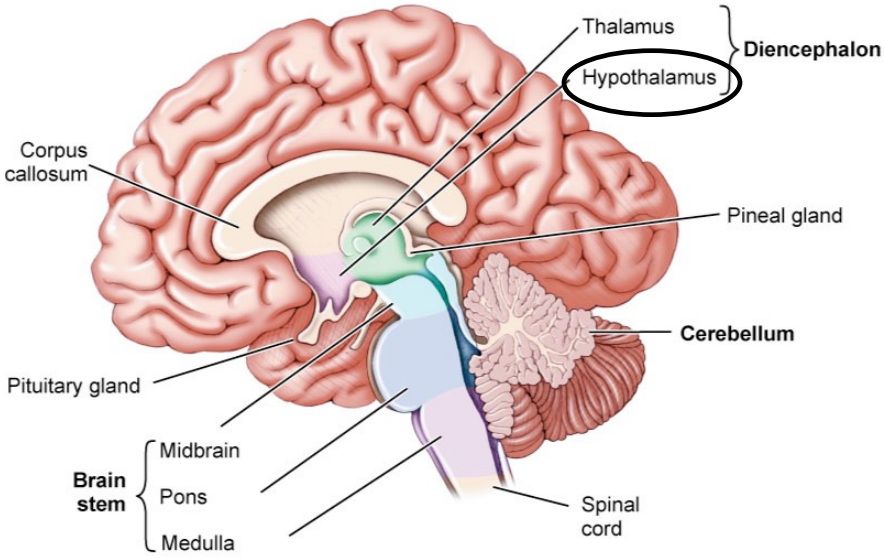
Diencephalon

Diencephalon Part of the brain that houses the thalamus and the hypothalamus. Also includes the pituitary and pineal glands.



Diencephalon

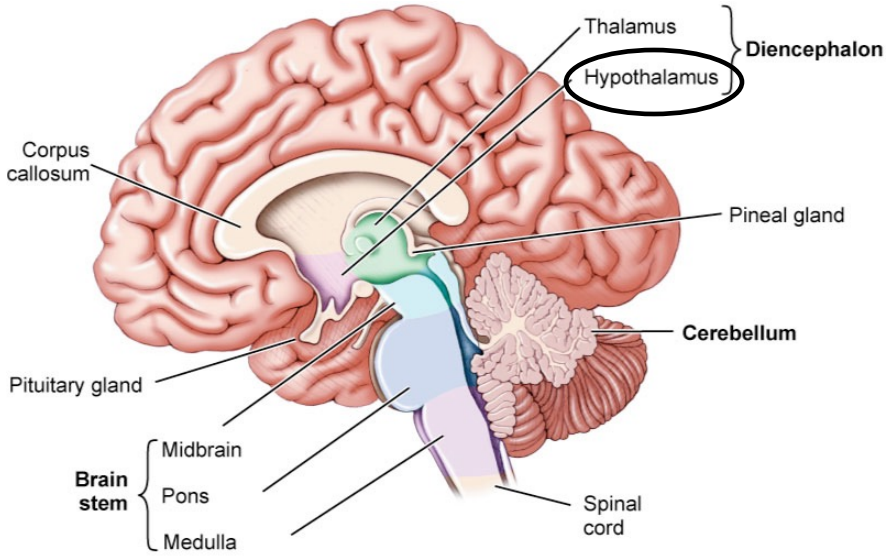
Thalamus Part of the diencephalon that relays sensory information (except olfaction) to appropriate parts of the cerebrum.



Diencephalon

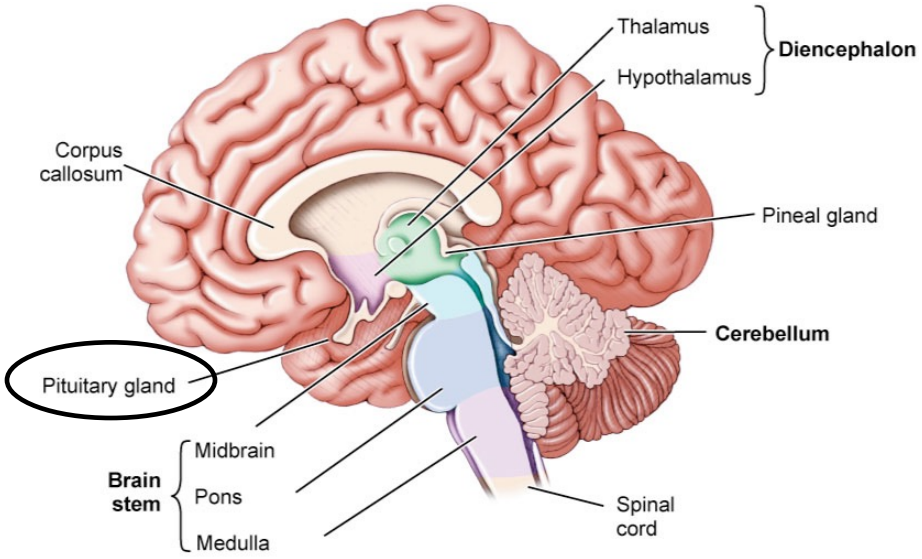
Hypothalamus Part of the diencephalon that governs and regulates the autonomic nervous system and pituitary gland. Controls:

- Hunger
- Thirst
- Temperature
- Anger
- Aggression
- Hormone release
- Sexual behavior
- Sleep patterns
- Consciousness



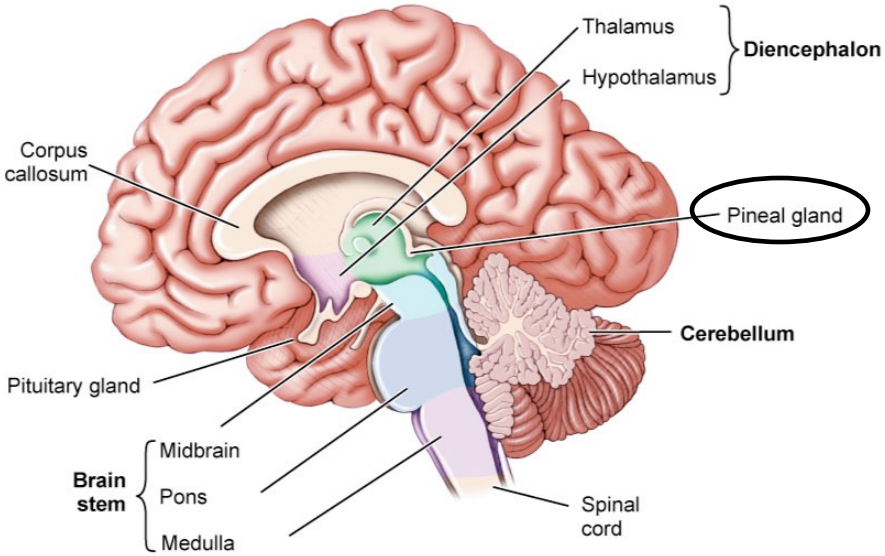
Diencephalon

Pituitary Bi-lobed gland that extends from the hypothalamus. Its hormones control and stimulate other glands to produce and secrete their hormones. Sits in the sella turcica of the sphenoid.



Diencephalon

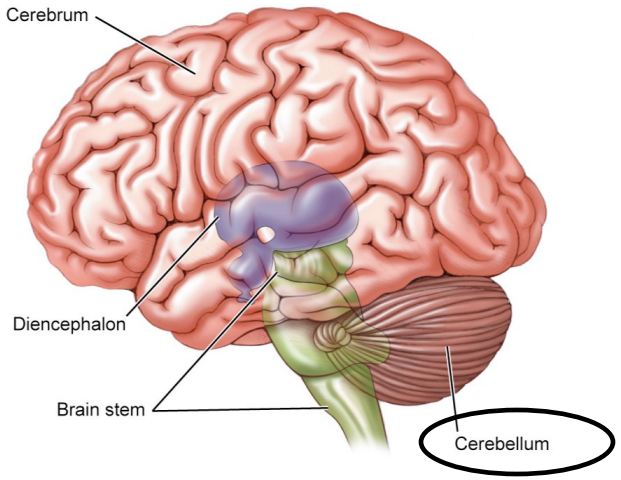
Pineal Gland located on the posterior aspect of the brain's diencephlon. Produces and secretes melatonin.



Cerebellum

Cerebellum Second largest part of the brain. Located posterior and inferior to the cerebrum. Involved with:

- Muscle tone
- Coordination of skeletal muscles
- Balance
- Control of fine and gross motor skills



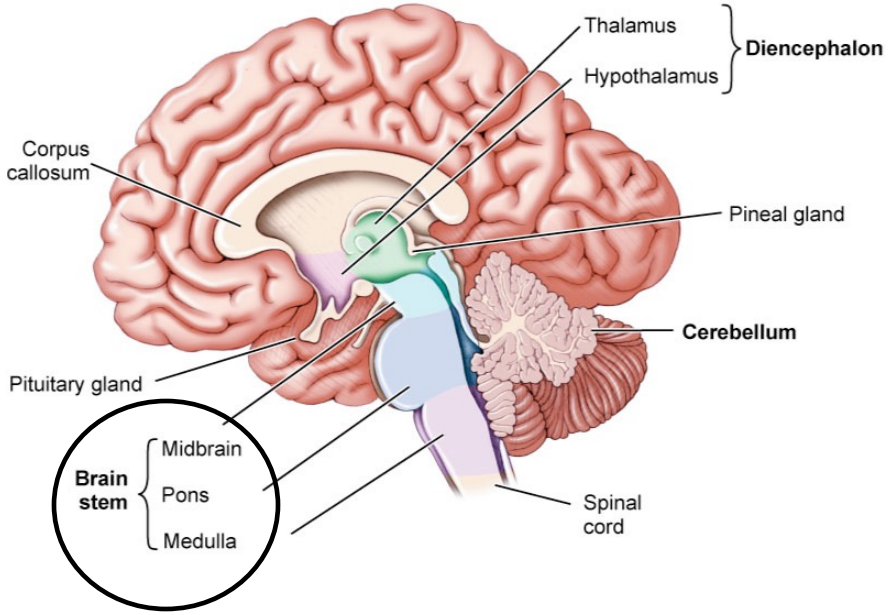
Brainstem

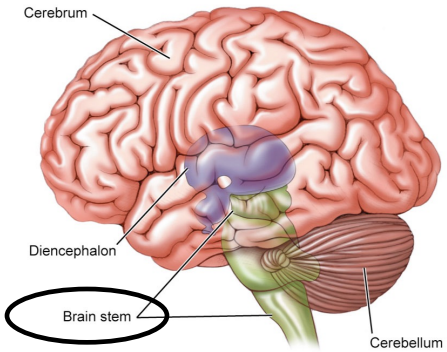
Brainstem Part of the brain that is continuous with the spinal cord. Has three main divisions:

Mid-brain

Pons

Medulla oblongata

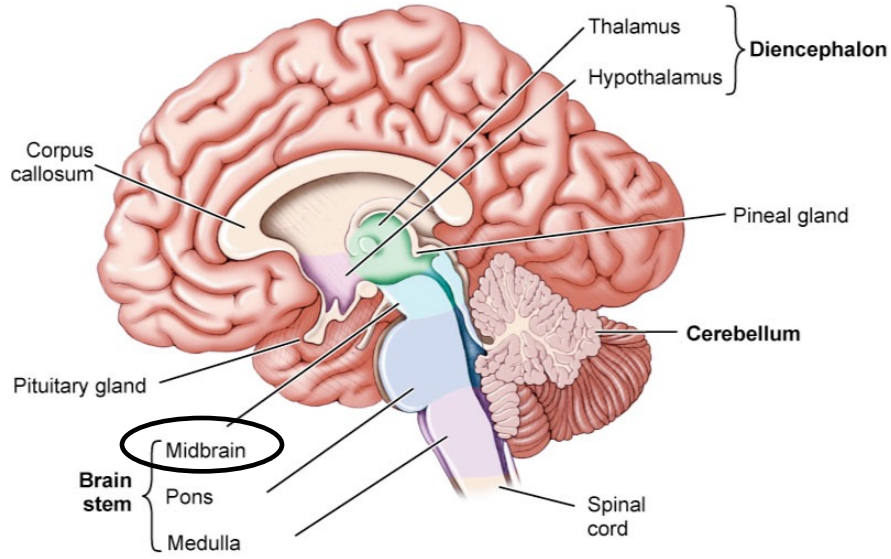




Brainstem

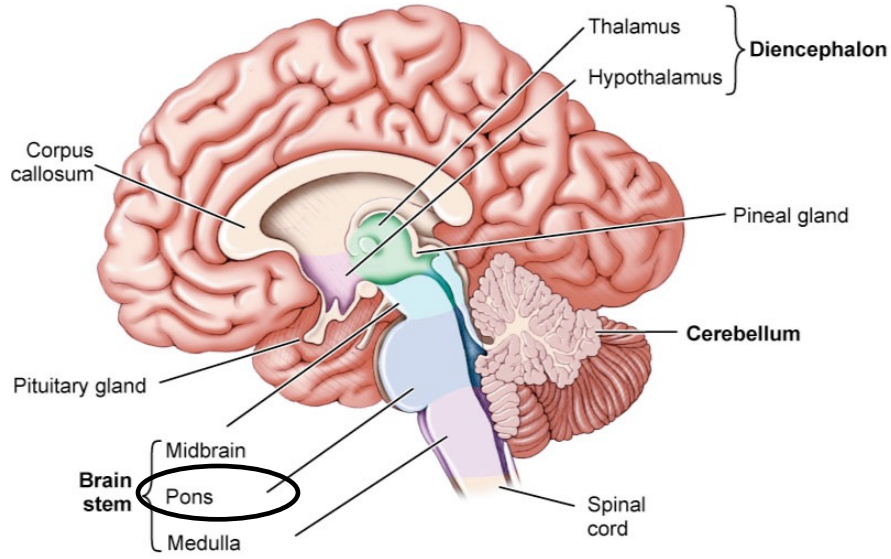
Mid-brain Part of the brain stem that conducts:

- Nerve impulses from the cerebrum to the pons
- Sensory impulses from the spinal cord to the thalamus



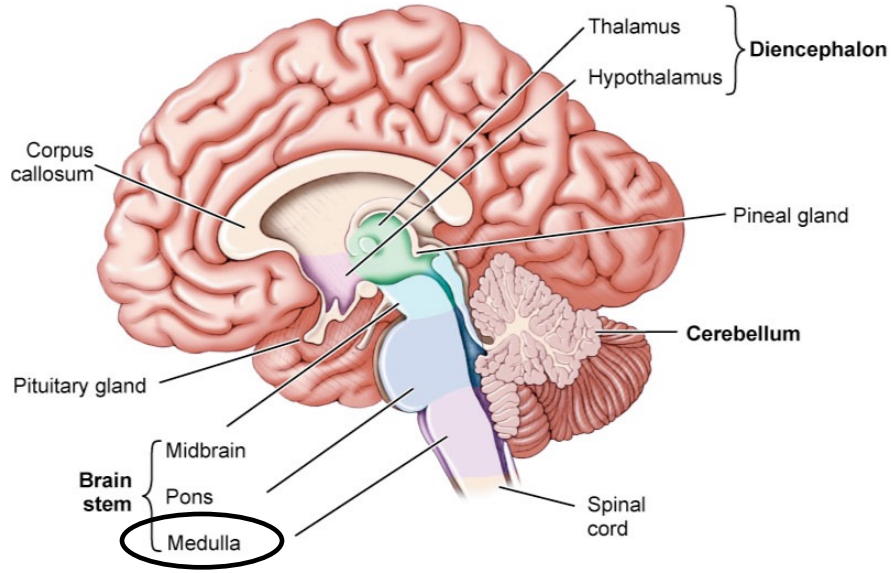
Brainstem

Pons Part of the brainstem that connects the cerebellum and cerebrum to the spinal cord.



Brainstem

Medulla oblongata Part of the brainstem that conducts sensory and motor impulses between other parts of the brain and the spinal cord.



49a A&P: Nervous System - Synaptic Transmission and Central Nervous System

