

# V.O.D

+ <https://www.youtube.com/watch?v=gD1AwQoITsg>

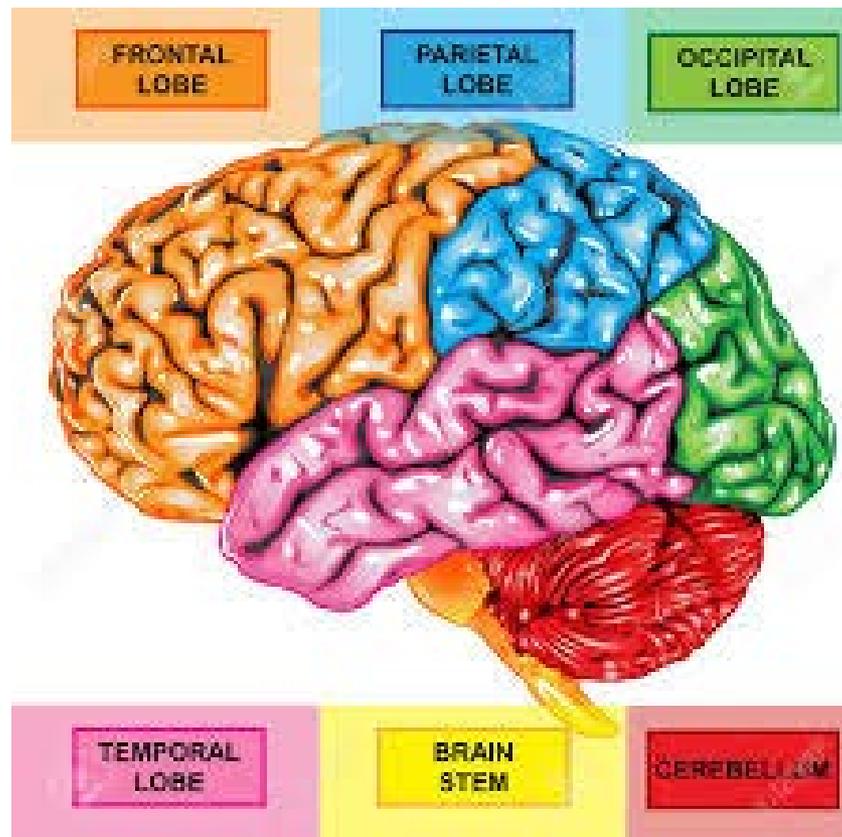
## Journal Reflection:

What is neuroplasticity? What are the benefits to “working out” your brain?

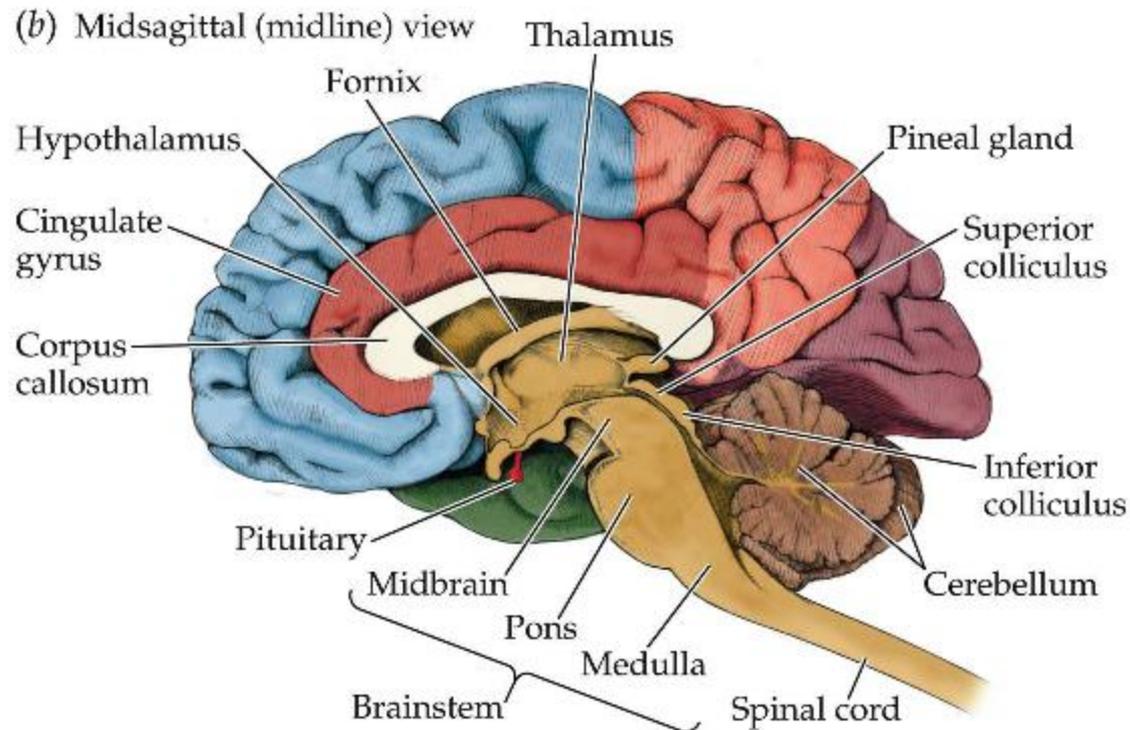
# Learning Intentions

- + Identify and give the functions of each of the following parts of the brain:
  - + Medulla oblongata
  - + Cerebrum
  - + Cerebellum
  - + Hypothalamus
  - + Pituitary gland (posterior and anterior lobes)
  - + Corpus callosum
  - + Meninges
  - + Thalamus

# Human Brain Anatomy



# A cross section of the human brain



*Biological Psychology 6e, Figure 2.12 (Part 2)*

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7-12-10

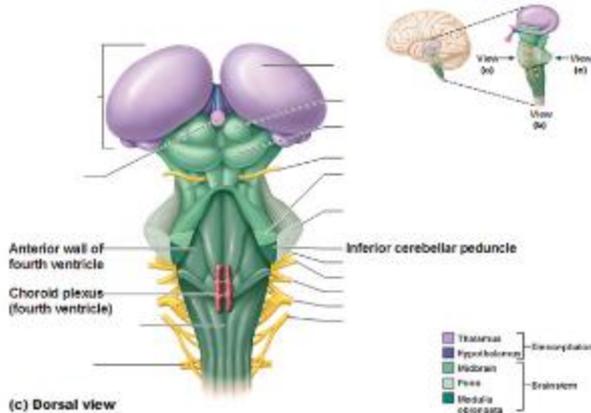
Lets take a closer look at the functions of these different parts of the brain.

# Medulla Oblongata

## Location

Located superiorly and continuous with the **spinal cord** inferiorly.

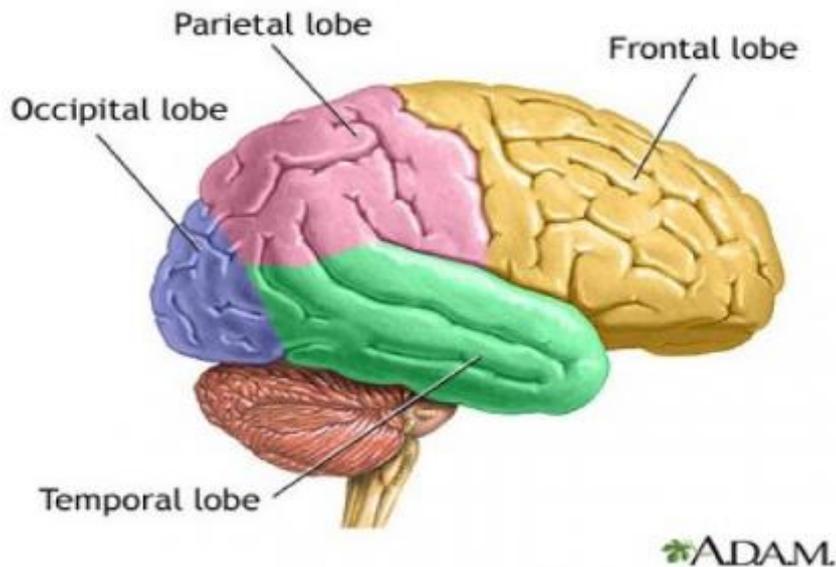
The Brain Stem—The Medulla Oblongata



## Function

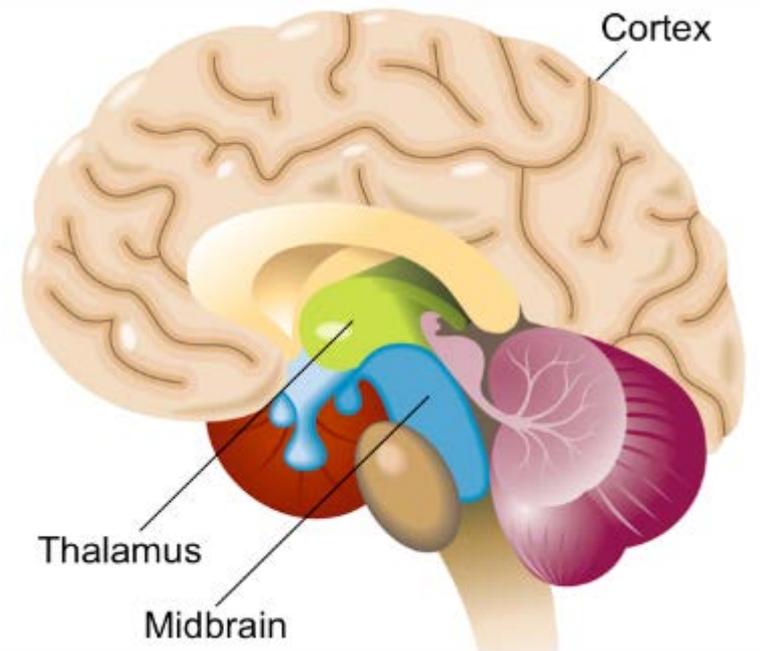
- + Control center that regulates the heartbeat, breathing and vasoconstriction of blood vessels.
- + Reflex center for vomiting, coughing, sneezing, hiccupping and swallowing.
- + Contains neural tracts that ascend or descend between spinal cord and higher brain centers.

# Cerebrum



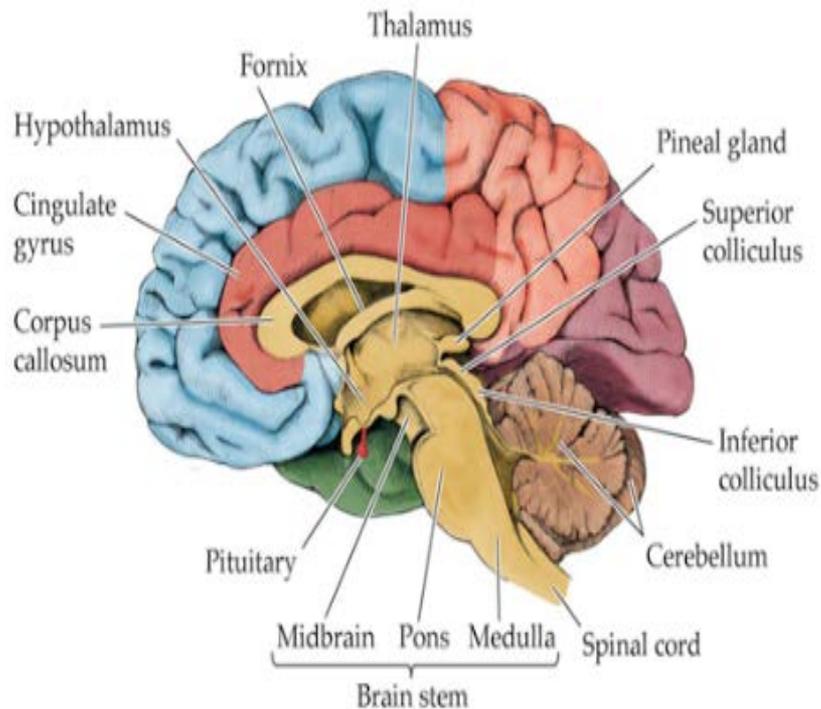
- + Largest portion of the brain and is divided into two hemispheres that are connected by the **corpus callosum**.
- + **Corpus Callosum** bridge between the two **cerebral hemispheres**.
- + Shallow grooves called **sulci** divide each hemisphere into lobes (frontal lobe, parietal lobe, occipital lobe, temporal lobe).
- + Last center to receive sensory input and carry out integration before commanding voluntary motor responses.
- + It communicates and coordinates the activities of other parts of the brain.
- + The cerebrum carries out higher brain functions through processes required for learning, memory, language and speech.

# Thalamus



- + Sensory input from the visual, auditory, taste, and somatosensory systems arrive at the **thalamus** via **cranial nerves** and tracts from the spinal cord.
- + The thalamus integrates this information and sends it on to the appropriate portion of the cerebrum.
- + The thalamus also participates in higher mental functions, such as memory and emotions.

# Hypothalamus



- + The **hypothalamus** helps to maintain **homeostasis** by regulating hunger, sleep, thirst, body temperature and water balance.
- + The hypothalamus manufactures hormones and controls the **pituitary gland**.
- + Examples of hormones: ADH, Oxytocin, TSH, ACTH, GH, FSH, LH



# Pituitary Gland

The pituitary gland controls secretion of various hormones that control other glands in the body. The Pituitary gland has two portions.

## Posterior Pituitary Gland

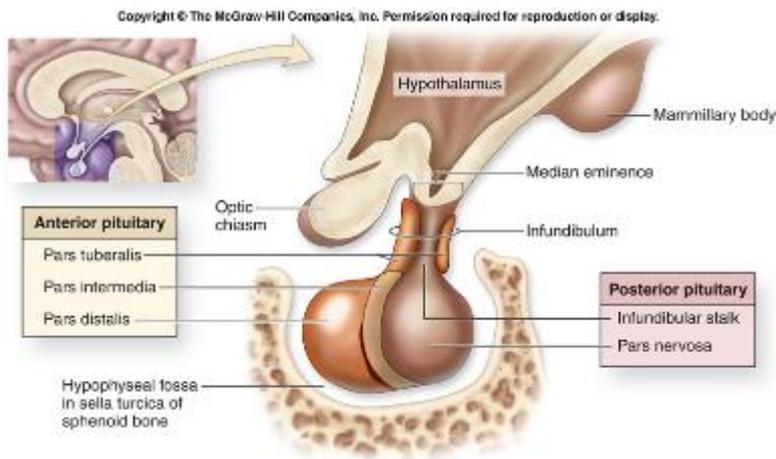
- Has specialized neurons called neuro-secretory cells in the hypothalamus that produce hormones ADH and Oxytocin.

## Anterior Pituitary Gland

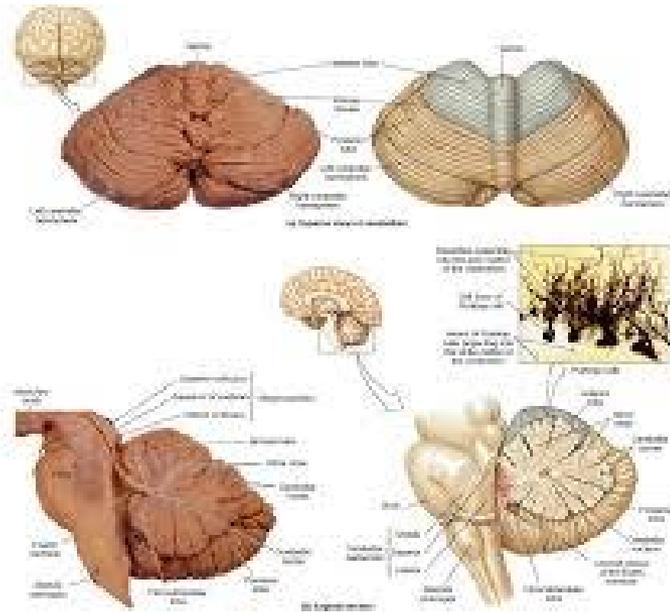
- Is controlled by the hypothalamus by producing either hypothalamic releasing or inhibiting hormones.
- These hormones either stimulate or inhibit the production of the following Anterior Pituitary Gland hormones:
  - - TSH
  - - ACTH
  - - GH
  - - FSH
  - - LH

# Understanding the hypothalamus and pituitary gland connection

- + How does the hypothalamus and pituitary gland interact as the **neuroendocrine control center**?



# Cerebellum

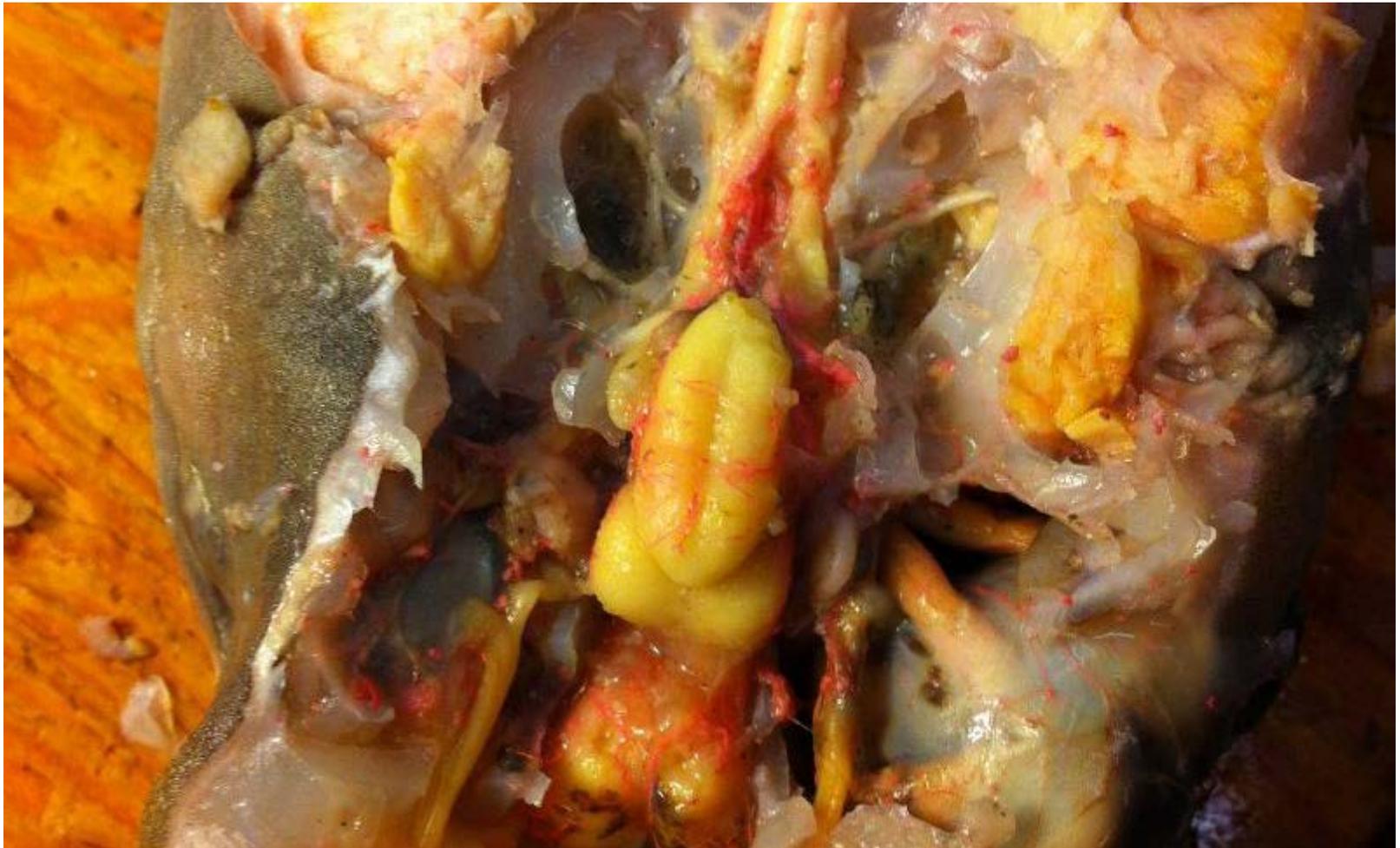


- + The Cerebellum sends motor impulses, by way of the brain stem to skeletal muscles.
- + The Cerebellum assists the learning of new motor skills such as playing the piano or hitting a baseball.

# Meninges

- + The Central Nervous System is surrounded and protected by three membranes of connective tissue known as meninges.
- + Spaces within the meninges are filled with cerebrospinal fluid which helps protect and cushion the central nervous system.

What a brain really looks like...



# Learning Activities

- + Complete Lab Assignment – Due Tuesday February 6<sup>th</sup>
- + Brain Structure and Function Worksheet
  
- + 2 more classes will be discussing the branches of the nervous system
  
- + Unit test scheduled for February 13<sup>th</sup>