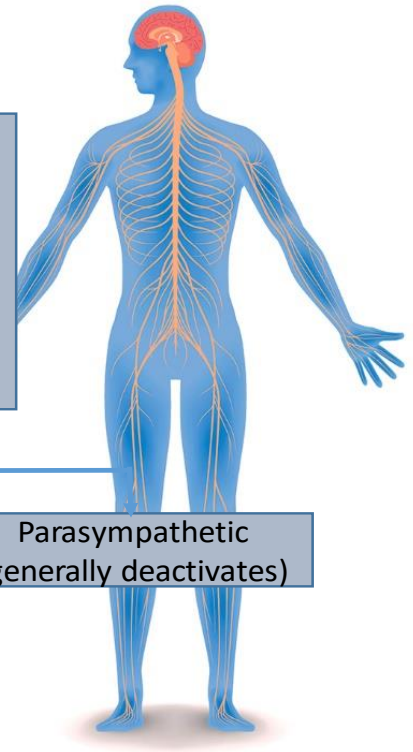
The Brain

Mainly hind and mid brain

Nervous System

- Central Nervous System
  - Brain
    - Forebrain
      - Thalamus
      - Hypothalamus
      - Cerebrum (cerebral cortex)
      - Limbic system
      - Corpus callosum
    - Midbrain
    - Hindbrain
      - Cerebellum
      - Pons
      - Medulla
  - Spinal Cord
- Peripheral Nervous System
  - Somatic system (voluntary muscle action)
  - Autonomic system (controls smooth muscle, cardiac muscle and glands; basically involuntary)
    - Enteric system (digestive system)
    - Sympathetic (generally activates)
    - Parasympathetic (generally deactivates)

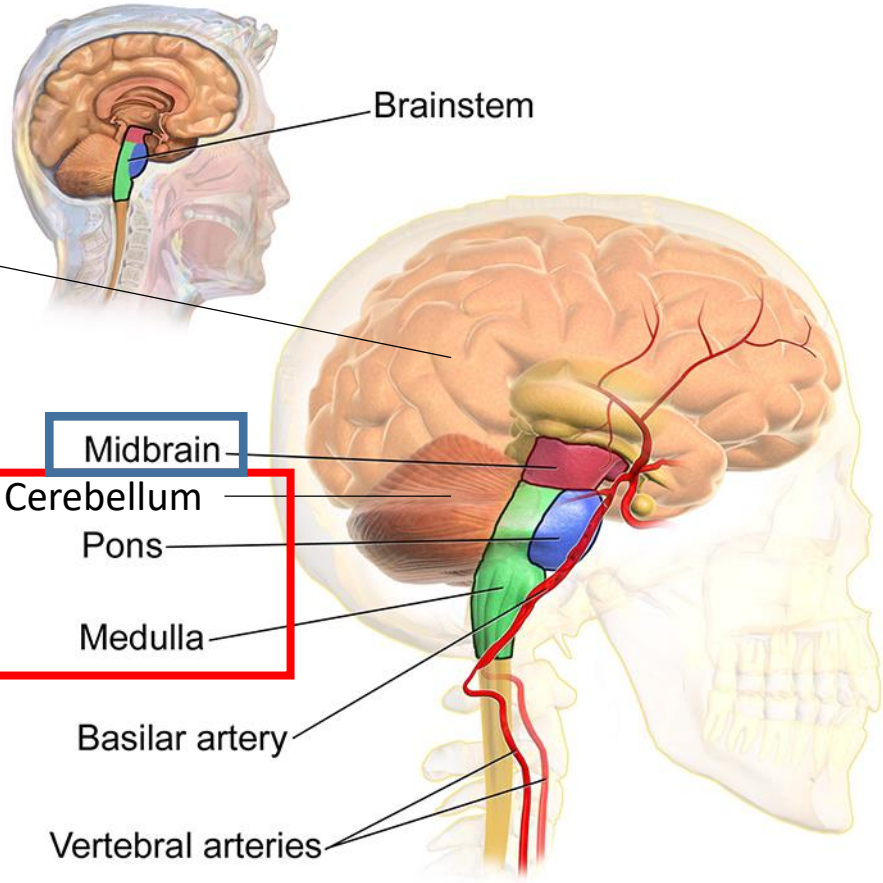


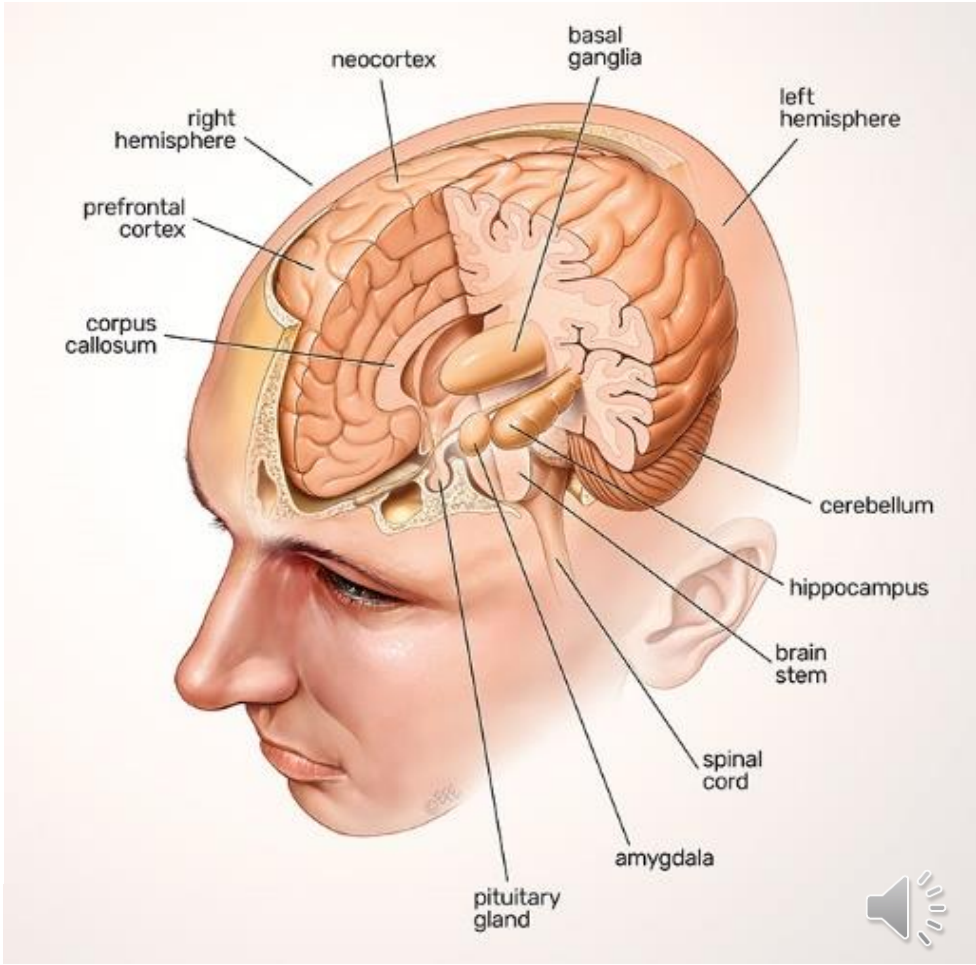
Constant cooperation

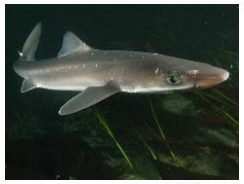
Structure of the brain

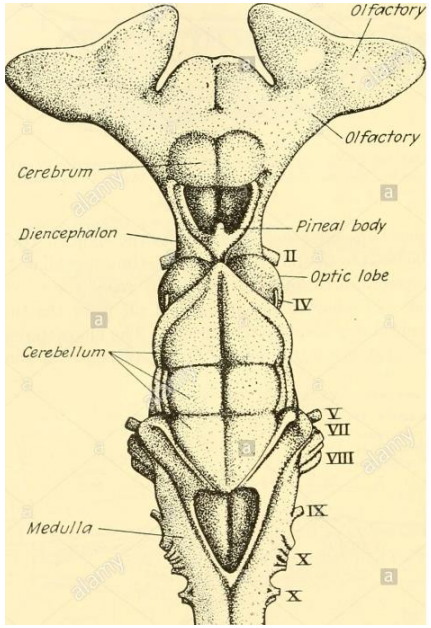
Forebrain

Hindbrain



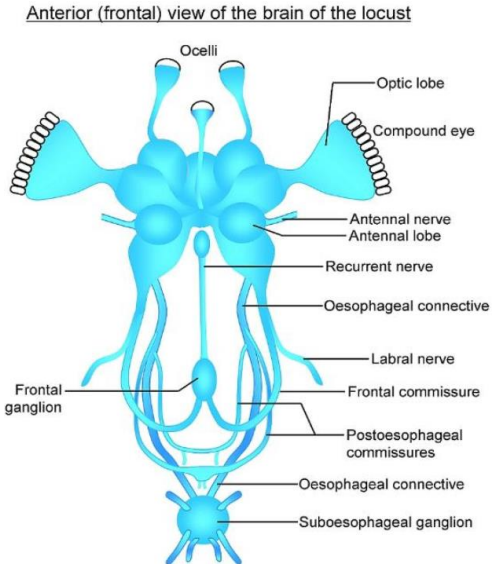


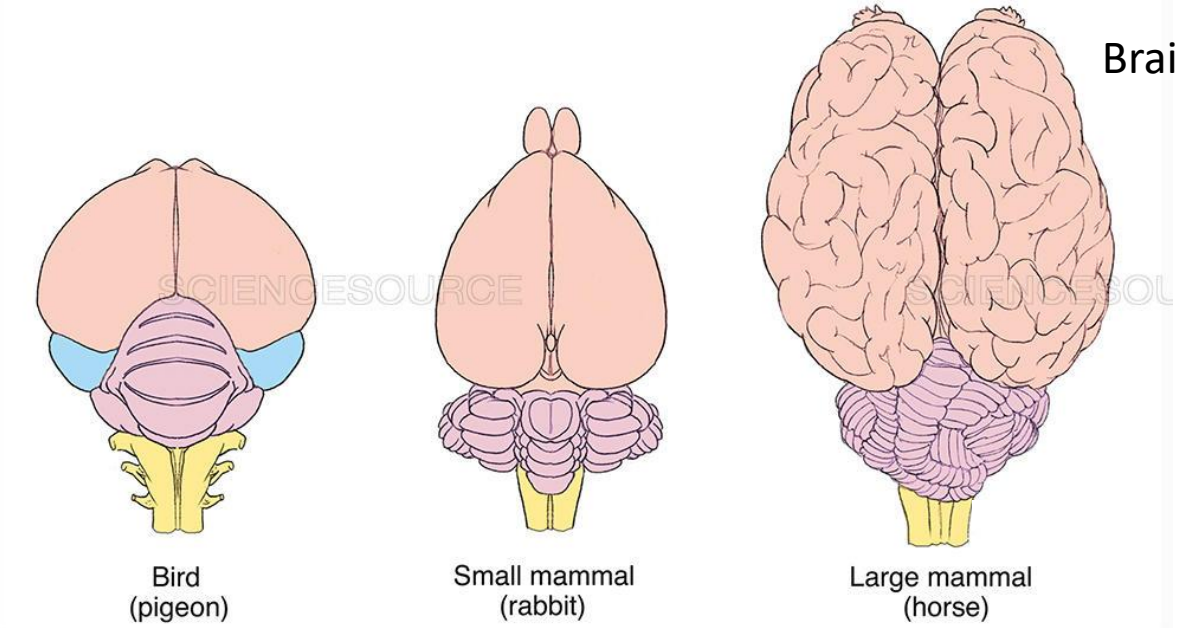




Brain about the size of a marble
8-9 grams

Learning:
I don't expect you to know any of this, but I hope you find it interesting!





Brain about 4-5cm big

Hindbrain (Pons, Medulla, Cerebellum)

Learning:
I only expect you to learn
the main brain areas (Medulla, Pons, Thalamus), not all the stuff in this picture.

Medulla oblongata (connects brain to spinal cord; part of brainstem)

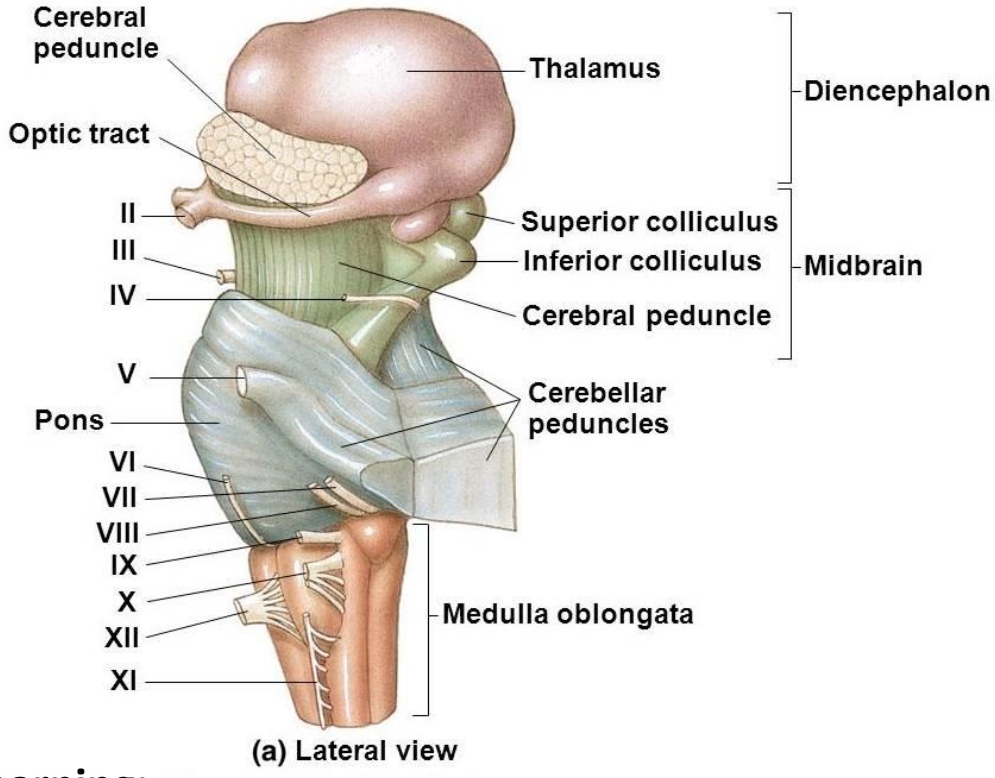
- Autonomic function for vital systems
  - cardiac, respiratory, and blood pressure (vasomotor)
  - vomiting, coughing, sneezing, and swallowing
- Connects brain and spinal cord

Pons (part of brain stem)

- Taste, facial muscles, eyes, chewing/swallowing, tears, saliva and hearing
- Also relays information to higher centres

Reticular formation

- Interconnected nuclei network in hindbrain, midbrain, and brain stem (including medulla and pons). Not well defined to a single area – diffuse
- Numerous functions related to things including sleep, breathing, heartbeat, motor and vestibular functions



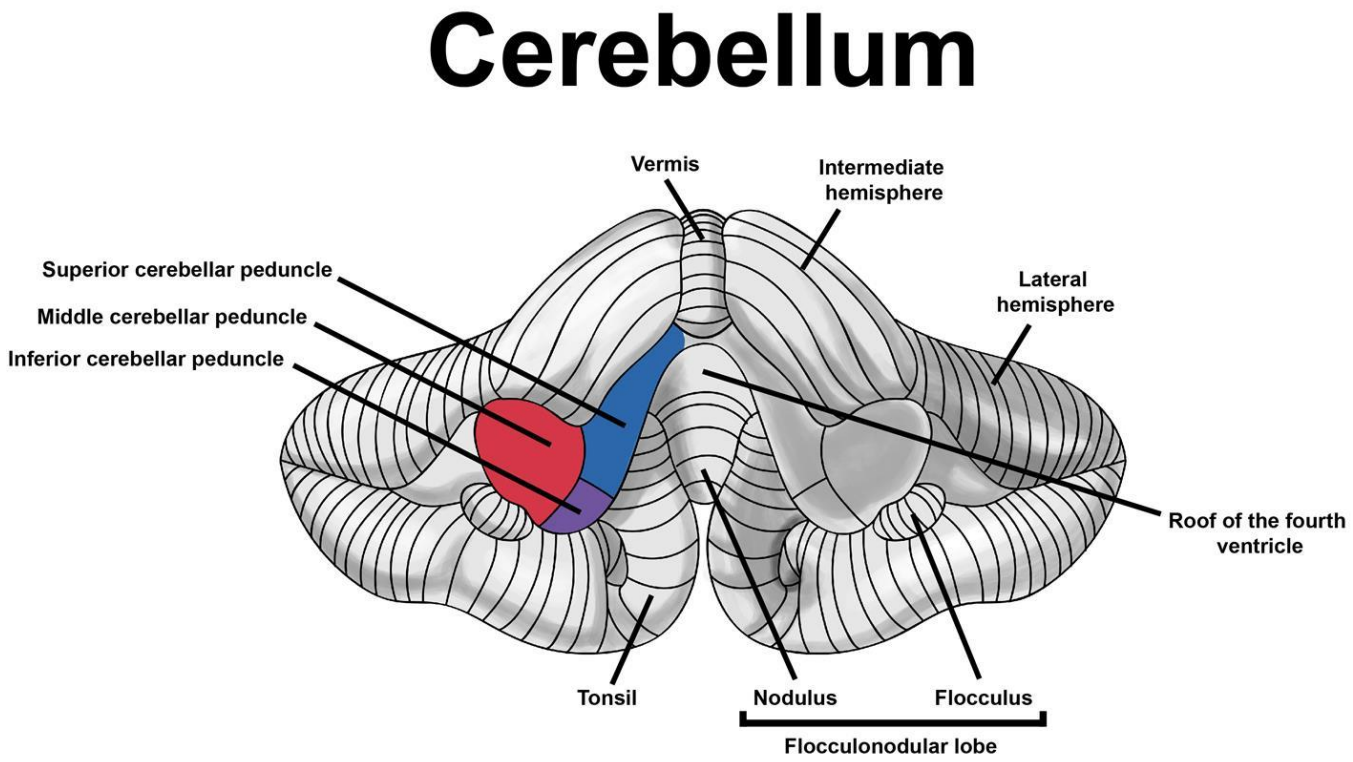
(a) Lateral view

Learning:
Colliculi: Small swellings in the midbrain that help connect it to auditory and visual cortex
Peduncles: stalks that connect areas of the brain

Cerebellum

Learning:
I don't expect you to know the different areas of the cerebellum

Mainly involved in movement



Midbrain (top of brainstem)

Connects the brain and spinal cord

Colliculi (superior and inferior)

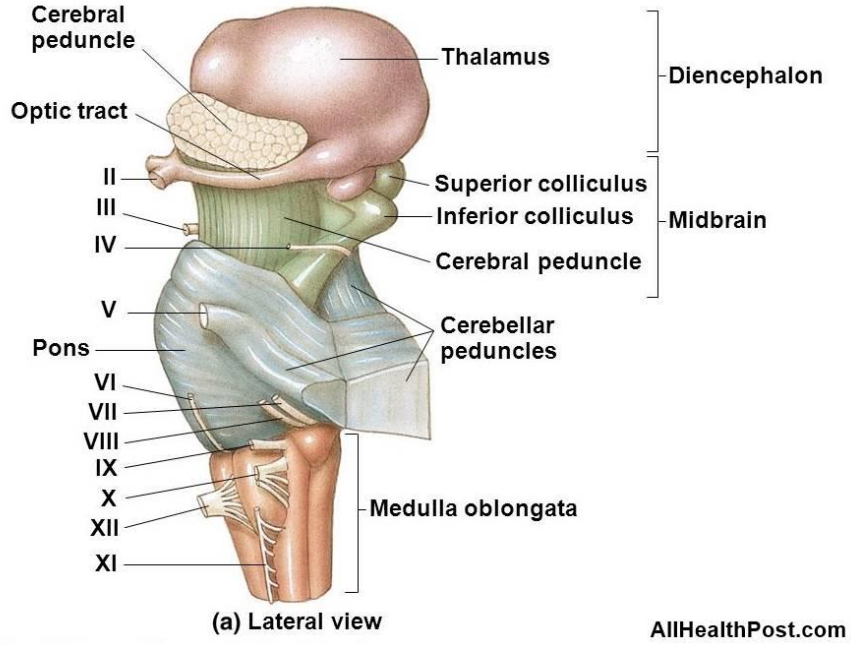
- Superior one processes visual signals and relays them to occipital cortex
- Inferior one processes auditory signals and sends them to the auditory cortex via the thalamus

Tegmentum (also in hindbrain)

- Involved in movement and supressing pain

Cerebral peduncles

- Connects brainstem to forebrain
- Includes substantia nigra
  - One of the main dopamine pathways (very important for movement)



Interesting stuff

Ever wondered what would happen if your brain needed to grow around your oesophagus? This is what has happened to the octopus