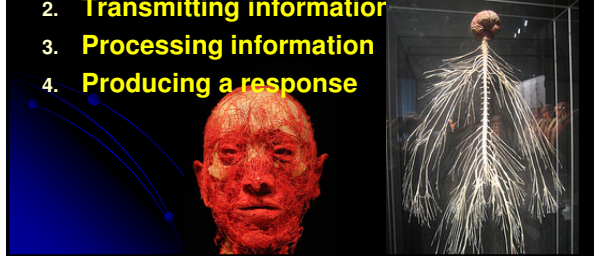


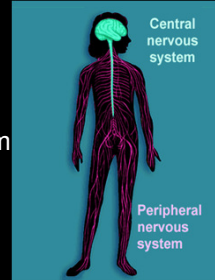
## FOUR PRIMARY FUNCTIONS OF NERVOUS SYSTEM

1. **Sensing the world**
  - Vision, Hearing, Smell, Taste, Touch
2. **Transmitting information**
3. **Processing information**
4. **Producing a response**



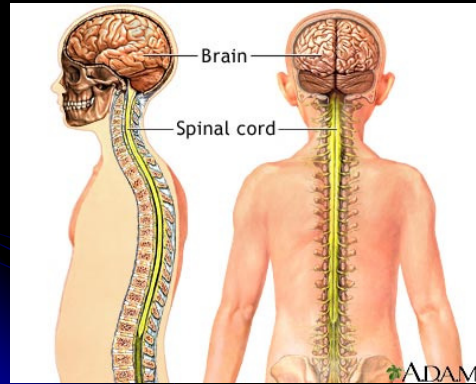
## Nervous System

- Enables us to communicate with and react to the environment and perform our life activities
- Has two main divisions
  - Central Nervous System (CNS)
  - Peripheral Nervous System (PNS)



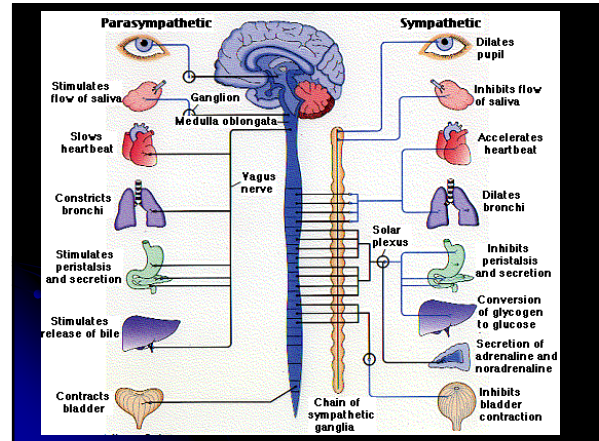
## Parts of the Nervous System

- **Central Nervous System**
  - **Brain**
    - Cerebrum
    - Cerebellum
    - Brain Stem and Pons
    - Lobes (4)
  - **Spinal Cord**
    - "information superhighway"
- **Peripheral**
  - **Autonomic**
    - Sympathetic
      - Fight or Flight
    - Parasympathetic
      - Relaxation
  - **Somatic**
    - Sensory and Motor Nerves
    - Reflex Arc



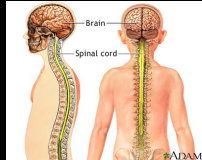
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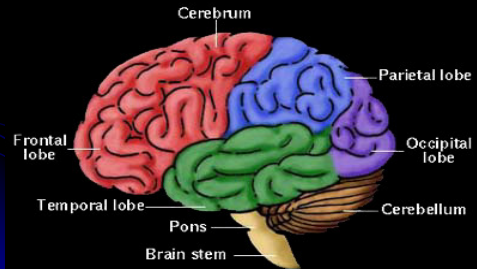


## Central Nervous System

- Has two main divisions
  - **Brain:** main control center
  - **Spinal Cord:** connects and relays nerve impulses to and from the brain.



## The Brain

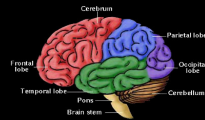


## Cerebellum

- Smaller part of the brain, towards the back

### FUNCTIONS:

- Coordinates all movement
- Helps maintain posture, muscle control, and balance

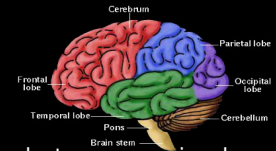


## Cerebrum

- Large front part of the brain

### FUNCTIONS:

- Voluntary activity
- Memory
- Language
- Receives and responds to sensory signals
- Controls motor functions



## Brain Stem and Pons

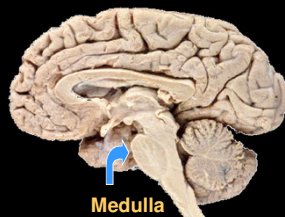
### BRAIN STEM

- swallowing, coughing, sneezing, and vomiting
  - Includes the Medulla Oblongata

• **Damage in this area will usually kill you.**

### PONS

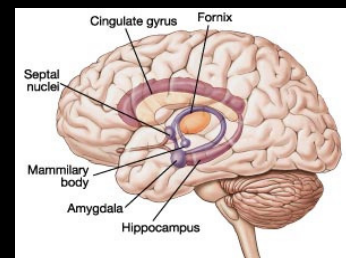
- Breathing
- Heart rate
- Internal Organs



## LIMBIC SYSTEM

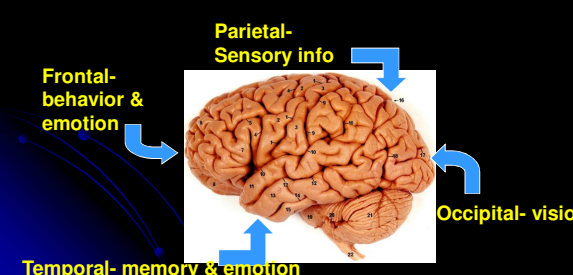
“controls: emotions and memories”

**Damage to these areas can lead to amnesia or emotional disturbances**



# THE CORTEX

Stores: experiences and/or learning



Frontal- behavior & emotion


Parietal- Sensory info

Occipital- vision

Temporal- memory & emotion

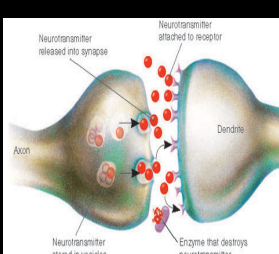
# Neurons

- The functional unit of the nervous system is the nerve cell, the **NEURON**
  - They send electrochemical messages around the body
- Glial cells provide support and protection for neurons



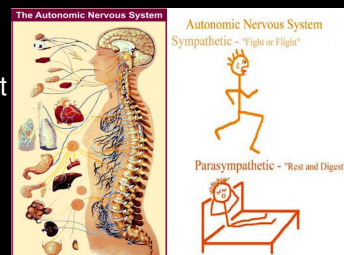
## The Nervous System

The gap from the nerve endings of the axon to the dendrites of the next neuron is known as a **synapse**



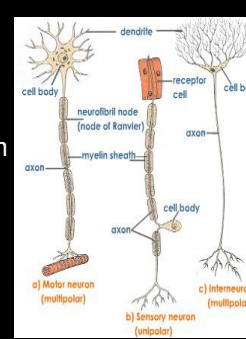
## Peripheral Nervous System

- Autonomic**
  - Controls muscles and organs within the body
  - Fight or Flight
  - Rest and Digest



## Peripheral Nervous System

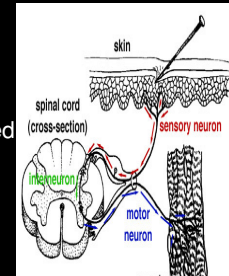
- Somatic**
  - Sensory nerves:** conduct nerve impulses toward the central nervous system
  - Motor nerves:** conduct impulses away from the central nervous system
- Reflex Arc**

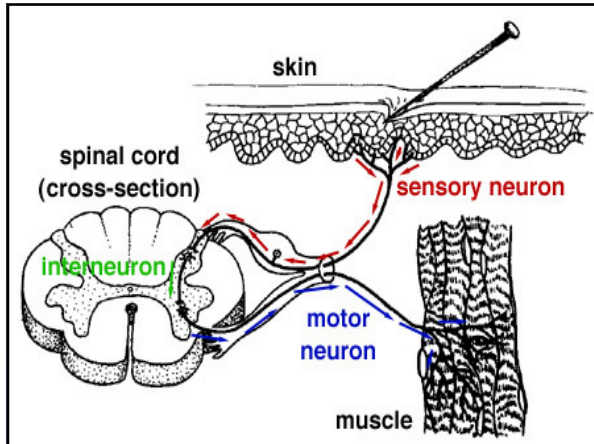


## Reflex Arc

“ what happens when you step on a nail”?

- Reflexes are automatic**
- The Stimulus (nail ) is received by the **sensory neurons** in the foot
- This info travels to the spine, where the **interneuron** is triggered
- The **interneuron** stimulated the **motor neuron**, to move the foot





# Nerve Impulse

A progressive wave of electric and chemical activity along a nerve fiber that stimulates or inhibits the action of a muscle, gland, or other nerve cell

*\*This is how the information moves from sensory neurons to interneuron to motor neurons*