

Functions

- Interprets information -I have a mosquito bite and it itches
- · Coordinates responses
 - Catching a ball
- Monitors/modifies activities -Peeing your pants when scared
- Higher order functions
- -memory and consciousness

Divisions of the NS

- Central Nervous System (CNS)
- -Brain & Spinal Cord - Contains interneurons
- Peripheral Nervous System (PNS)
- -12 pairs of Cranial Nerves
- -31 pairs of Spinal Nerves - Many peripheral nerves
- Contains sensory & motor neurons

PNS: Peripheral Nervous System

- Somatic Nervous System
- Nerves receive &
- process sensory input
- Control of skeletal muscles
- Voluntary
- Sometic motor nuclei of spinal com

PNS: Peripheral Nervous System

Autonomic Nervous System

• Nerves carry impulses from CNS to glands, involuntary muscles, cardiac muscles, & membranes



PNS: Peripheral Nervous System

Autonomic Nervous System

- Sympathetic: "Fight or Flight" - body under stress activates responses to dangerous or abnormal situations
- Parasympathetic: "Rest & Recover' keeps the body in homeostasis under normal conditions
- "rest or digest": promotes sedentary activities



Neurons

- Basic functional unit of the NS
- Excitable cells specialized for reception of stimuli and conduction of impulses



Neurons

- Dendrites: receive information; highly branched
- Cell body (soma): main section of neuron, contains nucleus & organelles
- Axon: sends impulse away from cell body



Neurons

- <u>Myelin sheaths</u>: wrapping around axon; provides insulation that increases speed of impulse
- <u>Node of Ranvier</u>: gaps with no myelin; increase speed of impulse transmission
 <u>Synapse</u>: gap between axon and the next neuron's dendrites; protects against insignificant impulses



Neurons

Classified according to function -<u>Sensory</u>: (1/2 million) conduct impulses to

- spinal cord & brain (from sensory info)
- <u>Motor</u>: (10 million) conduct impulses to muscles & glands (from brain & SC)
- <u>Interneurons</u>: (20 billion) conduct impulses from sensory to motor neurons















Neurotransmission

- <u>Efferent Neurons (Motor) carry a</u> response to information
- transmit impulses away from CNS
 Produce an action in a muscle, gland, or organ



Neurotransmission

- 1. Receptor: site of stimulus
- 2. Afferent Neuron: transmits sensory impulse to CNS
- 3. Interneuron: integration center in CNS
- 4. Efferent Neuron: conducts motor impulse from CNS to an effector organ
- 5. Effector: cells that respond











Homework / Review

✓Nerve Cells WS

✓ Neuron & Synapse Diagram

