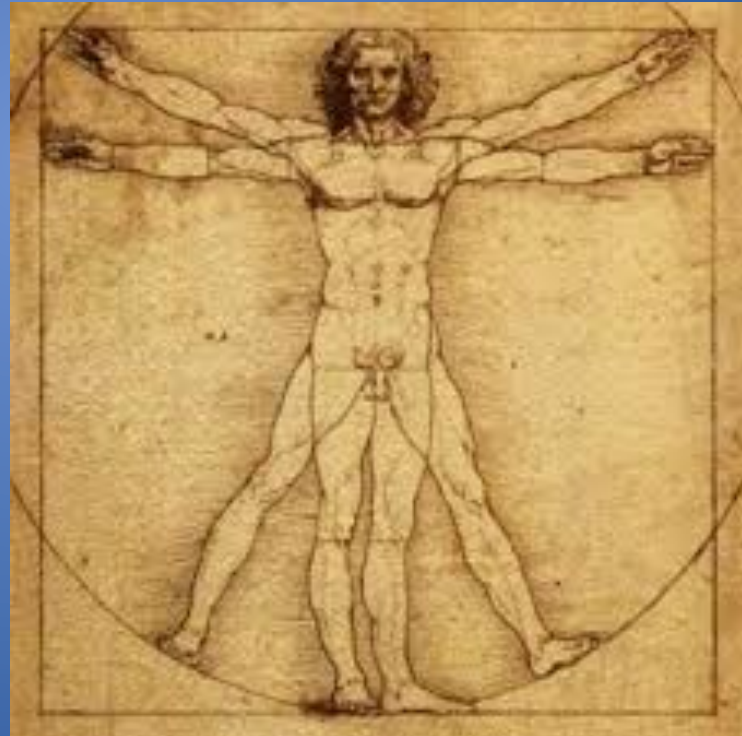


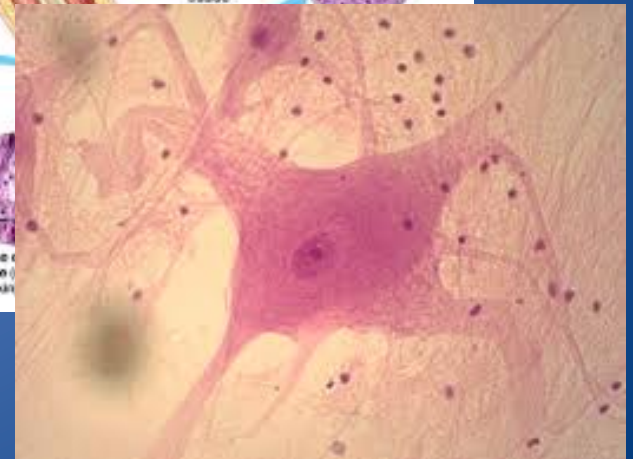
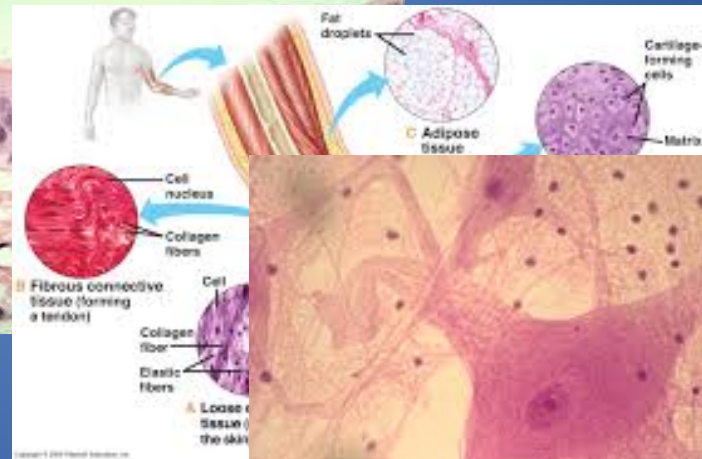
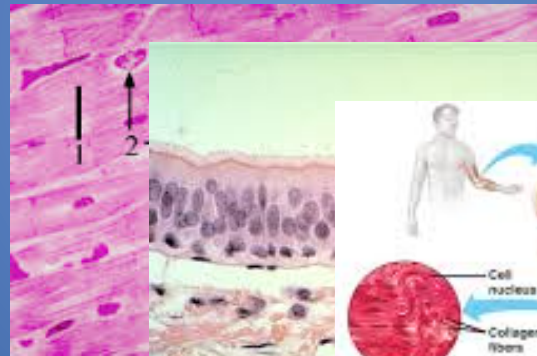
# Chapter 35-1: Human Body Systems

Essential Question:

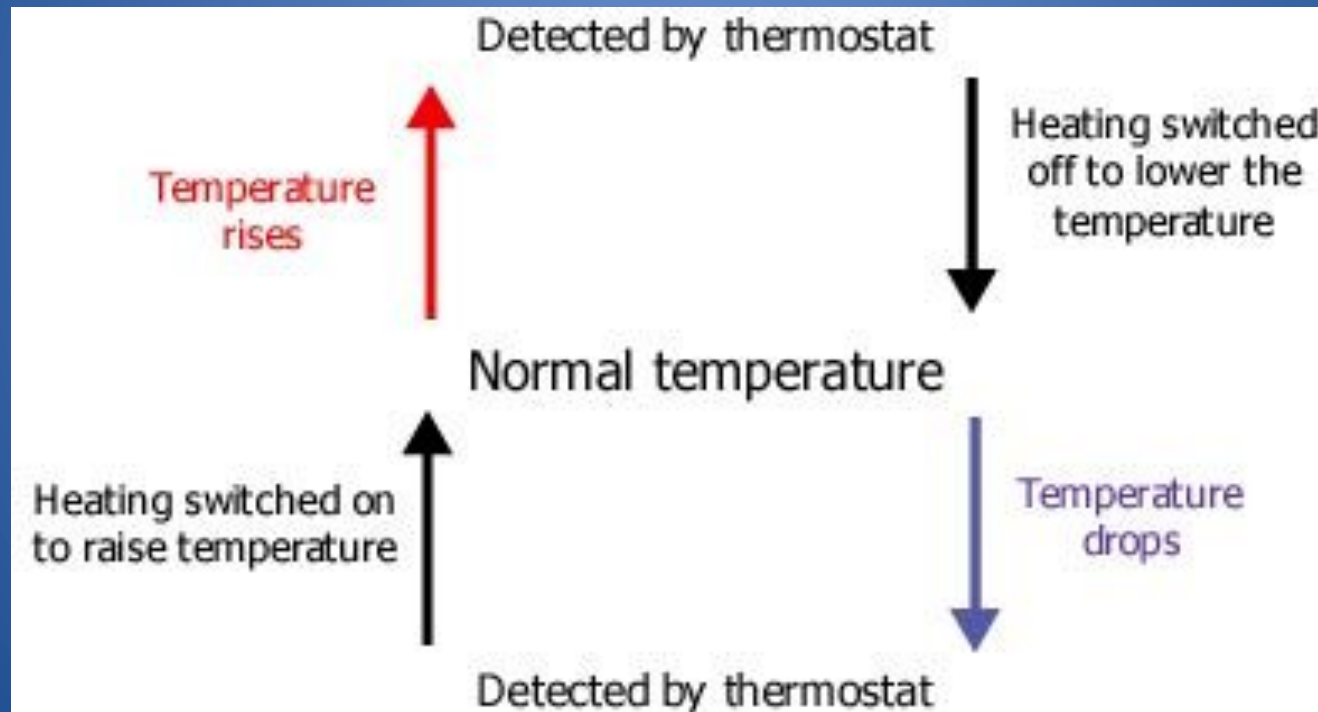
- How does the human body maintain *homeostasis*?



- Homeostasis
- Organization of the body
  - 11 organ system
  - Tissue types
    - Muscle
    - Epithelial
    - Connective
    - Nervous



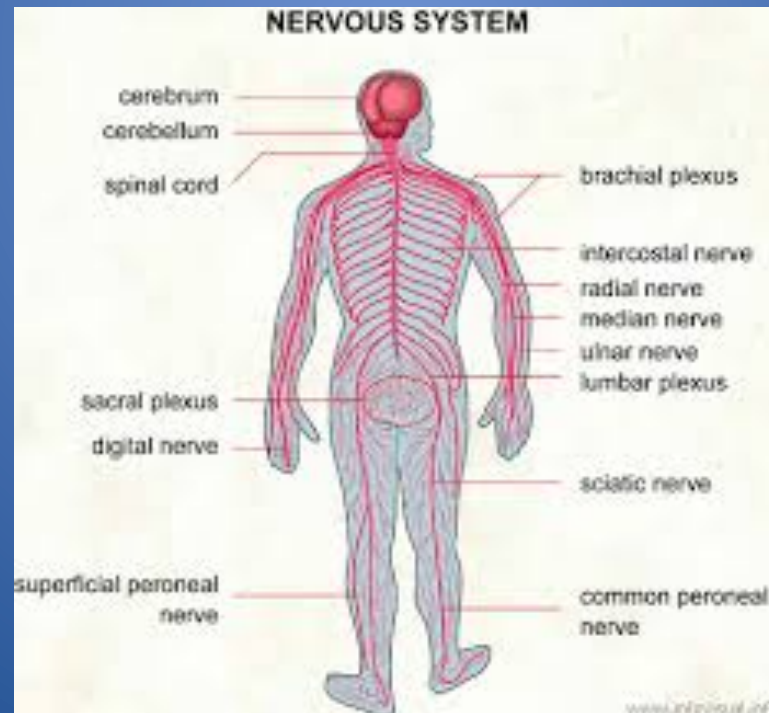
- Feedback inhibition
  - For homeostasis
  - Process: product of a system shuts down or limits operation



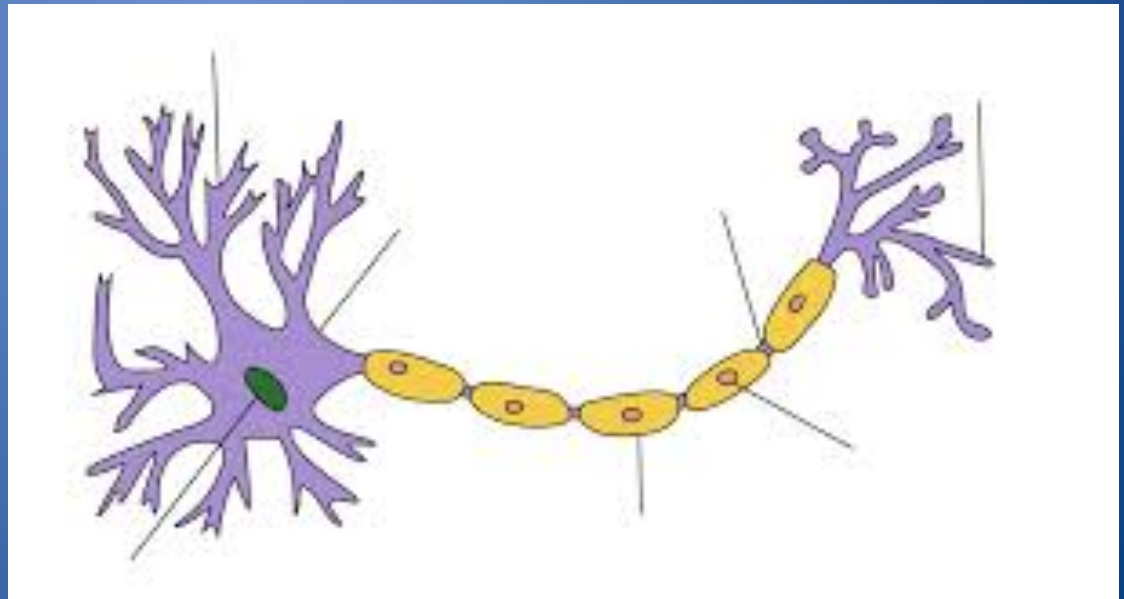
# Chapter 35-2: The Nervous System

Essential questions:

- What is the function of the nervous system?
- How is a nerve impulse transmitted?



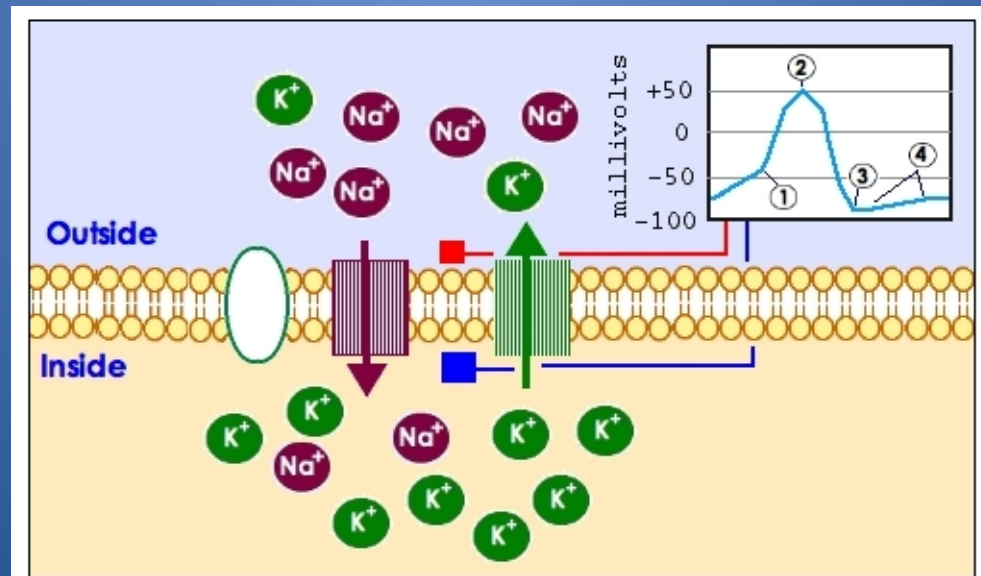
- Function of Nervous System:
- Neurons
  - Cells
  - Transmit impulses
  - Anatomy:
    - Cell body
    - Dendrites
    - Axon
    - Myelin sheath



# • The Nerve Impulse

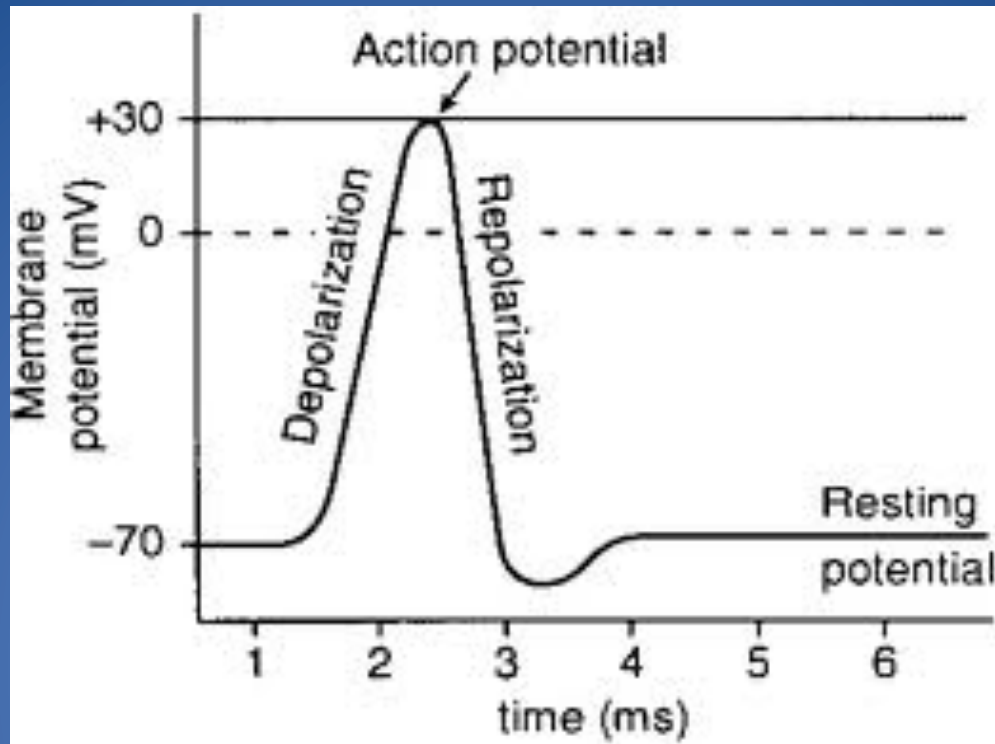
## – Resting potential

- Dist. of  $\text{Na}^+$  and  $\text{K}^+$  ions inside & outside neuron
- More  $\text{Na}^+$  outside, more  $\text{K}^+$  inside
- $\text{K}^+$  diffuses out more easily than  $\text{Na}^+$  diffuses in
- So, negative charge builds inside cell, positive outside
- This difference across membrane is ***resting potential***



① At -40 mV,  $\text{Na}^+$  channels open &  $\text{Na}^+$  ions flood inside

- Action potential
  - Nerve impulse: neuron stimulated by another neuron or environment.
  - Moves through nerve cells like ripple caused by a rock thrown in a pond
  - @ leading edge of nerve impulse, “sodium gates” (channel proteins) open in cell membrane,  $\text{Na}^+$  flows in
  - This *reverses* electrical charge across membrane – this is the *action potential*
  - As impulse passes, “potassium gates” open, allow  $\text{K}^+$  to flow out, re-establishes resting potential



- Threshold: minimum level of stimulus needed to activate a neuron
  - Strength of impulse always the same
  - “all or nothing” principle



- Synapse

- Location where a neuron can transfer an impulse to another cell
- Between axon terminal of 1 cell and dendrites of another cell

- Neurotransmitters

- Chemicals used to transmit impulse across a synapse

