

## Homeostasis Quiz Study Guide (Honors)

### Overarching questions:

1. How does the body maintain stability in the face of internal and external changes?
2. How does the body use different mechanisms and the tools (organs, systems...) within it to re-establish homeostasis?
3. What happens when the body can no longer maintain balance?
4. How can you use models to understand a biological process?
5. Why is a cell membrane able to regulate substances that go into and leaves cells?
6. How is water balance achieved in cells and how does homeostasis of water work?
7. What is the hierarchy (levels) or organization in organisms going from atoms to organisms?

### Vocabulary we covered in this unit:

Homeostasis	Cell	Target cell	Receptor
Set point	Functional range	Tissue	vesicle
Organ	Hormone	endocytosis	exocytosis
Organ system	Effector	afferent pathway	Organism
Inhibition	Pump (sodium-potassium, protein)	efferent pathway	Turgid
Feedback loop	Positive feedback	Stimulation	Stimulus
Negative feedback	Endocrine gland	Control center	Water
Dynamic equilibrium	balance	homeostasis	concentration
Solute	solvent	cell membrane	permeable
Semi-permeable	concentration gradient	impermeable	non-polar
Molecule	polar	hypotonic	plasmolysis
Isotonic	hypertonic	crenate	carrier protein
Lysis (or cytolysis)	net water movement	solution	phospholipid
Osmosis	channel protein	osmoregulation	diffusion
Hydrophobic	hydrophilic	glycoprotein	cholesterol

### Concepts:

Know how and why the body uses/needs feedback mechanisms

Why maintaining homeostasis is such a vital element in staying alive

Be able to look at a set of symptoms and determine the potential ways a body can recover by changing the variables using different effector organs/systems.

Be able to show the interactions between different systems to maintain homeostasis

Be able to dissect a feedback mechanism for the stimulus, receptor location, control center, and effector actions

Be comfortable with basic hormone regulation, what they are, and how they impact homeostasis and the body/body systems

Know the major differences between positive and negative feedback

Know the difference between stimulation and inhibition in negative feedback loops (on/off switches)

Discuss the interplay between the central nervous system and the endocrine system in maintaining homeostasis in the body.

Know the functions of the cell membrane (bubble lab) and the different structures in it

The difference between active and passive transport in cells and what each requires and what each transports

Compare and contrast diffusion and osmosis as it occurs in cells and how the body uses them in homeostasis

Show your understandings of the relationships between different scales of a biological phenomenon (ie; whole organism → systems → cellular level (membrane) → molecular (proteins))