

# UNIT 3: Cells & Homeostasis



**Biology Textbook:** Chapter 7

**Standard 3:** Students know and understand the characteristics and structure of living things, the processes of life, and how living things interact with each other and their environment.

**5.** The human body functions in terms of interacting organ systems composed of specialized structures that maintain or restore health

**9.** Cellular organelles have specific functions (for example: the relationship of ribosomes to protein, and the relationship of mitochondria to energy transformation)

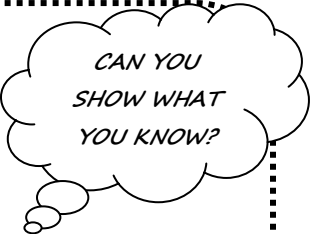
**Key Concepts:**

Cell Theory                      Prokaryotes vs. Eukaryotes                      Plant cells vs. Animal Cells  
 Organelle structure and function      Fluid Mosaic Model                      Passive Transport  
 Diffusion              Osmosis              Active Transport                      Cellular Homeostasis

*Fold along the line and glue this side down in your Interactive Science Notebook.*

**Essential Questions:**

1. What is cell theory and who developed it?
2. How did the development of the microscope help cell theory?
3. How are prokaryotic and eukaryotic cells different?
4. How are cell structures (organelles) related to their functions?
5. How do plant and animal cells differ?
6. What is the function of the cell membrane?
7. What is the difference between passive and active transport?
8. What variables affect the rate of transport across a membrane?
9. Why is it important that cell membranes are selectively permeable?
10. How does a cell maintain homeostasis both within itself and as part of a multicellular organism?



**Vocabulary:** (+) = Can explain it; (-) = Only heard it; 0 = No idea

Page	Term	Pre	Post	Memory Clue
	1. cell			
	2. cell theory			
	3. prokaryote			
	4. eukaryote			
	5. unicellular			
	6. multicellular			
	7. endosymbiosis			
	8. organelle			
	9. cytoplasm			

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Page	Term	Pre	Post	Memory Clue
	10. cell (plasma) membrane			
	11. cell wall			
	12. nucleus			
	13. nucleolus			
	14. nuclear membrane (envelope)			
	15. vacuole			
	16. mitochondrion			
	17. chloroplast			
	18. smooth endoplasmic reticulum			
	19. rough endoplasmic reticulum			
	20. golgi body (apparatus)			
	21. ribosome			
	22. lysosome			
	23. cytoskeleton			
	24. phospholipid bilayer			
	25. hydrophobic			
	26. hydrophilic			
	27. homeostasis			
	28. osmosis			
	29. diffusion			
	30. facilitated diffusion			
	31. hypertonic solution			
	32. hypotonic solution			
	33. isotonic solution			
	34. permeability			
	35. solute			
	36. solvent			
	37. solution			
	38. active transport			
	39. passive transport			
	40. ATP			
	41. endocytosis			
	42. exocytosis			
	43. homeostasis			
	44. tissue			
	45. organ			
	46. organ system			

**What I Need to Know/Be able to do:**

- Summarize** the principles of the cell theory.
- Relate** organelles to their functions.
- Differentiate** between a prokaryotic and eukaryotic cell.
- Explain** endosymbiotic theory.
- Compare** and contrast plant and animal cells.
- Use** a microscope to **identify** cell parts.
- Describe** the structure and function of the plasma membrane.
- Explain** the role of cell membranes as a highly selective barrier (diffusion, osmosis, facilitated diffusion, active transport).
- Compare** and **contrast**, at the cellular level, the general structures and degrees of complexity of prokaryotes and eukaryotes.
- Explain** the three types of diffusion.
- Predict** the effect of a solution on a cell.
- Compare** and **contrast** passive and active transport.
- Describe** several examples of how homeostasis is maintained in the body.

