**Pre-AP Cells Test Review**

*Refer to the following questions and vocabulary to help you to review for the test.*

* Required vocabulary: phospholipid bilayer, transmembrane proteins, theory, organelle, cilia, flagella, semi-permeable/selectively permeable, hypo-/hyper-/isotonic, plasmolysis, cytolysis, wilting, flaccid, lyse, homeostasis, concentration gradient, passive transport, solute, solvent, dynamic equilibrium, homeostasis, microtubules, microfilaments, phagocytosis, exocytosis, endocytosis, and pinocytosis.
* What is a theory?
* What are the 3 tenets of the cell theory?
* What is the difference between a prokaryote and an eukaryote?
	+ Give an example of each.
* Explain the endosymbiotic theory.
	+ State 2 pieces of evidence that support it.
* How does a plant cell differ from an animal cell?
	+ Draw an example of each
	+ What organelles are present in plant cells that are absent in animal cells?
	+ What organelles are present in animal cells that are absent in plant cells?
* What are the functions of the following organelles/ cell structures?
	+ Which structures are found in eukaryotic (E) and prokaryotic (P) cells?
		- cytoskeleton
			* Microtubules
			* Microfilaments
		- centrioles
		- lysosomes
		- golgi apparatus
		- chloroplasts
		- mitochondria
		- nucleus
		- ribosome
		- smooth endoplasmic reticulum
		- rough endoplasmic reticulum
		- vacuoles
		- vesicles
		- cilia
		- flagella
		- cytoplasm
		- cell membrane
		- cell wall
* Draw the cell membrane and label its parts
	+ How does the properties of the phospholipid affect the transport of molecules?
		- What does hydrophilic & hydrophobic mean?
		- Which part of the cell membrane is polar, which is nonpolar?
	+ What does a phospholipid bilayer mean?
	+ What is a transmembrane protein?
	+ What does semi-permeable mean?
		- What substance can easily move through the lipid part of a cell membrane?
		- What substance must enter the cell membrane in a different way?
			* Why?
			* How do these substances enter the cell? Which structure in the membrane allows for these substances to enter and exit?
			* How do polar and nonpolar substances enter and exit the cell?
	+ Where are receptors located on the cell membrane?
		- What is its function?
* What is a concentration gradient?
* What is diffusion?
	+ What is an example of a substance that easily diffuses through the cell membrane?
	+ Explain the difference between simple and facilitated diffusion.
		- Give an example of each
* What is active transport? Give an example.
	+ What are the requirements for active transport to occur?
		- What form is the energy in?
		- Why is energy needed for active transport?
* What is osmosis?
	+ What is the relationship between a solute and solvent?
	+ What is hypertonic, hypotonic & isotonic?
	+ What is dynamic equilibrium?
	+ How does osmosis maintain homeostasis?
	+ Use the terms- hypertonic and hypotonic to describe the following:
		- 0.9% salt vs. 10.3% salt
		- 87% water vs. 82% water
		- 0.6% salt vs. 94.4% water
	+ What is plasmolysis?
	+ If a cell swells, where is water moving, in or out of the cell?
		- Where is hypotonic and hypertonic- in or out of the cell?
	+ What is the difference between animal and plant cells and the effect of water moving in cells?
	+ If a cell shrivels/wilts/ gets flaccid/ cytolysis/ lyse/ undergoes plasmolysis, where is water moving, in or out of the cell?
		- Where is hypotonic and hypertonic- in or out of the cell?
	+ In general, which direction does water move- from hypotonic to hypertonic or hypertonic to hypotonic?
	+ Give an example
* What are bulk transport mechanisms?
* What is endocytosis & exocytosis? Give an example for each.
	+ What organism engaged in phagocytosis?
* What is pinocytosis & phagocytosis? Give an example for each.
* How do the cells of the multicellular organisms work together to maintain homeostasis?
	+ What is cell specialization?
		- Give an example of cell specialization
		- How does the DNA in a specialized cell compare with the DNA of another specialized cell?
		- How is a stem cell capable of producing a specialized cell?
* What are the levels of organization in multicellular organisms?
	+ Give an example of each level