

Equilibrium Study Guide

Concepts & GPS:

- Macromolecules (*SB1c; Sec. 3-3*)
- Cell Structure & Function (*SB1a; Ch. 7*)
 - Cellular Transport (*SB1d; Ch. 8*)
 - Nutrient Cycling (*SB4b; Sec. 4-3*)

Vocabulary:

Biochemistry

Atom
Element
Ion
Covalent bond
Ionic bond
Hydrogen bond
Polarity
Cohesion
Adhesion
Monomer
Polymer
Carbohydrate
Lipid
Protein
Nucleic acid

Cells

Organelle
Cell
Cytoplasm
Ribosome
Nucleus
Nucleolus
Centriole
Cell membrane
Endoplasmic reticulum
Vesicle
Golgi apparatus
Vacuole
Chloroplast
Mitochondria
Cytoskeleton
Lysosome
Cell wall

Cell Transport

Phospholipid
Receptor proteins
Transport proteins
Equilibrium
Concentration gradient
Passive transport
Active transport
Diffusion
Facilitated diffusion
Osmosis
Hypertonic
Hypotonic
Isotonic
Endocytosis
Exocytosis

Nutrient Cycle

Transpiration
Evaporation
Precipitation

Questions

Chemistry

1. Which part of an element is involved in chemical reactions: protons, neutrons, or electrons?
2. Define the 3 types of bonds that can form between elements.
3. What are the 5 main elements that make up living things?
4. What are the 4 properties of water?

Macromolecules

5. What are the functions of the 4 macromolecules?
6. What are the monomers and polymers of the 4 macromolecules?
7. What elements make up each of the 4 macromolecules?

Cell Structure

8. Explain the 3 parts of the cell theory and the scientists involved.
9. What is the difference between prokaryotic and eukaryotic cells?
10. What are the functions of the organelles from your notes?
11. What organelles do plant cells have that animal cells do not?

Cell Transport

12. Explain each of the following (function or description) and draw a picture of the membrane: transport (integral) proteins, peripheral (receptor) proteins, phospholipids, hydrophobic, hydrophilic, cholesterol, carbohydrates
13. Explain the difference between the following:
 - a. passive and active transport
 - b. osmosis and diffusion
 - c. diffusion and facilitated diffusion
 - d. endocytosis and exocytosis
 - e. facilitated diffusion and active transport
14. Explain how each of the 3 environments cause the movement of water: hypotonic, hypertonic, and isotonic?
15. How does the sodium/potassium pump work in the cell?

Water Cycle

16. How is water recycled in an ecosystem (steps of water cycle)?

Review Questions (you will get a few questions that cover content from previous units)

17. What are the main characteristics of the 6 kingdoms: cell type, cell number, nutrition, and cell wall?
18. What are the 7 characteristics of life?