

7.3 Cell Transport

Passive Transport

For Questions 1-4, write the letter of the correct answer on the line at the left.

- Which of the following must be true for diffusion to occur?
 A. Molecules or particles must have different sizes.
 B. Special protein channels must always be available.
 C. There must be areas of different concentrations.
 D. Energy must be available.
- Which term refers to the condition that exists when no net change in concentration results from diffusion?
 A. concentration
 B. equilibrium
 C. osmosis
 D. randomness
- Air has a higher concentration of oxygen molecules than does the cytoplasm of your lung cells. Where in your lungs will there be a net increase of oxygen?
 A. in the air breathed in
 B. in the air breathed out
 C. outside of the lung cells
 D. inside of the lung cells
- Which of the following statements tells how facilitated diffusion differs from simple diffusion?
 A. Particles move through cell membranes without the use of energy by cells.
 B. Particles tend to move from high concentration to lower concentration.
 C. Particles move within channel proteins that pass through cell membranes.
 D. Particles tend to move more slowly than they would be expected to move.

For Questions 5-7, match the situation with the result. Write the letter of the correct answer on the line at the left.


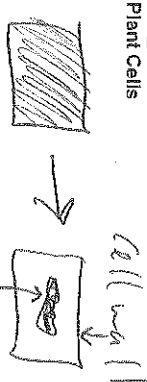
Situation

- Cells are in an isotonic solution.
- Cells are in a hypertonic solution.
- Cells are in a hypotonic solution.

Result

- The cells lose water.
- The cells gain water.
- The cells stay the same.

- In the table below, draw how each type of cell will look after being placed in a hypertonic solution.

Animal Cells	Plant Cells
<p>Shrunken cells</p> 	<p>Cell wall</p>  <p>Cell Membrane</p>

Active Transport

- What is the function of active transport in moving small molecules and ions across cell membranes? Give an example.
 When you have to move materials against a concentration gradient: wastes -> urine
- How does ATP enable transport proteins to move ions across a cell membrane?
 It is the energy source
- What are the proteins used in active transport called?
 protein pumps
- Complete the table to summarize the types of bulk transport.

Type	Description
Endocytosis	taking materials in by "folding-in"
Phagocytosis	part of the cell membrane engulfing particles into a cell
Exocytosis	Releasing materials from a cell (large)

- Most sports drinks are isotonic in relation to human body fluids. Explain why athletes should drink solutions that are isotonic to body fluids when they exercise rather than ones that are hypotonic to body fluids (contain a greater proportion of water in comparison to the fluids in and around human body cells).

replace molecules that are lost to sweat, allow for quicker equilibrium

7.4 Homeostasis and Cells

The Cell as an Organism

For Questions 1-5, complete each statement by writing the correct word or words.

1. The term homeostasis refers to the relatively constant internal physical and chemical state of a living cell.
2. Unicellular prokaryotes, called bacteria, are adapted to living in a remarkable number of different places.
3. Some unicellular eukaryotes, called algae, contain chloroplasts.
4. Yeasts are unicellular fungi, which are eukaryotes.
5. Other unicellular eukaryotes include protists/paramecia and algae.
6. How do single-celled organisms maintain homeostasis?
They produce energy, grow, and respond to changes in the environment

Multicellular Life

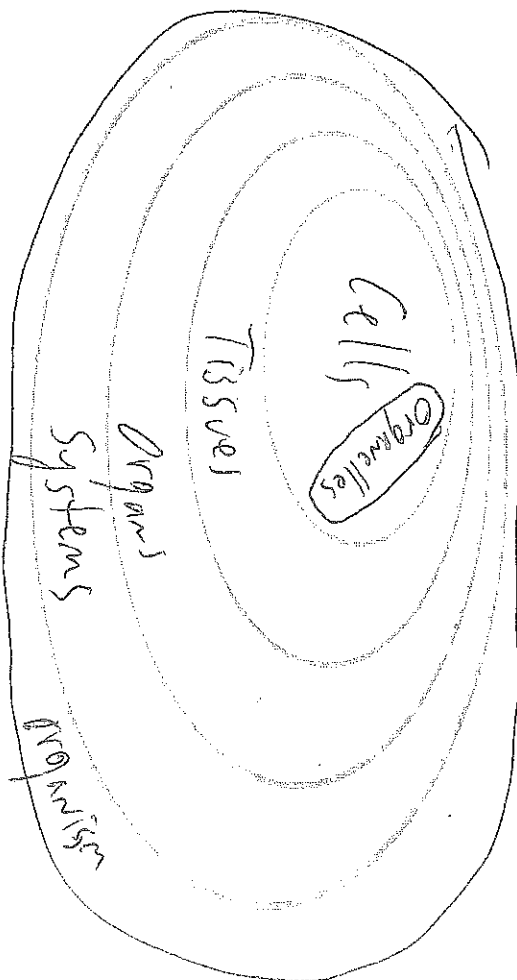
Work together doing different tasks

Interdependence of cells/tissues/organs

9. How does a multicellular organism maintain homeostasis?
10. Complete the table by describing the functions of the specialized cells.

Type of Cell	Name of Specialized Cell Part	Function of Specialized Cell Part
cells that line the upper air passages in humans	cilia	sweeps mucus, debris out of lungs + throat
pine pollen grains	wings	allows pollen to drift on the breeze

11. The Venn diagram below consists of four concentric circles. Complete the diagram to show the relationships among four levels of organization of life. Use the terms *cells*, *organ*, *organ system*, and *tissue*.



12. Starting with the outermost circle of the diagram, explain how each level is related to the next level within each circle.
Systems are made of organs, which are made of tissues, which are made of cells,

13. What is the name of the areas that hold adjacent cells together and enable them to communicate?

cellular junctions

14. On the Venn diagram above, where would you add a circle that represents organelle?

inside of the "cells" circle

15. Where would you add a circle that represents organism?

Outside of the whole thing