

Concept 4  
Exchange with the Environment

Name \_\_\_\_\_

<b>Topics</b>	<b>Notes, Diagrams, Drawings</b>
What are Elements?	Any substance that cannot be broken down into simpler substances.
What are Compounds?	A substance created when two or more elements chemically combine.
What are Carbohydrates?	An Energy-rich organic compound, such as a sugar or a starch, that is made of the elements carbon, hydrogen, and oxygen.
What are Lipids?	An Energy-rich organic compound, such as a fat, oil, or wax that is made of the elements carbon, hydrogen, and oxygen.
What are Proteins?	Large organic molecule made of carbon, hydrogen, oxygen, nitrogen and sometimes sulfur.
What are Nucleic Acids?	Nucleic Acids contain the instructions that cells need to carry out all the functions of life.
What is the relationship between water and living things?	Water takes part in the chemical reactions of the cell, it also helps the cell keep shape, transport materials, and maintain temperature.
What is Selective Permeability?	The cell membranes ability to allow some substances in but not others.
Cells exchange with their environment.	Cells take materials in and remove waste through the cell membrane.

Diffusion	Diffusion is the movement of particles from an area of high concentration to an area of low concentration.
Osmosis	The diffusion of water through the cell membrane.
The Cell and osmosis	Osmosis has different effects on the cell based of the water concentration surrounding the cell.
Hypertonic	A solution where the concentration of solutes is greater outside the cell than inside it causing water to leave the cell resulting in the cell shriveling and shrinking.
Hypotonic	A solution is one in which the concentration of solutes is greater inside the cell than outside of it, resulting in more water to enter the cell causing it to swell.
Isotonic	An isotonic solution is one in which the concentration of solutes is the same both inside and outside of the cell.
Moving Small Particles	Water and Oxygen can diffuse directly through the cell membrane, sugar and amino acids must pass through protein doorways.
Passive Transport	The diffusion of particles through proteins in the cell membrane from areas of high concentration to areas of low concentration. Does not require any energy.
Active Transport	The movement of particles through the proteins in the cell membrane against the direction of diffusion; requires cells to use energy.

<p>Moving Large Particles</p>	<p>Cells move large particle using two methods.</p>
<p>Endocytosis</p>	<p>The process in which a cell membrane surrounds a particle and encloses it in a vesicle to bring it into the cell.</p>
<p>Exocytosis</p>	<p>The process used to remove large particles from a cell; during exocytosis, a vesicle containing the particles fuses with the cell membrane.</p>