**CELLULAR PROCESSES UNIT GUIDE Due November 11**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Monday** | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
|  | 10/27  \*Cell Membrane | 10/28  \*Cell membrane  \*Diffusion inquiry | 10/29  \*Transport notes  **UG:Questions 1-5** | 10/30  \*Transport  foldable  (Wheatley Out) |
| 11/2  \*Gummy bear lab  set-up | 11/3  \*Gummy bear lab  analysis  **UG:Questions**  **6-10** | 11/4  \*Plasmolysis lab | 11/5  \*Photosynthesis vs respiration notes and videos  **UG:Questions**  **11-15** | 11/6  \* Photosynthesis vs respiration foldable |
| 11/9  \*Photosynthesis and respiration lab | 11/10  \*Vocab quiz  \*Photosynthesis and respiration lab | 11/11  **CELL PROCESSES UNIT REVIEW** | 11/12  **CELL PROCESSES UNIT TEST** | 11/13 |

**Read:** Chapters 3 and 4 **UNIT TEST:** November 12

**Watch (Supplemental Resource):**

**Cell Membrane (Crash Course):** [**https://www.youtube.com/watch?v=dPKvHrD1eS4**](https://www.youtube.com/watch?v=dPKvHrD1eS4)

**Osmosis (Amoeba Sisters):** [**https://www.youtube.com/watch?v=IaZ8MtF3C6M**](https://www.youtube.com/watch?v=IaZ8MtF3C6M)

**Photosynthesis and Respiration:** [**https://www.youtube.com/watch?v=JUmT24R8CyA**](https://www.youtube.com/watch?v=JUmT24R8CyA)

**Photosynthesis and Respiration:** [**https://www.youtube.com/watch?v=QMgCziQgrus**](https://www.youtube.com/watch?v=QMgCziQgrus)

**Animations -links will be on my website!**

**Osmosis:** [**http://highered.mheducation.com/sites/9834092339/student\_view0/chapter5/animation\_-\_osmosis.html**](http://highered.mheducation.com/sites/9834092339/student_view0/chapter5/animation_-_osmosis.html)

[**http://highered.mheducation.com/sites/9834092339/student\_view0/chapter5/how\_osmosis\_works.html**](http://highered.mheducation.com/sites/9834092339/student_view0/chapter5/how_osmosis_works.html)

**Diffusion**

[**http://highered.mheducation.com/sites/9834092339/student\_view0/chapter5/how\_diffusion\_works.html**](http://highered.mheducation.com/sites/9834092339/student_view0/chapter5/how_diffusion_works.html)

**Endocytosis**

[**http://highered.mheducation.com/sites/9834092339/student\_view0/chapter5/endocytosis\_and\_exocytosis.html**](http://highered.mheducation.com/sites/9834092339/student_view0/chapter5/endocytosis_and_exocytosis.html)

**Book Online at**: <http://my.hrw.com>

Use your username and password to get to the biology book -or-

* Username: student26972 Password: n8j2x
* Mrs. Wheatley’s website: www.wheatleybiology.weebly.com

**What the state of Texas wants you to know!**

* TEKS 4B- Investigate and explain cellular processes including homeostasis, energy conversions,

transport of molecules and synthesis of new molecules.

* TEKS 9B- Compare the products and reactants of photosynthesis and cellular respiration in terms of energy and products.

VOCABULARY QUIZ: **Due November 10**

* **Cellular Process :** activities occurring at the cell level.
* **Homeostasis:** regulation and maintenance of constant internal conditions in an organism.
* **Transport of molecules**: method by which molecules are moved in and out of the cell.
* **Phospholipid:** molecule that forms the double layered cell membrane; consisting of a glycerol, phosphate group and two fatty acids.
* **Fluid Mosaic Model**: model that describes the arrangement and movement of the molecules that makes up the cell membrane.
* **Selective Permeability:** condition or quality of allowing some but not all, materials to cross a barrier or membrane.
* **Diffusion:** movement of dissolved molecules in a fluid or gas from a region of higher concentration to a region of lower concentration.
* **Osmosis:** diffusion of water molecules across a semipermeable membrane from an area of higher water concentration to an area of lower water concentration.
* **Active Transport:** energy-requiring movement of molecules across a membrane from a region of lower concentration to a region of higher concentration.
* **Passive Transport:** movement of molecules across the cell membrane without energy input from the cell.
* **Concentration Gradient**: difference in the concentration of a substance from one location to another.
* **Energy Conversion:** the process of transforming energy from one form into another.
* **Reactant:** substance that is changed by a chemical reaction.
* **Product:** substance formed by a chemical reaction.
* **Photosynthesis:** process by which light energy is converted to chemical energy; produces sugar and oxygen from carbon dioxide and water.
* **Cellular Respiration:** process of producing ATP by breaking down glucose molecules when oxygen is present.
* **ATP:** Adenosine TriPhosphate- High energy molecule that contains, within its bonds, energy that cells can use.
* **Aerobic Respiration:** process that requires oxygen to occur.
* **Anaerobic Respiration:** process that does not require oxygen to occur.
* **Fermentation:** anaerobic process by which ATP is produced by glycolysis.
* **Chlorophyll:** light absorbing pigment molecule in photosynthetic organisms.
* **Light-Dependent Reaction**: part of photosynthesis that absorbs energy from sunlight and transfers energy to the light-independent reactions.
* **Light-Independent Reaction:** part of photosynthesis that uses energy absorbed during the light-dependent reactions to synthesize carbohydrates.
* **Glycolysis:** anaerobic process in which glucose is broken down into two molecules of pyruvate and two net ATP are produced.

**Recall and Review: ANSWER ALL THE QUESTIONS IN COMPLETE SENTENCES.**

Use the video and your textbook to help you answer the following questions.

**Chapter 3 (Section 3)**

**1. Draw, color and identify** the following structures of the cell membrane: carbohydrate chain, cholesterol, phospholipid bilayer, transport protein.

2. **State** a function of each type of molecule that is embedded in the phospholipid bilayer:

Carbohydrate chain:

Cholesterol:

Phospholipid bilayer:

Transport proteins:

**Chapter 3 (Section 4)**

3. **Explain** what a concentration gradient is and what it means for a molecule to move down its

concentration gradient.

4. **Compare and Contrast** passive and active transport.

|  |  |  |
| --- | --- | --- |
| Passive Transport | Both | Active Transport |
|  |  |  |

5. **Differentiate** between diffusion and osmosis.

|  |  |
| --- | --- |
| Diffusion | Osmosis |
|  |  |

**Chapter 3 (Section 4)**

6. **Explain** the following terms: hypotonic, hypertonic, isotonic

Hypotonic:

Hypertonic:

Isotonic:

7. **Label** the following diagrams of Red Blood Cells and Plant Cells as being examples of cells contained in

Isotonic, Hypertonic and Hypotonic solutions.

|  |  |  |  |
| --- | --- | --- | --- |
| Type of cell Type of Solution |  |  |  |
|  |  |  |  |
|  |  |  |  |

**Chapter 3 (Section 5)**

8. **Define** each of the following, and **describe/draw** a specific cellular example.

|  |  |  |
| --- | --- | --- |
| Exocytosis |  |  |
| Endocytosis |  |  |
| Phagocytosis |  |  |
| Pinocytosis |  |  |

**Chapter 4 (Section 1)**

9. **Draw and label** an ATP molecule.

10. **Describe** the function of ATP.

11. **Compare** ATP and ADP.

|  |  |
| --- | --- |
| ATP | ADP |
|  |  |

**Chapter 4 (Section 2)**

12. **Describe** the importance of producers and photosynthesis.

13.  **State** the equation for photosynthesis. **Label** with the following: products, reactants

14. **Describe** the role of a chloroplast in photosynthesis.

15. **Explain** why photosynthesis is important for building the structure of plant cells.

**Chapter 4 (Section 3)**

16.  **Explain** the function of cellular respiration.

17. **State** the equation for respiration. **Label** with the following: products, reactants

18. **Describe** the role of mitochondria in cellular respiration.

19. **Explain** the following statement: cellular respiration is like a mirror image of photosynthesis.

**20-Practice Questions:**

1. Which of the following is NOT an example of active transport?  
a. facilitated diffusion

b. osmosis

c. endocytosis

d. both a & b

2. Which process always involves the movement of materials from inside the cell to outside the cell?

a. osmosis

b. exocytosis

c. phagocytosis

d. pinocytosis

3. Cell membranes are constructed mainly from:  
a. lipid bilayers

b. carbohydrate gates

c. protein pumps

d. free moving proteins

4. A substance that moves across a cell membrane without using the cell's energy tends to move:  
 a. away from the area of equilibrium  
 b. away from the area where it is less concentrated  
 c. away from the area where it is more concentrated  
 d. toward the middle of the cell

5. The movement of water across a selectively permeable membrane is called:  
a. exocytosis

b. endocytosis

c. phagocytosis

d. osmosis