**BIOLOGY 2022-23 October 27, 2022**

**Today’s Agenda (Day 45)**

1. HOUSEKEEPING ITEMS

🡪 Bring materials for National Pasta/Potato Day – **focus on bringing items as they associate with the concepts covered in Chapter 6 – macromolecules, mixtures, acids/bases, enzymes**

1. Homework Check:

🡪 Chapter 7 Vocabulary

1. Class Activity:

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🡪BEFORE FEASTING: National Pasta/Potato Day – student must be able to explain which concept is being covered with their contributed item

HOMEWORK:

* READ: Chapter 6 – Chemistry in Biology
* READ: Chapter 7 – Cell Structure and Function
* COMPLETE: Chapter 7 Reading Guide Questions
* **STUDY**: Chapter 6 Test, Chapter 7 Vocabulary and Test

**CHAPTER 7 VOCABULARY**

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| Active transport | Cell | Cell theory | Cell wall | Centriole | Chloroplast |
| Cilium | Cytoplasm | Cytoskeleton | Diffusion | Dynamic equilibrium | Endocytosis |
| Endoplasmic reticulum | Eukaryotic cell | Exocytosis | Facilitated diffusion | Flagellum | Fluid mosaic model |
| Golgi apparatus | Hypertonic solution | Hypotonic solution | Isotonic solution | Lysosome  | Mitochondrion |
| Nucleolus | Nucleus | Organelle | Osmosis | Phospholipid bilayer | Plasma membrane |
| Prokaryotic cell | Ribosome | Selective permeability | Transport protein  | vacuole |  |

REMINDERS:

* Mini-lab: Enzymatic Browning – Oct. 31
* **TEST: Ch 6 🡪 Nov. 1 !! CHANGE OF DATE!!**
* ~~Chapter 7 Vocabulary – Oct. 28~~
* **QUIZ: Ch 7 🡪 Nov. 3**
* Chapter 7 Reading Guide – Nov. 3
* **TEST: Ch 7 🡪 Nov. 8**

**BIOLOGY 2022-23 READING GUIDE**

Chapter 6 Chemistry in Biology

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| Review pages 148 – 171 in the Glencoe Science *Biology*Textbookand answer the following questions.1. Define **matter**.  Describe atoms in terms of matter.
2. State the location and charge of the three subatomic particles of an atom.
3. Why are elements in the periodic table placed in the groups (vertical columns)?
4. List the most abundant element in living organisms and then nonliving matter.  Do the same for least abundant.
5. What are **isotopes**?  Give an example.
6. What are **compounds**?  Explain how they are the same, or how they are different, then the individual elements they are made of.
7. Describe how **covalent bonds** form.  Give an example.
8. Describe how **ionic bonds** form.  Give an example.
9. What types of elements tend to donate electrons?  What type of elements tend to accept electrons?
10. What are **van der Waals forces**?  What factors determine the strength of these forces?
11. Why must all chemical reactions be balanced?
12. Label the reactants and products in the following equation:

6CO2 + 6H2O + sunlight 🡪 C6H12O6 + 6O21. How do enzymes work in terms of **activation energy**?
2. Describe what is taking place in the diagram below:

 1. Explain why water is **a polar molecule**.
2. Compare and contrast **homogeneous mixtures** and **heterogeneous mixtures**.
3. Describe the difference between acids and bases in terms of ions.
4. List 2 common **acids** and two common **bases**.
5. How do **buffers** help organisms maintain homeostasis?
6. List and describe the four most essential macromolecules in organism.
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**BIOLOGY 2022-23 MINI LAB**

**CHAPTER 6 MINI LAB – Investigate Enzymatic Browning**

**What factors affect enzymatic browning?** When sliced, an apple’s soft tissue is exposed to oxygen, causing a chemical reaction called oxidation. Enzymes in the apple speed this reaction, producing darkened, discolored fruit. In this lab, you will investigate methods used to slow enzymatic browning.

**Procedure ’**

1. Read and complete the lab safety form.

2. Predict the relative amount of discoloration each of these apple wedges will show when exposed to air. Justify your prediction.

Sample 1: Untreated apple wedge Sample 3: Apple wedge submerged in lemon juice

Sample 2: Apple wedge submerged Sample 4: Apple wedge submerged in sugar solution in boiling water

3. Prepare 75 mL of each of the following: boiling water, lemon juice, and sugar solution in three 250-mL beakers.

4. Slice an apple into four wedges. Immediately use tongs to submerge each wedge in a different liquid. Put one wedge aside.

5. Submerge the wedges for three minutes, then place on a paper towel, skin side down. Observe for 10 min, then record the relative amount of discoloration of each apple wedge.

**Analysis**

1. Analyze How did each treatment affect the chemical reaction that occurred on the fruit’s soft tissue? Why were some of the treatments successful?

2. Think Critically A restaurant owner wants to serve fresh-cut fruit. What factors might be considered in choosing a recipe and preparation method?

**BIOLOGY 2022-23 READING GUIDE**

**Chapter 7 Cellular Structure & Function**

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| Review pages 182 – 207 in the Glencoe Science *Biology*Textbookand answer the following questions.1. List the three principles of the **Cell Theory**.
2. Describe one strength and one weakness of both a compound light microscope and an electron microscope.
3. What is the essential function of the **plasma membrane**?
4. Compare and contrast **eukaryotic** cells and **prokaryotic** cells.
5. Describe the **endosymbiont theory**.
6. When describing the plasma membrane, selectively permeable and phospholipid bilayer are almost always mentioned.  What do these terms mean?
7. What are **transport proteins** used for in the plasma membrane?
8. Some scientists consider the role of cytoplasm more vital (important) in prokaryotes rather than eukaryotes.  Explain why.
9. Draw the eukaryotic cell below and label and define all organelles listed on Table (p199).

 Diagram  Description automatically generated1. Would you expect to find more mitochondria in a muscle cell or a skin cell?  Explain your answer.
2. Plant cells have a cell wall (animal cells don’t), what is its function?
3. Describe the process of protein synthesis mentioning all the organelles involved in the process.
4. Define **diffusion**.  Give an example.
5. What is meant by the term **dynamic equilibrium**?
6. How is **facilitated diffusion** different from **simple diffusion**?
7. How does **osmosis** work?
8. Define **isotonic** solution, **hypotonic** solution, and **hypertonic** solution.
9. Describe how a cell behaves in each of the following: isotonic solution, hypotonic solution, and hypertonic solution.
10. Determine which type of solution each red blood cell is in from each of the diagrams below:

A.Chart, diagram  Description automatically generated B. Diagram  Description automatically generated C.Chart, scatter chart  Description automatically generated                                                                                                        1. What is the main difference between **active transport** and **diffusion**?
2. Compare and contrast **exocytosis** and **endocytosis**.
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