**PRE-AP BIOCHEMISTRY UNIT GUIDE Due 9/10/15**

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| **Monday** | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **8/24**  \*Ice-breaker  \*Cube Inquiry  Activity | **8/25**  \*Lab Safety | **8/26**  \*Lab Safety | **8/27**  \*Pre-assessment  \*Amoeba Sisters:  Biomolecule Band  \*Macromolecule  notes | **8/28**  \*Macromolecule  jigsaw |
| **8/31**  \*Macromolecule  jigsaw | **9/1**  \*Macromolecule lab  day one | **9/2**  \*Macromolecule  lab day two | **9/3**  \*Vocabulary quiz  \*Go fish game | **9/4**  \*Enzyme notes and  discussion  \*Enzyme worksheet |
| **9/7**  **NO SCHOOL** | **9/8**  \*Enzymes lab | **9/9**  \*Digestion activity | **9/10**  **BIOCHEMISTRY TEST REVIEW** | **9/11**  **BIOCHEMISTRY TEST** |

**Read:** Chapter 2 **UNIT TEST: 9/11/15**

**Watch (Supplemental Resource):** Paul Andersen’s “The Molecules of Life” (<https://www.youtube.com/watch?v=QWf2jcznLsY>)

**Book online at :** [**http://my.hrw.com**](http://my.hrw.com)

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

Username: Password:

**Mrs. Wheatley’s website:** [www.wheatleybiology.weebly.com](http://www.wheatleybiology.weebly.com)

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

TEKS 9A- compare the structures and functions of different types of biomolecules, including carbohydrates, lipids, proteins and nucleic acids;

TEKS 9C- identify and investigate the role of enzymes

TEKS 9D- analyze and evaluate the evidence regarding formation of simple organic molecules and their organization into long complex molecules.

TEKS 10A- describe the interactions that occur in the system that perform the function of nutrient absorption

**Listen and Look**

Here is a list of key terms you will hear and see during the reading and video. Get to know them!

* **Solute :** substance that dissolves in a solvent and is present at a lower concentration than the solvent.
* **Solvent**: substance in which solutes dissolve and that is present in greatest concentration in a solution.
* **Macromolecule**: large organic molecule; also referred as biomolecule-molecule produced or used my living organisms.
* **Monomer**: molecular subunit of a polymer
* **Polymer**: large carbon-based molecule formed by monomers.
* **Carbohydrate**: molecule composed of carbon, hydrogen and oxygen; includes sugars and starches.
* **Protein**: polymer composed of amino acids linked by peptide bonds; folds into a particular structures depending on bonds between amino acids.
* **Lipid** : nonpolar molecule composed of carbon, hydrogen, and oxygen; includes fats and oils.
* **Nucleic Acid:** polymer of nucleotides, the genetic material of organisms.
* **Dehydration Synthesis**: chemical reaction in which water is formed when two molecules are joined.
* **Hydrolysis** : chemical reaction in which a water molecule is broken and one molecule is broken down into two products.
* **Chemical Bond**: Attraction between atoms that creates chemical substances containing two or more atoms**.**
* **Enzymes** : protein that catalyzes chemical reactions for organisms.
* **Substrate**: reactant in a chemical reaction upon which an enzyme acts.
* **Reactant**: substance that is changed by a chemical reaction.
* **Product**: substance formed by a chemical reaction.
* **Amino Acid** : molecule that makes up proteins; composed of carbon, hydrogen, oxygen, nitrogen and sometimes sulfur.
* **Chemical Reaction** : process by which substances change into different substances through the breaking and forming of chemical bonds.
* **Catalyst**: substance that decreases activation energy and increases reaction rate in a chemical reaction.
* **Activation Energy**: energy input necessary to initiate a chemical reaction.
* **Nucleotide**: monomer that forms DNA and has a phosphate group, a sugar and a nitrogen-containing base.
* **Monosaccharide:** carbohydrate monomer made of only one sugar molecule.

**Important Prefixes and suffixes:**

* **Mono-:** one
* **Poly-:** many
* **Macro-:** large
* **-ase:** enzyme
* **-ose:** sugar

**Directions:** Your objective in this activity is to earn 100 points. Choose any activities you wish and complete by the due date assigned.

|  |  |
| --- | --- |
| **Activity** | **Points** |
| 1. Complete a Frayer diagram for each word. Divide your diagram into the following categories: definition, Sentence, Diagram, and Example. (Diagram is a labeled picture.) | 100 |
| 2. Create a Vocabulary Booklet. Each page must have the term at the top, the definition at the bottom, an example and an illustration in the middle with a sentence or description using the term. | 100 |
| 3. Word Detective for all words. Use your textbook and a dictionary…Do they provide the same definitions? (Make a chart that has the word, definition from book and page #, definition from dictionary, name of dictionary and page #, and sentence using word.) | 100 |
| 4. Complete a Vocabulary Log with all vocab words: (word, definition, and example or illustration). | 50 |
| 5. Create a rap, song, riddle, or poem including words and meanings. (25 points extra if you perform it for the class) | 50 |
| 6. Diagram representation of each word. Needs to be no more than 4 on a page (A diagram is a labeled picture) | 25 |
| 7. Create and complete a crossword puzzle including all words. You MUST give clues or definitions for the Across and Down Sections. You may not use the same clues or definitions as word search. | 50 |
| 8. Create and complete a word search including all words. You MUST give clues or definitions. DO NOT list the actual key word. You may not use same clues or definitions as the crossword puzzle. | 50 |
| 9. Write an essay or story including all words. Only one word per sentence. Words must be used correctly. Spelling and grammar will be considered. Essay/story must be at least 3 paragraphs long. | 50 |
| 10. Write a sentence for each word that shows the meaning of the vocabulary. This is NOT simply writing the definition. | 25 |
| 11. Create a detailed and logical concept or word map. Use linking words on the lines or arrows. Must show relationship between words. | 50 |
| 12. Create a set of flashcards. | 25 |

Visit: www.wheatleybiology.weebly.com

to obtain templates and link to websites to help with your assignment.

VOCABULARY EXERCISES: due…9/8/15

**Recall and Review:** Use the lecture in the video and your textbook to help you answer the following questions in your 3-ring binder. **ANSWER IN FULL SENTENCES.**

**Chapter 2 Questions**

1. Explain the difference between a monomer and polymer.
2. Write your own analogy for the formation of a polymer from monomers.
3. Draw and complete the chart below

|  |  |  |
| --- | --- | --- |
| Macromolecule | Example | Function |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

1. State the two parts of a chemical reaction.
2. Define activation energy.
3. State the role of enzymes in organisms.
4. How are phospholipids similar to lipids such as triglycerides? How are they different?
5. The human body can reuse some of the enzymes found in raw fruits and vegetables. Why is this not the case for cooked fruits and vegetables?
6. What are the advantages and disadvantages of eating a “nutritionally engineered” product versus relying on a balanced diet to maintain health?
7. Scientific Method: Biology students were asked to find out if some foods provided more energy. During lunch they provided different snacks to everyone.

A-lunch students ate the school lunch but did not receive any snacks.

B-lunch students ate the school lunch and a cereal bar (full of carbohydrates).

C-lunch students ate the school lunch and a nut/dark chocolate candy (full of lipids)

At the end of the school day the biology students survey the students to find out how the students

from different lunch felt.

1. What is a hypothesis for this experiment?
2. What is the control group? What is the experimental group?
3. Define the independent and dependent variables.
4. Identify 2 constants in this experiment.
5. Based on your knowledge and properties of biomolecules, predict what the result of this experiment would be? Explain your answer.