**Unit 1 Test Study Guide**

**\*Directions: Use this study guide to aid in your preparation for the unit 1 test, which will be at the end of this week!!! Also refer to your class PowerPoint (ppt.) notes and discussions. TAKE ADVANTAGE OF THIS TIME TO STUDY!!!**

**Working like a Scientist**

1. Review the Science Safety Rules

2. Review Scientific Method

**The Nature of Science**

1. Provide examples of *what is “science”*, *what clearly is not* *“science”* and *what superficially resembles “science”* but fails to meet the criteria for science

2. What are the goals of science?

3. Provide examples of scientific questions and non-scientific questions.

**The Chemistry of Life**

1. What is an atom?

2. List the three subatomic particles and their charges.

3. What is an element?

4. What is a chemical compound?

5. Describe the relationship between *atoms*, *elements*, and *chemical compounds*.

6. Differentiate ionic bonds and covalent bonds. *Pay attention to key words!!!*

**Properties of Water**

1. Be able to sketch a water molecule, indicating the chemical formula for water and the positive and negative charges. (pgs. 40-41)

2. List the special properties of water. (pg. 40-42)

3. Explain the term “polarity” in reference to water molecules (in other words, why are water molecules considered “polar”?). BE SPECIFIC!!! (pg. 40)

4. Explain hydrogen bonding. (pgs. 40-41)

5. Compare and contrast cohesion and adhesion. (pg. 41)

6. Explain how an insect can walk on water while a human cannot. (notes and class discussions)

7. Explain how water molecules’ high heat capacity enables organisms that live underwater to survive during drastic drops in temperature (pg. 41)

8. Explain what happens when water dissolves a solute such as salt. BE SPECIFIC (hint: salt, NaCl¯, is an ionic compound) (pg. 42 and figure 2-9)

9. Why is water referred to as the “universal solvent”?

**Biological Macromolecules**

1. List 2 special properties of Carbon.

2. Define the terms “monomer” and “polymer”. Describe the relationship between monomers and polymers. (hint: what is polymerization? I recommend that you use a sketch for assistance). (pg. 46)

3. List and describe the 4 major groups of biological macromolecules and indicate their functions *(\*functions are what they do)*. I recommend that you sketch an illustration of each macromolecule’s basic structure so that you can identify them. Remember “CHO, CHO, CHON, CHONP” from the video. (pgs. 46-49 and your brochures)

4. Define “metabolism” (ppt. notes)

5. Explain *reactants* and *products* in relation to *chemical reactions* (pg. 50).

6. Define “catalysts” (pg. 52).

7. What are enzymes and what role do they play in living things? BE SPECIFIC (hint: how does an enzyme speed up the rate of a reaction?) (pg. 52)

8. Discuss the relationship between activation energy and enzyme action (I recommend illustrations) (pg. 52).

9. Identify and describe the effect of various factors on enzyme action including concentration, pH, and temperature. (hint: think about when enzymes work the best. For example, would Pepsin perform as well in the brain as it does in the stomach?) (pg. 53-54)

**\*STUDY, STUDY, STUDY!!!\***

If you have any questions while studying feel free to contact me (refer to the class syllabus for contact information) and ask questions at any time during class! I am also willing to email copies of my PowerPoints and the links to the videos that we watched during class to those who ask for them and provide me with an appropriate email address. THE DAY OF THE TEST IS TOO LATE!!!