**Biology Textbook:** Chapters 2, 8, & 9

**Standard:** BIO.A.2.1 Describe how the unique properties of water support life on Earth

BIO.A.2.2 Describe and interpret relationships between structure and function at various levels of biochemical organization

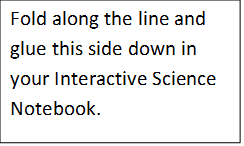
BIO.A.2.3 Explain how enzymes regulate biochemical reactions within a cell

BIO A.3.1 Identify and describe the cell structure involved in processing energy

BIO A.3.2 Identify and describe how organisms obtain and transport energy for their life processes

**Key Concepts:**

Atomic Structure Elements in Living Things Chemical Bonds Carbon Chemistry Properties of Water Macromolecule Structure and Function Nutrients in food Enzyme Structure Enzyme Activity Chloroplast Structure Photosynthesis Reaction Mitochondria Structure Aerobic respiration Anaerobic Respiration Photosynthesis + Cell Respiration Relationship



Can you show what you know?

**Essential Questions**

1. What elements does Carbon bond with to make up life’s molecules?
2. Why is water such a unique compound?
3. What are the functions of the four groups of macromolecules?
4. How does one know that enzymes speed up chemical reactions?
5. How do plants and other organisms capture energy from the sun?
6. What variables can be manipulated to change the rate of photosynthesis
7. What variables affect the rate of cell respiration?
8. How is ATP involved in many chemical reactions in the cell?
9. What is the relationship between photosynthesis and cellular respiration?

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| Page | Term | Pre | Post | Memory Clue |
|  | 1. Atom |  |  |  |
|  | 1. Element |  |  |  |
|  | 1. Covalent Bonds |  |  |  |
|  | 1. Ionic Bond |  |  |  |
|  | 1. Molecule |  |  |  |
|  | 1. Cohesion |  |  |  |
|  | 1. Adhesion |  |  |  |
|  | 1. Surface Tension |  |  |  |
|  | 1. Capillary Action |  |  |  |

**Vocabulary:** (+)= Can explain it; (-)= Only heard it 0=No Idea

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| Page | | Term | | Pre | | Post | | Memory Clue  **What I need to know/ Be able to do**   * **Diagram** the structure of an atom * **Recognize**  that biological organisms are composed primarily of very few elements – C,H,N,O,P,S * **Describe** how chemical bonds form to make molecules * **Identify** the property of water that allows various scenarios * **Relate** the polarity of water to its other properties * **Describe** the role of carbon in living organisms * **Summarize**  the four major macromolecules, including their structure and function * **Explain** the role of enzymes as catalysts that lower activation energy or reactions * **Identify** factors such as pH and temperature that have an effect on enzymes function * **Describe** how ATP works in cells * **Identify**  the role of electron carriers * **Diagram**  the structure of chloroplasts and mitochondria * **Identify** the reactions, products and basic purposes of photosynthesis and cellular respiration * **Distinguish**  between aerobic and anaerobic respiration * **Compare** lactic acid and alcoholic fermentation * **Explain** the interrelated nature of photosynthesis and cellular respiration in the cells of photosynthetic organisms. | |
|  | 1. Polymer “poly” | |  | |  | |  | |
|  | 1. Monomer “mono” | |  | |  | |  | |
|  | 1. Macromolecule | |  | |  | |  | |
|  | 1. Protein | |  | |  | |  | |
|  | 1. Polypeptide | |  | |  | |  | |
|  | 1. Amino Acid | |  | |  | |  | |
|  | 1. Carbohydrate | |  | |  | |  | |
|  | 1. Monosaccharide | |  | |  | |  | |
|  | 1. Polysaccharide | |  | |  | |  | |
|  | 1. Nucleic Acid | |  | |  | |  | |
|  | 1. Nucleotide | |  | |  | |  | |
|  | 1. Lipid | |  | |  | |  | |
|  | 1. Enzyme | |  | |  | |  | |
|  | 1. Substrate | |  | |  | |  | |
|  | 1. Active Site | |  | |  | |  | |
|  | 1. Activation Energy | |  | |  | |  | |
|  | 1. Denature | |  | |  | |  | |
|  | 1. ATP | |  | |  | |  | |
|  | 1. Glycolysis | |  | |  | |  | |
|  | 1. Krebs Cycle | |  | |  | |  | |
|  | 1. Electron Transport Chain | |  | |  | |  | |
|  | 1. Light Dependent Reaction | |  | |  | |  | |
|  | 29. Light Independent Reaction (Calvin Cycle) | |  | |  | |  | |
|  | 1. Chlorophyll | |  | |  | |  | |
|  | 1. Pigment | |  | |  | |  | |
|  | 1. Thylakoid | |  | |  | |  | |
|  | 1. Stroma | |  | |  | |  | |
|  | 1. Aerobic | |  | |  | |  | |
|  | 1. Anaerobic | |  | |  | |  | |