

## Biology Unit 2 Exam Study Guide

### Bio-molecules, Photosynthesis, and Cellular Respiration

1. Define the following:

-monomer: **A smaller subunit molecule**

-polymer: **A large molecule composed of many monomers bonded together**

2. For each Bio-molecule below, give the monomer:

-carbohydrates: **monosaccharide**

-proteins: **amino acid**

-lipids: **fatty acids, glycerol**

-nucleic acids: **nucleotides**

3. For each characteristic below, name the correct bio-molecule (They can be used more than once)

-repels water (is not water-permeable): **Lipids**

-includes enzymes as an example: **Proteins**

-used as long-term energy storage: **Lipids**

-includes glucose, which is made during photosynthesis and broken down during cellular respiration: **Carbs**

-has monomers made of phosphate, sugar, and a nitrogenous base: **Nucleic Acids**

4. Using the picture to the right, explain how an enzyme works.

**A molecule (substrate) attaches to an enzyme like a puzzle piece and then the enzyme speeds up the chemical reaction...either breaking down or building of a molecule.**



5. For each process, name the purpose, the reactants, products, and where it takes place in a cell:

<b>Photosynthesis</b>	<b>Cellular Respiration</b>
Purpose: <b>To create food energy from light energy</b>	Purpose: <b>To take food energy and make chemical energy</b>
Reactants: <b>Water, Carbon Dioxide, Sunlight</b>	Reactants: <b>Oxygen and glucose</b>
Products: <b>Oxygen, glucose</b>	Products: <b>Water, carbon dioxide, and ATP (chemical energy)</b>
Where in the cell: <b>Chloroplasts</b>	Where in the cell: <b>Mitochondria</b>
Type of cell: <b>Plant cells</b>	Type of cell: <b>Plant and animal cells</b>

6. Explain how photosynthesis and cellular respiration are related.

**The products in photosynthesis are used as the reactants in cellular respiration- they exchange the gases used.**

**Other Vocab:** Also be familiar with the following words/definitions.

Chlorophyll, mitosis, active transport, germinating, primitive, catalyze, organic, abiotic

**TEOS tested:**

**B:** The student knows the significance of various molecules involved in metabolic processes and energy conversions that occur in living organisms. The student is expected to:

**A:** compare the structures and functions of different types of biomolecules, including carbohydrates, lipids, proteins, and nucleic acids

**B:** compare the reactants and products of photosynthesis and cellular respiration in terms of energy and matter

**C:** identify and investigate the role of enzymes

**D:** analyze and evaluate the evidence regarding formation of simple organic molecules and their organization into long complex molecules having information such as the DNA molecule for self-replicating life.

# Modern Biology Study Guide And Respiration

**AN Whitehead**



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