**HSHP Biology Midterm Review**

**ELM #1: Safety and Biomolecules**

**Unit 1- Science Safety and Scientific Method**

*What lab safety precautions would be taken when dissecting preserved specimens?*

*What equipment would the biologist need to conduct an investigation with bacteria?*

*The scientist discovers that the experiment does not support the claim. What should the scientist do?*

**Be familiar with the following terms:**

Control

Data **Identify each molecule below as either a carbohydrate, a lipid, a nucleic acid or a protein.**



Experiment

Hypothesis

Valid Conclusion

**Unit 2- Biochemistry**

*What are the functions of carbohydrates?*

*What are the functions of lipids?*

*What are the functions of nucleic acids?*

*What elements make up protein?*

*How do enzymes affect chemical reactions?*

**Be familiar with the following terms:**

Activation energy

Active site

Amino acid

Benedict’s solution **Describe the processes illustrated below**

1.

Biuret reagent

Carbohydrate

Catalyst

Dehydration synthesis (condensation)

Disaccharide

Enzyme

Fatty acid

Glycerol

Hormone

Iodine 2.

Lipid

Monomers

Monosaccharide

Nucleic acid

Organic compounds

Peptide bond 3. 4.

Polymers

Polypeptides

Polysaccharide

Product

Protein

Reaction rate

Starch

Substrate

Sugar

**ELM #2: Cells and Cancer**

**Be familiar with the following terms:**

**Identify the two cell types below.**

**Cells & Cell Structures**

* Cell Theory (3 parts)
* Prokaryotic vs. Eukaryotic Cells
* Animal and Plant Cell
* Organelle
* Cell Membrane
	+ Lipid bilayer
	+ Phospholipid
* Cell Wall
* Chloroplast

**Identify the parts of these cells and their functions.**

* + ****Chlorophyll
* Cytoplasm
* Endoplasmic Reticulum
* Golgi body
* Nucleus
	+ DNA – Nucleic Acid
* Ribosomes
* Mitochondria
* Vacuole

**Homeostasis & Transport**

* Homeostasis/equilibrium

**Identify the cells below as plant or animal**

* Carrier molecule (protein)
* Endocytosis
* ****Exocytosis
* Active Transport
* Passive Transport
	+ Diffusion
	+ Osmosis
		- Hypertonic solution
		- Hypotonic solution
		- Isotonic solution
* Permeable; semi permeable
* Concentration

**Identify the process happening in the diagram below**

* Concentration gradient





**Label diagrams A-D as hypertonic, hypotonic or isotonic.**

**Describe what would happen each cell.**

**Identify the processes happening**

**in the diagram below**

**In which direction will the water move in the diagram below?**

**ELM #3: Plants**

**Be familiar with the following terms:**

Photosynthesis

Cellular Respiration

Light dependent reactions

Light independent reactions

Calvin cycle

Glycolysis

Kreb’s cycle

Citric Acid cycle

E.T.C.

ATP

Glucose

Carbon dioxide

Water

Oxygen

Mitochondria

Chloroplast

Chlorophyll

Xylem

Phloem

Epidermis

Guard cells

Stomata

Root hairs

Lateral root

Photosynthesis balanced equation

Cellular respiration balanced equation

Know the reactants and products of: Light reactions, Calvin cycle, Glycolysis, Krebs cycle, ETC

**ELM #4: DNA, Protein Synthesis, etc.**

**Be familiar with the following terms and their functions:**

* DNA (label the parts on of the diagram on the right)
* RNA
* Nitrogenous bases
* Complementary base pairing
* Describe the functions of
	1. mRNA
	2. tRNA
	3. rRNA
* Base pair
* Amino acid
* Codon
* Gene
* Mutations
* Transcription
* Translation
* Identify the parts of the DNA nucleotide in the diagram to the right.
* Describe the steps in protein synthesis.
	1. Describe translation
	2. Describe transcription
* Compare and contrast DNA and RNA
* Label and describe the process illustrated in the diagram below

