**Biochemistry Unit test:**

1. **Cell structure and function**

* Know the cell theory
* Be able to label all cellular organelles on a diagram and know their structure (double or single membrane) and function or role within the cell. Ex// ER, Rough ER, Golgi, Centrioles, mitochondria, cell membrane etc.
* Differences between plant and animal cells
* Differences between prokaryotes (bacteria) and Eukaryotes (plants and animals)
* Compare cell structures 🡪 flagella and cilia, smooth ER and rough ER, etc…

1. **Chemistry background knowledge:**

* Isotopes
* Functional Groups
* Structure of water; polarity

1. **Biological Macromolecules**

* Properties of carbon
* Dehydration synthesis/hydrolysis
* Monomers, polymers, macromolecules

**Carbohydrates/Lipids/Proteins/Nucleic Acids**

* You must know the functions, monomers (if present) and polymers of the above
* You must know which functional groups are present in the above molecules
* You must be able to diagram a hydrolysis or synthesis reaction of any of the above molecules.
* You should be able to identify all of the above molecules
* Specifically for proteins, levels of structure. STRUCTURE DICTATES FUNCTION!!!!

1. **Enzymes**

* Activation energy
* Enzyme structure, active site
* Substrate
* Induced fit model
* Factors that affect enzyme activity: [substrate], [enzyme], pH, Temp, Inhibitors
* Competitive vs noncompetitive inhibitors and applications
* Feedback Inhibition and allosteric control of metabolic pathways

1. **Cell Membrane and Cell Transport:**

* Know what the fluid mosaic model is describing
* Phospholipid bilayer 🡪 know the structure of a phospholipid and which parts are hydrophilic and hydrophobic (be able to label)
* Know the structures of the cell membrane 🡪 label!
* The functions of proteins within the cell membrane
  + Cell recognition
  + Receptor sites
  + Carriers or channels for molecules to get into and out of the cell
* What happens to a cell when it is placed in a hypertonic solution, hypotonic solution or an isotonic solution
* Types of Passive Transport and what type of molecules get across by each method.
* Differences between passive and active transport
* Endocytosis, phagocytosis, pinocytosis and exocytosis
* Be able to compare and contrast the different types of transport