**Macromolecule Guided Notes**

**Organic vs. Inorganic**

-organic compounds are actually compounds containing \_\_\_\_\_\_\_\_\_\_\_\_\_\_ covalently bonded with ahydrogen. You can say carbon is the \_\_\_\_\_\_\_\_\_\_ thing here. Example-glucose (C6H12O6)

-inorganic compounds do \_\_\_\_\_\_\_\_ contain carbon covalently bonded to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Example: CO2 (carbon dioxide)

**Carbon**

-It bonds with up to \_\_\_\_\_\_\_ other atoms. It is the basis of most molecules that make up all \_\_\_\_\_\_\_\_\_\_\_\_\_ things. Many carbon-based molecules are made of \_\_\_\_\_\_\_\_\_\_\_ subunits bonded together (like a \_\_\_\_\_\_\_\_\_\_\_\_).

 -Monomers= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ subunits

 -\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_= many monomers bonded \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**4 Main Types of Organic Molecules with \_\_\_\_\_\_\_\_\_\_\_\_\_\_ in living things:**

1. Carbohydrates

2. \_\_\_\_\_\_\_\_\_\_\_\_\_

3. Proteins

4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Carbohydrates**

-It is made of \_\_\_\_\_\_\_\_\_\_\_\_\_ (C), hydrogen (H) and \_\_\_\_\_\_\_\_\_\_\_\_\_\_ (O)

- 2:1 ratio: glucose (C6H12O6)

-Function: main source of short-term \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for living things, and it makes up part of the \_\_\_\_\_\_\_\_\_\_\_ structure. This includes sugars and starches.

**Lipids**

-Nonpolar \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Examples include fats, oils, steroids and \_\_\_\_\_\_\_\_\_\_\_\_. Many contain \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ chains called fatty acids. Contain elements C, H and O-not a 2:1 ratio like carbohydrates. Generally, fats have less hydrogen atoms in them

-Cellular lipid examples include phospholipids (found in cell membranes), \_\_\_\_\_\_\_\_\_\_\_\_\_ (fat) and cholesterol

-Lipid functions-used for \_\_\_\_\_\_\_\_\_\_\_ term energy in the body, used as insulation in the body, make up cell \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and used to make hormones for growth and development

**Proteins**

-Proteins are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of amino acid monomers. Amino acids link \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to make proteins. Amino acids are linked by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bonds. They contain the elements C, H, O and \_\_\_\_\_\_ (nitrogen)

-The portion of each \_\_\_\_\_\_\_\_\_\_\_\_\_ acid that is different is a side chain called an \_\_\_\_\_\_\_\_\_\_ group.

-DNA stores the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for arranging amino acids into many different proteins. The different arrangement of amino acids= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ proteins.

Cellular protein examples include:

 -Enzymes, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, melanin (skin pigmentation), microfilaments, microtubules and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ pumps in cells

-Protein functions include controlling \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ rates using enzymes, helps to form bones and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, transport of substances into/out of cells, and to fight disease=\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (memory cells)

**Nucleic Acids**

-Nucleic acids are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of monomers called nucleotides. Nucleotides are made of a sugar, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ group and a nitrogen base.

Cellular nucleic acid examples: chromosomes, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, ribosomes (RNA)

Two types of nucleic acids: \_\_\_\_\_\_\_\_\_\_\_\_ (double stranded) and RNA (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ stranded)

-Functions of nucleic acids-store \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ information and stores the instructions to make \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.