Assignment #\_\_\_\_\_\_\_\_ Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Review: What do we already know…**

**Atoms:** Smallest unit of life, cannot be broken down any further

**Molecules:** Two or more atoms bonded together, can be broken down into separate elements

**Compounds:** Two or more atoms of DIFFERENT elements bonded together, can be broken down into separate elements

**Bonds:** occur when atoms share their electrons, can be broken and reformed

**Chemical Reactions:** substances changing into new substances due to bonds breaking and reforming

**-Reactants** – the substances that you start with (before the arrow), like the ingredients

**-Products** – the substances that you create (after the arrow)

**Isotopes:** Differ in the number of neurons

**Ions:** Are created when you gain or lose electrons

**Water:** H2O, is a polar molecule that forms hydrogen bonds that can easily be broken and reformed

**Biochemistry**

**Elements of Life**

* \_\_\_\_\_\_ of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ organisms are is made of:
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Molecules of Life**

* Put \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ together in different ways to build living organisms
* What are bodies made of?
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Why do we eat?**

* We eat to take in more of these chemicals
  + Food for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - To make more of us (\_\_\_\_\_\_\_\_\_\_)
    - For \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - For \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Food to make \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Don’t forget \_\_\_\_\_\_\_\_\_\_\_\_\_\_**

* Water
  + 65% of your body is \_\_\_\_\_\_\_\_\_\_
  + Water is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - Doesn’t contain \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Rest of you is made of \_\_\_\_\_\_\_\_\_\_\_\_\_\_ molecules
  + \_\_\_\_\_\_\_\_\_\_\_\_\_ molecules
    - Carbohydrates
    - Proteins
    - Fats (lipids)
    - Nucleic Acids

**How do we make these molecules? We \_\_\_\_\_\_\_\_\_\_\_\_\_\_ them!**

**Building large molecules of life**

* Chain together smaller molecules
* Carbon can bond together in \_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Building block molecules = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Big molecules built from little molecules = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Building large organic molecules**

* Small molecules = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Bond them together = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Building important polymers**

* Carbohydrates = built from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Proteins = built from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Nucleic acids (DNA) = built from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**How to build large molecules**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Building bigger molecules from smaller molecules
  + Building cells and bodies
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Draw:

**How to take large molecules apart**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Taking big molecules apart
  + Getting raw materials
    - For synthesis and growth
  + Make energy (\_\_\_\_\_\_\_\_\_\_\_\_)
    - For synthesis, growth and everyday functions

Draw:

Assignment #\_\_\_\_\_\_\_\_ Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Review: What do we already know…**

**Atoms:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_ unit of \_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ be broken down any further

**Molecules:** Two or more \_\_\_\_\_\_\_\_\_ bonded together, \_\_\_\_\_\_\_\_\_ be broken down into separate elements

**Compounds:** Two or more atoms of \_\_\_\_\_\_\_\_\_ elements bonded together, can be broken down into separate elements

**Bonds:** occur when atoms \_\_\_\_\_\_\_\_\_ their \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, can be broken and reformed

**Chemical Reactions:** substances changing into \_\_\_\_\_\_ substances due to \_\_\_\_\_\_\_\_\_\_\_\_\_\_ breaking and reforming

**-Reactants** – the substances that you \_\_\_\_\_\_\_ with (before the arrow), like the ingredients

**-Products** – the substances that you \_\_\_\_\_\_\_\_\_\_\_ (after the arrow)

**Isotopes:** Differ in the number of \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Ions:** Are created when you \_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Water:** H2O, is a \_\_\_\_\_\_\_\_\_ molecule that forms \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bonds that can easily be broken and reformed

**Biochemistry**

**Elements of Life**

* \_\_\_\_\_\_ of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ organisms are is made of:
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Molecules of Life**

* Put \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ together in different ways to build living organisms
* What are bodies made of?
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Why do we eat?**

* We eat to take in more of these chemicals
  + Food for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - To make more of us (\_\_\_\_\_\_\_\_\_\_)
    - For \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - For \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Food to make \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Don’t forget \_\_\_\_\_\_\_\_\_\_\_\_\_\_**

* Water
  + 65% of your body is \_\_\_\_\_\_\_\_\_\_
  + Water is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - Doesn’t contain \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Rest of you is made of \_\_\_\_\_\_\_\_\_\_\_\_\_\_ molecules
  + \_\_\_\_\_\_\_\_\_\_\_\_\_ molecules
    - Carbohydrates
    - Proteins
    - Fats (lipids)
    - Nucleic Acids

**How do we make these molecules? We \_\_\_\_\_\_\_\_\_\_\_\_\_\_ them!**

**Building large molecules of life**

* Chain together smaller molecules
* Carbon can bond together in \_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Building block molecules = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Big molecules built from little molecules = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Building large organic molecules**

* Small molecules = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Bond them together = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Building important polymers**

* Carbohydrates = built from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Proteins = built from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Nucleic acids (DNA) = built from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**How to build large molecules**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Building bigger molecules from smaller molecules
  + Building cells and bodies
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Draw:

**How to take large molecules apart**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Taking big molecules apart
  + Getting raw materials
    - For synthesis and growth
  + Make energy (\_\_\_\_\_\_\_\_\_\_\_\_)
    - For synthesis, growth and everyday functions

Draw:

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Into to Biochemistry Review Questions:**

1. What are the six most common elements in living organisms?
2. What are the four major types of macromolecules?
3. What is the difference between organic and inorganic molecules?
4. What is the difference between synthesis and digestion?
5. How are the words monomer and polymer related to one another?

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Into to Biochemistry Review Questions:**

1. What are the six most common elements in living organisms?
2. What are the four major types of macromolecules?
3. What is the difference between organic and inorganic molecules?
4. What is the difference between synthesis and digestion?
5. How are the words monomer and polymer related to one another?