

BUILDING MACROMOLECULES ACTIVITY

Learning Target: Describe the general structure, subunits, and examples for each of the four types of macromolecules. Create models to show the arrangements of these molecules. Understand the process of dehydration synthesis.

Task: Use your notes to help you assemble and label the following items.

- 1.) Assemble a disaccharide sugar.
 - a. The building block/monomers of carbohydrates are _____. Place 2 of these into a chain and anywhere that 2 pieces touch, use the triangle water to point to the bond site (one water is always released from each bond site during dehydration synthesis.)
 - b. Once you are sure you have a correct arrangement, glue the pieces down and use a marker to label it as a **disaccharide**.
- 2.) Assemble the remaining monomers into a polysaccharide sugar.
 - a. Place the remaining carbohydrate monomers into a chain and anywhere that 2 pieces touch, use the triangle water to point to the bond site.
 - b. Once you are sure you have a correct arrangement, glue the pieces down and use a marker to label it as a **polysaccharide**.
- 3.) Assemble a 4-monomer protein.
 - a. The building block/monomers of proteins are _____. Place 4 of these into a chain and anywhere that 2 pieces touch, use the triangle water to point to the bond site
 - b. Once you are sure you have a correct arrangement, glue the pieces down and use a marker to label it as a **4-monomer protein**.
- 4.) Assemble the remaining monomers into another protein.
 - a. Place the remaining protein monomers into a chain and anywhere that 2 pieces touch, use the triangle water to point to the bond site.
 - b. Once you are sure you have a correct arrangement, glue the pieces down and use a marker to label it as a ____-**monomer protein** (place the correct number in the blank space).
- 5.) Assemble a triglyceride (common lipid).
 - a. The building block/monomers of all lipids are _____. But to build a triglyceride you will need what additional piece? _____
 - b. Look up triglycerides in your notes to find their shape: _____
 - c. Assemble a triglyceride into the correct shape, and anywhere that 2 pieces touch use the triangle water to point to the bond site.
 - d. Once you are sure you have a correct arrangement, glue the pieces down and use a marker to label it as a **triglyceride**.
- 6.) Assemble a DNA nucleotide.
 - a. The building block/monomers of nucleic acids are _____. For DNA, this is made of a _____ + _____ + _____.
 - b. Assemble the three components as shown by the diagram in your notes. Anywhere that 2 pieces touch, use the triangle water to point to the bond site.
 - c. Once you are sure you have a correct arrangement, glue the pieces down and use a marker to label it as a **DNA nucleotide**.

7.) Assemble an ATP nucleotide

- a. ATP is similar to DNA but it has 2 extra _____.
- b. Assemble the components as shown by the diagram in your notes. Anywhere that 2 pieces touch, use the triangle water to point to the bond site.
- c. Once you are sure you have a correct arrangement, glue the pieces down and use a marker to label it as an **ATP nucleotide**.

8.) Add a **title & your name and class period** to your paper.

9.) Please clean up after yourself. Make sure no scraps are on the floor around your desk. If so, pick them up! Thanks!

Post Lab Questions: Use your lab & macromolecule notes to answer the following questions.

1. Complete the chart:

Four types of Macromolecules	Main subunit (monomer) of each

2. What process is being shown by water being given off from each bond site? Give both names for this process.

3. What process is used to break down macromolecules? What happens to water during that process?

Pre-Lab: Color the following pieces accordingly, then cut them out:

H₂O= blue; Simple Sugar= green; Pentose Sugar= pink; Amino Acid= red;
 Base= Grey; Glycerol= purple; Fatty Acid= orange; Phosphate=peach

If you lose a piece, here are extras:

