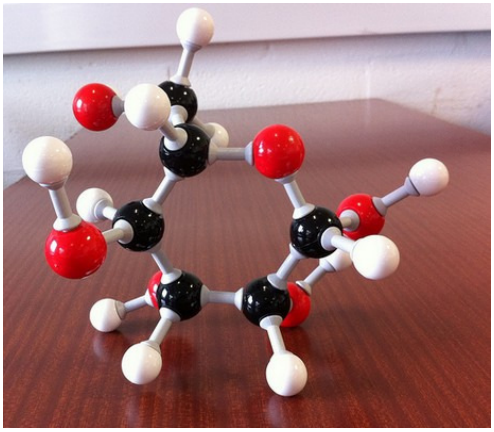
Macromolecule Models

Names: _____
and _____

Group directions: work in teams of two until told to partner up with "desk mates," at that point, you will work as a team of 4.

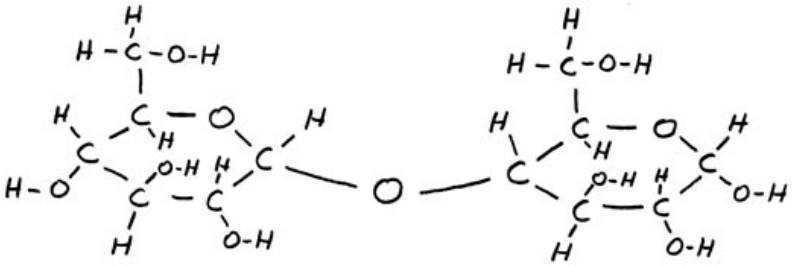
1. Get warmed up: build a good ol' H_2O molecule.

2. Time to up the challenge level. You will need to build the monosaccharide glucose. It's formula is: **$C_6H_{12}O_6$**.



   -Want another hint? It's a ring structure with 5 carbons and 1 oxygen in the ring.
   -Call Ms. Norton over when you've built it. *Get stamped off*:

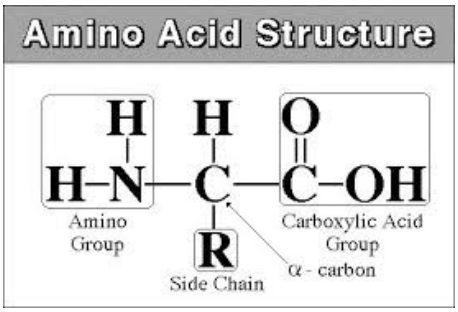
3. If your desk mates need help, help them now. Once you are both stamped off for step 2, create a maltose disaccharide by combining your 2 glucoses together by:
   a. Perform a dehydration synthesis reaction. Remove a hydrogen from the -OH of one molecule and remove a hydroxyl group (-OH) from the side of the other model. Now combine your sugars!



MALTOSE

   b. Combine the spare parts to form a water molecule.
   c. What's the formula for the maltose sugar? Write it here: _____
   d. Show Ms. Norton your disaccharide and *get stamped off*:

4. Tear down your sugar molecules and start creating an amino acid. Please build this, but put a hydrogen atom where the "R" is. *Show it to Ms. Norton*:



   a. Work with your desk mates to combine the amino acid each set of partners have made. You will create a peptide bond following the same basic directions outlined in step 3a-b. Except that you are bonding the amine group of one to the carboxyl group of the other.
   b. Show Ms. Norton your dipeptide and *get stamped off:*

Congratulations! You are done, please take apart all models and turn this paper in.