Dehydration Synthesis Activity

For each section, you will be simulation the dehydration synthesis reaction. In other words, you will be removing water in order to join together two (or more) molecules.

Use your book and notes to get an idea of the building block molecules you are using (sugars, glycerol, amino acids, fatty acids, nucleotides), and the macromolecules (lipids, carbohydrates, nucleic acids, proteins) you are building.

First color the molecules the color that is indicated.   Keep the colors separate!

A. For GREEN, YELLOW, and BLUE, do the following:

1. Cut the "OH" off of one end of a molecule, and the "H" of the end of an other molecule. (DO NOT take off the extra OH and H on the end molecules.)

2. Join the "OH" and "H" to make a square. This is water. Label it.

3. Insert the tab (where the OH was taken off) into the slot (where the H was taken off). This joins two of your building blocks. Keep doing this until all of your building blocks are joined.

4.   Now you have a macromolecule. Label the macromolecule with its name (lipid, carbohydrate, nucleic acid, protein) and underline it.

5.   Circle one building block, and label it (with monomer name: sugars, glycerol, amino acids, fatty acids, nucleotides).

B. For the ORANGE, do the following:

1. Look on page 76 and 142 of old Elephant book or page 47 and 291 of your textbook, to get an idea what it will look like.

2. For this macromolecule, you do not need to cut out and paste the waters together. We are taking a short-cut.

3. Be sure the ends of the black "water squares at the end of the bond lines" on the deoxyriboses match up with the black "water squares" on the phosphates and the bases (A, T, G, or C).

4. Follow the idea above (part A), but use these pictures as a guide. Be sure to circle one building block, and label it; also label the macromolecule with its name underlined.

DEHYDRATION SYNTHESIS ACTIVITY   Period_____
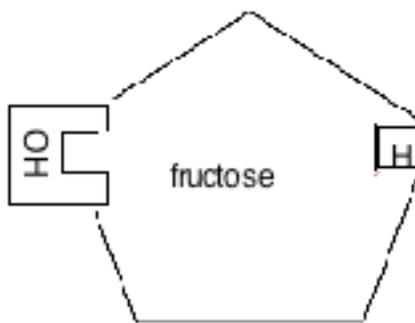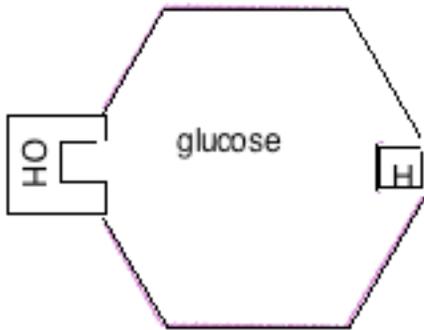
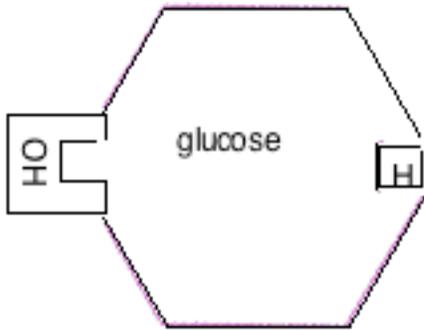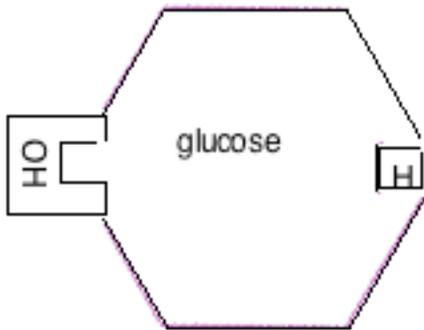   Name_____

Note: Please put
ORANGE on <u>back</u>
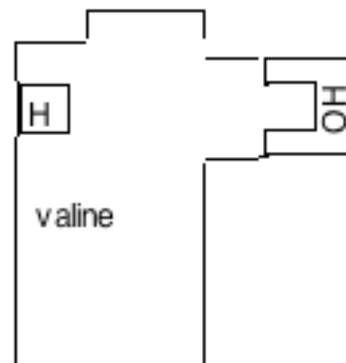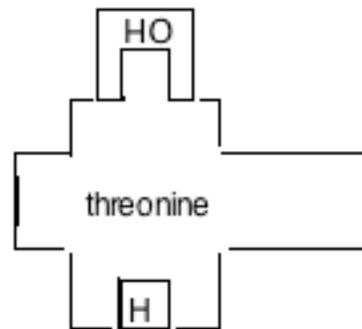Don't forget the labels!

GREEN (Macromolecule:_____,___)

BLUE (Macromolecule:_____)

YELLOW (Macromolecule:_____)

Color these YELLOW:

HO glucose H

HO glucose H

HO glucose H

HO fructose H

Color these BLUE:

H alanine OH

H glycine OH

HO
threonine
H

H valine OH

Color these GREEN:

HO   HO   HO

glycerol

oleic acid   H

erucic acid   H

H

linoleic acid
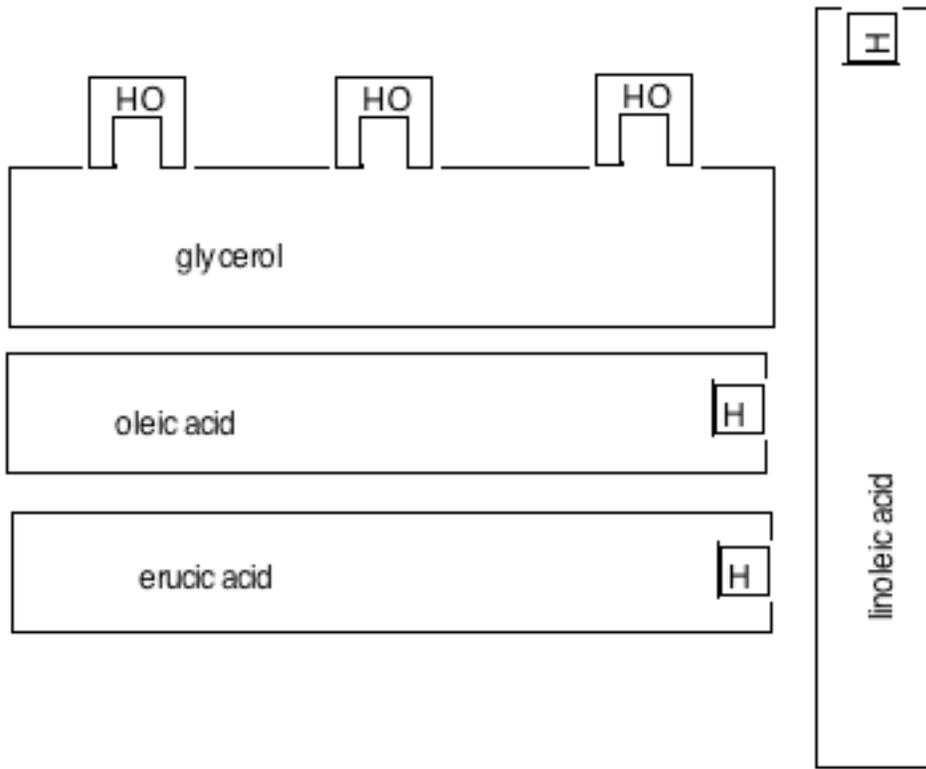
Color these ORANGE:

Note: there's 1 extra piece.
(throw it out)

deoxy-
ribose

deoxy-
ribose

deoxy-
ribose

T   C   P

A   G   P   P