Building Phospholipid Activity

**In a group of 4-5, assemble the following structures below using the Molecular Model Kits.**

* *First you need to figure out which bead color corresponds to which element.*
* *Second, you need to figure out which are the single bonds and which are the double bonds.*
* *Once you have done that it is time to build your lipids.*

**Lipids are assembled by enzymes.** Each group member will represent an enzyme:

* Enzyme #1 makes **glycerol**
* Enzyme #2 makes a **phosphate group**
* Enzyme # 3 makes a **saturated fatty acid tail** (hydrocarbon chain)
* Enzyme #4 makes an **unsaturated fatty acid tail** (hydrocarbon chain)

**Create your small molecules:**

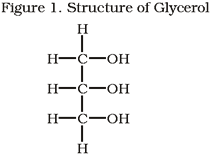
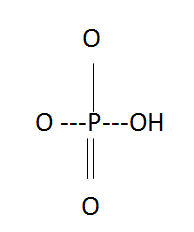
1. Choose an enzyme to represent, and use your notes to build your molecule.
   * Show Ms. Grant to make sure you have it correct
2. Once all group members have built their molecules correctly, draw the **chemical structure** of each molecule into your journal
   * **Be sure to label each molecule!!**

**Create a Phospholipid:**

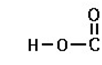
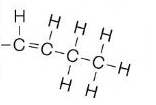
1. Combine all 4 molecules to **create a phospholipid**
   * **Hint:** use your notes and your *Lipid Cut & Paste* activity as a guide!
   * **Hint:** You will have to remove some atoms to create your macromolecule
   * Show Ms. Grant to make sure you have the molecule correct
2. Once you have correctly created a **phospholipid**, draw your molecule into your journal
   * **Be sure to label your molecule!**
   * Circle and label **each small molecule** that you started with as well!!
3. Use the left over atoms to create a common molecule
   * Show Ms. Grant to make sure that you have created the correct molecules!
4. Draw the molecule you have created, and label it!
5. What is the name of the process you just modeled?

**Break down a Phospholipid**

1. Break apart the phospholipid into the original 4 subunits
   * **Hint:** You will need the molecules you created in #5!
2. Describe what you have to do to break down your phospholipid
   * Be sure to use and mention **all molecules and elements!!**
3. What process did you just describe?

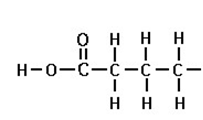


**Figure 4: Structure of a Phosphate Group**



**Figure 3: Structure of an Unsaturated Fatty Acid**

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**Figure 2. Structure of Saturated Fatty Acid Tail (make 3)**