Names: _____ Period: _____ Due Date: _____

In-Class Cell Membrane Project

You and a partner will be working together in class to construct a model that resembles the cellular membrane. Recall that the cell membrane is found in every living organisms' cells and is used to regulate what enters and leaves the cell as well as providing protection and support.

Your project should be:
- 3 dimensional (paper is only 2D!)
- Only a *section* of the cell membrane, not the entire cell!
- Labeled with the correct cell structures
- Constructed in class (not outside of class)
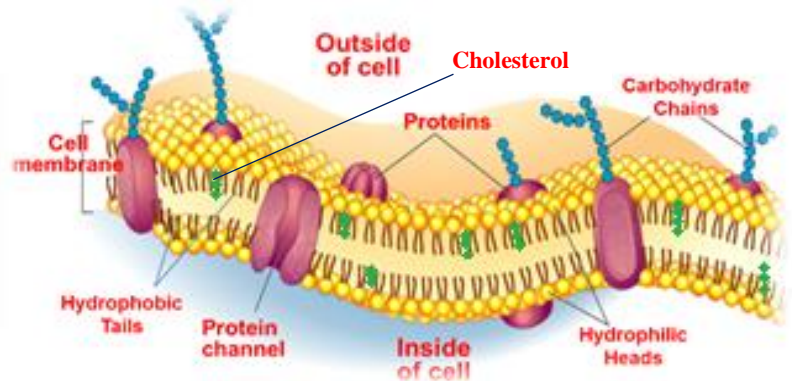
How your project will be graded:

_____ 5 points – Both partner's names **ON** the model with your class period

_____ 5 points – Originality… be CREATIVE! *Needs to be uniform – cell parts & structures should all be the same materials and colors.

_____ 10 points – Labeled outer membrane (outside layer)
_____ 10 points – Labeled inner membrane (inside layer)

_____ 10 points – Labeled Hydrophobic Tail
_____ 10 points – Labeled Hydrophilic Head

_____ 5 points – Labeled cholesterol in between hydrophobic tails

_____ 10 points – Labeled protein channel spanning from the outer membrane layer to the inner membrane layer

_____ 10 points – Labeled protein (different label than the protein channel – does NOT have to go through entire membrane)

_____ 10 points – Labeled carbohydrate chain (attached to a protein)

_____ 15 points – Answer the following questions on a separate sheet of paper and turn in along with your project.

> **1.** What biomolecules are within the cell membrane layers? (Hint: there are 3)
>
> **2.** Why is the cell membrane sometimes described as a 'mosaic' of molecules?
>
> **3.** The cell membrane is semi-permeable which does not allow for the passing of every molecule into the cell. Why is it important to regulate what enters and what leaves the cell? Use the word homeostasis in your answer.
>
> **4.** What is the purpose of the cholesterol in between the hydrophobic tails?
>
> **5.** Explain in detail how the cell membrane is similar to a state border.