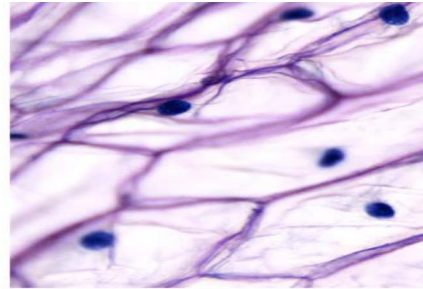
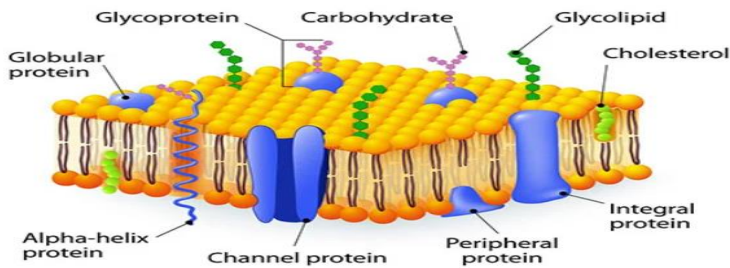


Name: _____ Period: _____ Date: _____

Score: _____

Virtual Cell Membrane Lab



NGSS Standard(s):

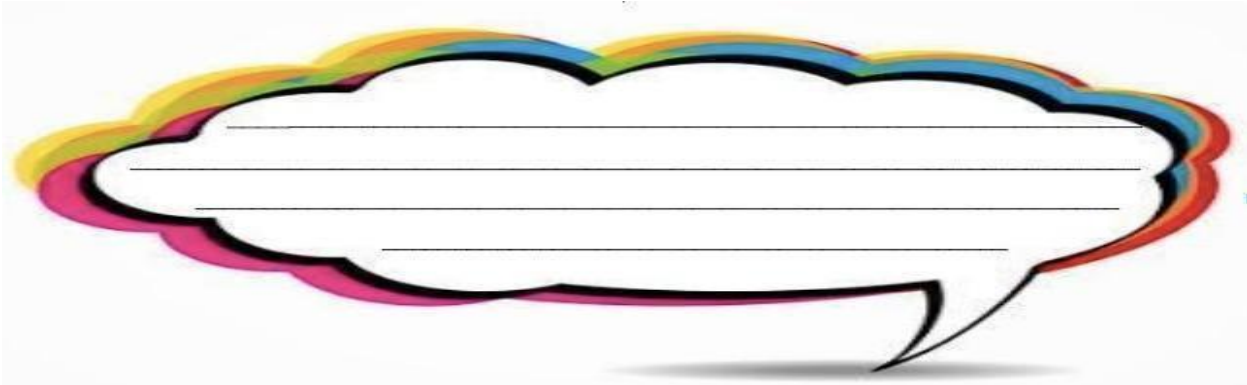
- **HS-LS1.A Structure and Function:** Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells

I. Introduction:

The cell membrane or plasma membrane provides protection for cells. It also provides several different functions such as:

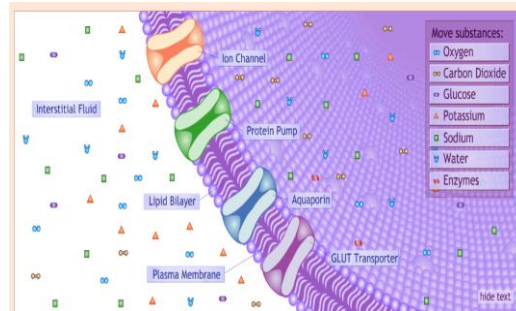
1. Transport oxygen, ions, and nutrients into the cell
2. Transport carbon dioxide, ions, and toxic substances out of the cell
3. Provides some structural support for the cell
4. Holds proteins like glycoproteins which interact with other cells
5. Separate vital but incompatible metabolic processes conducted within organelles

II. Hypothesis: We understand that the cell membrane is like a gate that protects the cell. Predict how this process would evolve if each cell contained two cell membranes.









III. Virtual Cell Membrane Lab Procedures:










1. Access Cell Membrane virtual lab website:
<https://pbslm-contrib.s3.amazonaws.com/WGBH/conv19/tdc02-int-membraneweb/index.html>
2. Click hide text to complete the table using your knowledge to identify what happened to each substance (oxygen - enzymes) as it travels through the Cell Membrane.
3. Click on show text to check your answers after each substance (oxygen-enzymes) is completed.
4. Complete data tables.



IV. Use the Virtual lab to complete the following data tables.

hide text	Amount of substance outside the cell (Interstitial fluid)	Amount of substance inside the cell (Cytosol)	Action that occurred: diffusion, osmosis, or active transport	Passageway: Ion Channel, Protein Pump, Lipid Bilayer, Aquaporin, GLUT transporter or Endocytosis	Amount or type of substance(s) relocated
Oxygen OO					

Carbon Dioxide 					
Glucose 					
Potassium 					
Sodium 					
Water 					
Enzymes 					

 mode:	Use the  mode to review and describe the action of each substance into or out of the cell membrane. Describe your findings and conclusions.
Oxygen 	
Carbon Dioxide 	
Glucose 	
Potassium 	
Sodium 	
Water 	
Enzymes 	



Robert Hooke was the first scientist who discovered present day cell membrane but which team of scientists transformed our current knowledge of cell membrane with the discovery of lipid bilayer?