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|  | The plasma membrane separates \_\_\_\_\_\_\_\_\_\_\_\_ from its \_\_\_\_\_\_\_\_\_\_.  Is it think or thin?  What does it control?  Like all biological membranes, the plasma membrane is **\_\_\_\_\_\_\_\_\_\_\_** \_\_\_\_\_\_\_\_\_\_.  Cellular membranes are fluid mosaics of what?  What is an amphipathic molecule? Name one. |
| Draw a lipid bilayer here:  Label the components. What is polar? What is non-polar? How do phospholipids move? How fast are they (in general)?  What force holds membranes in place?  What factors influence membrane fluidity? How is it influenced?        Other factors?  What role does cholesterol play in membrane fluidity? At low temps? At high temps?  Other roles? |
|  | |
|  | Draw a plasma membrane here. Label the components.  What determines the membrane’s specific functions?  **Integral membrane proteins**  Definition:  Characteristics of structure? Related to amino acids that make up the protein?  **Peripheral proteins**  Definition:  Characteristics of structure? Related to amino acids that make up the protein?  Compare and contrast Integral and Peripheral proteins based on structure and function. |
| The proteins of the plasma membrane have six major functions:   |  |  |  | | --- | --- | --- | | 1 |  |  | | 2 |  |  | | 3 |  |  | | 4 |  |  | | 5 |  |  | | 6 |  |  | |
|  | |
|  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ permeability  Things that CAN’T make it through the membrane and why.         Things that CAN make it through the membrane and why.  What drives movement?  How do proteins get into the plasma membrane? Draw it.  What kind of proteins facilitate movement? How?  Transport proteins – what are they? how do they work? Draw a picture.   * Channel proteins * Carrier proteins |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_ transport is the \_\_\_\_\_\_\_\_\_\_\_\_\_ of a substance across a membrane.  How much energy is involved in passive transport? Where does it come from?  The movements of individual molecules are random. However, the movement of a *population* of molecules may be directional. |
|  | |
|  | Draw a semi-permeable membrane separating a solution with dye molecules from pure water.  In the absence of other forces, a substance \_\_\_\_\_\_\_\_\_\_ from where it is more concentrated to  where it is less concentrated, down its **\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_**.    \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the passive transport of water.  Water diffuses across the membrane from ­­­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ solute to the region of  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ solute concentration until:    Draw animal or plant cells demonstrating tonicity. (What is tonicity?) How are they affected by water loss or gain?  Isotonic:  Hypertonic:  Hypotonic: |
|  | |
|  | Specific proteins \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the \_\_\_\_\_\_\_\_\_\_\_ transport of water and selected solutes.  Facilitated diffusion.  Ion channels function as \_\_\_\_\_\_\_\_\_\_ channels which means they:    How do proteins open or close access?  Active transport is different than passive because:   1. Sodium-Potassium Pump 2. Proton Pumps 3. Cotransporters |
| The Sodium-Potassium Pump  What is the relative concentration of Na and K inside and outside the cell? Draw it.  What drives the pump? What is the result? Why does it require energy? What is membrane potential?  Electrochemical gradient:  How does membrane potential lead to potential energy? What role does it play in cotransport?  Cotransport example: |
|  | |
|  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ transport across the plasma membrane occurs by \_\_\_\_\_\_\_\_\_\_\_\_\_ & \_\_\_\_\_\_\_\_\_\_  Large molecules, such as \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_, cross the membrane via packaging in vesicles.  Is this more like active or passive transport?  Exocytosis  What kinds of cells use this in the body?  Endocytosis |
|  | |