Week 3 (#1): Membrane Transport

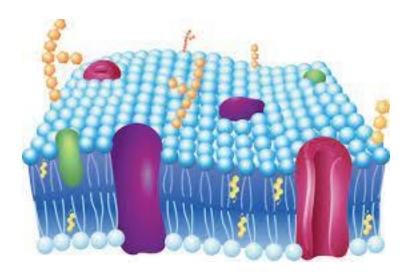
## Remember

The membranes of animal cells are comprised of a combination of fats (in the form of phospholipids), proteins/amino acids, and carbohydrates.

1. DRAW the figure below on your whiteboard, then label the following:

Phospholipids cholesterol protein channel

protein receptor protein carrier carbohydrate chain



- 2. What is the primary component of the cell membrane? How does that determine what types of substances can cross easily?
- 3. What are the functions of the various proteins, and how does this relate to your answer to #2?

## **Understand**

4. Provide some examples of molecules that move freely into/out of cells, and molecules that need "assistance" to do so. How do the two groups differ from each other? ON YOUR DRAWING, indicate where each type would enter/exit.

## **Apply**

5. An artificial cell has the following ion concentrations:

Intracellular fluid:  $X^{+}$  100 mM  $Y^{+}$  15 mM  $Z^{-}$  100 mM

Extracellular fluid:  $X^{+}$  10 mM  $Y^{+}$  150 mM  $Z^{-}$  180 mM

[Hint: draw it!]

- A. Which of these would require the assistance of a protein to enter the cell? Explain.
- B. Which of these would require an active transporter to enter the cell? Explain.