

BIO 25 PAL Worksheet  
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.