

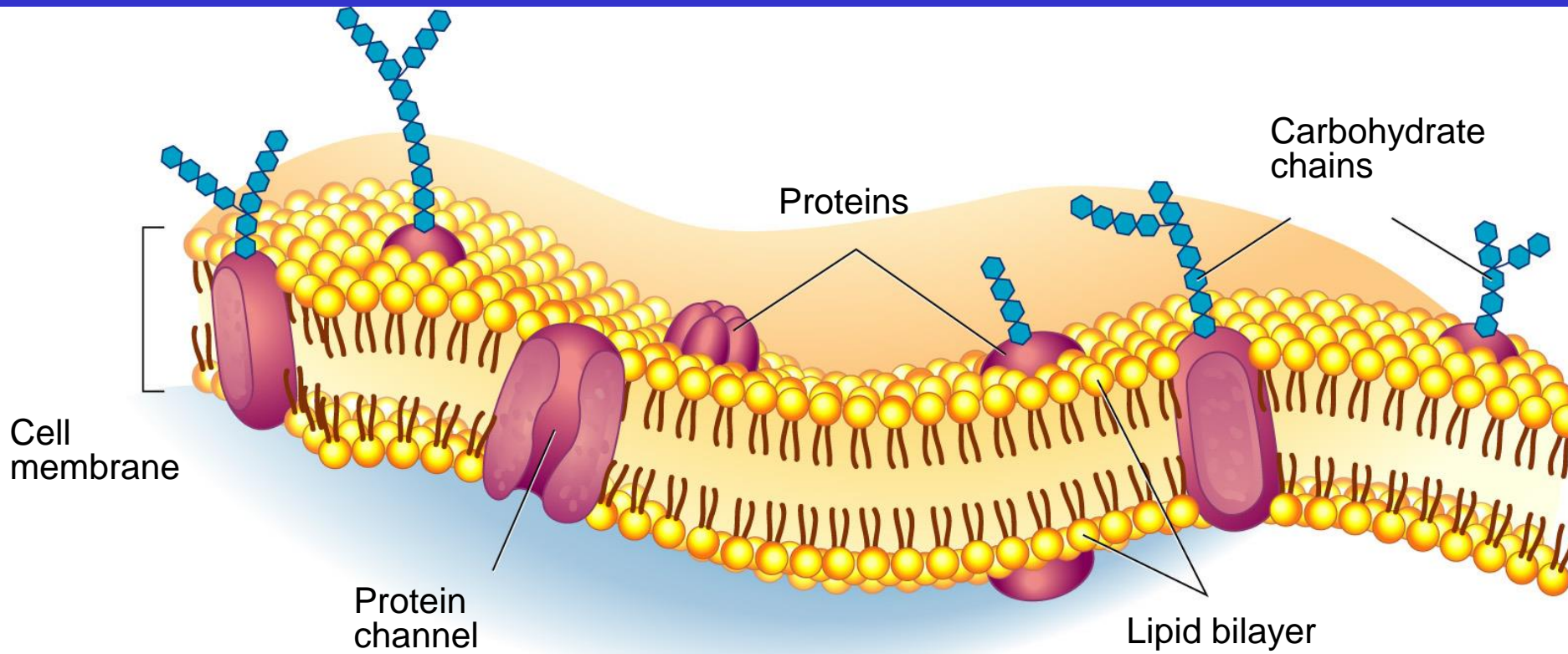
ACTIVE TRANSPORT

&

PASSIVE TRANSPORT

CELL MEMBRANE: a thin,
flexible barrier which
surrounds all cells.

- * regulate what enters
and leaves the cell**
- * provides protection
and support.**



SEMI PERMEABLE MEMBRANE

- allows certain molecules (like water) to pass freely through cells**
- doesn't allow large proteins, carbohydrates or ions to enter freely**

Two processes to this movement:

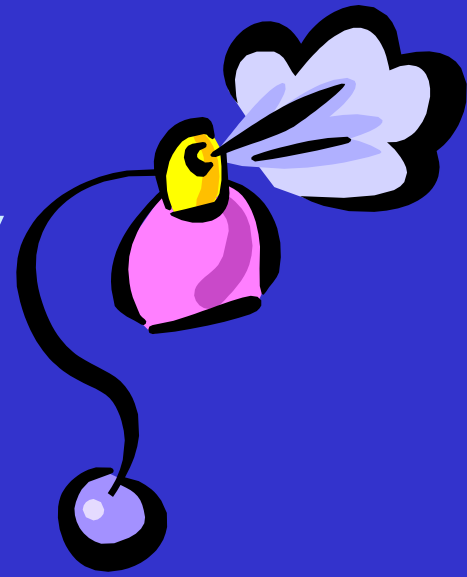
- * Passive Transport
uses no energy
- * Active Transport
needs energy

PASSIVE TRANSPORT:

- *No Energy Needed
- *Material moves from area of high concentration to low (floating downstream)

1. DIFFUSION: The movement of molecules from a higher concentrated area to a lower concentrated area.

Examples: perfume, food coloring, air freshener etc.



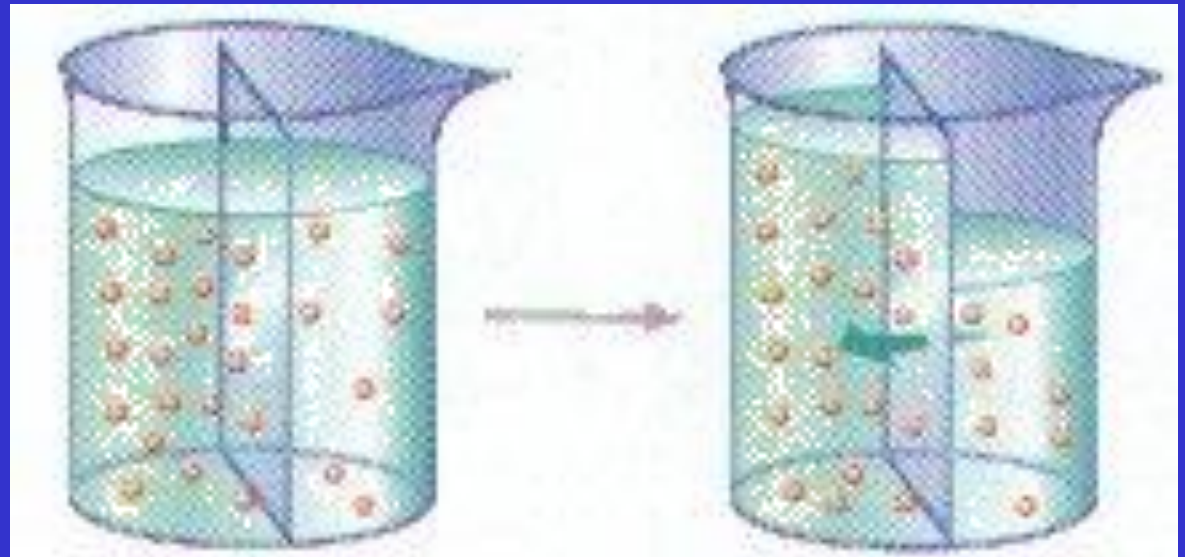
Rate of diffusion -depends on temperature and size of molecules.

-higher temperatures increases diffusion.

-small molecules diffuse faster than large molecules

OSMOSIS:

The diffusion of water



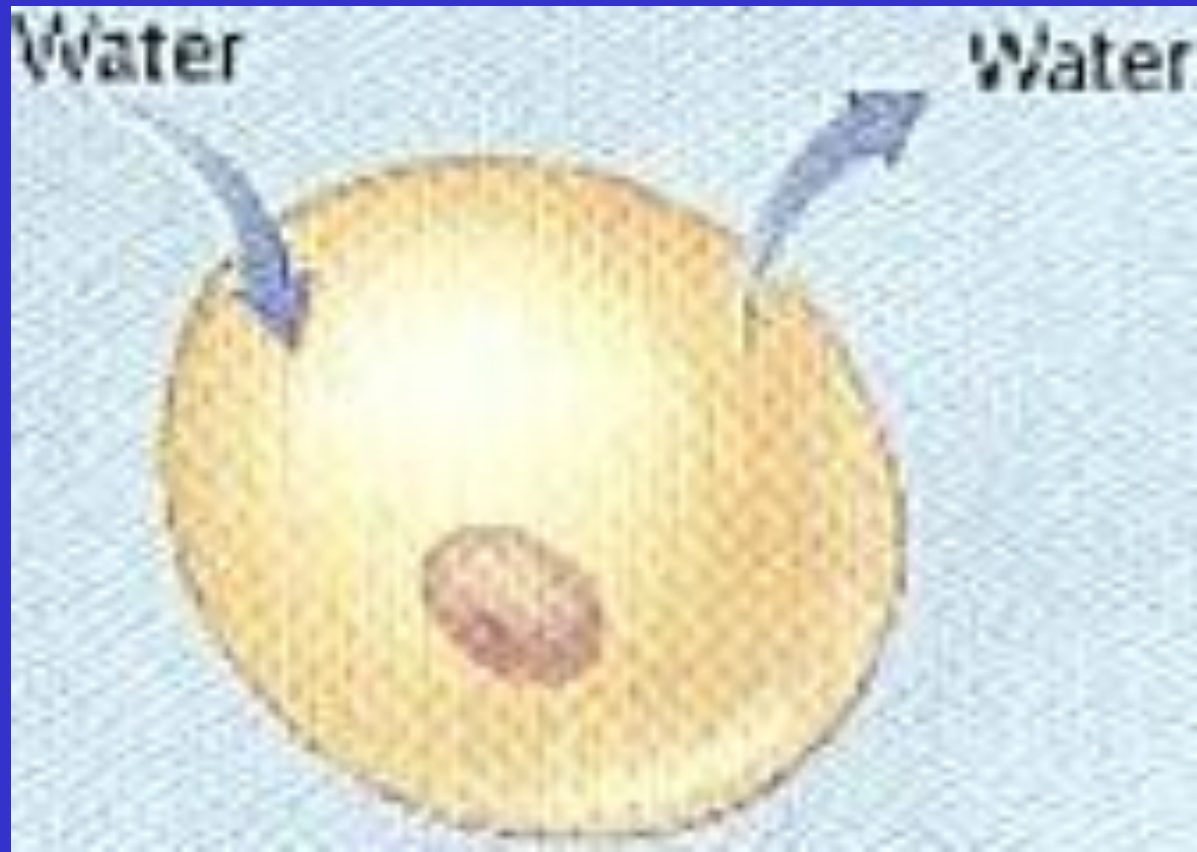
HYPERTONIC SOLUTION:
the concentration of solutes
is higher outside the cell
than inside.



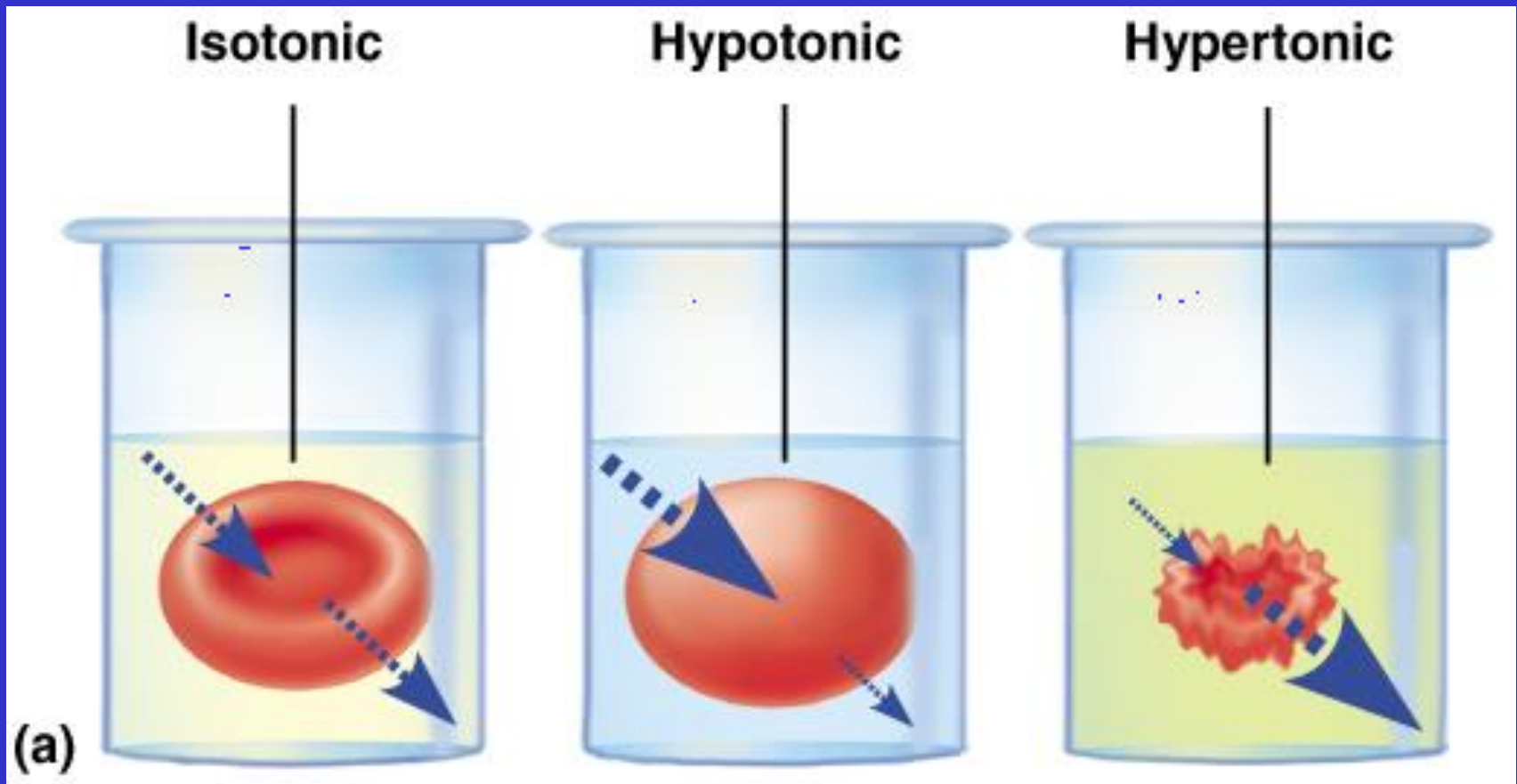
HYPOTONIC SOLUTION:
the concentration of solutes
is **lower** outside the cell
than inside the cell.



ISOTONIC SOLUTION: the concentration of solutes are equal inside and outside of the cell.



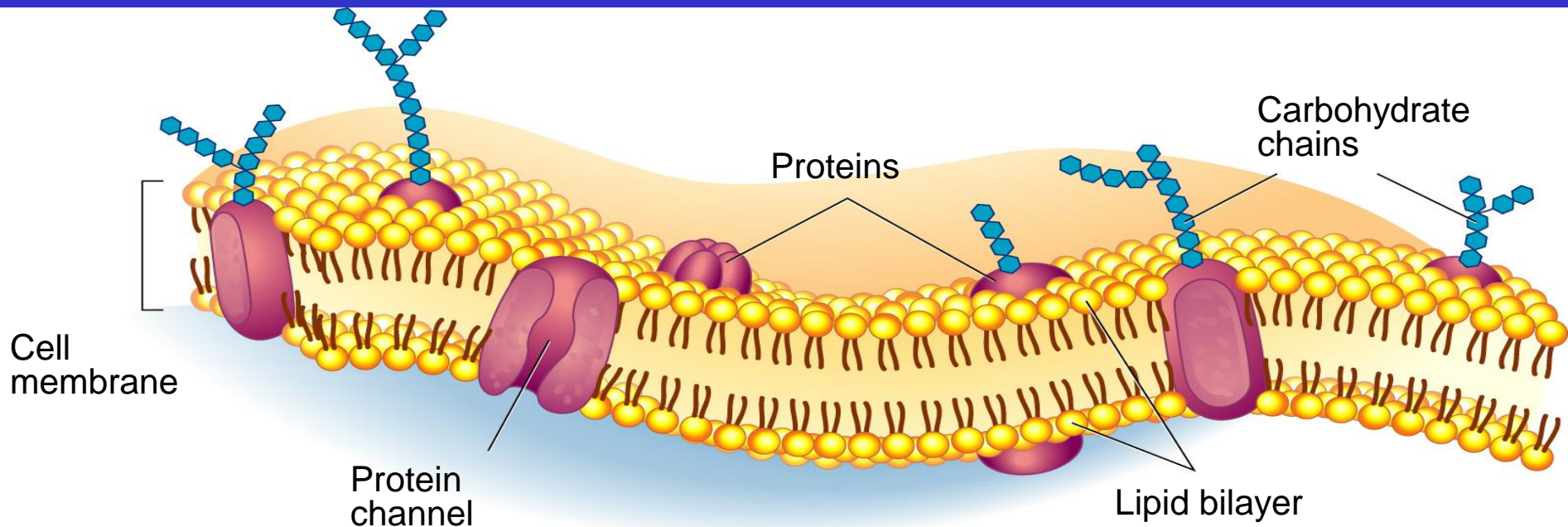
THE EFFECTS OF OSMOSIS ON CELLS



2. Ion Channels: movement of ions (charged particles) in and out of cell.

3. FACILITATED DIFFUSION:

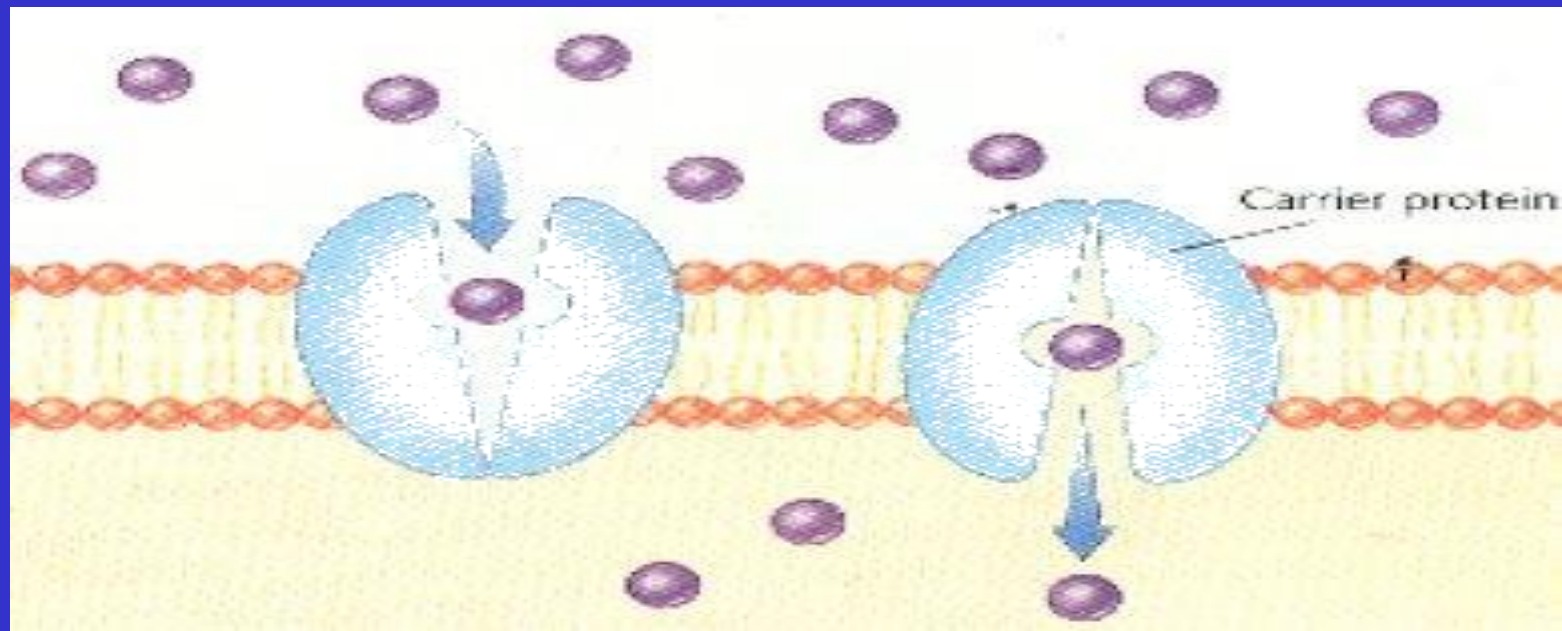
PROTEIN CHANNELS ASSIST LARGE MOLECULES (EX. GLUCOSE) ACROSS THE CELL MEMBRANE



ACTIVE TRANSPORT:

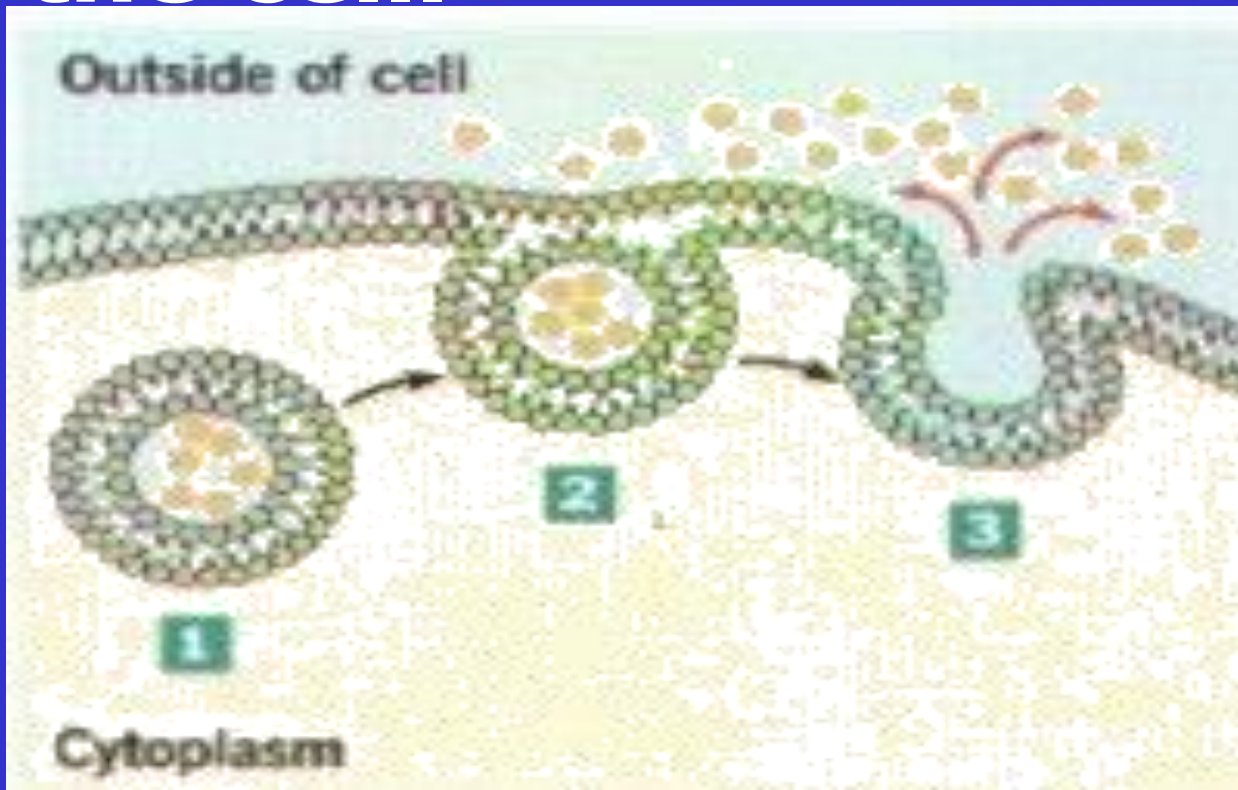
Requires energy (ATP) - when molecules move from a lower area of concentration to a higher area of concentration (swimming upstream)

1. Sodium-potassium pumps- protein imbedded in cell membrane Pump 2 K⁺ in and 3 Na⁺ out.



2. EXOCYTOSIS: when wastes & cell products are packaged by the Golgi Apparatus and secreted out of the cell.

EX.: TEARS



3. ENDOCYTOSIS: when a portion of the cell membrane surrounds a desirable molecule outside of the cell and takes it in.

Example:
cells
engulfing a
food
particle.
(cell eating)

