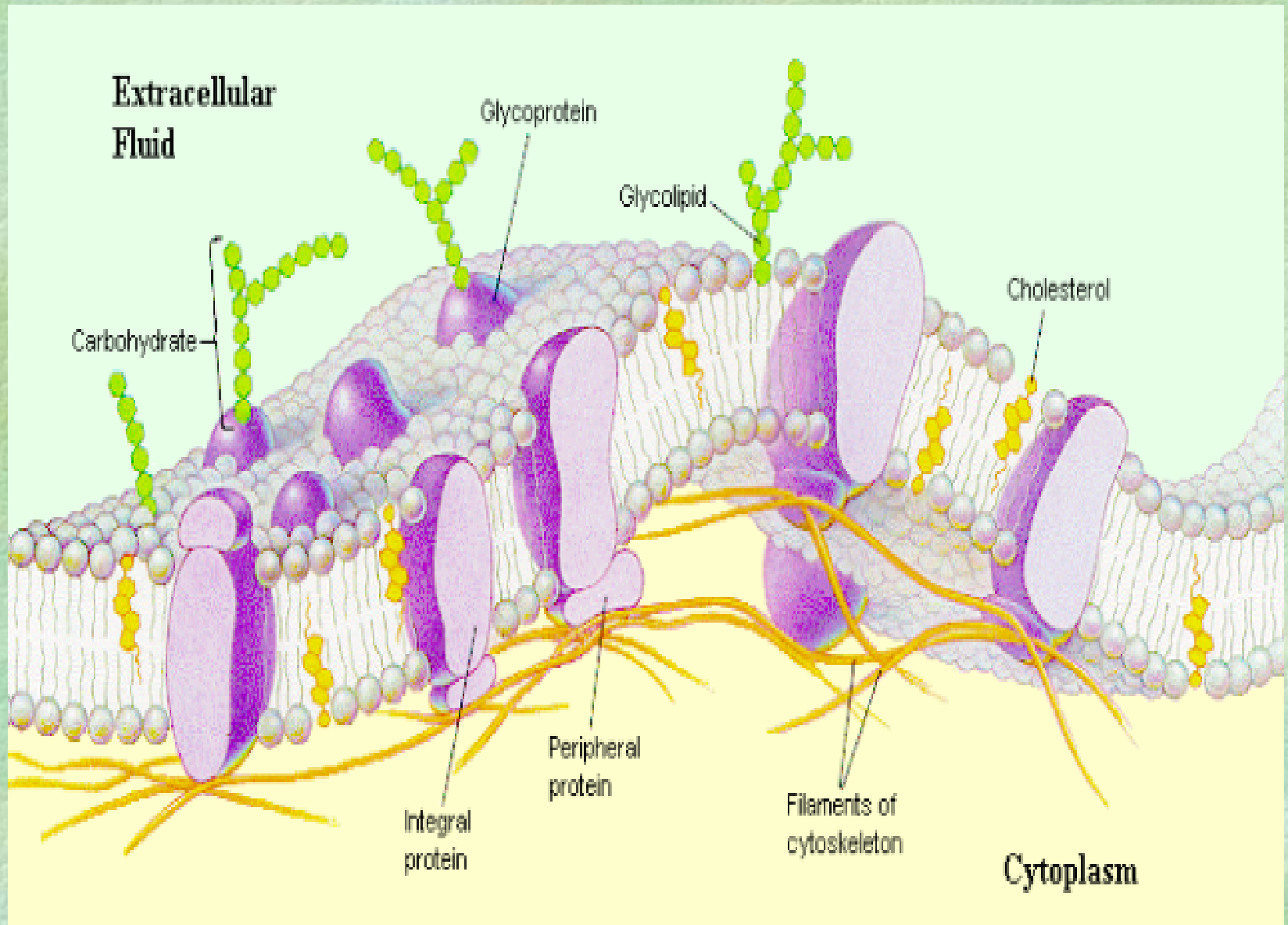


# *Membrane Structure & Function*

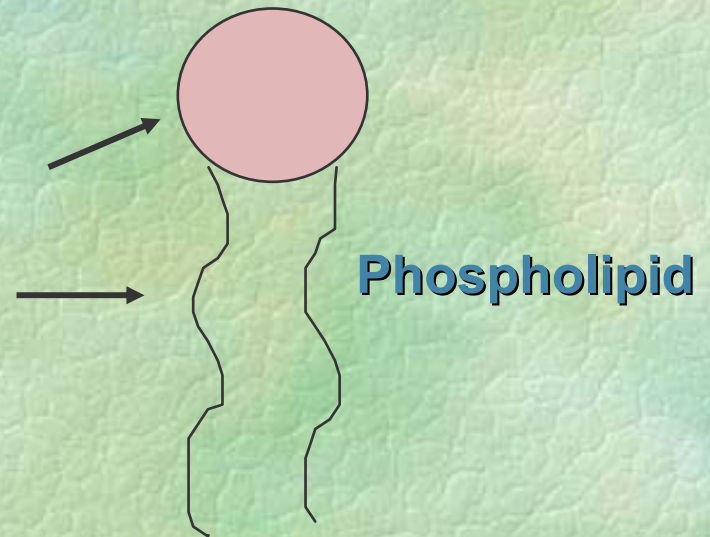


# Plasma Membrane

➤ Boundary that separates the living cell from it's non-living surroundings.

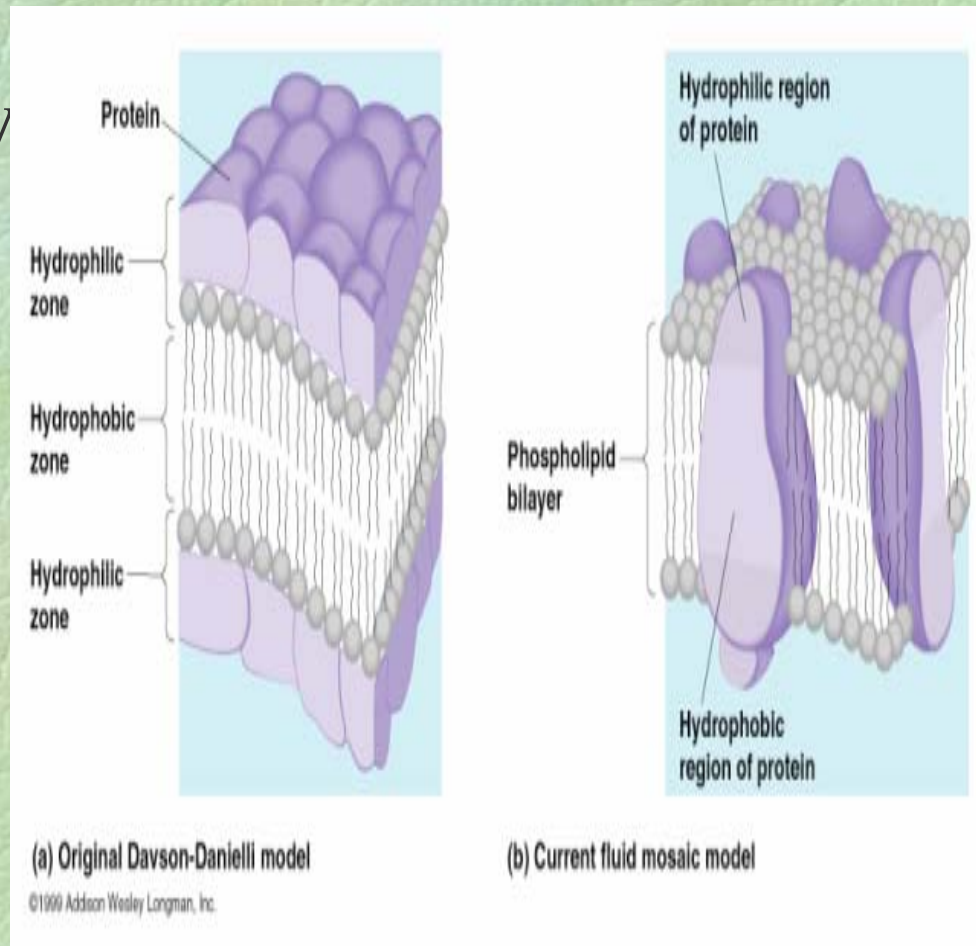
➤ Phospholipid bilayer

➤ Amphipathic - having both:  
hydrophilic heads  
hydrophobic tails



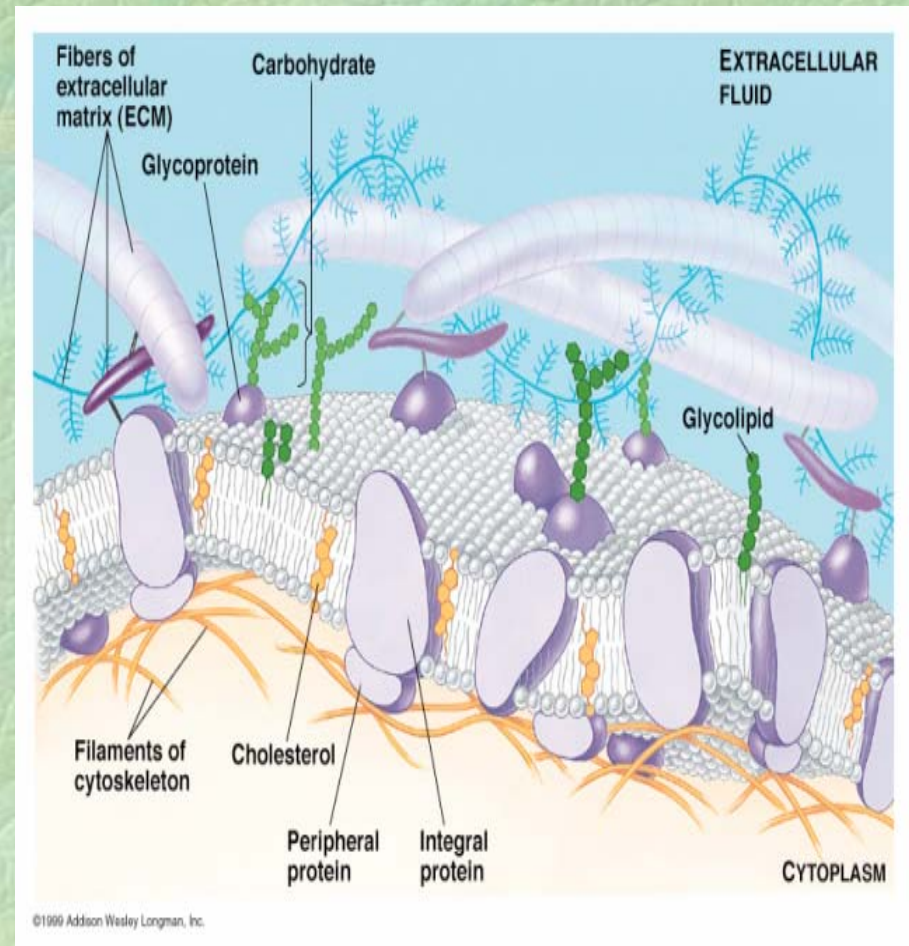
# Membrane structure, I

- Selective permeability
- Singer-Nicolson:  
fluid mosaic model



# Membrane structure, II

- Phospholipids ~ membrane fluidity
- Cholesterol ~ membrane stabilization
- “Fluid Mosaic” Structure
- Integral proteins ~ transmembrane proteins
- Peripheral proteins ~ surface of membrane
- Membrane carbohydrates ~ cell to cell recognition; cell markers; glycolipids; glycoproteins



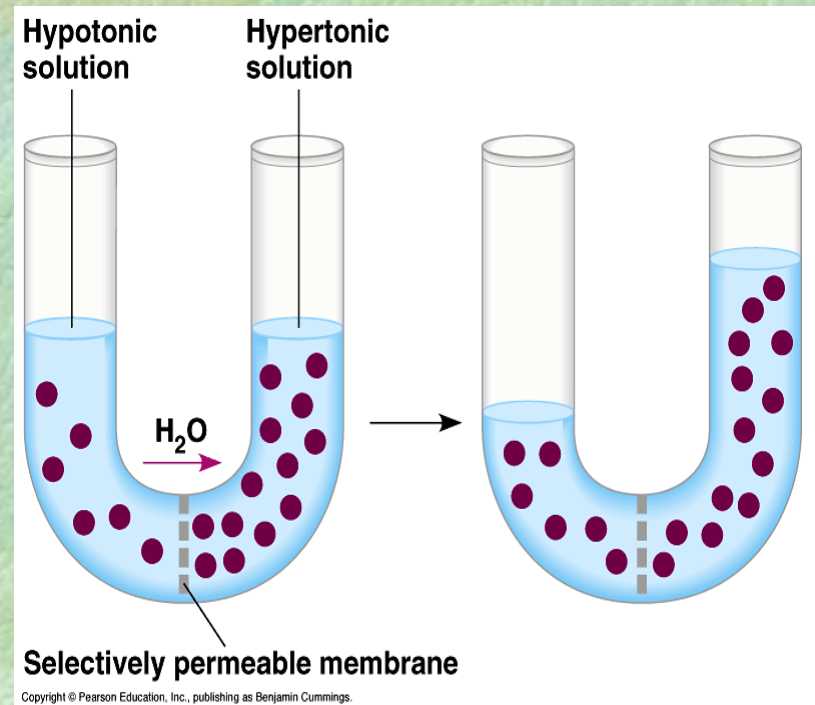
# Membrane traffic

➤ Diffusion~ tendency of any molecule to spread out into available space

➤ Concentration gradient

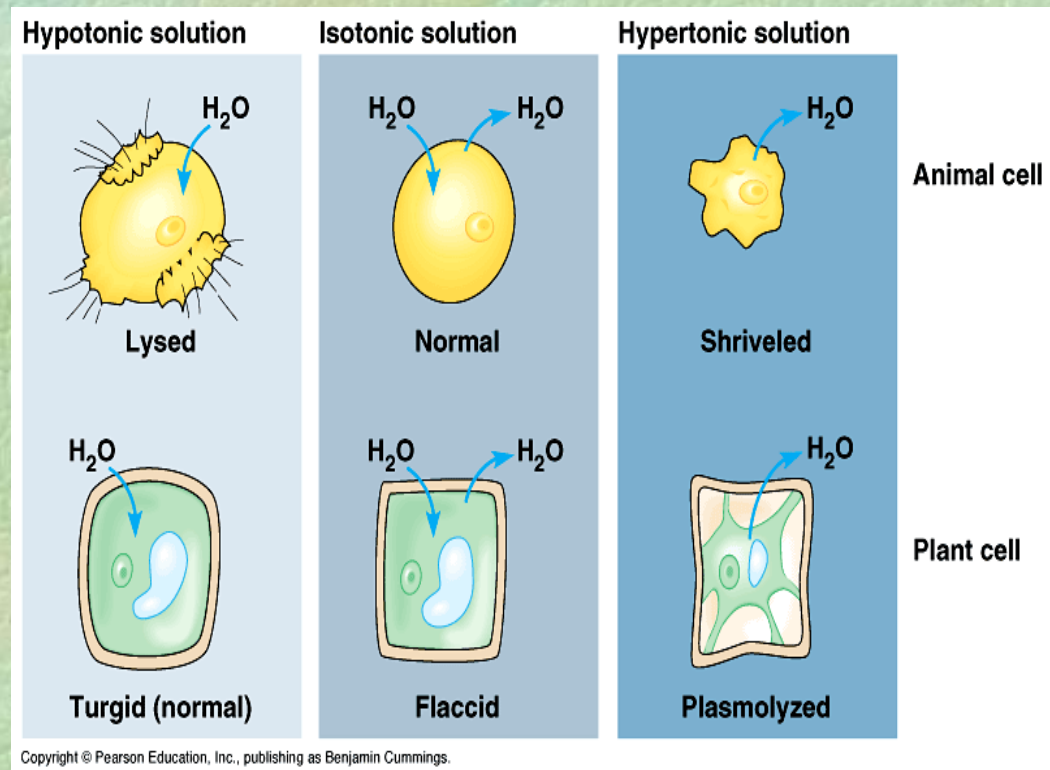
➤ Passive transport~ diffusion of a substance across a biological membrane

➤ Osmosis~ the diffusion of water across a selectively permeable membrane



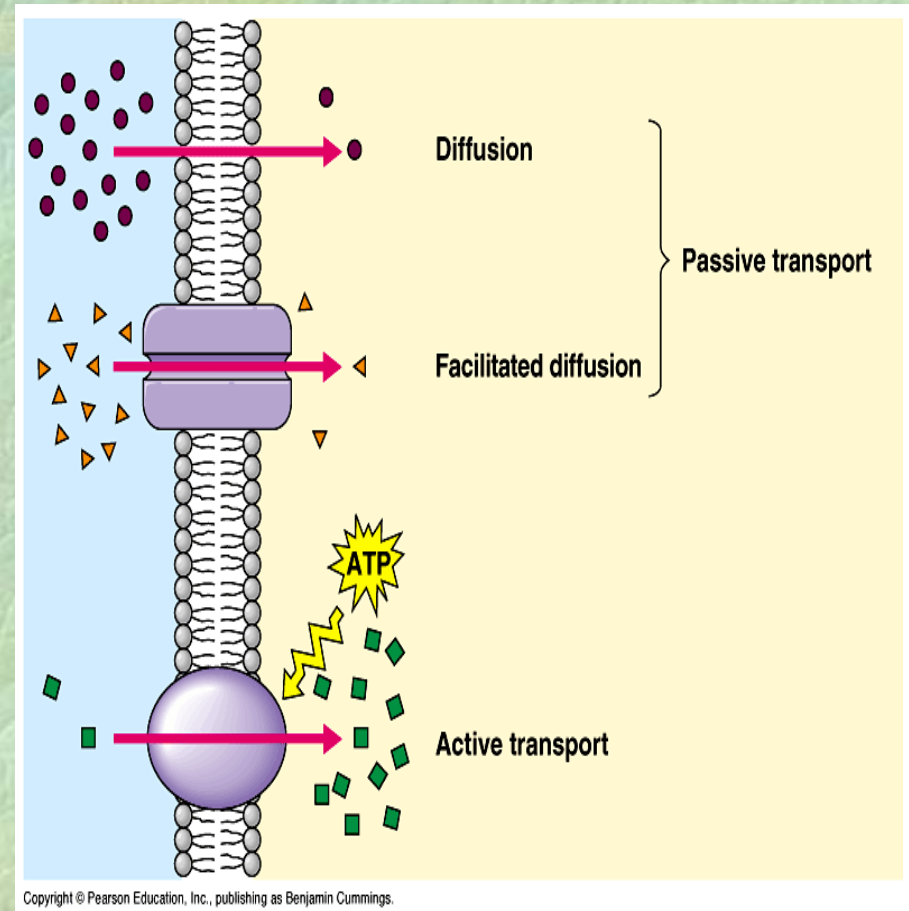
# Water Balance

- Osmoregulation~ control of water balance
- Hypertonic~ higher concentration of solutes
- Hypotonic~ lower concentration of solutes
- Isotonic~ equal concentrations of solutes
- Cells with Walls:
- Turgid (very firm)
- Flaccid (limp)
- Plasmolysis~ plasma membrane pulls away from cell wall



# Specialized Transport

- Active transport~ movement of a substance against its concentration gradient with the help of cellular energy
- Transport proteins
- Facilitated diffusion~ passage of molecules and ions with transport proteins across a membrane down the concentration gradient



# Types of Active Transport

## ➤ Sodium-potassium pump

➤ Exocytosis~ secretion of macromolecules by the fusion of vesicles with the plasma membrane

➤ Endocytosis~ import of macromolecules by forming new vesicles with the plasma membrane

- phagocytosis
- pinocytosis

