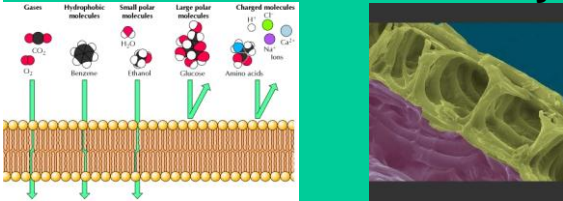


2.5 Membrane Permeability



ENDURING UNDERSTANDING

ENE-2 Cells have membranes that allow them to establish and maintain internal environments that are different from their external environments.

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ENE-2.C Explain how the structure of biological membranes influences selective permeability.

- The structure of cell membranes results in selective permeability. (see 2.4 Notes)

ENE-2.B Describe the Fluid Mosaic Model of cell membranes

- Cell membranes consist of a structural framework of phospholipid molecules that is embedded with proteins, steroids (such as cholesterol in eukaryotes), glycoproteins, and glycolipids that can flow around the surface of the cell within the membrane.

ENE-2.C Explain how the structure of biological membranes influences selective permeability.

- Cell membranes separate the internal environment of the cell from the external environment.

ENE-2.C Explain how the structure of biological membranes influences selective permeability.

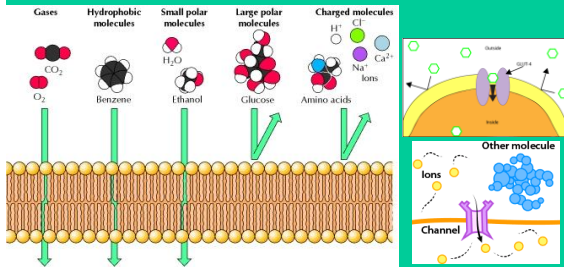
- Selective permeability is a direct consequence of membrane structure, as described by the fluid mosaic model.

ENE-2.C Explain how the structure of biological membranes influences selective permeability.

- Small nonpolar molecules, including N₂, O₂, and CO₂, freely pass across the membrane.

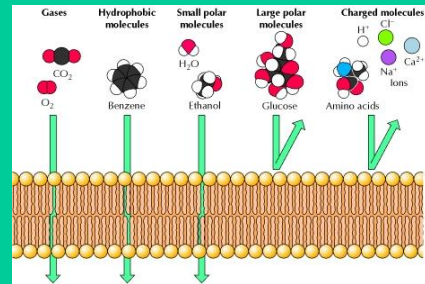
ENE-2.C Explain how the structure of biological membranes influences selective permeability.

- Hydrophilic substances, such as large polar molecules and ions, move across the membrane through embedded channel and transport proteins



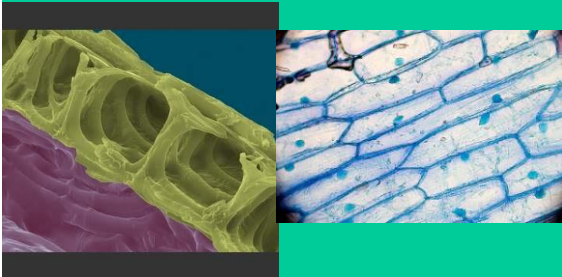
ENE-2.C Explain how the structure of biological membranes influences selective permeability.

- Polar uncharged molecules, including H_2O , pass through the membrane in small amounts



ENE-2.D Describe the role of the cell wall in maintaining cell structure and function

- Cell walls provide a structural boundary, as well as a permeability barrier for some substances to the internal environments.



ENE-2.D Describe the role of the cell wall in maintaining cell structure and function

- Cell walls of plants, prokaryotes, and fungi are composed of complex carbohydrates
 - Plant walls are cellulose and are external to the membrane.
 - Fungi walls are chitin
 - Prokaryote walls are peptidoglycan.

