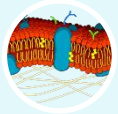
CONCEPT: LIPIDS

●*Lipids* are a major class of macromolecules that are *diverse* in *structure & function*.

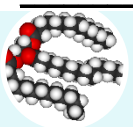
□ All lipids are _____ (water "fearing"), meaning they don't easily dissolve in water.

□ Lipids include *phospholipids*, *fats*, *oils*, *waxes*, & *steroids*.

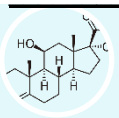
EXAMPLE:



Major component of cell/plasma membranes.



Long-term energy storage in *animals*.



Sex hormones, components of plasma membranes (cholesterol).

Long-term energy storage in *plants*.

Protection, prevention of water loss, beeswax, earwax.

Phospholipids

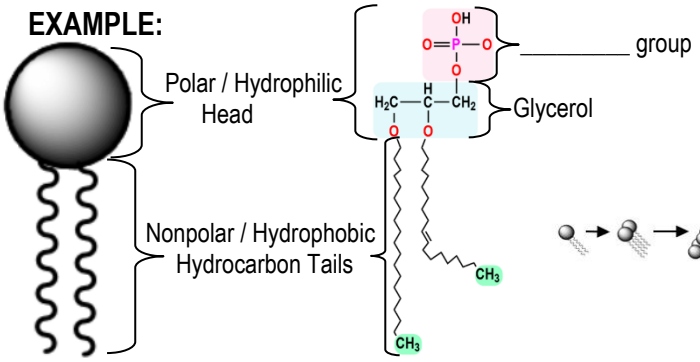
●Phospholipids are _____ (contain hydro*phili*c & hydro*phobic* parts).

□ Contain a polar, *hydrophilic* _____ and nonpolar, *hydrophobic* _____ (hydrocarbon chains).

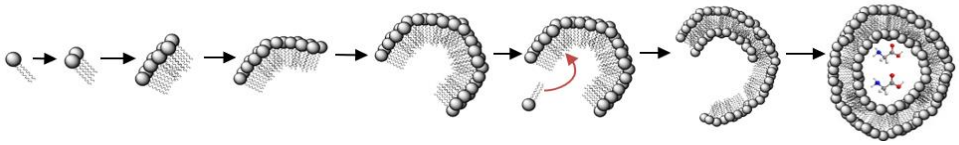
●Their amphipathic nature allows them to form _____ barriers & compartmentalize the cell.

□ The *hydrophobic effect* explains how phospholipids form membranes spontaneously in aqueous solutions.

EXAMPLE:



Membrane Formation



Cell Membranes

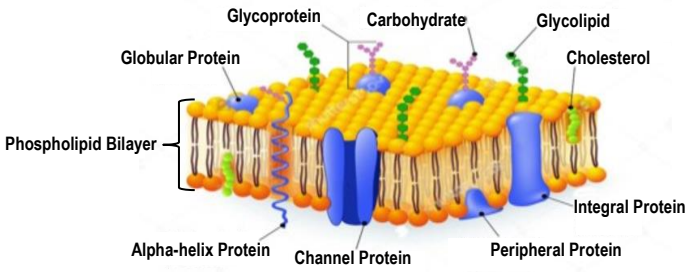
●*All* cells contain a *cell/plasma membrane* that separate the inside of the cell from the external environment.

●_____ _____ model: describes a plasma membrane's *fluid* nature with *embedded components* (proteins, etc.)

●Cell membranes are _____-_____ & have many functions (transport of materials & biosignaling, etc.).

□ Typically, only small _____ molecules are allowed to freely cross the membrane without requiring energy.

Cell Membrane



CONCEPT: LIPIDS

PRACTICE: Which of the following is incorrectly matched?

a) Oils; short-term energy storage in plants
b) Fats; long-term energy storage in animals
c) Phospholipids; major component of cell membranes
d) Steroids; include sex hormones & cholesterol

PRACTICE: What characteristic do all lipids have in common?

a) Polymers of glycerols & hydrocarbon chains
b) Hydrophilic
c) Hydrophobic
d) Polar

PRACTICE: What types of molecules are able to freely cross a semi-permeable membrane without an energy input?

a) Small, Polar molecules
b) Small, Nonpolar molecules
c) Large, Polar molecules
d) Large, Nonpolar molecules