CONCEPT: SIMPLE & FACILITATED DIFFUSION
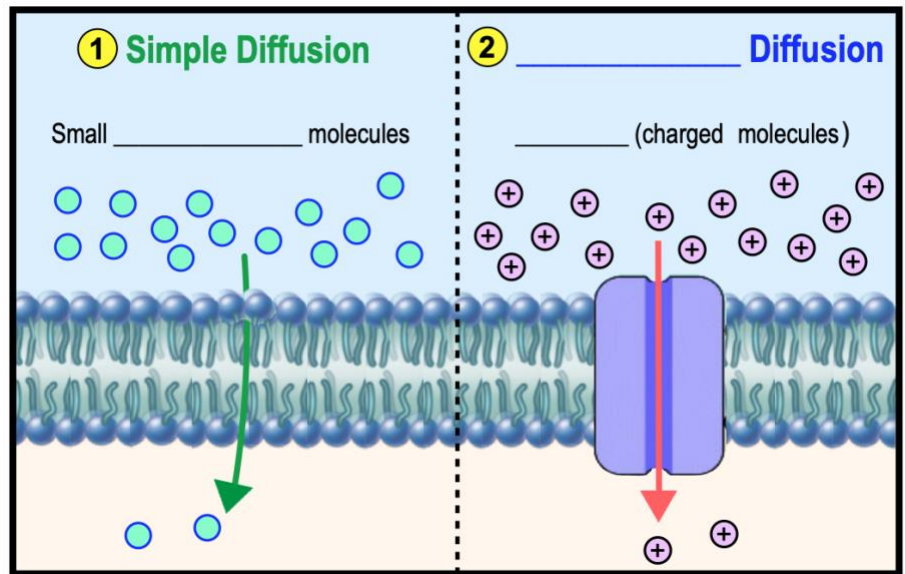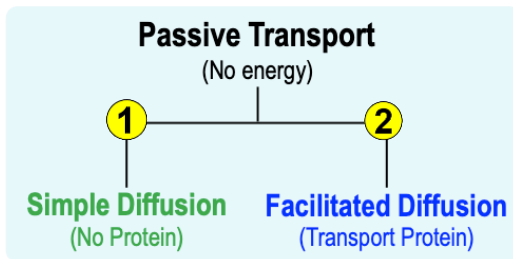
●*Simple* & *facilitated* diffusion are types of _____ transport (_____ energy).

    1 _____ **Diffusion:** *simple* & *direct diffusion* of small *uncharged* molecules through a cell membrane.

    2 **Facilitated Diffusion**: non-energetic *diffusion* of *charged* molecules *facilitated* by a transport _____.

EXAMPLE: Simple vs. Facilitated Diffusion.

PRACTICE: Which of the following processes includes all of the others?

    a) Osmosis.

    b) Facilitated diffusion.

    c) Passive transport.

    d) Transport of an ion down its electrochemical gradient.

PRACTICE: The difference between simple and facilitated diffusion is that facilitated diffusion:

    a) Requires a protein transporter.

    b) Moves molecules against their concentration gradient.

    c) Requires energy.

    d) Freely diffuses molecules against their concentration gradient.

CONCEPT: SIMPLE & FACILITATED DIFFUSION

Transport Proteins of Facilitated Diffusion

● _____ types of transport proteins involved in *facilitated diffusion*:

  1) **Porins/Channels**: form an obvious *membrane-spanning-_____*.

     □ *Aquaporins*: used to transport _____ molecules through a cell membrane (facilitating *osmosis*).

  2) **Transporters/Carriers:** undergoes *conformational* changes to move molecules across a membrane.

EXAMPLE: Porins/Aquaporins/Ion-Channels & Transporters/Carriers.
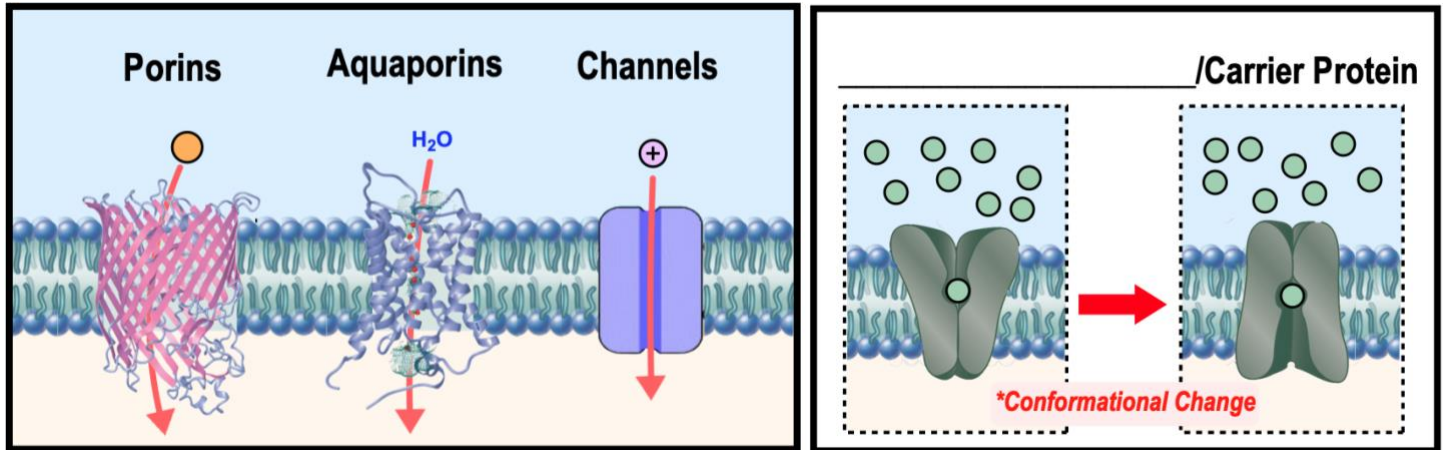
PRACTICE: Which of the following does not accurately describe a channel or a carrier?

  a) Channel – open to both sides of the membrane simultaneously.

  b) Carrier – open to one side of the membrane at a time.

  c) Carrier – requires a conformation change to complete function.

  d) Channel – not selective for molecules that move through it.

PRACTICE: Which type(s) of molecules cannot enter/exit the cell via simple diffusion and require facilitated diffusion?

  a) Nonpolar oxygen gas molecules.

  b) Charged Ca^{2+} ions.

  c) Nonpolar carbon dioxide gas molecules.

  d) Nonpolar water molecules.

  e) Charged Na^+ ions.

  f) b and e only.

  g) a, c, and d only.