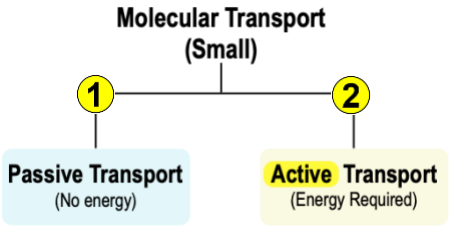
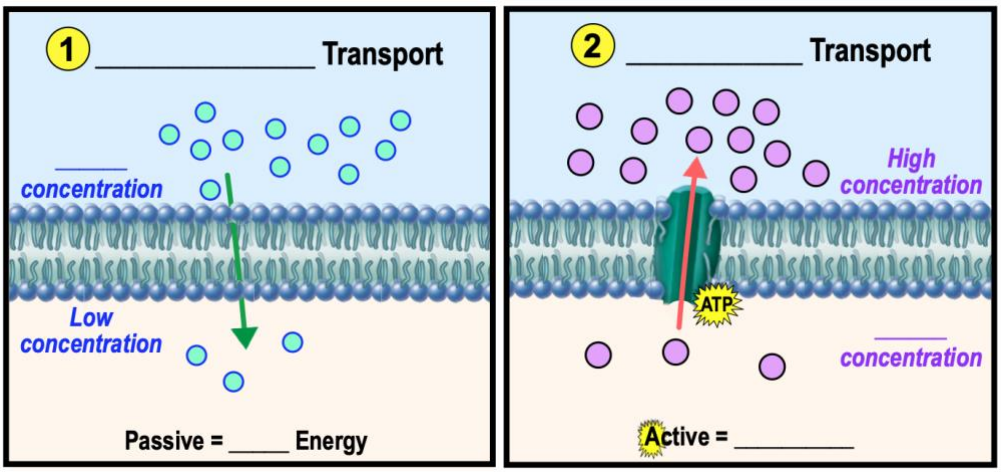
CONCEPT: PASSIVE VS. ACTIVE TRANSPORT

- _____ general types of molecular transport across *biological membranes*:
  - (1) **Passive Transport** (*no* energy): transports molecules from a _____ to _____ concentration.
  - (2) **Active Transport** (requires *energy*): transports molecules from a _____ to a _____ concentration.

EXAMPLE: Passive vs. Active Membrane Transport.





PRACTICE: Passive membrane transport processes include_____.

a) Consumption of ATP for energy.
b) The use of transport proteins to move a substance from low to high concentration.
c) Movement of a substance down its concentration gradient.
d) Movement of a substance up its concentration gradient.

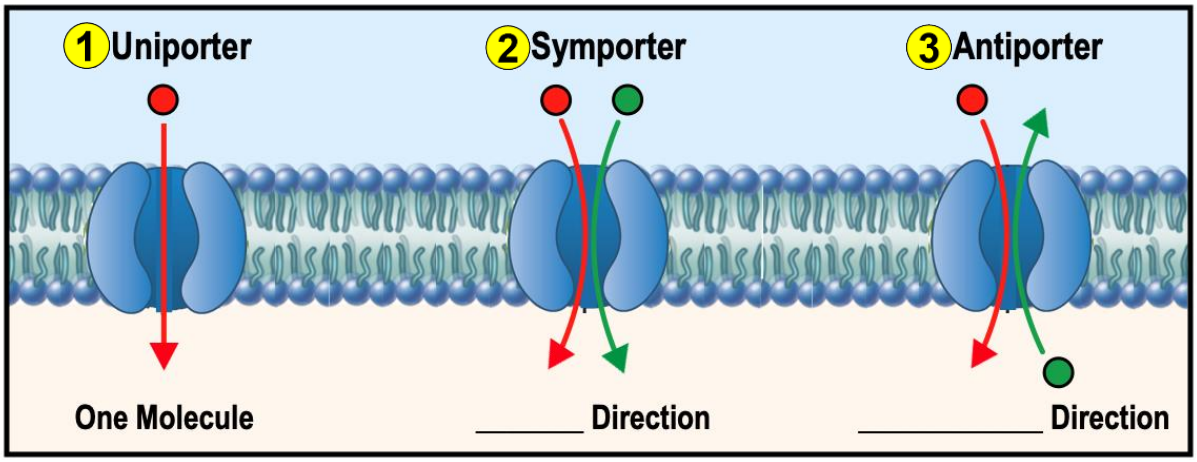
PRACTICE: What is the difference between active and passive transport across a membrane?

a) Both active and passive transport move substances down their concentration gradients.
b) Active transport is ATP dependent. Passive transport does not require energy.
c) Active transport requires cell to cell communication. Passive transport does not require cell communication.
d) Active transport can be performed without transport proteins while passive transport cannot.

CONCEPT: PASSIVE VS. ACTIVE TRANSPORT

Classes of Membrane Transport Proteins

- _____ types of *transport* proteins are classified according to how they operate:
  1. _____**porters**: transport _____ molecule at a time in just _____ direction.
  2. _____**porters**: cotransport ≥ 2 molecules at a time in the _____ direction.
  3. _____**porters**: cotransport ≥ 2 molecules at a time in _____ directions.



PRACTICE: A transport protein that simultaneously transports two different molecules in different directions is called:

a) A uniporter.
b) A symporter.
c) An equilibrium protein.
d) An antiporter.
e) A simple diffuser.

PRACTICE: Which option below best describes a transporter that requires ATP to move molecules A and B out of the cell?

a) An active antiporter.
b) A passive antiporter.
c) A passive symporter.
d) An active uniporter.
e) An active symporter.