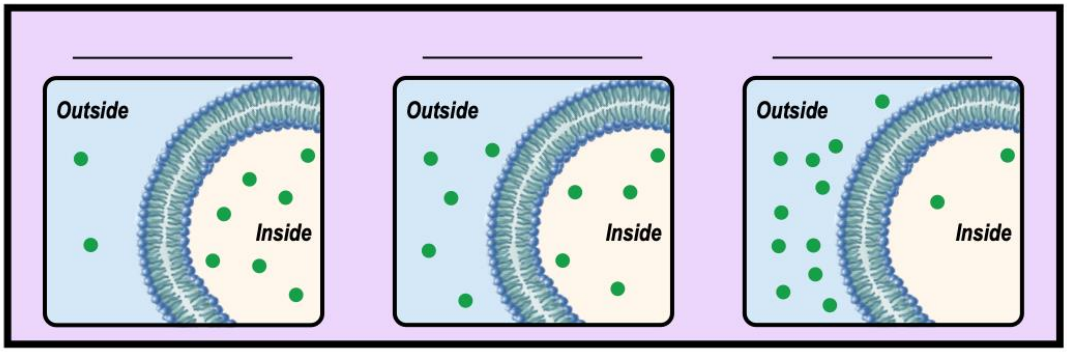
CONCEPT: OSMOSIS

●**Osmosis**: *passive diffusion* of a solvent (usually _____) across a *semi-permeable* membrane.

●Direction of water flow depends on _____: relative concentration of _____ dissolved in the solutions.

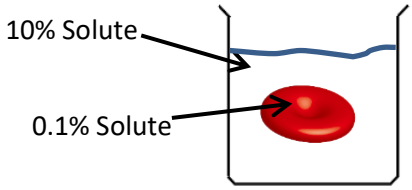
- □ _____*tonic* solutions have _____ *solute* concentration.
- □ _____*tonic* solutions have _____ *solute* concentrations.
- □ _____*tonic* solutions have _____ *solute* concentrations.

EXAMPLE: Label the tonicity of the *outside* solution with respect to the solution inside the cell.



EXAMPLE: What is the tonicity of the outside solution in comparison to the inside of the cell?

a) Hypotonic.
b) Isotonic.
c) Hypertonic.
d) Electrotonic.



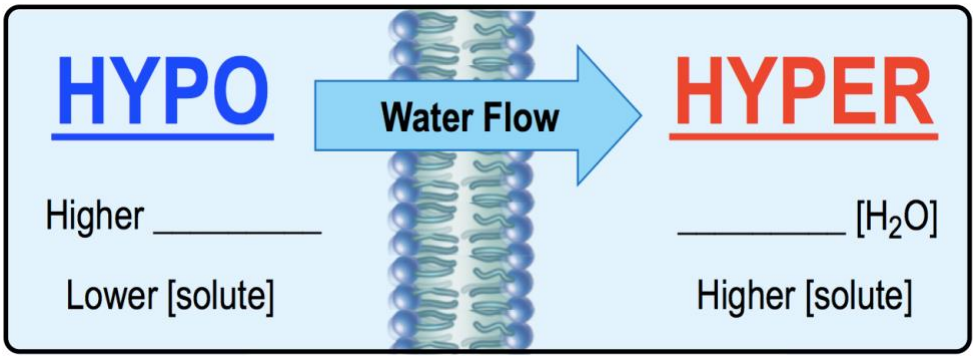
Direction of Osmosis

●Water will move from _____*tonic* to _____*tonic* solutions if the *solutes cannot* diffuse across the membrane.

- □ Water moves towards the more concentrated solution of *solute* to dilute it until it becomes _____.

●Water still moves from higher concentrations of *water* to lower concentrations of *water*:

- □ *Hypotonic solutions*: _____ H_2O concentration (but *lower* solute).
- □ *Hypertonic solutions*: _____ H_2O concentration (but *higher* solute).



CONCEPT: OSMOSIS

PRACTICE: Osmosis is best defined as the movement of:

a) Water molecules across a semi-permeable membrane into a region of low solute concentration.

b) Solute molecules from an area of high concentration to an area of lower concentration.

c) Water molecules across a semi-permeable membrane into a region of high solute concentration.

d) Water molecules inside a cell that can't be transported out.

e) Solute molecules from an area of low concentration to an area of higher concentration.

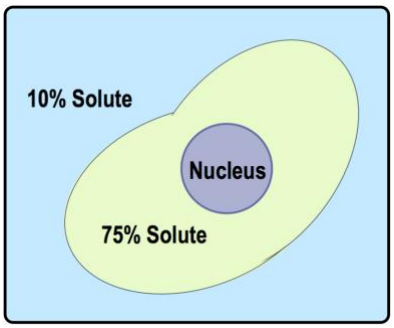
PRACTICE: Which direction would you expect water to move across the cell membrane?

a) Into the cell.

b) Out of the cell.

c) Into the cell and out of the cell at equal rates.

d) Water will not move across the cell membrane.



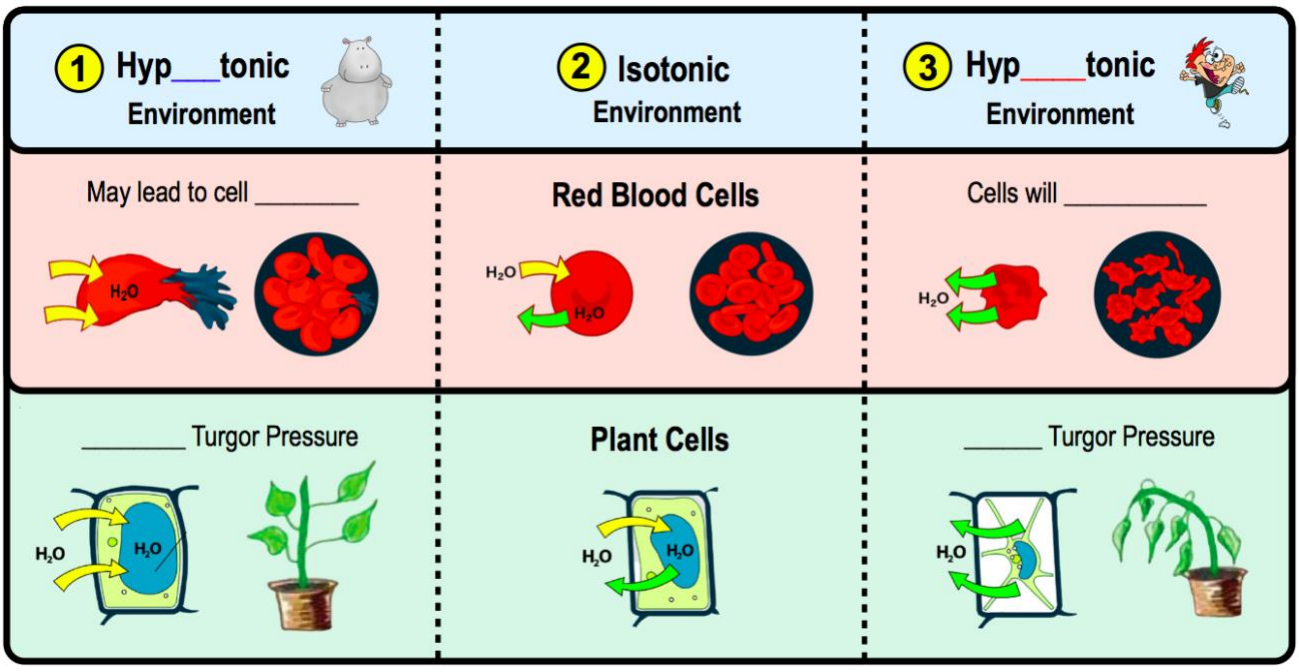
Environmental Tonicity Affects Cells

1 **Hyp____tonic Environments**: H_2O *enters* cells causing them to *swell* like a hipp___ & potentially *lyse* (burst).

□ Preferred by *plant* cells due to increased _____ *pressure* (water pressure on cell membrane).

2 _____**tonic Environments**: H_2O enters & exits the cell at _____ rates (preferred by animal cells).

3 **Hyp____tonic Environments**: H_2O *exits* cells causing them to *dehydrate* like a hyper-kid gets dehydrated.



CONCEPT: OSMOSIS

PRACTICE: Plants become turgid when placed in this type of solution:

a) Hypotonic.

b) Isotonic.

c) Hypertonic.

d) Megatonic.

PRACTICE: What would you expect to happen to the cell under the following conditions?

a) The cell will swell.

b) The cell will lyse.

c) The cell will shrivel.

d) The cell will stay the same.