A Model of Diffusion and Osmosis
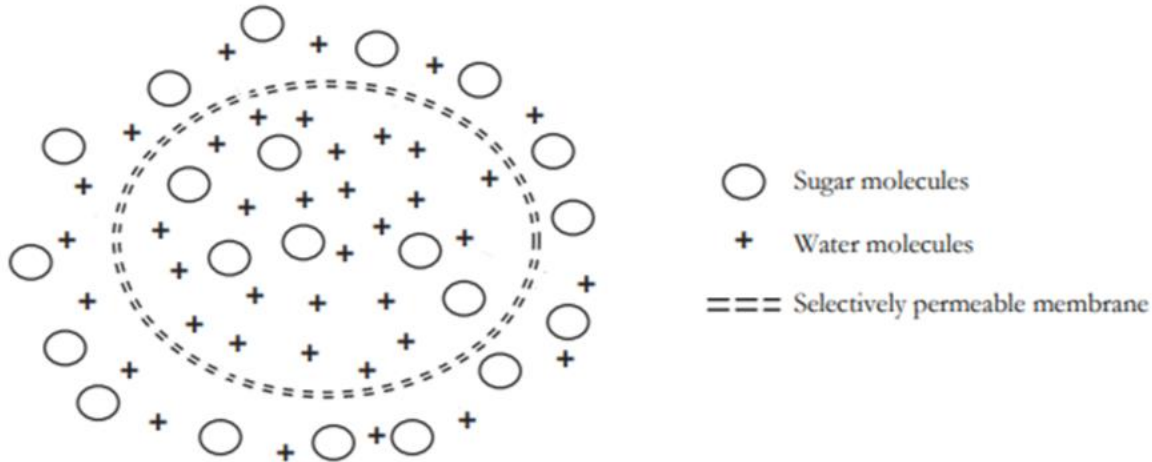

○   Sugar molecules

+   Water molecules

===   Selectively permeable membrane

1. [SP 1, SP 2] Identify the solute and the solvent.

2. [SP 1, SP 2, SP 6] Consider the size of the two molecules. Identify the molecule(s) able to move through the selectively permeable membrane.

3. [SP 1, SP 2] State which solution (the solution inside the cell or outside of the cell) in the model is more concentrated.

4. [SP 1, SP 2, SP 6] Identify the area - inside or outside of the cell - where there is a higher concentration of water. Justify your response.

5. [SP 1, SP 2] Add arrows to the model to indicate the direction of movement of both molecules.

6. [SP 2, SP 6] Predict what will happen to the concentration of the solution inside and outside the cell. Justify your prediction.

7. [SP 1, SP 2] Identify this solution as hypotonic, hypertonic, or isotonic.

8. [SP 1, SP 6] Paramecium is a single-celled organism that uses a cell structure called a contractile vacuole to remove excess water from the cell. If a Paramecium swims from a hypotonic to an isotonic environment, predict whether its contractile vacuole will become more active or less. Justify your response.