Osmosis: Where's the Water?

Name:_____.

Period: _____.

Introduction

Osmosis is the diffusion of water across a semi-permeable membrane (membrane that allows only certain substances to pass through), from an area of high water concentration to an area of low water concentration. Osmosis can be observed in individual cells or in collections of cells, as in multicellular organisms or their structures.

There are three solutions in which cells may be placed: hypotonic, hypertonic and isotonic. Remember in a solution, the solute is the substance that is dissolved in the solvent (ex. Sugar & salt) and the solvent is the substance the solute is dissolved in (ex. Water). In a hypotonic solution the concentration of the solute is lower outside the cell. In a hypertonic solution, the concentration of the solute is lower inside the cell. In an isotonic solution, the concentration is equal on both sides of the cell.

In order to simulate a semi-permeable cell membrane, a grape's external membrane is used; it is semi-permeable and acts similar to a cell membrane. Water is able to move across the membrane of the grape, but larger substances will not be able to pass through just as in a cell.

Question to Ponder: What would happen if cells did not have semi-permeable membranes?

Goal:

To learn and understand how water moves across the semi-permeable membrane of grapes and/or raisins in different solutions.

LET'S GET STARTED!

Materials

3 Small jars with lids	Saturated sugar solution	Paper Towels
Grapes	Tap water	Labeling tape
Raisins	Digital scale or balance	

(1a) Pose a scientific question related to osmosis (that can be answered using the supplied materials) about what will happen to a grape or raisin placed in different solutions: _____

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(1b) Rephrase your question into a hypothesis, being sure to use the "IF… THEN…" format: _____

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