

UNIT 2 - BASIC PRINCIPLES OF BODY CHEMISTRY

ACTIVITY – Diffusion

Objectives: Develop the concept of diffusion.
Demonstrate diffusion of molecules of matter in various states.

Materials needed:

Lemon oil, potassium permanganate, dish, 250 ml. beaker, glasses, water, powdered drink mix (i.e. Tang), straws, raisins, pipette, spatula, sandwich bag, marble or small ball and teaspoon.

Strategy:

Review the structure of the cell by using the sandwich bag filled with water and a marble or small ball. Discuss the presence of openings in cell membranes and the possibility of molecules moving through these openings.

Demonstrate diffusion, by pouring lemon oil to cover the bottom of a dish. As each student detects the odor, they raise their hand. Continue until all members of the class have detected the odor of diffusing molecules. At the conclusion of the demonstration, the air and oil molecules have spread out and mixed evenly as they continue to move. This process is called simple diffusion.

Observe simple diffusion of a solid, fill a 250 ml beaker with distilled water and add several crystals of potassium permanganate. Watch the results as the crystals settle to the bottom. Discuss this phenomenon.

Observe simple diffusion of a liquid. Place a glass of water at each student's desk. Do not touch the water; keep the water still for this test. Carefully drop a teaspoonful of powdered drink mix into the glass of water. Watch it for a few minutes without touching the glass. It will go to the bottom and start diffusing.

Observe diffusion in raisins, place several raisins in a glass of water. Let them sit overnight. Also, boil some raisins the night before you need them. Keep some raisins dry for a control. Distribute to each student some soaked raisins and dry raisins. Let them compare the two kinds of raisins and answer the questions on the worksheet.

Evaluation:

Answer the following questions to show the understanding of diffusion.

1. What is diffusion?
2. Refer to the raisin experiment and explain the difference between the soaked raisins and the dry raisins.
3. What is the evidence that something passed out of the raisins but not everything?
4. What is the difference between the bag's cell membrane and the raisin's cell membrane?