

Modeling Diffusion & Osmosis Lab

Experimental Design

Purpose:

Students will visualize through hands-on learning the process of diffusion and osmosis. Students are to determine which process is which based on information gathered through this experimental design.

Materials:

Part 1	Part 2
<ul style="list-style-type: none">• Iodine• Cornstarch/water solution• Dialysis tubing (5cm length)• String• Water• 500 ml beaker	<ul style="list-style-type: none">• Fish• Metric scale• Ruler• Water• Ziplock bag
During 15 min. wait time begin part 2	

Procedure

Fill 500ml beaker about half-full with water and add approximately ten drops of iodine. Stir gently. Tie off one end of dialysis bag. Fill dialysis bag approximately 2/3 full (leaving room at top) with starch solution and tie off well. Gently rinse the bag and make sure you haven't dripped any of the starch substance on the outside of the bag. Place bag into beaker with iodine solution and wait about 15 minutes. Begin part 2 immediately.

Measure and record data: length and mass of fish (metric). Trace outline of fish on graph paper. Measure and record the area. With marker, write lab team names on Ziploc bag. Place your fish in Ziploc bag partially filled with water. Seal. Observe any changes and record those results over 24 hour period.

Discussion questions:

1. Observe and record the properties of each solution.
2. To which substance is the dialysis bag permeable? Why? Explain.
3. Did any substance enter the beaker from the dialysis bag?
4. How is the dialysis bag like the cell membrane?
5. Make observations, measurements, estimations and predictions based on current knowledge.
6. **Explain** which experiment demonstrated osmosis and which demonstrated diffusion.