

Inquiry Spreading Out and Through Intestine

Direction: Copy down the purpose and data table.

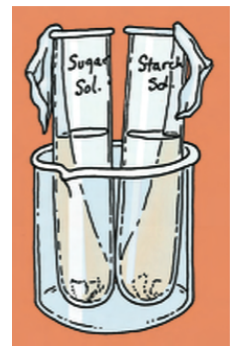
Purpose: How do nutrients move from the small intestine to your blood stream?

Background Information:
What does diffusion mean?



Set Up Procedure:

1. With a graduated cylinder, measure 8 mL of distilled water. Pour the water into the large test tube labeled “*Sugar Solution.*” Place the test tube in the test tube rack.
2. With a graduated cylinder, measure 8 mL of distilled water. Pour the water into the large test tube labeled “*Starch Solution.*” Place the test tube in the test tube rack.
3. Remove a membrane from the sugar beaker. Make sure the untied end of the membrane is wet. Rub the sides together with your thumb and forefinger to open the tube.
4. Use a graduated cylinder to measure 13 mL of sugar solution. Insert the end of the funnel through the open end of the membrane. Then, as shown in the picture to the right, **pour the sugar solution from the graduated cylinder into the *membrane tube.* POUR SLOWLY!**
5. Carefully rinse the **outside** of the membrane thoroughly to remove any trace of the sugar solution.
6. Place the membrane into the test tube and water labeled “sugar solution.” Hang the excess membrane over the top and down the side of the tube.
7. Allow both test tubes to sit in the beaker for 10 minutes as shown in the picture to the right.
8. Read “getting from here to there,” and answer the question.



Data Table

Water	Sugar	Starch
Before	■	■
After		

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Sugar/Starch Test:

1. Take both membranes out of the test tubes. Dump the liquid from the membranes **ONLY** down the drain and rinse off the inside and outside of the membrane. Put the membranes back in the beaker so both membranes are completely submerged under the water.
2. At this point, there should NOT be any membranes left in the test tubes. Perform a chemical test for sugar **using the liquid from the test tube marked "Sugar"** (Use the smaller test tube, take 20 drops of the liquid from the "Sugar" test tube, 10 drops of Benedict's solution, and leave in the hot water bath for 1 minute) Observe the color of the liquid and record whether or not a sugar is present in the water on your data chart.
3. Perform a starch test on the liquid in the test tube marked "Starch." **You can put the Lugol solution directly in the large test tube, however use 10 drops of Lugol Solution.** Record whether or not a starch is present in the liquid on your data chart.
4. Wash all three test tubes and then begin setting up the lab for the next class.

Analyzing the data:

1. How do nutrients move from the small intestine to your blood stream?
2. What mystery substances diffused through the membrane?
3. Why don't all the substances diffuse through the membrane?