# Investigation 2: Absorbing nutrients

Aim: To investigate what kind of nutrients can be absorbed.

## Materials:

|  |  |
| --- | --- |
| Per group   * 2 lengths of dialysis tubing (~12 cm) * 3 x 250 mL beakers * 4 rubber bands or twist-ties * 1 dropper bottle of 10% glucose solution * 1 dropper bottle of 1% starch solution * 1 dropper bottle of iodine solution * 2 pieces of glucose test tape or strips * distilled water |  |

## Method:

1. Fill two of the beakers three-quarters full with water.
2. Label one beaker ‘glucose’ and the other ‘starch’.
3. Half fill the third beaker with water and place the two pieces of dialysis tubing in the water and leave for about two minutes.
4. Remove one piece of tubing and place a rubber band or twist-tie to seal off one end. Rub your fingers back and forth on the other end until the tubing opens. Blow into the tubing to open up the ‘sausage’.
5. Use the dropper to three-quarters fill the sausage with glucose solution.
6. Rinse the outside of the sausage with water.
7. Place the sausage into the beaker labelled ‘glucose’.
8. Repeat steps 4–7 but this time fill the tubing with the starch solution and place the sausage into the beaker labelled ‘starch’.
9. Leave the beakers for at least 15 minutes, the longer the better.
10. Use the glucose test tape or strips and the iodine solution to test for the presence of glucose and starch in each of the beakers.
11. Record the results in the table below.
12. Clean up all the equipment as directed by your teacher.

## Results:

**Title:** The movement of nutrients through a membrane

|  |  |  |
| --- | --- | --- |
| Nutrient in dialysis tubing sausage | Nutrients found in the beaker at the end of the experiment | Did the nutrients move through the dialysis tubing?  (yes/no) |
| Glucose |  |  |
| Starch |  |  |

## Discussion:

What can you infer about comparative particle size? Which particles are smaller, starch or glucose? How do your results support this?

## Conclusion:

The dialysis tubing behaves the same way as the wall of the small intestine. Use your results to describe the movement of substances out of the small intestine.

Use what you have learnt in Investigation 1 and 2 to explain why food has to be digested before the body can use it

## Find out more:

Use available resources to answer the following questions.

1. One of the functions of the small intestine is the absorption of nutrients. This occurs by a process called diffusion.
2. What is diffusion?
3. Describe how diffusion occurs.
4. One of the functions of the large intestine is the absorption of water. This occurs by a process called osmosis.
5. What is osmosis?
6. Describe how osmosis occurs.