

Developed by Linda Roberts
Grades 3-7

Diffusion • Passive Transport



Objectives

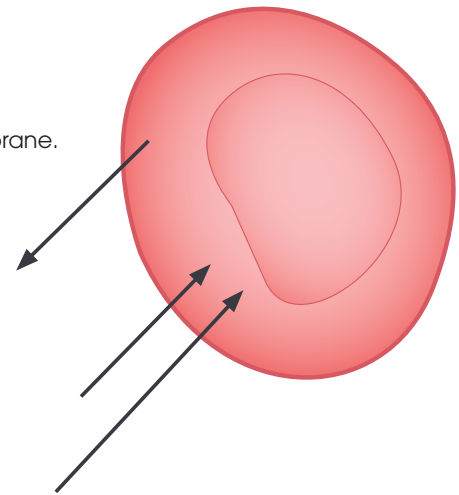
Students will...

- Observe and be able to explain diffusion and passive transport.
- Be able to determine the difference between a cell wall and cell membrane.



Materials

- Clear Plastic Cups, 10 oz. (Cat. No. SB41297M)
- Plastic Sandwich Bags with Twist Ties (do NOT use zip-close bags)
- Cornstarch and Water Mixture
- Iodine, 100 ml (Cat. No. KM00626M) and Water Solution
- Safety Goggles (Cat. No. SB46780M)



Demonstration

This is a quick demonstration to make diffusion through cell membranes easier to understand. Tell the students not to taste any of the materials.

- Mix cornstarch with water until you have a slightly watery mixture. Make enough so each student can have about $\frac{1}{4}$ cup of mixture.
- Add about a teaspoonful of iodine to a beaker of water. The color should be light brown. Make enough so each student can have about $\frac{1}{4}$ cup of the solution.
- Add a small amount of the cornstarch mixture to a small amount of the iodine solution in a clear cup to show students what happens when they are mixed. The mixture should turn blue/black.
- Give each student a plastic bag with a twist tie containing about $\frac{1}{4}$ cup of the starch mixture. Each student will also need a plastic cup with about $\frac{1}{4}$ cup of the iodine solution. Place the plastic bag with cornstarch into the cup with the iodine solution (be careful not to overfill the cup).
- After about 15 minutes, students will notice the cornstarch in the plastic bag changing color to blue/black.

Discussion

Q: How did the iodine get into the bag of cornstarch?

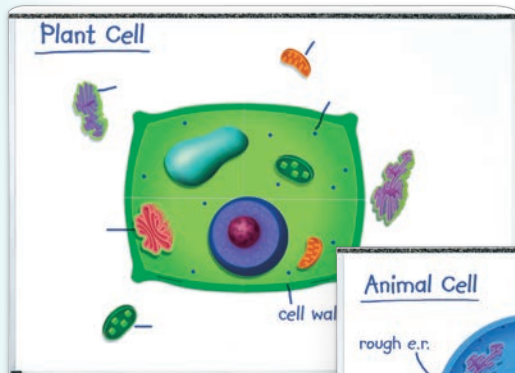
A: The plastic bag is permeable. It has tiny holes in it that let the iodine in.

Q: Why didn't the cornstarch come out of the bag?

A: The holes in the bag are too small to allow the cornstarch molecules to move out of the bag. Introduce the idea of selective permeability in a cell. Only certain things can come into the cell (water, oxygen, nutrients), and certain others are released from the cell (waste products).

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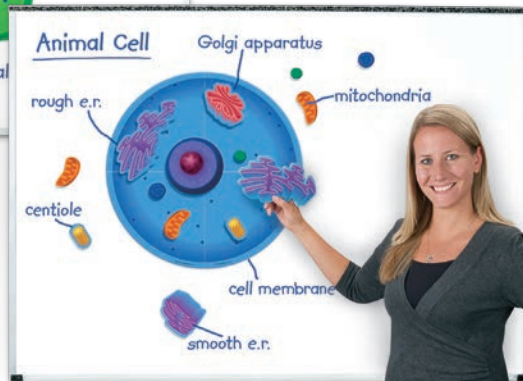
SB48209M



SB42002M



SB42003M



SB48210M



Cross Section of Cells Model Set

5" cross sections of a plant cell and an animal cell. One side in each cross section is labeled, the other size can be used for quizzes. Cross sections identify key organelles and their functions and comes with a guide. Soft, durable foam construction. Includes animal cell cross section and plant cell cross section listed below.
SB42004M

Cross Section Models

SB42002M Plant Cell Model. Green.

SB42003M Animal Cell Model. Blue.

Magnetic Cell Models. Cell structures are printed on raised foam magnets for a 3-D effect. Coordinates with plant and animal foam cell models above. Guide includes detailed information about each component.

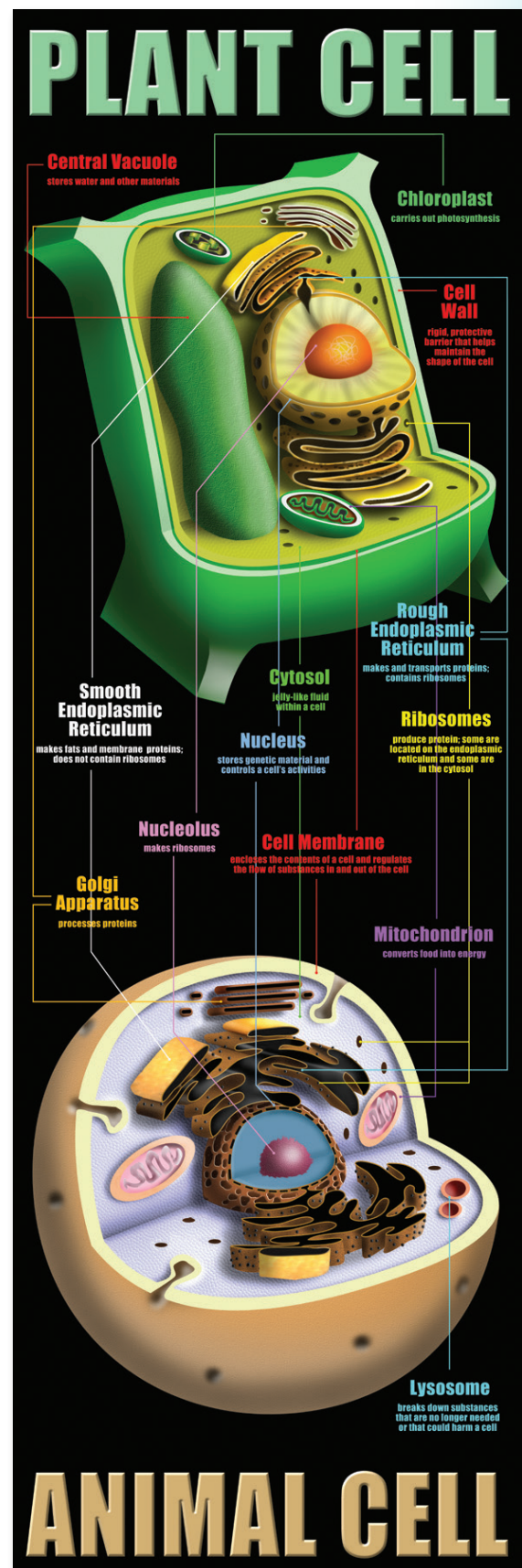
SB48209M Magnetic Plant Cells.

SB48210M Magnetic Animal Cells.

Plant and Animal Cells Colossal Concept Poster

This striking poster clearly shows the structure of plant and animal cells and explains the function of their important parts. Over 5 ft. tall! Sure to capture the attention of young scientists. Includes teacher's guide with background information and related activities. Grades 5-9.

SB40916M



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