

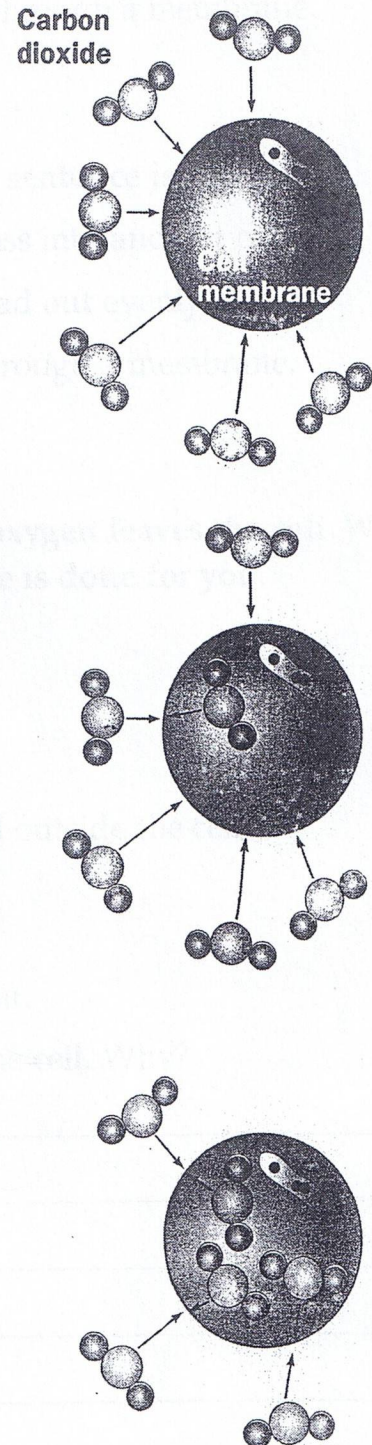
What Is Diffusion?

Have you ever had a glass of iced tea on a hot day? You probably added sugar to the tea, stirring until the sugar seemed to disappear. Where did the sugar go? It **dissolved**, or became too small for you to see. The dissolved sugar moved throughout the tea, so that every swallow tasted sweet. When dissolved materials like the sugar move through a substance like the tea, the process is called **diffusion**.

In a plant, water carries dissolved materials that move into and out of plant cells. They move from areas of high concentration to areas of low concentration. In other words, dissolved materials move from more crowded areas to less crowded areas, until they are spread more evenly. Why is diffusion important? Think of what a plant cell needs for photosynthesis. There is more carbon dioxide outside the cell than inside the cell. So carbon dioxide dissolved in water moves into a cell through the cell membrane. After photosynthesis, there is more oxygen inside the cell than outside the cell. What do you think will happen to the oxygen inside the cell?

Water also moves in and out of a cell by diffusion. The diffusion of water through a membrane like a cell membrane is called **osmosis**. You know that water carries dissolved materials. When there are more dissolved materials, there is less room for water. And when there are fewer dissolved materials, there is more room for water. Water moves from areas of higher concentration to areas of lower concentration. Let's use a root cell as an example. The soil outside a root holds more water and less dissolved material. But inside a root cell, there is less water and more dissolved material. In osmosis, water moves from the soil, or the area with more water, to the root cell, or the area with less water.

Diffusion of Carbon Dioxide into a Cell



Carbon dioxide moves into the cell until it is evenly spread on both sides of the membrane.

A.

Draw a line to complete each sentence.

1. Diffusion is the _____ becomes too small to see.
2. A dissolved substance _____ movement of dissolved materials through a substance.
3. Osmosis is the _____ allows some materials to pass into and out of a cell.
4. A cell membrane _____ diffusion of water through a membrane.

B.

Write True if the sentence is true. Write False if the sentence is false.

- _____ 1. The cell membrane lets only water pass into and out of a cell.
- _____ 2. In diffusion, dissolved materials spread out evenly.
- _____ 3. Osmosis is the movement of water through a membrane.

C.

The sentences below describe the steps by which oxygen leaves the cell. Write 1, 2, 3, and 4 to show the correct order. The first one is done for you.

- _____ Oxygen begins to diffuse out of the cell.
- 1 _____ A cell makes oxygen.
- _____ Oxygen builds up inside the cell.
- _____ Equal amounts of oxygen are inside and outside the cell.

D.

Write one or more sentences to answer the question.

When a cell makes waste, the waste moves out of the cell. Why?
