

Diffusion

by Sophia



WHAT'S COVERED

In this lesson, you will learn to identify how substances move across a cell membrane through the process of diffusion. Specifically, this lesson will cover:

1. Process of Diffusion

Simply put, **diffusion** is the movement of molecules down a **concentration gradient**.

It may be helpful to think of "concentration" as the "density of a solute," or the number of molecules within an area. A glass of super-sweet lemonade has a high concentration of sugar molecules. If the same glass instead contains weak lemonade, it has a low concentration of sugar molecules.

A concentration gradient is the difference in the number of molecules of a substance across a space. When a substance is diffusing, it's moving from an area of high concentration to an area of low concentration.

Diffusion is a type of **passive transport**, meaning that it doesn't require any energy from the cell in order for this to happen.



TERMS TO KNOW

Diffusion

Movement of molecules from an area of high concentration to an area of low concentration.

Concentration Gradient

The difference in concentration of a substance between two areas.

Passive Transport

The movement of molecules across a membrane without the use of energy.

2. Purpose of Diffusion

The purpose of diffusion is to even out the concentration of molecules across the space.

IN CONTEXT

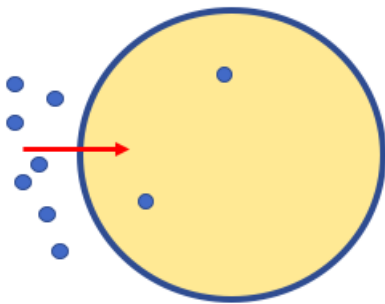
Imagine that you drop some green food coloring into a fishbowl.

When you first drop the food coloring into the fishbowl, it'll all be clumped up in that space right where you dropped it; but slowly, those molecules are going to start to spread out. They're going to move from an area of high concentration, right where they were dropped, into an area of low concentration.

The rest of this fishbowl doesn't have any green food coloring molecules, so those molecules are going to spread out from that area of high concentration to that area of low concentration.

When diffusion is done, those molecules will be equally spread or equally distributed throughout the water in that fishbowl. So you would notice, when you first dropped the food coloring in, just one area of green. But after diffusion occurs, all of the water would then be green, and you would know that those molecules had spread out evenly, or diffused evenly, from an area of high to low concentration.

Now think about this in terms of cells. Outside of a cell, you might have a certain solute in high concentration. You have a lot of it outside of the cell, but you don't have very much of it inside of the cell.



Naturally, those molecules are going to diffuse from an area of high concentration to low concentration. You're going to see these molecules outside of the cell diffuse across the plasma membrane into the cell.

Once diffusion has happened, you would have the same number of molecules outside as you would inside. These will continue to diffuse into the cell until it's equal on either side of the cell.



SUMMARY

This lesson has been a brief overview on the **process and purpose of diffusion**, and how molecules will move from an area of high concentration to an area of low concentration naturally, without the use of cell energy.

Keep up the learning and have a great day!

Source: THIS WORK IS ADAPTED FROM SOPHIA AUTHOR AMANDA SODERLIND



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