

Upon completion of *Diffusion (WB)*, students should be able to:

1. Describe that molecules in a solution move randomly.
2. Describe the process of diffusion, explaining the role of random motion.
3. Predict how the concentration of molecules on either side of a semi-permeable membrane will change over time when the concentrations are initially different.
4. Describe the relationship between diffusion time and distance.
5. Make a reasonable prediction about whether a biological transport phenomenon likely relies solely on diffusion as a mechanism, based on its typical transport distance.
6. Explain that, on average, molecules tend to move from areas of higher concentration to areas of lower concentration because there are more molecules in concentrated areas, so probabilistically, more molecules will be moving away from these areas.
7. Explain why diffusion rate is nonlinear and depends on the concentration of molecules in solution.

Students should also reduce their expression of the following misconceptions:

1. Motion is directed, and molecules "want" to move (or have some force pushing them) down their concentration gradient.
2. Equilibrium is static, and molecules stop moving once equilibrium is reached.
3. Molecules diffuse because they collide more frequently at high concentrations.