Quiz 6 (Lecture 08 QBIO482)

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List one unbiased diffusion example and two types of biased diffusion. For each type, briefly explain what causes the bias, and give one practical biological or physical example. [0.2 pt]

<u>Unbiased Diffusion</u>

1. Diffusion of oxygen molecules in water without external forces or gradients
   a. Movement is purely random, driven only by thermal energy
   b. No directional preference; no bias
   c. Ex. Oxygen molecules in water

<u>Biased Diffusion</u>

1. Chemical Gradients (chemotaxis)
   a. Molecules or cells move toward higher or lower concentrations of specific chemicals
   b. Ex. White blood cells migrate toward sites of infection in response to chemokine signals
2. Electrophoresis
   a. Electric fields; charged particles move in a specific direction due to an applied voltage.
   b. Ex. DNA fragments moving through a gel during electrophoresis for genetic analysis