1. In diffusion, the **net** movement of a substance travels down its **concentration gradient**. *Explain using the image below.*

2. When diffusion has reached **equilibrium**, we say that the **net** movement of the molecules is zero. Does this mean these molecules below would stop moving? *Explain using the image below.*

3. **Simple diffusion** can occur through a **cell membrane**! According to the video, what are some cell membrane characteristics that can affect the diffusion rate?

4. Does **simple diffusion** require an input of energy?

5. Is simple diffusion **passive** or **active transport**?

6. Sometimes, a substance can only travel across a cell membrane via **facilitated diffusion**. What is **facilitated diffusion**?

7. Does **facilitated diffusion** require an input of energy?

8. Is facilitated diffusion **passive** or **active transport**?
Diffusion is a critical process required for oxygen to leave the alveoli of the lungs to enter the blood and for carbon dioxide (a waste gas) to leave the blood and enter the alveoli.

9. Knowing what you know about how a substance travels in diffusion, in order for oxygen to leave the alveoli and enter the blood, there would be a [HIGHER or LOWER] concentration of oxygen in the alveoli compared to the blood.

10. Knowing what you know about how a substance travels in diffusion, in order for carbon dioxide to leave the blood and enter the alveoli, there would be a [HIGHER or LOWER] concentration of carbon dioxide in the alveoli compared to the blood.

11. Explain your reasoning for questions #9 and #10.

_______________________________________________________________________________________________
_______________________________________________________________________________________________
_______________________________________________________________________________________________

There are many factors that can affect the rate of diffusion! The following are only a few examples from the video that can affect the rate of diffusion. Briefly explain how each factor listed below could affect the rate of diffusion.

<table>
<thead>
<tr>
<th>Distance</th>
<th>Temperature</th>
<th>Characteristics of Substance</th>
<th>Increasing Difference of Concentration</th>
</tr>
</thead>
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