**Biology Revision: Diffusion**

Mastery Matrix Points

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| Define ‘diffusion’ and give examples of diffusion in plants and animals (gas exchange and urea in the kidney) |
| Explain how different factors affect the rate of diffusion1. (concentration, surface area, temperature) |
| Calculate surface area: volume ratios |
| Explain how surface area: volume ratio of a single celled organism (amoeba) allows sufficient molecule transport |
| Explain adaptations for exchange materials in: small intestines, lungs, gills, roots and leaves |

Key Knowledge

Diffusion –

Two examples of diffusion

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| *Factor* | *How this affects the rate of diffusion* |
| Temperature |  |
| Concentration gradient (difference) |  |
| Surface area of membrane |  |

Method for calculating surface area to volume ratio (SA:V) –

Understanding and Explaining

1. Describe the diffusion of urea in the kidneys.
2. Describe the process of gas exchange.
3. Ameoba is a single celled organism. Explain why amoeba does not need a respiratory system or circulatory system.
4. The surface area to volume ratio of cell A is 5:1. Cell B has a surface area to volume ratio of 0.75:1. In which cell will diffusion happen faster? Explain your answer.
5. Explain the adaptations of these structures that help molecules diffuse efficiently across them.
   1. Gills
   2. Lungs
   3. Roots
   4. Leaves
   5. Small intestine