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**Diffusion In Agar Cubes**

Conclusion Questions

1. In this investigation, the agar cubes represents living cells. What does the vinegar represent?
2. In terms of maximizing diffusion, what was the most effective size cube you tested? In other words, which cell(s) would live and which cell(s) would die? (Don’t just say it, DEMONSTRATE IT! – Cite data from all three different sized cubes.)
3. Considering surface area to volume ratios, what cell shape is the worst for keeping a cell alive? The best? Explain your reasoning.
4. Why do organisms grow by increasing the number of cells in their bodies? Why not simply increase the size of their existing cells?
5. In terms of maximizing diffusion, what was the most effective size cube that you tested?
6. Why was that size most effective at maximizing diffusion? What are the important factors that affect how materials diffuse into cells or tissues?
7. If a large surface area is helpful to cells, why do cells not grow to be very large?
8. You have three cubes, A, B, and C. They have surface to volume ratios of 3:1, 5:2, and 4:1 respectively. Which of these cubes is going to be the most effective at maximizing diffusion, how do you know this?
9. How does your body adapt surface area-to-volume ratios to help exchange gases?
10. Why can’t certain cells, like bacteria, get to be the size of a small fish?
11. What are the advantages of large organisms being multicellular?