



### AP Topic 2.3 Cell Size Video Notes

1. All cells are dependent on \_\_\_\_\_  
- Obtaining \_\_\_\_\_, - Eliminating \_\_\_\_\_, - Gain/lose \_\_\_\_\_
2. A cell's size plays a big factor in its \_\_\_\_\_
3. Cells rely upon diffusion ( \_\_\_\_\_ ) to exchange with their \_\_\_\_\_
4. This process can be slow – nutrient may not \_\_\_\_\_
5. Look at the small and large cell diagrams in the video (around 3:00 min), which cell is more efficient with exchanging with the environment? Why? \_\_\_\_\_



6. Why is the cell above better able to exchange materials? \_\_\_\_\_
7. Cells' ability to exchange materials is dependent on its \_\_\_\_\_
8. More surface area = \_\_\_\_\_

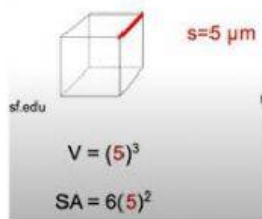
Calculating Surface area to volume.

Volume of a cube =  $V = s^3$

Surface area of a cube:  $SA = 6s^2$

Surface area:volume ratio: Write as sa:v or sa/v

A cube-shaped "cell"



V = \_\_\_\_\_

SA = \_\_\_\_\_

SA/V = \_\_\_\_\_

Calculate the Surface area to volume ratio for the following cell. SHOW YOUR WORK!

A cube-shaped "cell"



V = \_\_\_\_\_

SA = \_\_\_\_\_

SA/V = \_\_\_\_\_

9. Which cell is less efficient at exchanging materials, the five-micrometer cell or the fifty-micrometer cell? Explain why. \_\_\_\_\_

Calculate the Surface area to volume ratio for the following sphere shaped cell. SHOW YOUR WORK!

A sphere-shaped "cell"



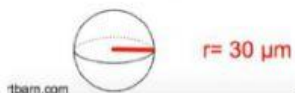
V = \_\_\_\_\_

SA = \_\_\_\_\_

SA/V = \_\_\_\_\_

Calculate the Surface area to volume ratio for the following sphere shaped cell. SHOW YOUR WORK!

A sphere-shaped "cell"



V = \_\_\_\_\_

SA = \_\_\_\_\_

SA/V = \_\_\_\_\_

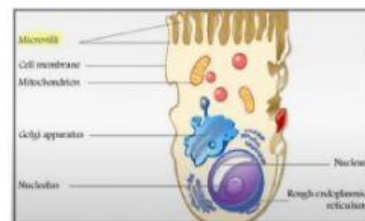
10. Higher SA:V ratio = \_\_\_\_\_

11. Some cells are specialized to \_\_\_\_\_

12. Have surfaces designed for \_\_\_\_\_

13. How do your intestinal cells look, and how do they work? \_\_\_\_\_

14. How is surface area increased in the mitochondria? \_\_\_\_\_



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