Biology Student Name_____Per____

Ms. Buchalski Date _____

QUESTIONS

1. Which cell model has the smallest surface area? _____
2. Which model has the largest surface area? _____
3. Which model has the smallest volume? _____
4. Which model has the largest volume? _____
5. Which model has the smallest ratio of surface area to volume? _____
6. Which model has the largest ratio of surface area to volume? _____
7. As the cell grows larger, does the Surface Area -to- Volume Ratio get larger, smaller, or remain the same? _____
8. Anything that the cell takes in, like oxygen and food, or lets out, such as carbon dioxide, must go through the cell membrane. Which measurement best represents how much cell membrane the models have? _____
9. The cell contents, nucleus and cytoplasm, use the oxygen and food while producing the waste. Which measurement best represents the cell content? _____
10. As the cell grows larger and gets more cell content, will it need more or less cell membrane to survive? _____
11. To maintain life and carry-out cellular functions, materials must be able to move into and out of the cell. Also, materials need to be able to move within a cell. What might be the advantage of having a large surface area?

    _____
12. What might be the disadvantage of having a large volume?

    _____
13. What happens to a cell if the surface area cannot support the volume of the cell?

    _____
14. Why can't cells survive when the Surface Area -to- Volume ratio becomes too small?

    _____
15. Which size cell has the greatest Total Surface Area -to- Volume Ratio? _____
16. Which size cell has the greatest chance of survival? _____
17. What can cells do to increase their Surface Area -to- Volume Ratio? _____