

Chapter 6  
Cell Structure and their functions  
Answer all of the following questions. Label all diagrams.

**When you are answering biology questions, please follow RARE response.**

Restate the question  
Answer the question with a  
Reason and a piece of  
Evidence

1. What is the basic unit of life? Explain Cell theory.
2. Explain the work of the following scientists and its association with the cell theory: **Robert Hooke, Robert Brown, Theodor Schwann, Anton Van Leeuwenhoek, Rudolf Virchow, and M.J. Schleiden.**
3. Explain how the study of cell is dependent on technology and microscopes.
4. Give differences among compound, scanning, and transmission electron microscope. i.e. how they work, pros and cons of each (also read page 46)
5. What is the difference between the lengths given for each pair (i.e. 10x, 1/100): , 1 meter:1 centimeter, 1 centimeter:1 millimeter, 1 micrometer:1 nanometer. Give an example item that would be the size of each of the measurements above.
6. Explain the differences between prokaryotic cell and eukaryotic cell. Draw an example of each kind. Label your diagram
7. Draw figures 6.7 and 6.8 on page 162. Explain 3 different kinds of bacteria.
8. Why are bacteria important for humans and the ecosystem?
9. Explain the difference between a nucleus and nucleoid region.
10. What is the difference between a plant cell wall and a prokaryotic cell wall?
11. What is plasmid?
12. Eukaryotic cells are divided into compartments (organelles). Explain how compartmentalization makes eukaryotic cells more efficient.
13. Draw and label an animal cell and a plant cell.
14. Create a table in your current Google spreadsheet that lists the organelles and their functions.
15. Make a table and describe differences between plant and animal cells.
16. Draw figure 6.15. Explain how the ER, Golgi apparatus, and vesicles form a connected internal membrane system using an example.
17. What is a vesicle? How is one created?
18. Name three organelles that enable eukaryotic cells to move.
19. Explain colonies and cooperativity among cells. Give examples.
20. Read biofilms on page 175 and explain how they form.
21. Explain division of labor.
22. Review figure 6.29 on page 180.
23. What limits the size of cells?

24. Some medicines are delivered in capsules of artificial vesicles to be swallowed. Would this method be best for delivering medicines that act on target proteins in the plasma membrane, the mitochondria, or the cytosol? Explain your answer.
25. Which membrane gives eukaryotes an advantage over prokaryotes in protecting their genetic material from damaging chemical changes?
26. Give three reasons why specialized systems are necessary in large multicellular organisms.
27. Could there be an organism that has no ribosomes in its cells? Explain your answer.