

*Biology I Advanced*  
*Obj Chapter 4*  
*A tour of the cell*

1. State the three parts of the cell theory. Explain the significance of each part in terms of life.
2. Explain why the surface area / volume ratio limits the size of cells.
3. Describe three examples that show that a cell's form is related to its function.
4. Construct a table that shows differences between prokaryotes and eukaryotes.
5. Describe current theory about the origin of eukaryotic cells. Include descriptions of the processes of membrane infolding and endosymbiosis. Include evidences to support each process.
6. Draw a diagram of cell membrane and label phospholipids, polar phosphate heads, fatty acid tails, proteins, bilayer.
7. Describe the fluid mosaic model of protein in terms of molecules, structure and function.
8. Draw and label a generalized prokaryotic cell.
9. Diagram and describe 5 parts of a cell nucleus.
10. Construct a table which includes the 17 organelles in fig. 4.4A and 4.4B and describes their structure and function. Be able to identify all on a diagram.
11. Differentiate between plant and animal cells.
12. List four functional categories of organelles and list the organelles included in each category.
13. Describe the cytoskeleton in terms of microtubules and microfilaments. Describe three functions of the cytoskeleton.
14. Differentiate between cilia and flagella.
15. Differentiate between gap junctions, tight junctions and anchoring junctions.
16. Differentiate between three types of electron microscopes.
17. Write an equation for calculating the total magnification of a light microscope.
18. Be able to identify the parts of a light microscope and describe the function of each.