A Tour of the Cell
Chapter 6

1. What is the usual size range for cells compared to things like organelles and viruses?
2. What are the key differences between prokaryotic and eukaryotic cells?
3. Describe the importance of surface area to volume ratios in cells.
4. Why is compartmentalization important for cells?
5. State the function of: nucleus, mitochondrion, chloroplast, endoplasmic reticulum.
6. If eukaryotic genetic material is in the nucleus, how does the rest of the cell get access to the information contained in it?
7. State the function of a ribosomes and describe the roles of free and bound ribosomes?
8. The endomembrane system consists of the nuclear envelope, the ER, the Golgi apparatus, lysosomes, various vesicles and vacuoles, and the plasma membrane. State the function of each.
9. Describe the structural and functional differences between smooth and rough ER.
10. Imagine a protein is to be exported from the cell and requires modification in the Golgi before it is functional. Trace the path of the protein through the cell starting with the mRNA in the nucleus.
11. Describe two characteristics shared by mitochondria and chloroplasts. Consider both function and membrane structure.
12. Your friend says that plant cells don't have mitochondria because they get their energy from photosynthesis. What would you say?
13. How does the cytoskeleton contribute to motility and cell structure?
14. Males affected by Kartagener's Syndrome are sterile because of immotile sperm, and they tend to suffer from lung infections. The disorder is genetic. Propose an explanation for the syndrome.
15. How does the ECM enable cells to interact with their environment?