**Cell Structure & Function Review**

1. A newspaper ad for a local toy store indicates that an inexpensive toy microscope available for a small child is able to magnify specimens nearly as much as the more costly microscope available in your college lab. What is the primary reason for the price difference?
2. Describe cell fractionation. Using differential centrifugation, which speed would give you a pellet rich in ribosomes?
3. Explain the advantages and disadvantages of the different types of microscopes.
4. Describe the domains of life.
5. Explain the similarities and differences of prokaryotes and eukaryotes.
6. What is the function of the nuclear pore complex found in eukaryotes?
7. Name a macromolecule that leaves the nucleus of a eukaryotic cell through pores in the nuclear membrane.
8. Examination of a cell by transmission electron microscopy reveals a high density of ribosomes in the cytoplasm. This observation suggests that this cell is actively producing large amounts of which molecules?

1. A cell has a predominance of rough endoplasmic reticulum. What does this tell you about the proteins being produced?
2. A cell has a predominance of smooth endoplasmic reticulum. What could it be its specialty?
3. The liver is involved in detoxification of many poisons and drugs. Which structure is primarily involved in this process and, therefore, abundant in liver cells?
4. What organelles produces and modifies polysaccharides that will be secreted?
5. Describe the most common pathway taken by a newly synthesized protein that will be secreted by a cell? Begin with the RER.

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1. Asbestos is a material that was once used extensively in construction. One risk from working in a building that contains asbestos is the development of asbestosis caused by the inhalation of asbestos fibers. Cells will take up asbestos by phagocytosis, but are not able to degrade it. As a result, asbestos fibers accumulate in \_\_\_\_\_\_\_\_.
2. Which organelle is the primary site of ATP synthesis in eukaryotic cells?
3. What kind of cell has the following molecules and structures - enzymes, DNA, ribosomes, plasma membrane, and mitochondria?
4. If plant cells are grown on media containing radioactively labeled thymine for one generation, radioactively labeled macromolecules will be detected in which of the following?
5. In a liver cell detoxifying alcohol and some other poisons, the enzymes of the peroxisome remove hydrogen from these molecules and \_\_\_\_\_\_\_\_.
6. Suppose a young boy is always tired and fatigued, suffering from a metabolic disease. What organelle is most likely malfunctioning in this disease?
7. Cyanide binds with at least one molecule involved in producing ATP. If a cell is exposed to cyanide, most of the bound cyanide is likely to be localized within the \_\_\_\_\_\_\_\_.
8. Explain diffusion.
9. Why is the cell membrane called a “fluid mosaic”?
10. Explain osmosis. What is meant by the terms hypotonic, hypertonic and isotonic?