

Learning Modules outline the tasks that should be completed to master the biology outcomes from each chapter or group of chapters. Some of the tasks are optional, but highly recommended. Mandatory tasks must be completed by the specified deadlines. Mandatory tasks will consist of a short on-line quiz over the reading, and a short on-line critical thinking question. Sometimes, there will also be group assignments that will be assigned during class.

### **Learning Module 4 - Cell Structure - Chapter 6**

#### **Learning Outcomes Learning Module 4**

1. Identify the structures that all cells have in common.
2. Correlate a change in cell size to the affect on cell surface area and volume, and explain how cell function is impacted.
3. Distinguish between nm,  $\mu\text{m}$ , mm, m and identify an organism or biological structure that is of equivalent size.
4. Contrast prokaryotic and eukaryotic cells.
5. Explain the function of the endomembrane system in eukaryotic cells.
6. Describe the form & function of eukaryotic organelles, including ribosomes, golgi apparatus, endoplasmic reticulum, nucleus, lysosomes, chloroplasts, mitochondria.

#### **Learning Tasks**

- 1) Read Chapters 6 in your textbook.
- 2) After reading about cell structures go to your Mastering Biology page and complete the posted activities.
- 3) To compare the affect of cell size changes on surface area and volume, figure out how the surface area and volume was calculated in Figure 6.8. If you've forgotten how to calculate the surface area and volume of a circle, google it - You can find lots of calculation help on the internet.
- 4) Review figure 6.2 and correlate the different types of organisms and biological materials to their size. Can you convert between the various levels of the metric system?
- 5) Examine figs 6.6 and 6.9; create your own table of comparison between prokaryotic and eukaryotic organisms.
- 6) Define the following, important biological terms.
  - A. Plasma membrane, lipid bilayer, cytoplasm, cytosol
  - B. Prokaryotic, eukaryotic
  - C. Organelles: Nucleus, Endoplasmic Reticulum, Golgi bodies, lysosomes, peroxisomes, mitochondria, chloroplast, central vacuole
- 7) **Critical Thinking Quesiont #4** is a take home assignment that will be handed out in class. This one is worth 25pts!