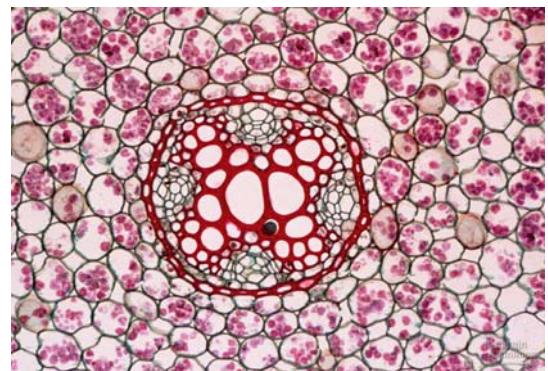
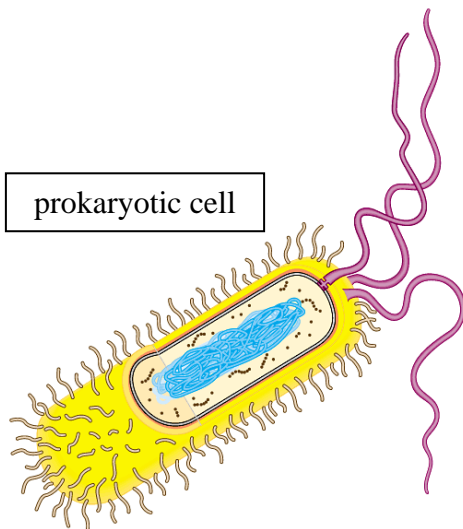


## CHAPTER 4 - A Tour of the Cell

### Chapter Reading Guide

1. Explain why art is so important to an understanding of biology.
2. Compare the designs and images produced by a light microscope, scanning electron microscope, and transmission electron microscope from Module 4.1 in your text. In addition, distinguish between magnification and resolving power.
3. Define cell theory and briefly describe the discoveries that led to its development. Then explain why cell size and shape varies amongst cells, even within the same species of organisms.
4. Explain why there are both upper and lower limits to cell size.
5. Using the diagram below, distinguish between prokaryotic and eukaryotic cells. Label and describe the specific structures of each type of cell.



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6. Compare the structures of plant and animal cells. Note the function of each cell part.
  
7. Explain how impaired lysosomal function can cause the symptoms of storage diseases.
  
8. Compare the structures and functions of mitochondria and chloroplasts. Specifically explain how the anatomy of each organelle determines its role or job in the cell.
  
9. Compare the structures and functions of cell surfaces and intercellular junctions of plant and animal cells.
  
10. Describe the four functional categories of eukaryotic organelles, noting which organelles are in each group.

## Word Roots

Please complete the following cloze passage section by determining the meaning of the root and then fill in the missing definition of the term which contains the root. *See example below.*

- a. **chloro-** = \_\_\_ **green** \_\_\_ (**photosynthesis in plants**  
*chloroplast*: the site of \_\_\_\_\_ and  
eukaryotic algae)
- b. **endo-** = \_\_\_\_\_ (*endomembrane system*: the \_\_\_\_\_  
that include the nuclear envelope, endoplasmic reticulum, Golgi apparatus, lysosomes,  
vacuoles, and the plasma membrane)

- c. **extra-** = \_\_\_\_\_ (*extracellular matrix*: the substance in which \_\_\_\_\_ are embedded)
- d. **flagell-** = \_\_\_\_\_ (*flagellum*: a long whiplike \_\_\_\_\_ that moves cells)
- e. **glyco-** = \_\_\_\_\_ (*glycoprotein*: a protein \_\_\_\_\_ bonded to a carbohydrate)
- f. **lyso-** = \_\_\_\_\_ (*lysosome*: a membrane-bounded sac of hydrolytic enzymes that a cell uses \_\_\_\_\_)
- g. **micro-** = \_\_\_\_\_; **-tubul** = \_\_\_\_\_ (*microtubule*: a hollow rod of \_\_\_\_\_ in the cytoplasm of almost all \_\_\_\_\_)
- h. **nucle-** = \_\_\_\_\_; **-oid** = \_\_\_\_\_ (*nucleoid*: the region where the \_\_\_\_\_ is concentrated in prokaryotic cells)
- i. **plasm-** = \_\_\_\_\_; **-desma** = \_\_\_\_\_ (*plasmodesmata*: an open channel in a \_\_\_\_\_)
- j. **pro-** = \_\_\_\_\_; **karyo-** = \_\_\_\_\_ (*prokaryotic cell*: a cell that \_\_\_\_\_ nucleus)
- k. **trans-** = \_\_\_\_\_; **-port** = \_\_\_\_\_ (*transport vesicle*: a membranous compartment used to \_\_\_\_\_ materials from one part of a cell to another)
- l. **vacu-** = \_\_\_\_\_ (*vacuole*: sac that buds from the \_\_\_\_\_ ,

\_\_\_\_\_ or plasma membrane)