

Chapter 6

1. What are the basic features of a Prokaryotic and Eukaryotic cell?
2. Describe the plasma membrane. What is the plasma membrane selectively permeable to?
3. Know the function of all the labeled parts we talked about in class of animal/plant cells on pages 100-101.
4. What is the difference between the nucleus, nuclear envelope, nucleolus, chromatin, chromosomes, and nuclear lamina? Which maintains the shape of the nucleus?
5. What carries out protein synthesis, and where are its two locations? Describe its structure (hint: look at figure 6.11).
6. Name the components of the endomembrane system.
7. What are the functions of the rough and smooth ER? Which synthesizes lipids? The rough ER has bound ribosomes to secrete what, and moves it to the Golgi via what, and from what location?
8. What does the Golgi Apparatus sort and package?
9. Describe the difference between the endocytosis pathways. What are lysosomes, and how do they function in conjunction with a phagosome? How does autophagy occur?
10. Review and understand figure 6-16. Describe in detail the pathway in figure 7.10.
11. Be able to label the parts of mitochondria and chloroplast.
12. Describe the contents of a chloroplast.
13. Besides the nucleus, what are the other two organelles that contain their own DNA?
14. Describe the difference between the three main types of fibers that make up the cytoskeleton.
15. What has a 9+2 arrangement, and what is it used for? What is the name of the motor protein in which this filament uses?
16. What are microfilaments used for? What is the name of their motor protein?
17. Describe each of the components of the Extracellular Matrix. Be able to identify them in figure 6. 30.
18. Which glycoprotein of the ECM is most abundant?
19. How do plasmodesmata function? What animal intercellular junction is similar in function?
20. Describe the difference between the three types of junctions, and be able to identify them in figure 6-32.

Chapter 7.

1. What does it mean when we say the plasma membrane is selectively permeable?
2. What does amphipathic mean?
3. Describe the fluid mosaic model.
4. Describe the fluidity of membrane according to figure 7.5.

5. Membranes rich in unsaturated fatty acids are more (solid, fluid) than those rich in saturated fatty acids? As the temperature cools, if a winter wheat would like to survive, what type of fatty acid would it increase in content and why?
6. How is cholesterol a “temperature buffer.”
7. What are integral and peripheral proteins? Be able to identify them in a picture (figure 7.7). Draw and label figure 7.7 on page 128.
8. Compare and contrast the definitions of active and passive transport. Are aquaporins active or passive transport? What is the process of diffusion? Use figure 7.17 as a tool. Which process requires the expenditure of energy?
9. Describe tonicity. What are the three types you can have? Describe the normal tonicity of plant and animal cells (Hint: use figure 7. 13).
10. What is the process of osmoregulation?
11. Green olives may be preserved in brine, which is a 30% salt solution. How does this method of preservation prevent contamination by microorganisms?
12. Imagine two solutions separated by a selectively permeable membrane that allows water to pass, but not sucrose or glucose. membrane separates a 0.2-molar sucrose solution from a 0.2-molar glucose solution. With time, how will the solutions change?
13. The internal solute concentration of a plant cell is about 0.8 M. To demonstrate plasmolysis, it would be necessary to suspend the cell in what solution?
14. What are the three types of endocytosis?
15. Review lab exercise 5 to help understand the concept of tonicity.