The Structure and Function of Macromolecules
Chapter 5

1. Identify some important characteristics of each of the four main types of macromolecules.
2. Imagine you eat a big plate of pasta. Which reactions must be performed for the glucose in the pasta to be stored as glycogen in your liver?
3. Distinguish between carbohydrates, monosaccharides, and polysaccharides.
4. Identify the functions of starch and glycogen. Describe the structural differences between them.
5. Compare and contrast starch and cellulose.
6. Distinguish between saturated and unsaturated fats.
7. Why are phospholipids and human sex hormones considered lipids?
8. Draw the structure of an amino acid and label the parts.
9. Why is it important to have amino acids with different properties?
10. Find the structures of valine and glutamic acid. Propose an explanation for the dramatic effect on protein function that occurs when valine is substituted for glutamic acid.
11. What is the relationship between protein form and function?
12. Where would you expect a polypeptide region rich in valine, leucine and isoleucine to be located in a folded polypeptide?
13. What parts of a polypeptide participate in the bonds that hold together the secondary and tertiary structures?
14. What are some possible results of changing the primary structure of a protein?
15. Compare and contrast DNA and RNA in both structure and function.
16. How would sequencing the entire genome of an organism help scientists to understand how that organism functioned?
17. How can DNA and proteins be used to evaluate evolutionary relationships?