Bio I
Study Guide: Biochemistry

Scientific Method

1. Describe the steps of the scientific method in detail.
2. Suppose that you made the observation that bees seem to prefer a yellow flower to a purple flower. Design a controlled experiment to test this observation.
3. Why do experiments usually require a control?
4. Answer the questions #1-4 on the Problem-Solving Lab on pg. 22. Does the graph represent qualitative or quantitative?
5. Select a common animal. List four qualitative and quantitative facts about this animal.
6. Look at the graph on pg. 22. Why do you think the high temperature side of the graph drops off more sharply than the temperature side?

Basic Chemistry

1. Draw, label and explain the basic parts of an atom.
2. Explain the energy levels of an electron.
3. How does the formation of an ionic bond differ from the formation of a covalent bond?
4. What is the relationship between an atom, element and compound?
5. Fill in the chart with the appropriate information.

Atom	Atomic Number	Number of Protons	Number of Electrons	Number of electrons in the outermost energy level
Hydrogen (H)	1	1	1	1
Oxygen (O)				
Carbon (C)				
Sodium (Na)				

6. Describe the pH scale in detail.

Biochemistry

1. What are the basic elements of life?
2. Explain the structure of carbohydrates?
3. What is the function of carbohydrates?
4. List, explain and provide examples of the three types of carbohydrates.
5. Explain the structure of a lipid. How is this structure different from a carbohydrate?
6. What is the function of a lipid?
7. What is the difference between saturated and unsaturated fat?
8. What are the subunits that make up a lipid?
9. Explain the structure of proteins.

10. Explain several functions of proteins.
11. Relate the following words to each other: protein, amino acid, and peptide bond.
12. Explain the structure of a nucleic acid.
13. What is the function of a nucleic aced?
14. Explain a chemical reaction.
15. What is an enzyme? Which macromolecule is it an example of?
16. Explain in detail the enzymes are referred to as catalysts.
17. Enzymes are said to be site specific. Explain what this means.
18. Temperature and poisons can harm enzymes. Explain how they do this.