Advanced Biology **Summer Review**

Directions: Complete the following questions as a refresher of Biology & Chemistry and to prepare for a test during the first week of school. You may check out a book with me to help find the information.

Exploring Life

1. What are the levels of biological organization? Know what each term means.(hint biosphere to molecule)

2. What are the 7 major levels of classification? (start with species and go up to Domain)

3. What is metabolism?

4. What are characteristics of life?

5. What is biodiversity and what is its importance?

6. What factors need to be taken account for when describing an ecosystem?

7. Describe the different domains.

8. Describe the different kingdoms of domain Eukarya.

9. Properly describe the term "scientific theory".

10. How are hypothesis and theory similar/different?

11. Define the following: Control, Dependent Variable, Independent Variable

Chemistry of Life

Atomic Particles

12. Protons ____ AMU _____ Charge Located in _____
    i. Atomic number is

13. Neutrons ____ AMU _____ Charge Located in _____
    ii. Atomic mass is

14. Electron _____ AMU _____Charge Located_____

15. Distinguish between ions and isotopes.

16. Describe: ionic bonds –

    covalent bonds-

    Polar covalent-

    Nonpolar covalent-

    Hydorgen bonds-

17. List the four main macromolecules (carbohydrate, protein, lipid, nucleic acid) and some of their biological uses.

18. Mark as true or false and explain why:
    a. _____ Lipids are water soluble.
    b. _____ Fats are made of glycerol and fatty acids only
    c. _____ Fats have a higher proportion of energy rich C-H bonds and thus more stored energy than carbohydrates.
    d. _____ Cholesterol is fat.

19. How do enzymes (biological catalysts) accelerate a reaction?

20. How does energy get transferred in redox reactions?

These are the four Big Ideas that you are going to study this year. For each one, write a brief description.

Big Idea 1: The process of evolution drives the diversity and unity of life.

Big Idea 2: Biological systems utilize free energy and molecular building blocks to grow, to reproduce, and to maintain dynamic homeostasis.

Big Idea 3: Living systems store, retrieve, transmit, and respond to information essential to life processes.

Big Idea 4: Biological systems interact, and these systems and their interactions possess complex properties.