Name:_____ Date:_____ Per:_____

**Chapter 18 Review (Genetics of Viruses and Bacteria) and Chapter 19 Review (Eukaryotic Genomes)**

## Chapter 18

1. Explain the structure and genome of a virus as well as it's lifecycle.

2. Specifically, what are the main similarities and differences between the Lytic Cyle and the Lysogenic Cycle?

3. Briefly explain the lifecycle of HIV.

4. A bacterium is infected with an experimentally constructed bacteriophage composed of the T2 phage protein coat and T4 phage DNA. The new phages produced would have which protein/DNA combination? Explain.

5. Use pg. 342-343 to help you explain whether a virus is living or nonliving and why. How do these characteristics lead to patterns of evolution in viruses?

6. How do the following contribute to the genetic diversity of bacteria?
   - Replication

   - Mutation

   - Genetic Recombination

7. Compare/contrast transformation and transduction.

8. Explain how conjugation and plasmids exchange material between bacteria. (Be sure to understand F and R plasmids).

9. How do bacteria regulate their gene expression? (Your discussion should mention operons and cAMP)

**Chapter 19**

10. Explain the process of DNA packing from a strand of DNA all the way to chromosomes.

11. Show why transcriptions is such a major player in eukaryotic gene expression. Be sure to give multiple examples to back up your answer. (Use pgs. 362-369)

12. Explain how each of the following contribute to genome evolution:
    - Duplications
    - Rearrangements
    - Mutations

13. Two eukaryotic proteins have one domain in common but are otherwise very different. Which process is most likely to have contributed to this phenomenon? Why?