DNA Replication

1. List the components of a nucleotide.
2. Distinguish between a purine and a pyrimidine and the bases of DNA and RNA.
3. Describe the structure of DNA and explain what kind of chemical bond connects the nucleotides of each strand and what holds the two strands together.
4. Describe the process of DNA replication and explain the role of helicase, primase, DNA polymerase, ligase, leading and lagging strands. THIS SHOULD BE QUITE LONG to be able to explain fully.
5. DNA is the carrier of genetic information. Describe the historical experiments that contributed to this understanding. Include: Watson and Crick, Wilkins, and Franklin on structure of DNA; Avery-MacLeod-McCarty experiments; and Hershey-Chase experiment.
6. Describe how the genetic code (DNA and RNA) demonstrates relatedness between organisms.
7. Compare DNA and RNA. Include structure, pairing, single vs. double stranded, type of sugar, type of Nitrogenous bases, types of RNA and their functions.
8. Explain why base-pair insertions or deletions have a greater effect than base-pair substitutions in mutagenesis.
9. Errors in mitosis or meiosis can result in changes in phenotype. Explain how you get changes in chromosome number and structure.