Biotechnology: DNA Replication PowerPoint (Biotech Series)

As you prepare for the DNA Replication quiz, please consider the following questions to guide you as you read and study the PowerPoint. Remember that the PowerPoint for this can be found in the "Biotechnology PowerPoints and Guided Reading" folder and then open the "Other PowerPoints" folder. If you are viewing this document electronically click here for a direct link to the PowerPoint. The presentation is also available as a PDF for those that do not have PowerPoint. Alternatively, you may download the free PowerPoint Viewer referenced in class and on our website. Lastly, the presentation will also be accessible through Google Slides on our website.

1. Sketch and label a nucleotide with numbered carbons on the pentose sugar. Explain the significance of the one prime, three prime and five prime carbons.

2. What are the two major types of "bonds" in DNA? How does each of the bonds fit the mechanism for DNA replication? In your answer be sure to consider the intramolecular bonds versus the intermolecular forces.

3. Distinguish between the purines and pyrimidines and explain how they bond to one another.

4. Describe the functions of helicase and DNA Polymerase III?

5. Where does the energy for the anabolic formation of the phosphodiester bonds come from?

6. List the four types of nucleosides and explain the release of energy from these molecules.

7. What is the function of ligase? Be sure to use the terms lagging and Okazaki in your answer.

8. Sketch a complete replication fork/bubble. Label the leading and lagging sections for both strands.

9. How are the limitations of polymerase III compensated for by primase?

10. Describe the function of DNA polymerase I, use the term exonuclease in your answer.

11. What is meant by the term chromosome erosion? How and where does it occur?

12. What are telomeres? What is the function of the enzyme telomerase?