**CHAPTER 16 READING GUIDE**

**-THE MOLECULAR BASIS OF INHERITANCE-**

***Section 1***

1. How was bacteria transformed in Frederick Griffith’s experiment?

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1. What is a bacteriophage?

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1. Describe the structure of DNA.

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1. What determines which end of the DNA is the 5’ end vs. the 3’ end?

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1. Explain the meaning of the term antiparallel.

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1. How do the bases pair in DNA?

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***Section 2***

1. Describe the semiconservative model of DNA replication.

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1. Describe how the structure of bacterial DNA is different from eukaryotic DNA.

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1. DNA Replication could not happen without a number of enzymes. Briefly describe the function of the following enzymes:
   1. Helicase- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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* 1. DNA Polymerase- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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* 1. Topoisomerase- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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* 1. DNA Ligase- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. What happens in mismatch repair?

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***Section 3***

1. Explain the relationship between DNA, proteins, chromatin, histones and chromosomes and how genetic material is packaged in chromosomes within the nucleus. You may wish to draw a picture.