STUDY GUIDE: DNA STRUCTURE AND REPLICATION

KEY TERMS

James D. Watson
Francis H.C. Crick
DNA
RNA
transformation
bacteriophage
purine
adenine
guanine
pyrimidine
thymine
cytosine
nucleotide structure
sugar
nitrogenous base
phosphate
carbons 1'-5'
hydrogen bonds
double helix
antiparallel strands
semiconservative replication
helicases
topoisomerases
RNA primer
primase
DNA polymerase
leading strand
lagging strand
Okazaki fragments
DNA ligase
proofreading
excision repair

QUESTIONS

1. Draw a nucleotide, point out the phosphate, sugar and the base. Indicate whether the base is a purine of pyrimidine and whether the nucleotide is from DNA or RNA.

2. Name the four nitrogenous found in DNA, and indicate which are the purines and pyrimidines(Hint: Look for the terms with"y" in them.).

3. Draw a diagram of DNA, point out the 5' and 3' ends of each chain. Also point out an individual nucleotide, and its three components. Indicate how many hydrogen bonds there are in a C-G pair and an A-T pair.

4. Given a sequence of bases in one strand of DNA,(atcgaacgt) give the sequence in the complimentary strand.

5. Explain how the Watson-Crick model accounts for the precise replication of DNA.

6. Describe how repair enzymes act to correct mutations and errors that occur during replication.