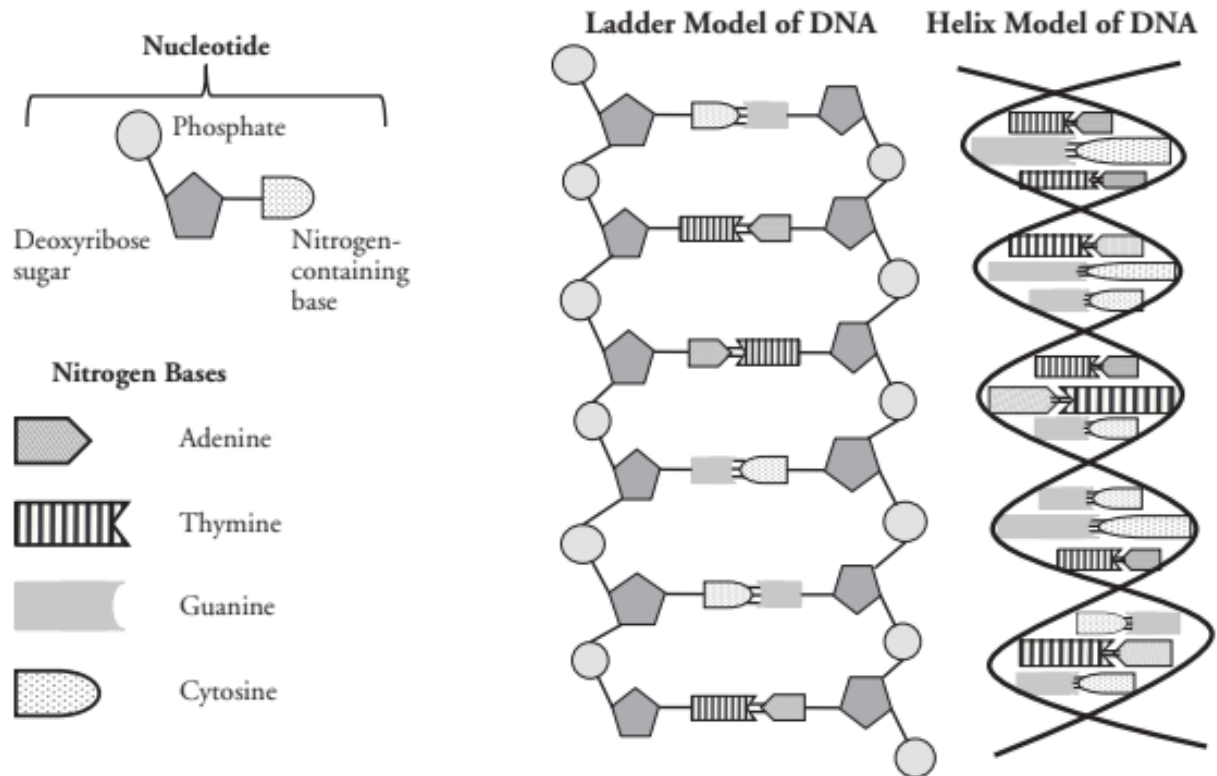


DNA Structure and Replication

Model 1 – The Structure of DNA



1. Refer to Model 1 to answer the following questions.
 - a) What are the three parts of a nucleotide?
 - b) What kind of sugar is found in a nucleotide of DNA?
 - c) Name the four nitrogen bases shown in Model 1.
 - d) Circle a single nucleotide on each side of the ladder model of DNA.
 - e) What makes up the rungs of the ladder?
 - f) What makes up the sides of the ladder?
 - g) Label each of the bases with the letter A, T, C or G.
 - h) Add labels to the model to identify the antiparallel nature of the strands.
2. Why is it important that the strands are held together by weak hydrogen bonds?
3. Fill in the complementary bases on the strand below according to the base-pair rule.
A T C C A G A A T G C
4. Identify the role of each of the enzymes involved in DNA replication.

5. Number the steps below in order to describe the replication of DNA in a cell.

- _____ Short segments of DNA are joined together.
- _____ Hydrogen bonds between nucleotides form.
- _____ Hydrogen bonds between nucleotides break.
- _____ RNA primers are removed.
- _____ Strands of DNA separate.
- _____ Free nucleotides are attracted to exposed bases on the loose strands of DNA.

6. DNA replication is called semi-conservative replication. Considering the meaning of these words (semi—half; conserve—to keep), explain why DNA replication is called semi-conservative.