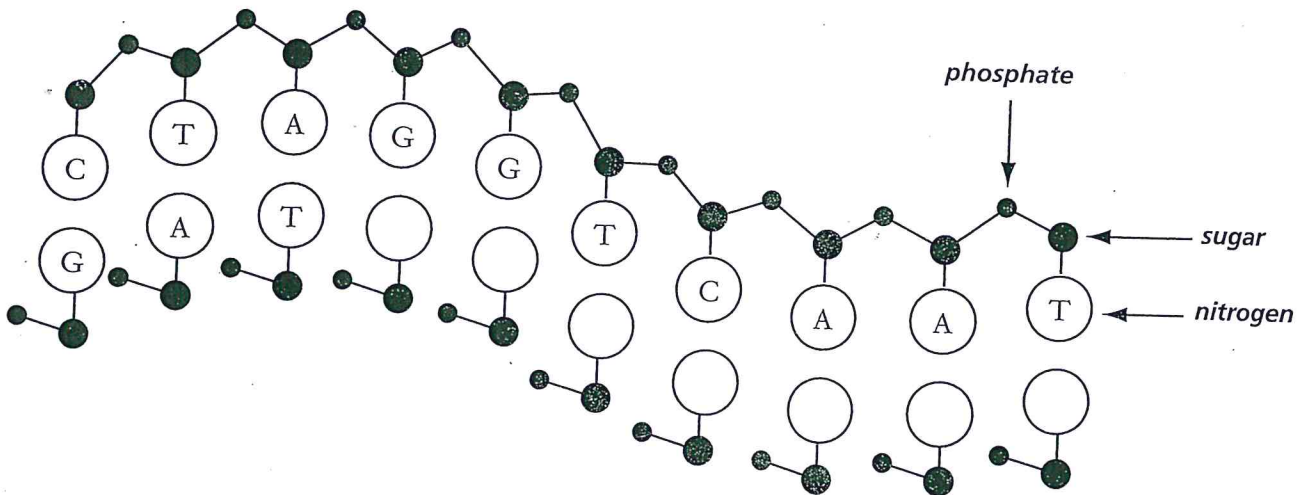


**Chapter**  
**11**
**DNA and Genes, continued**
**Content Mastery**
**Section 11.1 DNA: The Molecule of Heredity**
**Study the Diagram**

When the DNA ladder replicates, or copies itself, the ladder breaks apart. You can think of the ladder breaking apart as a zipper unzipping. When the two sides of the ladder are apart, free nucleotides attach to the nucleotides already on the sides of the ladder, and two copies of the DNA are formed. The copies are the same as the original because adenine (A) usually pairs with thymine (T). Cytosine (C) usually pairs with guanine (G).

The diagram below shows an unzipped strand of DNA. Write the letters (A, T, C, or G) of the bases that will pair with the bases on the strand. Some of the bases have been paired for you.



1. **True or false?** Nucleotide bases already attached to proteins form the copied side of the DNA ladder.  
\_\_\_\_\_
2. **True or false?** The process of DNA replication results in a copy of the original strand of DNA.  
\_\_\_\_\_
3. **True or false?** Sugar and phosphates provide the energy for DNA replication.  
\_\_\_\_\_
4. **True or false?** The final result of DNA replication is two copies of the original DNA strand.  
\_\_\_\_\_

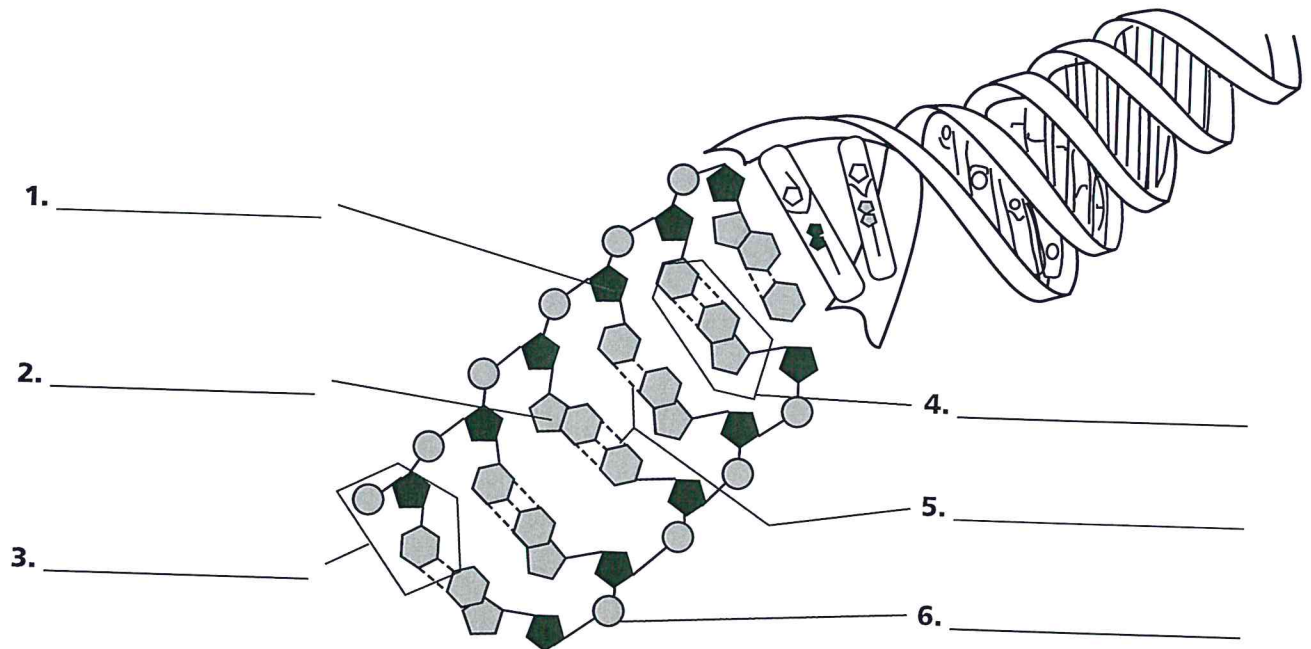
# Chapter 11 DNA and Genes

## Reinforcement and Study Guide

### Section 11.1 DNA: The Molecule of Heredity

In your textbook, read about what DNA is and the replication of DNA.

Label the diagram. Use these choices: nucleotide, deoxyribose, phosphate group, nitrogen base, hydrogen bonds, base pair.



Complete each statement.

7. \_\_\_\_\_, guanine (G), cytosine (C), and thymine (T) are the four \_\_\_\_\_ in DNA.
8. In DNA, \_\_\_\_\_ always forms hydrogen bonds with guanine (G).
9. The sequence of \_\_\_\_\_ carries the genetic information of an organism.
10. The process of \_\_\_\_\_ produces a new copy of an organism's genetic information, which is passed on to a new cell.
11. The double-coiled shape of DNA is called a \_\_\_\_\_.