

**SECTION 10-1 REVIEW****DNA**

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**VOCABULARY REVIEW** Define the following terms and provide one example for each.

1. purine \_\_\_\_\_  
\_\_\_\_\_
2. pyrimidine \_\_\_\_\_  
\_\_\_\_\_
3. complementary base pair \_\_\_\_\_  
\_\_\_\_\_
4. nitrogen-containing base \_\_\_\_\_  
\_\_\_\_\_

**MULTIPLE CHOICE** Write the correct letter in the blank.

- \_\_\_\_\_ 1. The primary function of DNA in cells is to
- a. serve as a storage form for unused nucleotides.
  - b. occupy space in the nucleus to keep the nucleus from collapsing.
  - c. store information that tells the cells which proteins to make.
  - d. serve as a template for making long, spiral carbohydrates.
- \_\_\_\_\_ 2. The two strands of a DNA molecule are held together by
- a. ionic bonds.
  - b. covalent bonds.
  - c. peptide bonds.
  - d. hydrogen bonds.
- \_\_\_\_\_ 3. According to the base-pairing rules, guanine binds with
- a. cytosine.
  - b. adenine.
  - c. thymine.
  - d. guanine.
- \_\_\_\_\_ 4. During DNA replication, the enzyme DNA polymerase
- a. separates the two nucleotide chains in a DNA molecule.
  - b. constructs new nucleotide chains that are complementary to the chains in the original DNA molecule.
  - c. breaks down the original DNA molecule into individual nucleotides.
  - d. joins two DNA molecules into a single molecule.
- \_\_\_\_\_ 5. If the sequence of nucleotides in one chain of a DNA molecule is T-C-A-A-G-C, a new nucleotide chain will be produced during replication with the complementary sequence
- a. T-C-A-A-G-C.
  - b. A-G-T-T-C-G.
  - c. C-T-G-G-A-T.
  - d. G-A-C-C-T-A.

**SHORT ANSWER** Answer the questions in the space provided.

1. What are the three parts of a DNA nucleotide, and how are they connected to each other?

\_\_\_\_\_

\_\_\_\_\_

2. If 15% of the nucleotides in a DNA molecule contain guanine, what percentage of the nucleotides contain each of the other three bases? Explain your reasoning. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3. Why is it important that exact copies of DNA are produced during replication? \_\_\_\_\_

\_\_\_\_\_

4. **Critical Thinking** Why is it advantageous to have weak hydrogen bonds between complementary base pairs and strong covalent bonds between phosphate and deoxyribose groups in a DNA molecule? \_\_\_\_\_

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**STRUCTURES AND FUNCTIONS** Label each part of the figure in the spaces provided.

The diagram below shows two nucleotide base pairs in a segment of a DNA molecule.

