

Chapter 4

Use with Text Pages 104–111

STUDY GUIDE● **DNA**

Match the statements on the left with the terms on the right by writing the correct letter in each blank.

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| _____ 1. units that make up proteins | a. deoxyribose |
| _____ 2. used to demonstrate that the DNA molecule is a helix | b. ribosomes |
| _____ 3. where messenger RNA attaches during protein construction | c. amino acids |
| _____ 4. pairs with cytosine | d. X rays |
| _____ 5. sugar molecules in DNA | e. Watson and Crick |
| _____ 6. the part of DNA that directs the making of a specific protein | f. Franklin |
| _____ 7. discovered DNA was a strand of molecules in a spiral form | g. RNA |
| _____ 8. used to build cells and tissues | h. protein |
| _____ 9. made a working model of the DNA molecule | i. gene |
| _____ 10. contains uracil | j. guanine |

Complete the following sentences using the appropriate words from the textbook.

11. Hair color and freckles are both _____.
12. During the making of a protein, amino acids are brought to the ribosome by _____.
13. The "handrails" of each DNA strand are made up of _____ and _____.
14. Any permanent change in the genetic material of a cell is called a _____.
15. DNA strands held together by _____ are separated by an _____ when DNA copies itself.
16. Changes in the order of amino acids will change the _____ produced.
17. _____ carries the code for amino acids.
18. _____ control proteins that build cells and tissues and work as enzymes.
19. The shape of a DNA molecule is a _____.

Chapter 4

Use with Text Pages 112-113

STUDY GUIDE**● Techniques in Cloning**

Answer the following questions using information from the textbook.

1. What is a clone? _____

2. Identical siblings have exactly the same DNA. Why aren't they clones of one another? _____

3. To create the sheep named Dolly, researchers took an egg cell from one adult female sheep and a nucleus from a mammary gland cell of another adult female sheep. Dolly is a clone of one of these adult female sheep. Which one? _____

4. In a few sentences, describe the cloning process used to produce Dolly, up to the formation of an embryo. _____

5. What is a differentiated cell? _____

6. Give three examples of differentiated cells found in your body. _____

7. During the development of an embryo, how do cells become differentiated? _____

8. Scientists generally accepted that once a cell became differentiated, it could not become any other kind of cell. How has the creation of Dolly changed that view? _____

9. Suppose you had a spinal cord injury in which two nerve cells were destroyed. How could the information on cloning help you walk again? _____
