

Name: \_\_\_\_\_

## Biology I: Unit 2 (A DNA Mastery Unit) - Worksheet 1: DNA Structure

1. What do the letters DNA stand for?

\_\_\_\_\_

2. Two scientists are given credit for discovering the structure of DNA. What is the name of those two scientists.

a. \_\_\_\_\_

b. \_\_\_\_\_

3. DNA is a **polymer**, which means that is made up of many repeating single units (**monomers**). What are the monomers called?

\_\_\_\_\_

4. The "backbone" of the DNA molecule is made up of two components, what are these?

c. \_\_\_\_\_

d. \_\_\_\_\_

5. There are four different variations of these monomers (four different bases), what are the names of those bases?

a. \_\_\_\_\_

b. \_\_\_\_\_

c. \_\_\_\_\_

d. \_\_\_\_\_

6. These bases are of two different types of molecules: purines and pyrimides. Purines have \_\_\_\_\_ ring(s) in their structure, and pyrimidines have \_\_\_\_\_ ring(s) in their structure.

7. The two bases that are purines are:

a. \_\_\_\_\_

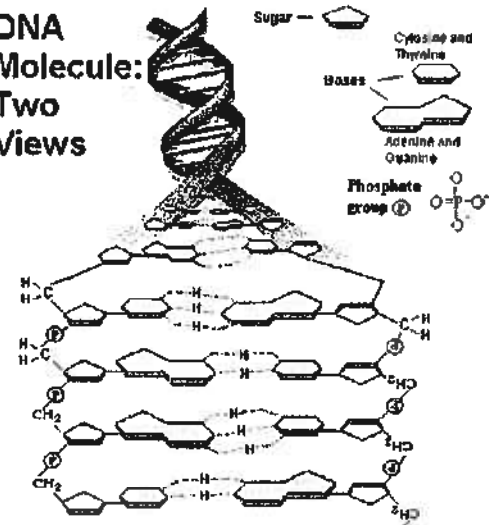
b. \_\_\_\_\_

8. The two bases that are pyrimidines are:

a. \_\_\_\_\_

b. \_\_\_\_\_

### DNA Molecule: Two Views



9. Chargoff's rule states that the DNA of any species contains equal amounts of \_\_\_\_\_ and \_\_\_\_\_ and also equal amounts of \_\_\_\_\_ and \_\_\_\_\_.

10. Based on this information, scientist could predict that the base \_\_\_\_\_ pairs with \_\_\_\_\_ and the base \_\_\_\_\_ pairs with \_\_\_\_\_ in the formation of the DNA molecule.

This is called **complementary base pairs**. Thus one strand of DNA is complementary to the other strand (opposite/matching).

11. The bases are paired by \_\_\_\_\_ bonds along the axis of the molecule.

12. Wilkins and Franklin studied the structure of DNA using \_\_\_\_\_, a technique to examine molecules, and helped Watson and Crick determined that the shape of the molecule was a \_\_\_\_\_.

13. Draw the basic structure of a nucleotide with its three parts.

14. Write the complementary sequence to following DNA strand:

A A T T C G C C G G T A T T A G A C G T T  
| | | | | | | | | | | | | | | | | |

15. Use the image at the right to complete the follow:

Circle a nucleotide.  
Label the sugar and phosphate.  
Label the bases that are not already labeled

