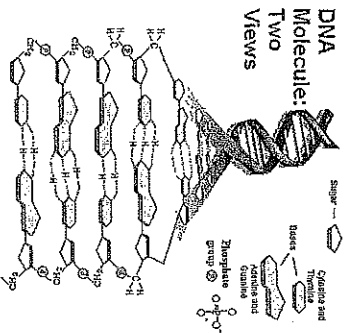


Biology I: Unit 2 (A DNA Mastery Unit) - Worksheet 1: DNA Structure

Name: _____

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 pyrimidines. 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. _____

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, _____ pairs with _____.

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 determine 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 C G 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

