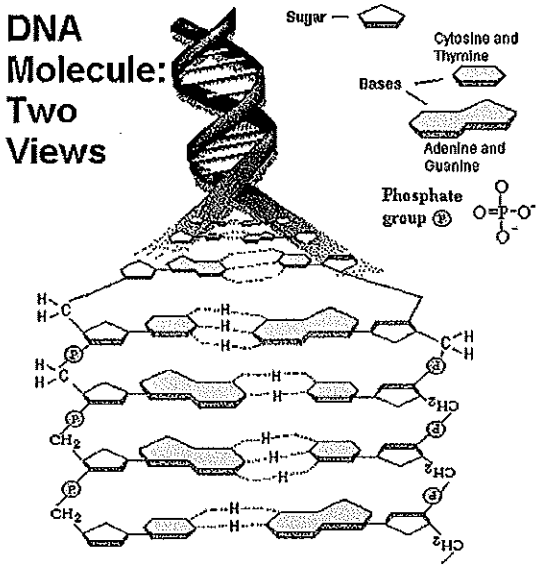
Name: _____

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. _____

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