

Answer the following questions on a separate piece of paper. **Write in full sentences so you may use this as a study guide later.**

## Origami DNA Helix: DNA Structure



1. What do the letters in DNA stand for?
2. Two scientists are given credit for discovering the structure of DNA. What are the names of those two scientists? (a. & b.)
3. DNA is a polymer, which means that it is made up of many repeating single units (monomers). What are the monomers called?
4. The “backbone” of a DNA molecule is made up of two components. What are they? (a. & b.)
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 \_\_\_\_\_ and \_\_\_\_\_.
8. The two bases that are pyrimidines are \_\_\_\_\_ and \_\_\_\_\_.
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, scientists could predict that the base \_\_\_\_\_ pairs with \_\_\_\_\_ and the base \_\_\_\_\_ pairs with \_\_\_\_\_ in the formation of a DNA molecule. This is called complimentary base paring. Thus one strand of DNA is complimentary to the other strand (opposite or 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 use to examine molecules, and helped Watson and Crick determine that the shaped of a DNA molecule was a \_\_\_\_\_.
13. Draw the basic structure of a nucleotide with its three parts.
14. Write the complimentary sequence of the following DNA strand:  
A A T T C G C C G G T A T T A G A C G T