Name _____ - & _____

DISCOVERING DNA STRUCTURE

D = deoxyribo
N = nucleic
A = acid

DNA contains the information for carrying out the activities in the cell. At one time, it was unknown how this information was given throughout the cell. In order to "break the code" you will be making a model of DNA to show the structure of DNA and how genetic information is carried. You and your lab partner each has two different kinds of molecules called a NUCLEOTIDE. DNA is made up of repeating units of nucleotides. The information is coded in the specific order of these nucleotides.

1. What are the tree common parts of a nucleotide?

   _____ _____ _____

2. What is the ONE part of a nucleotide that is <u>different</u> in the four different nucleotides?

   _____

3. List the four different kinds of nitrogen bases.

   _____ _____ _____ _____

Move the nucleotide pieces until you find the best fit. Join the nucleotide molecules with you lab partner like a puzzle. Use tape to connect and reinforce the molecules. You now have a molecule of DNA.

4. Where to the nucleotide molecules connect to each other?

   _____

5. Real DNA molecule is made of THOUSANDS of these pairs of nucleotides. What is the pairing arrangement of nitrogen bases? (write the full name please!)

   _____ pairs with _____ _____ pairs with _____

6. Are there always going to be an EQUAL number of each type of nucleotide? EXPLAIN WHY!

   _____

   _____

7. Scientists abbreviate the nitrogen bases by using the first letter of each base. So....

   A always binds to _____ G always binds to _____

The structure of DNA is actually in a DOUBLE HELIX. This means the two long chains of nucleotides are arranged in a spiral like a twisted ladder.

8. The sides of the ladder are made up of alternating _____ and _____ molecules.

9. The steps of the ladder are made up of _____ held together by HYDROGEN BONDS.

Bring your molecule to the front of the room and join it to the molecules of the other groups. We now have one large DNA molecule.