



Name _____ Per. ____

DNA Model and Worksheet

D = deoxyribo

N = nucleic

A = acid

DNA contains the information for carrying out the activities of a cell. How this information is coded or passed from cell to cell at the time was unknown. To break the code, today you will do a paper lab to determine the structure of DNA and show how the genetic code is carried. Each member of your group has a molecule called a NUCLEOTIDE. DNA is made up of repeating units of nucleotides.

- Look at your nucleotide and the nucleotides of the other members of your group. What are the **THREE** common parts of a nucleotide?

- What is **ONE** part of a nucleotide that differs among the four **DIFFERENT** nucleotides in your group?

- Color your piece of the DNA. Color both sides of the paper. Rewrite the words on the other side of the piece. Deoxyribose (Sugar) = Red, Phosphate = Blue, A (Adenine) = Green, T (Thymine) = Orange, G (Guanine) = Purple, Cytosine = Yellow

- List the four different kinds of nitrogen bases.

- Manipulate the nucleotide pieces until you find the best fit. Join the nucleotide molecules in your group together like a puzzle. (Make the phosphates point the same way.)
- Use tape to connect and reinforce the molecules. You now have a molecule of DNA.

- A real DNA molecule consists of THOUSANDS of these pairs of nucleotides. What is the pairing arrangement of nitrogen bases?

_____ pairs with _____ and _____ pairs with _____

- Are there always going to be an EQUAL number of adenine and thymine (or guanine and cytosine) nucleotides in a molecule? Why?

- 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 arrangement.

DOUBLE HELIX means the two long chains of nucleotides are arranged in a spiral like a twisted ladder.

- The sides (or “uprights”) of the ladder are made up of alternating _____ and _____ molecules. The steps (or “rungs”) of the ladder are made of _____ held together by HYDROGEN BONDS.
- Join your molecule to a group near you that has the opposite pair. 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.

We Love DNA (to the tune of “Row, Row, Row Your Boat”)!

We love DNA
 Made of nucleotides.
 Sugar, phosphate and a base
 Bonded down one side.

Adenine and thymine
 Make a lovely pair.
 Cytosine without guanine
 Would feel very bare.