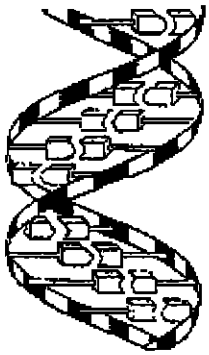
Scientists abbreviate the nitrogen bases by using the first letter of each base. So,
A always binds to ____
G always binds to ____

In the space below, use the letters to show the sequence (order) of the bases in the DNA molecule that you constructed. Begin at the top left side of your molecule.

____goes with ____
____goes with ____

The structure of DNA is actually in a DOUBLE HELIX arrangement.



DOUBLE HELIX means that 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.

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

Discovering DNA Structure

D = deoxyribo
N = nucleic
A = acid

DNA contains the information for carrying out the activities of the cell. How this information is coded or passed from cell to cell was at one time 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 nucleotides. What are the THREE common parts of a nucleotide?

  What is the ONE part of a nucleotide that differs among the four DIFFERENT nucleotides?

  List the four different kinds of nitrogen bases.

- Manipulate the nucleotide pieces until you find the best fit. Join the nucleotide molecules together like a puzzle. Use tape to connect and reinforce the molecules. You now have a molecule of DNA.

  In the space below, explain WHERE the nucleotide molecules connect to each other.

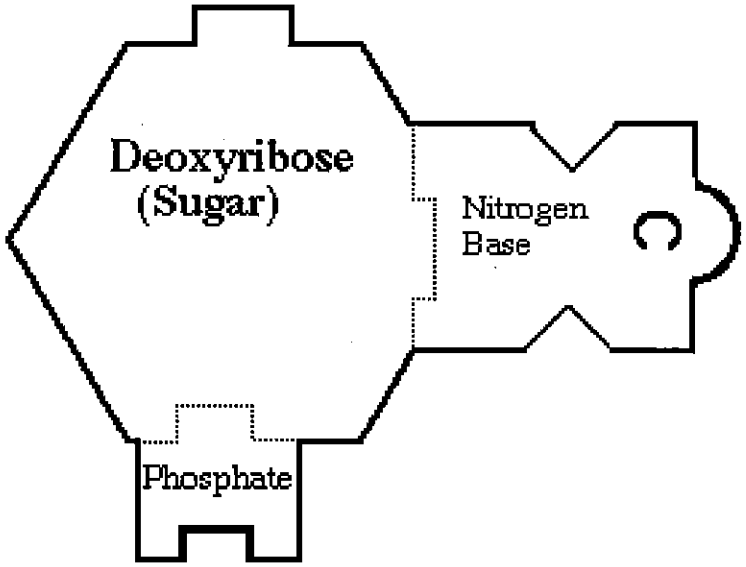
  A real DNA molecule consists of THOUSANDS of these pairs of nucleotides. What is the pairing arrangement of nitrogen bases?

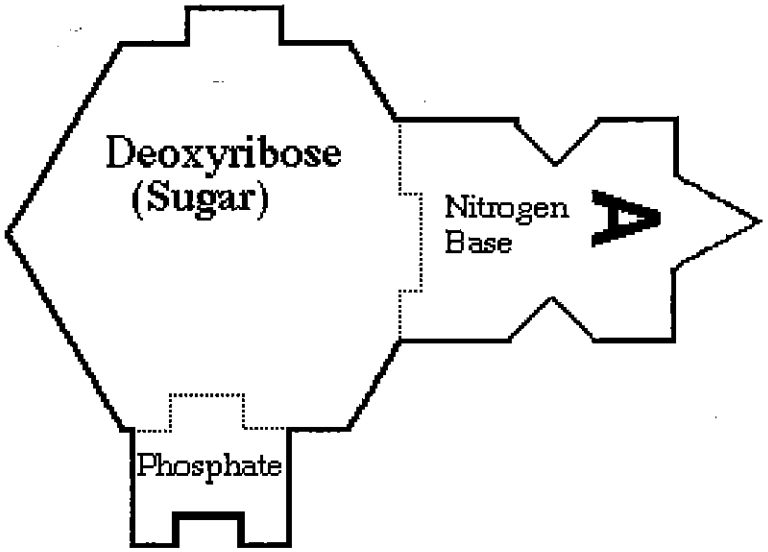
  _____ pairs with _____and _____ pairs with _____

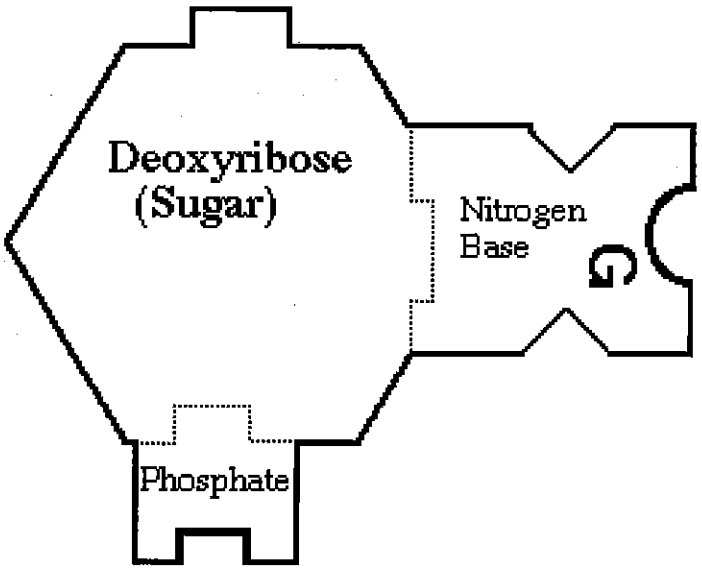
  Are there always going to be an EQUAL number of adenine and thymine nucleotides in a molecule?

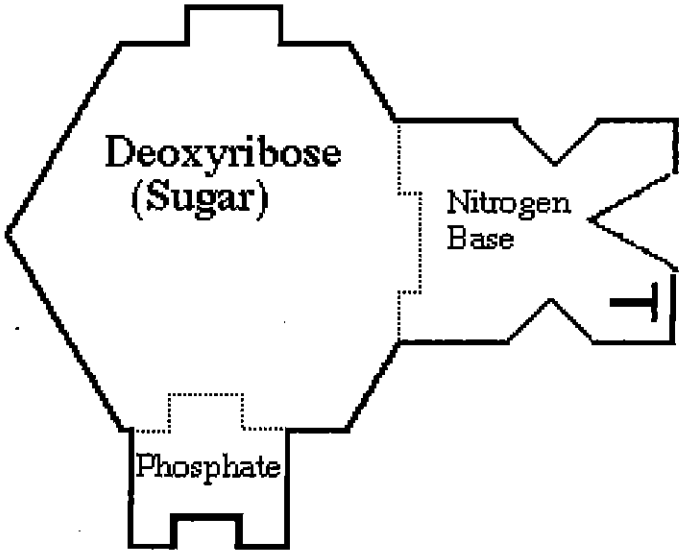
  Why?

  Are there always going to be an EQUAL number of guanine and cytosine molecules in a molecule of DNA? Why?


Deoxyribose
(Sugar)
Nitrogen
Base
C
Phosphate


Deoxyribose
(Sugar)
Nitrogen
Base
A
Phosphate


Deoxyribose
(Sugar)
Nitrogen
Base
G
Phosphate


Deoxyribose
(Sugar)
Nitrogen
Base
T
Phosphate