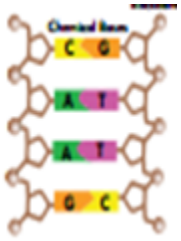
Have Your DNA and Eat It Too!

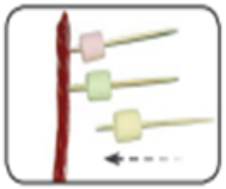


When isolated from a cell and stretched out, DNA looks like a twisted ladder. This shape is called a **DOUBLE HELIX**. The sides of the DNA ladderare called the backbone. And the steps(also called rungs) of the ladder are paires of small chemical called bases. There are four types of chemical bases in DNA: Adenine(A), Cytosine(C), Guanine(G), and Thymine(T). They form pairs in very specific ways. **A**denine always pairs with **T**hymine(*Apple goes on the**T**ree*). **C**ytosine always pairs with **G**uanine(**C**ar goes in the **G**arage).

Your task is to use the following materials and procedure to construct a edible model of DNA. When you are finished, label your model on a sheet of paper.

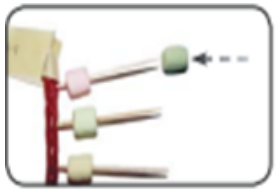
You will need:
1 piece paper
2 pieces of licorice(twizzlers)
12 toothepicks
9 pink marshmellows 9 yellow marshmellows
9 green marshmellows 9 orange marshmellows

Step 1: Choose one of the below
Sequence 1: T A C G T A T A A A C
or Sequence 2: T G G T T T A G A A T T



Step 2: Assemble one side of your DNA molecule. A piece of licorice will form the backbone and arshmellows will be the chemical bases. Place a marshmellow on the end of the toothpick so that the point of the toothpick goes all the way through. Anchor the toothpick into the licorice backbone. Refer to the table above to choose the correct color marshmellow to represent the chemical bases in your sequence.

Step 3: Label your computer paper DNA 1 or DNA 2



Step 4: Match the chemical base pairs. Place the marshmellow for the matching chemical base on the other end of each toothpick. *Remember the base pairing rule.

Step 5: Complete your DNA model. Attach the other backbone so that is esembles a ladder.

Step 6: Twist your DNA model. Carefully twist your ladder DNA molecule so that it looks like a double helix

Step 7: Tape your model on your computer paper. Label one of each of the following: Ademine, Thymine, Cytosine, Guanine, Hydrogen Bond and Backbone. Make sure your chemical bases pairs are correct. .

Step 8: Each group member is responsible for answering the questions. Turn in your work when complete.

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Lab Questions. Each person needs to answer on their own sheet of paper.

1. What shape is your DNA model?
2. What do the marshmellows represent?
3. What do the toothpicks represent?
4. What does the licorice represent?
5. What does adenine pair with?
6. What does guanine pair with?
7. What are the building blocks of DNA?
8. What would paire with the sequence:
   A T T C G C G T A

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