Biology I
Activity: Constructing a Paper Helix

The goal of this lesson is to construct a paper model of a DNA helix. You will do so by making the fundamental unit of DNA. This unit, called a nucleotide, consists of one sugar molecule, one phosphate group, and one nitrogenous base. Each member of the class will make nucleotides and then join them together to form the ladder like helix.

Procedure

1. Cut out the pattern for the nucleotides assigned to you. ***Each student is responsible for making four nucleotides. The first nucleotide should be made with Adenine, second with Guanine, third with Cytosine, and fourth with Thymine.***
2. Place the pattern on construction paper of the appropriate color. Use the key below:
    - Red – Deoxyribose
    - White – Phosphate
    - Blue - Adenine
    - Green - Guanine
    - Grey - Cytosine
    - Yellow - Thymine
3. Label your pieces as the pattern is labeled.
4. Tape the nitrogen base to your sugar molecule by matching up the dots.
5. Tape the phosphate group onto your model by matching up the stars.
6. When all of your lab partners are done with their nucleotides, place them with the corresponding nucleotide. (Remember Chargaff's Rule).
7. Use the picture below to assist you with the orientation of the nucleotides. Tape the nucleotides together.
8. Place your portion of the double helix to the side of the lab table and clean up.