



DNA Building

DNA is a molecule that holds the recipe to make the proteins needed to build a living organism. You have DNA in each one of your cells! DNA is made of four bases: Adenine, Thymine, Guanine, and Cytosine. Adenine and Thymine always pair together, and Guanine and Cytosine always pair together. Using the materials below, can you create a model DNA structure? Give it a try!

10

**2 in. pieces of
pipe cleaner**

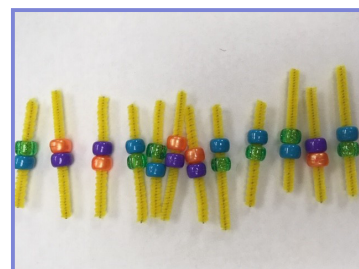
2

**1 ft. pipe
cleaners**

40

**Colored beads
(10 of 4 different colors)**

1. Start by deciding which colored bead represents which of the four bases. For our example, blue beads represent Adenine while green represents Thymine. Purple represents Guanine, and orange represents Cytosine. Make sure your color representations always match with the correct base!
2. Next, add two paired beads to the 2 in. pieces of pipe cleaner. The order does not matter, as long as the pairing rules are followed. See the example to the right.
3. The 1 ft. pipe cleaners represent the backbone of the DNA which is made of deoxyribose sugar and a phosphate molecule that alternate. Lay the pipe cleaners out parallel and add the 2 in. pieces of pipe cleaner to the backbone creating a railroad-like structure. Wrap the small ends around the backbone so it can stand up like a ladder.
4. DNA is a double helix or a twisted ladder. Hold the end of your structure and twist to create the final shape of DNA. See the finished product to the right.



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