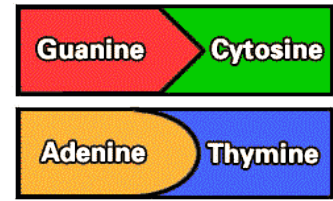


DNA Model – High School

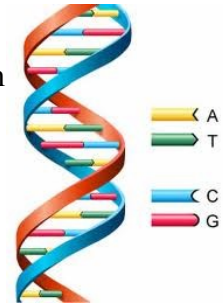
In class, we made our DNA out of pipe cleaners and beads. You may make yours out of paper if you don't have other supplies.

Here are the instructions:



1. The sides of the DNA are made out of sugars and phosphates. Decide what you'd like to use to represent these.
2. The rungs of the DNA ladder are the nitrogenous bases (you can just call them bases). There are four types of bases in DNA. They are

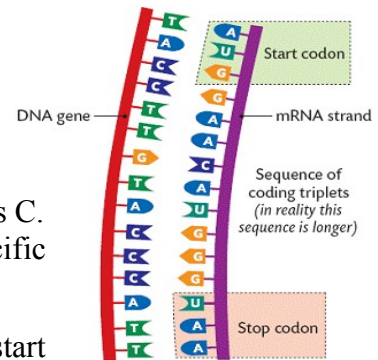
A = Adenine
 C = Cytosine
 G = Guanine
 T = Thymine



These four letters make up every “word” of your genes. Also, they come in pairs. The A is always matched with the T and the C with the G. Think of it this way: the two pointy letters (AT) go together and the two curvy letters (CG) go together. They fit like puzzle pieces.

You will need four colors to represent these four chemicals.

3. You will need nine rungs on your DNA ladder. This will make three codons. You need to make a start codon, a middle codon, and a stop codon. In class we used 18 beads. You will need the same number of A and T. The G should have the same number as C. For example, you could have 6A's, 6T's, 3C's and 3G's. The specific number will depend on your choice of codons.



4. Build your DNA's start codon along one side of the DNA. The start codon is ATG in DNA. The book may read AUG, but this is RNA, a similar molecule. There is no “U” in DNA. Instead, use a T in place of U.
5. The center codon is created next. You can choose any codon on the chart (below) except for the stop codons. Make sure you can figure out what you decided on, because you will need to write this later. Remember that in DNA, we use the T instead of the U.
6. Create a stop codon. You must use one of the three from the chart. Again, T in place of U.

7. Once you've made one strand, make sure it is matched with its partners. Here's where A will match with the T, and C with the G.
8. On a separate paper, write down what you used for the sugars and phosphates, what you used for the bases, and be sure to label which colors represent A,C,T and G. Also put which amino acid your middle codon made. This paper should be attached to the DNA model. Make sure your name is on it, then turn it in.

		Second Letter					
		U	C	A	G		
1st letter	U	UUU Phe UUC UUA Leu UUG	UCU Ser UCC UCA UCG	UAU Tyr UAC UAA Stop UAG Stop	UGU Cys UGC UGA Stop UGG Trp	U C A G	
	C	CUU Leu CUC CUA CUG	CCU Pro CCC CCA CCG	CAU His CAC CAA Gln CAG	CGU Arg CGC CGA CGG	U C A G	
	A	AUU Ile AUC AUA AUG Met	ACU Thr ACC ACA ACG	AAU Asn AAC AAA Lys AAG	AGU Ser AGC AGA AGG Arg	U C A G	
	G	GUU Val GUC GUA GUG	GCU Ala GCC GCA GCG	GAU Asp GAC GAA Glu GAG	GGU Gly GGC GGA GGG	U C A G	