Bio I
Activity: Simulating Protein Synthesis

The DNA code is carried to the ribosome by messenger RNA; the code that you will be dealing with is the DNA template, DNA non-template, and tRNA code. You are to change these codes to the mRNA codon and then look up each triplet codon to determine the letter the codon equals. The letters will form words, in this case, places to go and items eventually to find in a scavenger hunt. It is important to be extremely careful when transcribing the DNA…you might end up wandering around the room looking for the incorrect destination.

For example:

DNA = *CCC ATC TTC CGT CTG TCC TTC*
mRNA = *GGG UAC AAG GCA GAC AGG AAG*

Letter start B E N I C E = Be nice

You can work in groups of two for this activity. Please do not write on the paper that contains the code. Use this sheet of paper to do all of your work. Feel free to use additional paper if needed. Some groups will be going in the same path, so some will start before others. Keep your discoveries to yourself and do not cheat.

The Secret Code – mRNA codons

UUU = A	**CAA = H**	**AAA = O**	**UAG = V**
UAC = B	**GAC = I**	**UCA = P**	**CAG = W**
AGG = C	**CCC = J**	**GAG = Q**	**UGG = X**
GCU = D	**AAU = K**	**UCC = R**	**UCG = Y**
AAG = E	**CGC = L**	**GCG = S**	**ACC = Z**
CUC = F	**AUC = M**	**GGU = T**	**AUG = Start**
GAU = G	**GCA = N**	**CUG = U**	

- Code #1:

- Code #2

- Code #3

- Code #4

- Code #5

Analysis

1. The amino acid sequence order is represented by which component in this activity?

2. The DNA code and mRNA codon are represented by which component in this activity?

3. Which sequence would be tRNA most closely resemble: DNA or mRNA? Explain your answer.

4. If the order of the items you scavenged is wrong, you would not get the prize because the message doesn't make sense. This is an analogy with what goes on in the cell with DNA's message. Explain what would happen if the DNA message was wrong.

5. What is the relationship between DNA template, DNA non-template, mRNA, and tRNA.