

DNA: The Secret Code

Name: _____ Date: _____ Period: _____

		Second Letter									
		U		C		A		G			
First Letter	U	UUU	Phenylalanine (F)	UCU	Serine (S)	UAU	Tyrosine (Y)	UGU	Cysteine (C)	Third Letter	
		UUC		UCC			UAC		UGC		
		UUA	Leucine (L)	UCA			UAA	Stop	UGA		Stop
		UUG		UCG			UAG		UGG		Tryptophan (W)
	C	CUU	Leucine (L)	CCU	Proline (P)	CAU	Histidine (H)	CGU	Arginine (R)		
		CUC		CCC			CAC			CGC	
		CUA		CCA			CAA	Glutamine (Q)		CGA	
		CUG		CCG			CAG			CGG	
	A	AUU	Isoleucine (I)	ACU	Threonine (T)	AAU	Asparagine (N)	AGU	Serine (S)		
		AUC		ACC			AAC			AGC	
		AUA		ACA			AAA	Lysine (K)	AGA	Arginine (R)	
		AUG	Methionine (M)	ACG			AAG		AGG		
G	GUU	Valine (V)	GCU	Alanine (A)	GAU	Aspartic acid (D)	GGU	Glycine (G)			
	GUC		GCC			GAC			GGC		
	GUA		GCA			GAA	Glutamic acid (E)		GGA		
	GUG		GCG			GAG			GGG		

Translate the DNA molecules below into m-RNA while reading from the top strand. Use the codon table above to determine the amino acid sequence of the protein. If you use the one letter symbol (e.g. M, G, R) for each amino acid it will spell out a secret message.

#1

DNA A G C A C A T A G C T T T T A A C G C T C
 T C G T G T A T C G A A A A T T G C G A G

Transcription to m-RNA _____

Translation to Protein _____

#2

DNA C C A C T C T T A C T T T G C T A G A C G A C T
 G G T G A G A A T G A A A C G A T C T G C T G A

Transcription to m-RNA _____

Translation to Protein _____

#3

DNA C G T C T G C G C T A C T C A
 G C A G A C G C G A T G A G T

Transcription to m-RNA _____

Translation to Protein _____

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#4 Write out the genetic code (DNA sequence) for the following amino acid sequence:

Protein: W-H-Y-M-E?

mRNA

DNA

#5 Come up with your own secret message for your table partner and exchange messages.

Double-stranded DNA

Decoded by: _____

Transcription to m-RNA _____

Translation to Protein _____