

Name: _____

Period _____

Protein Synthesis

Directions:

1. Use the DNA code to create your mRNA code.
2. Use the mRNA code to create your tRNA code.
3. Use the mRNA code and the Genetic Code to determine your amino acids.
4. Answer any questions by **circling** the correct answer.

1.

DNA

mRNA

tRNA/
Amino
Acids

The diagram shows a DNA double strand with the top strand containing the sequence T A C G C G C A G A G C T A G. Below this strand are 14 empty circles representing mRNA bases. Underneath the mRNA circles are five tRNA cloverleaf structures, each with an empty oval at the bottom representing an amino acid.

2. mRNA is made during (transcription/translation).

3. mRNA is made in the (cytoplasm/nucleus).

4.

DNA

mRNA

tRNA/
Amino
Acids

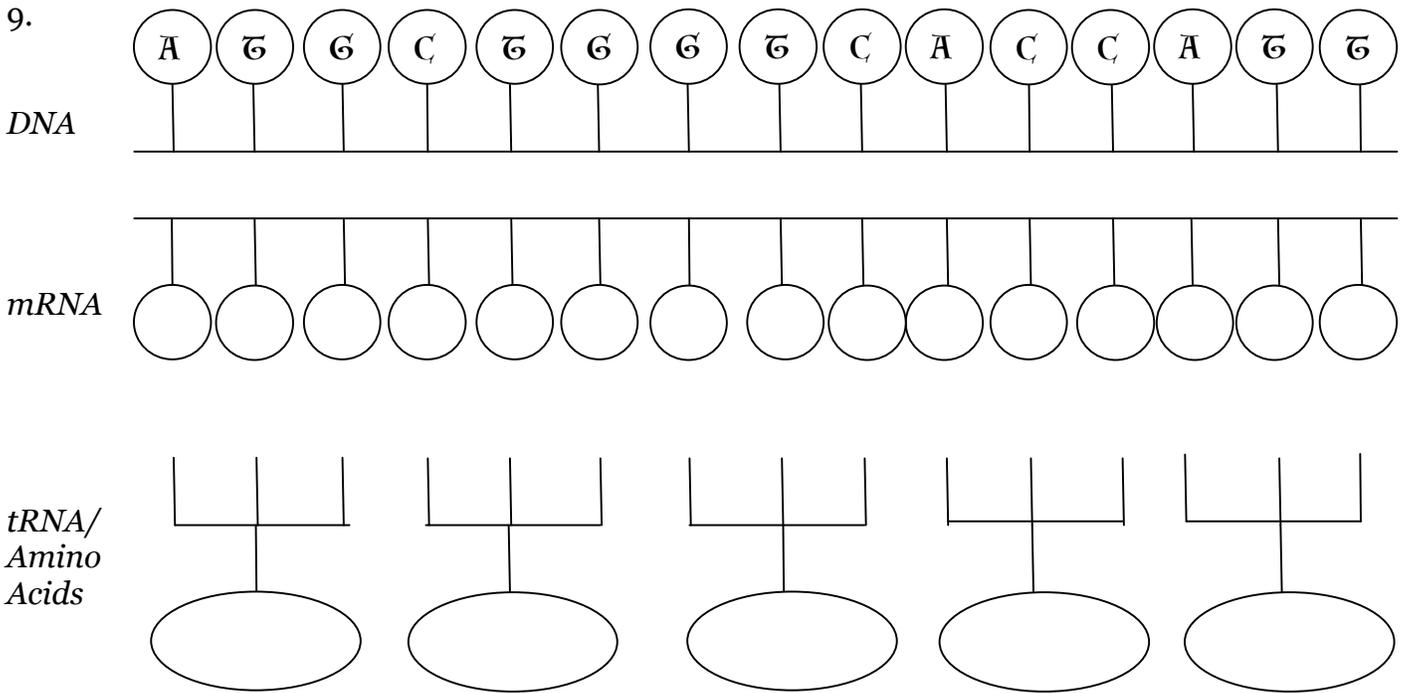
The diagram shows a DNA double strand with the top strand containing the sequence A C A A A A C G G G T G T G A. Below this strand are 14 empty circles representing mRNA bases. Underneath the mRNA circles are five tRNA cloverleaf structures, each with an empty oval at the bottom representing an amino acid.

5. DNA is located in the (nucleus/cytoplasm)

6. (mRNA/rRNA) is used to carry the genetic code from DNA to the ribosomes.

7. (DNA/RNA) uses uracil instead of thymine.

8. (RNA/amino) acids make up a protein.



		SECOND NUCLEOTIDE									
		U		C		A		G			
FIRST NUCLEOTIDE	U	UUU	Phenylalanine (Phe)	UCU	Serine (Ser)	UAU	Tyrosine (Tyr)	UGU	Cysteine (Cys)	U	THIRD NUCLEOTIDE
		UUC		UCC		UAC		UGC		C	
		UUA	Leucine (Leu)	UCA	STOP	UGA	STOP	A			
		UUG		UCG		UAG		UGG	Tryptophan (Trp)	G	
	C	CUU	Leucine (Leu)	CCU	Proline (Pro)	CAU	Histidine (His)	CGU	Arginine (Arg)	U	THIRD NUCLEOTIDE
		CUC		CCC		CAC		CGC		C	
		CUA		CCA		CAA	Glutamine (Gln)	CGA		G	
		CUG		CCG		CAG		CGG			
	A	AUU	Isoleucine (Ile)	ACU	Threonine (Thr)	AAU	Asparagine (Asn)	AGU	Serine (Ser)	U	THIRD NUCLEOTIDE
		AUC		ACC		AAC		AGC		C	
		AUA		ACA		AAA	Lysine (Lys)	AGA		Arginine (Arg)	
		AUG	Methionine (Met) START	ACG		AAG		AGG			
	G	GUU	Valine (Val)	GCU	Alanine (Ala)	GAU	Aspartic Acid (Asp)	GGU	Glycine (Gly)	U	THIRD NUCLEOTIDE
		GUC		GCC		GAC		GGC		C	
		GUA		GCA		GAA	Glutamic Acid (Glu)	GGA		A	
		GUG		GCG		GAG		GGG			

10. Transcription takes place in the (nucleus/cytoplasm).
11. tRNA is used in (translation/transcription).
12. tRNA uses (anticodons/codons) to match to the mRNA.
13. Proteins are made at the (nucleus/ribosome).
14. (tRNA/mRNA) brings amino acids to the ribosome.
15. tRNA is found in the (nucleus/cytoplasm).
16. (Translation/Transcription) converts mRNA into a protein.
17. Translation takes place in the (cytoplasm/nucleus).
18. (DNA/RNA) can leave the nucleus.
19. (Translation/Transcription) converts DNA into mRNA.

Image of protein synthesis

