

Learn with DNA! - Fill in the Blanks, Using Your Knowledge of Translation and the Genetic Code

1.

DNA	T	A	C	T	T	C	A	A	C	G	G	C	G	T	A	A	C	T	G	T	G	T	A	T	G	A	T	T	
5' mRNA	A	U	G	A	A	G	U	U	G	G	C	C	A	U	G	A	C	A	C	C	A	C	A	U	A	C	U	A	A
a.a.	methionine			lysine			phenylalanine			glycine			alanine			leucine			threonine			threonine			tyrosine				

2.

DNA	T	A	C	G	T	A	G	T	C	T	T	A	T	T	C	T	A	C	T	T	G	C	C	T	C	A	A	T	C		
5' mRNA	A	U	G	C	A	U	C	A	G	A	A	U	A	A	G	A	U	G	A	A	C	G	C	A	C	G	C	A	A	T	C
a.a.	methionine			methionine			glutamine			asparagine			lysine			aspartic acid			glutamate			arginine			serine						

3.

DNA	T	A	C	A	T	A	C	A	A	G	A	C	A	A	C	T	A	A	C	A	T	A	C	T	T	A	T	G	C	
5' mRNA	A	U	A	U	G	U	C	U	G	U	C	U	G	A	U	G	A	U	G	A	U	G	A	U	G	A	U	A	A	C
a.a.	methionine			phenylalanine			leucine			leucine			isoleucine			valine			valine			arginine			tyrosine			threonine		

4.

DNA	T	A	C	C	A	G	C	G	T	T	A	G	C	U	T	C	C	C	C	C	C	T	T	T	T	T	T	T	T	T	
5' mRNA	A	U	G	G	U	C	C	G	C	A	U	C	G	A	U	C	A	G	A	C	A	G	A	C	A	T	T	T	T	T	T
a.a.	*Met			Val			Ala			Asp			Glu			Gly			Arg			Lys			Trp			STOP			

5.

DNA	T	A	C	G	G	T	T	C	A	T	C	C	A	T	T	G	G	T	A	A	T	A	C	C	A	G	A	C	T		
5' mRNA	A	U	G	C	C	A	A	G	U	A	G	U	A	C	C	A	U	U	A	U	A	U	G	U	C	G	U	C	U	G	A
a.a.	methionine			proline			serine			arginine			valine			methionine			valine			methionine			valine						

6.

tRNA	A	C	A	G	A	U	G	U	C	A	A	A	G	G	A	U	U	C	C	C	A	C	U	A	C	C	A	C	U	
5' mRNA	A	U	G	U	C	A	U	A	C	A	G	U	U	U	C	C	U	A	A	G	G	U	A	A	G	G	G	U	G	A
a.a.	methionine			cysteine			histidine			methionine			valine			proline			proline			lysine			glycine					

*methionine has to be the first amino acid in a protein.
 * "stop" is NOT an amino acid... it just ends the protein.

Three-letter codons of messenger RNA and the amino acids specified by the codons

AAU } AAC }	Asparagine	CAU } CAC }	Histidine	GAU } GAC }	Aspartic acid	UAU } UAC }	Tyrosine
AAA } AAG }	Lysine	CAA } CAG }	Glutamine	GAA } GAG }	Glutamate	UAA } UAG }	Stop
ACU } ACC } ACA } ACG }	Threonine	CCU } CCC } CCA } CCG }	Proline	GCU } GCC } GCA } GCG }	Alanine	UCU } UCC } UCA } UCG }	Serine
AGU } AGC }	Serine	CGU } CGC } CGA } CGG }	Arginine	GGU } GGC } GGA } GGG }	Glycine	UGU } UGC }	Cysteine
AGA } AGG }	Arginine					UGA } UGG }	Stop Tryptophan
AUU } AUC } AUA }	Isoleucine	CUU } CUC } CUA } CUG }	Leucine	GUU } GUC } GUA } GUG }	Valine	UUU } UUC }	Phenylalanine
AUG	Methionine					UUA } UUG }	Leucine