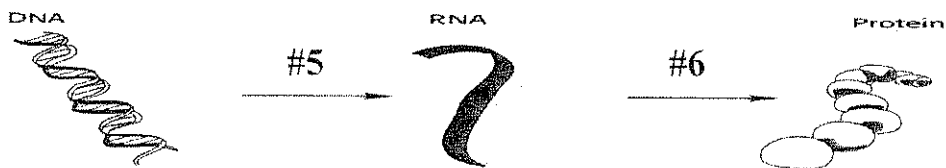


# BTR Protein-Making Review

1. Complete the Comparison Matrix below to compare the similarities and differences between DNA and RNA molecules

Molecule Characteristics	DNA	RNA	S = Shared characteristic D = Different characteristic
<b>STRUCTURE:</b>			
• # of chains in molecule?			
• chains are made of <b>Nucleotide</b> "Building Blocks" ?			
• molecule has <b>Phosphate</b> groups?			
• molecule has <b>5-C sugars</b> ?			
• molecule has <b>Nitrogen</b> bases?			
• molecule has <b>covalent</b> bonds?			
• molecule has <b>hydrogen</b> bonds?			
• <b>name</b> of the 5-C sugar molecule?			
• List the 4 <b>Nitrogen base</b> letters			
<b>FUNCTION:</b>			
• stores genetic instructions for making proteins?			
• delivers Amino Acids to ribosomes for protein production?			
<b>LOCATION:</b>			
• molecule found in the <b>nucleus</b> ?			
• molecule found in the <b>cytoplasm</b> ?			
• molecule found in both <b>nucleus</b> and <b>cytoplasm</b> ?			

2. How many total chromosome "books" of DNA are found in the nucleus of a typical human cell ?
3. Approximately how many total DNA code letters are there in one complete human blueprint ?
4. What term describes a "piece" of DNA letters which code for the production of a specific protein chain ?
5. Identify the process labeled by #5: \_\_\_\_\_
6. Identify the process labeled by #6: \_\_\_\_\_



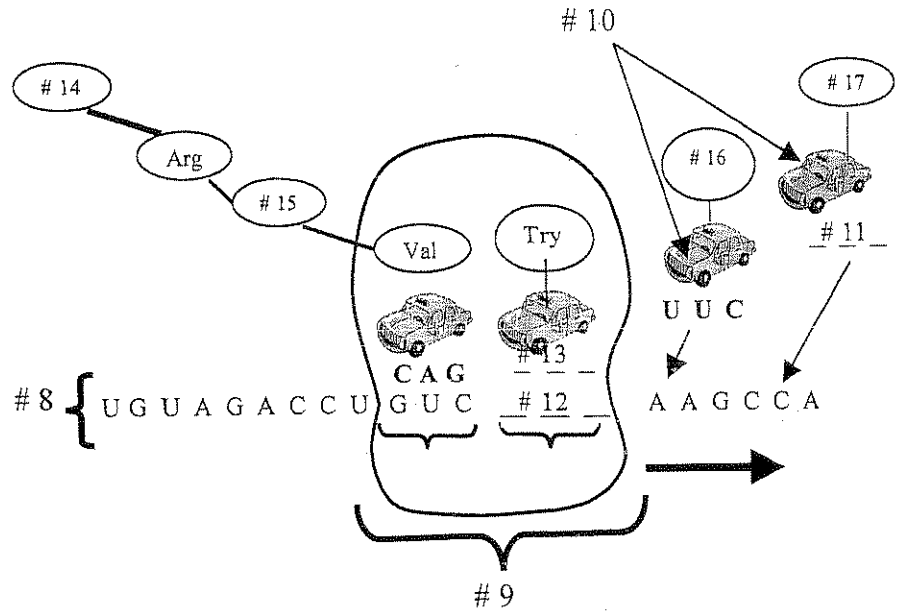
7. TRANSCRIPTION review: Transcribe the DNA gene below and determine the mRNA sequence.

DNA Code:    A C A T C T G G A C A G

mRNA:        \_\_\_\_\_

TRANSLATION review: Identify the numbered parts in the translation picture below

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



8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_
11. \_\_\_\_\_
12. \_\_\_\_\_
13. \_\_\_\_\_
14. \_\_\_\_\_
15. \_\_\_\_\_
16. \_\_\_\_\_
17. \_\_\_\_\_

18. Circle the protein chain produced in the translation picture above