

### Gene Expression Quiz (BIO.5h) (29 pts)

Complete the box-and-t chart below using the following words or phrases. Not all words/phrases will be used. (6 pts)

Made in the nucleus	Single stranded	Made in the cytoplasm	Triple stranded
Replicates before cell division	Thymine	Travels to the cytoplasm	Type of nucleic acid

**Both mRNA and DNA...**

1. \_\_\_\_\_ 2. \_\_\_\_\_

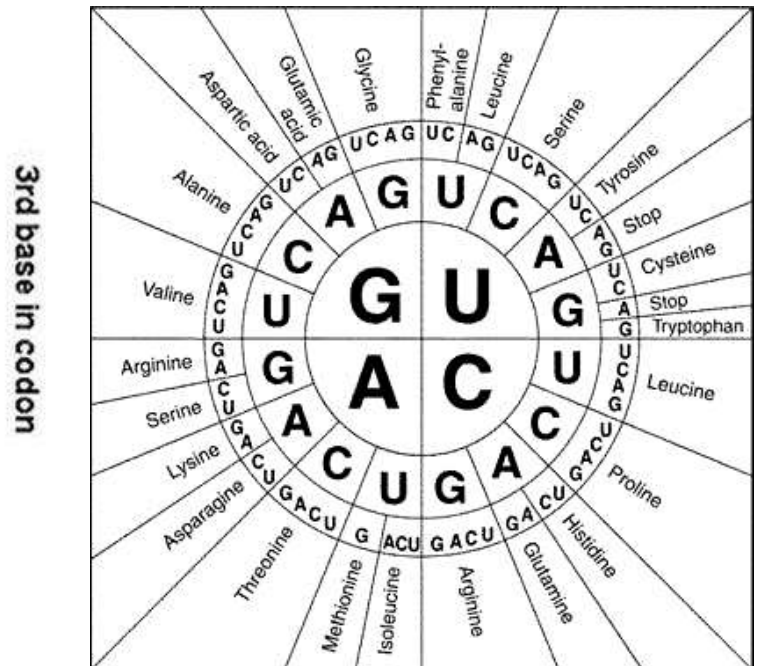
<p><b>Only DNA...</b></p> <p>1. _____</p> <p>2. _____</p>	<p><b>Only mRNA...</b></p> <p>1. _____</p> <p>2. _____</p>
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A strand of template DNA is provided below. Create the complementary mRNA sequence (3 pts)

A   T   T   G   C   G   C   G   A

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		2nd base in codon				
		U	C	A	G	
1st base in codon	U	Phe Phe Leu Leu	Ser Ser Ser Ser	Tyr Tyr STOP STOP	Cys Cys STOP Trp	U C A G
	C	Leu Leu Leu Leu	Pro Pro Pro Pro	His His Gln Gln	Arg Arg Arg Arg	U C A G
	A	Ile Ile Ile Met	Thr Thr Thr Thr	Asn Asn Lys Lys	Ser Ser Arg Arg	U C A G
	G	Val Val Val Val	Ala Ala Ala Ala	Asp Asp Glu Glu	Gly Gly Gly Gly	U C A G



An mRNA sequence is provided below. Find the amino acids that they code for: (3 pts)

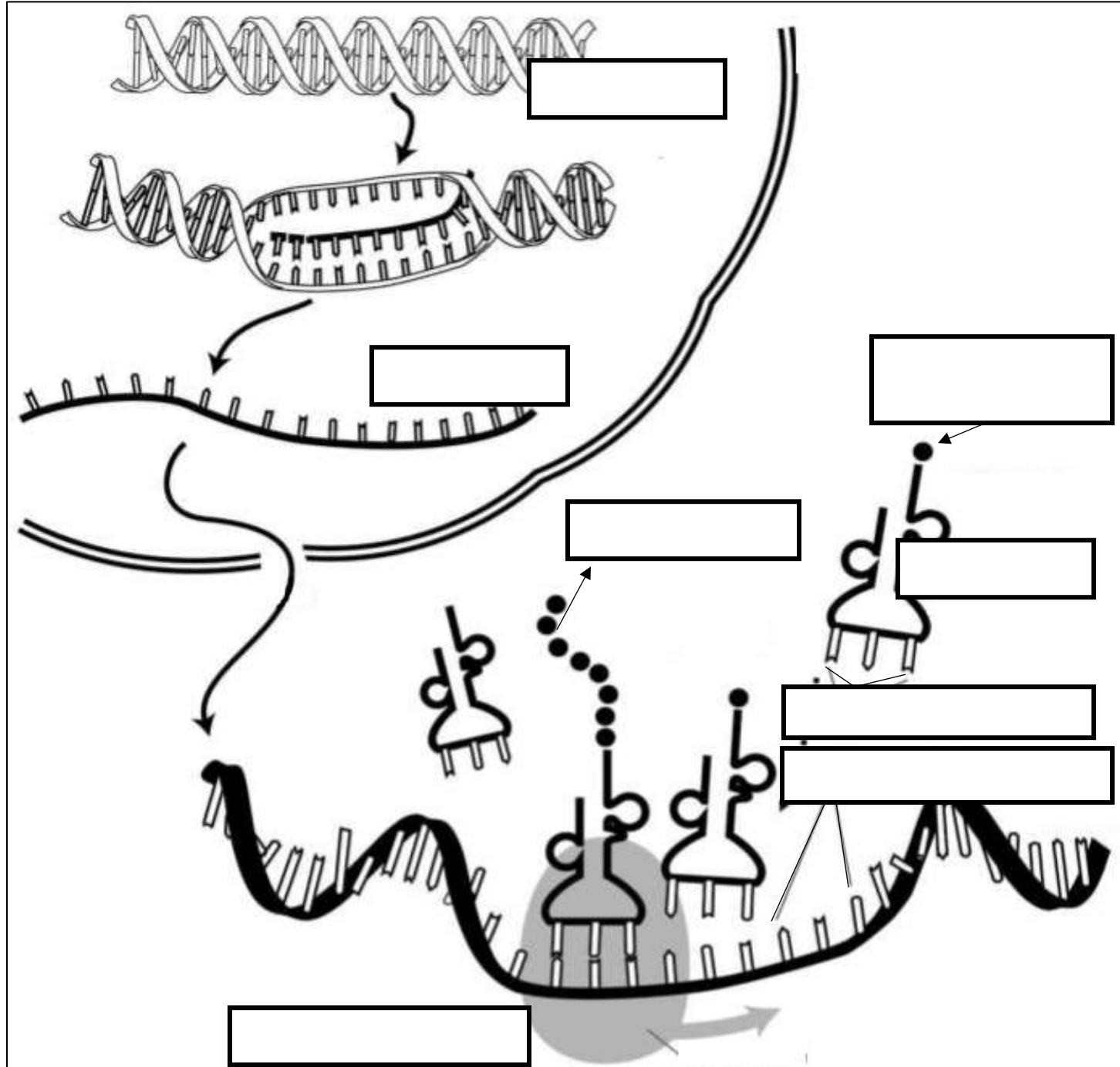
A   U   G   U   C   C   G   C   A

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How many codons are in the mRNA sequence shown above? (1 pt) \_\_\_\_\_

Label the model of protein synthesis below using the following word bank. (8 pts)

Amino acid	Codon	mRNA	Ribosome
Anticodon	DNA	Polypeptide (Protein)	tRNA



Complete the chart below to summarize the processes involved in gene expression. (8 pts)

Process	Starting molecule	Product molecule	Cell location	1 more important enzyme, organelle, or molecule (besides the starting and product molecules)
<b>Transcription</b>				
<b>Translation</b>				