The Central Dogma: DNA → RNA → Protein
Base Pairing – DNA and Transcription

1. *The following is a sequence of DNA. Some bases are missing.* **Fill them in.**

G	A	T	T	A	C	A	___	___
C	T	A	A	___	___	T	T	G

2. *The following is a sequence of DNA. All bases are missing.* **Fill them in.**

C	T	T	C	C	G	C	A	A
___	___	___	___	___	___	___	___	___

3. *The following DNA sequence is undergoing* **Transcription. Fill in the appropriate bases on the DNA and RNA**.

A	T	___	C	___	G	___	___	T	C
___	___	A	___	G	___	U	C	___	___

4. *The following DNA sequence is undergoing* **Transcription. Fill in the appropriate bases on the RNA strand.**

T	A	C	C	G	G	T	T	T	A
___	___	___	___	___	___	___	___	___	___

5. *The following RNA transcript is undergoing* **Translation. Fill in the appropriate bases to match anticodon with codon.**

AUG	ACG	GAG	CUU	CGG	AGC	AAA	UAA
____	____	____	____	____	____	____	____

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6. *Using the above mRNA codon/anticodon triplet codes as well as the chart at the bottom of the page,* ***identify the amino acids coded for by this sequence. Circle the start codon and square the stop codon.***

AUG	ACG	GAG	CUU	CGG	AGC	AAA	UAA
___	___	___	___	___	___	___	___

Reminders:

Bases in **DNA**: **A**denine, **T**hymine, **C**ytosine, **G**uanine

Purines: **A & G**

Pyrimidines: **C & T**

Pairing: **A ←→ T**
        C ←→ G

Bases in **RNA: A**denine, **U**racil, **C**ytosine, **G**uanine

Pairing from DNA → RNA: **A → U**   **mRNA** contains **codons**
                  T → A   **tRNA** contains **anticodons**
                  C → G

Proteins: sequence of amino acids → from start codon to stop codon

Codons Found in Messenger RNA

Second Base

First Base	U	C	A	G	Third Base
U	Phe	Ser	Tyr	Cys	U
	Phe	Ser	Tyr	Cys	C
	Leu	Ser	Stop	Stop	A
	Leu	Ser	Stop	Trp	G
C	Leu	Pro	His	Arg	U
	Leu	Pro	His	Arg	C
	Leu	Pro	Gln	Arg	A
	Leu	Pro	Gln	Arg	G
A	Ile	Thr	Asn	Ser	U
	Ile	Thr	Asn	Ser	C
	Ile	Thr	Lys	Arg	A
	Met	Thr	Lys	Arg	G
G	Val	Ala	Asp	Gly	U
	Val	Ala	Asp	Gly	C
	Val	Ala	Glu	Gly	A
	Val	Ala	Glu	Gly	G