

# mRNA AND TRANSCRIPTION

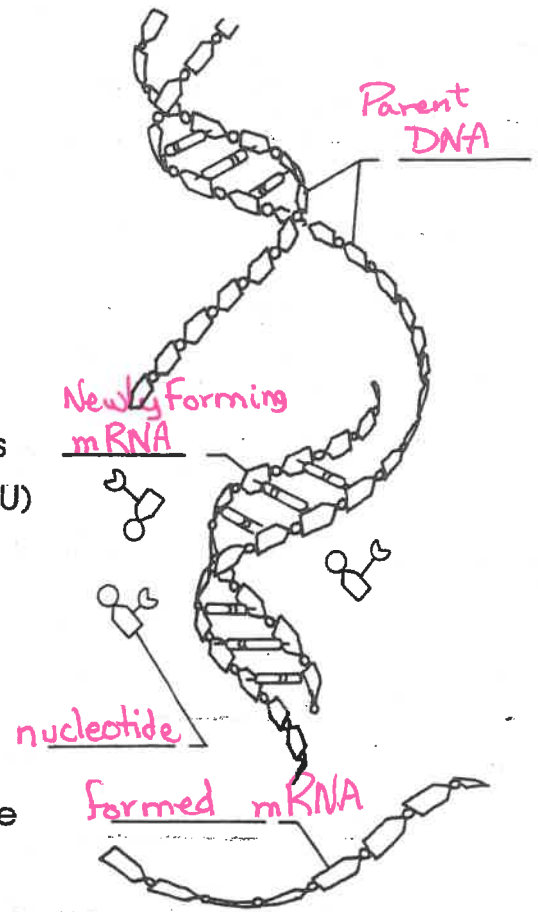
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## Transcription

Fill in the blanks below. On the illustration of transcription, label the DNA, the newly-forming mRNA, the completed strand of mRNA and a free nucleotide.

Messenger RNA (mRNA) carries the instructions to make a particular protein from the DNA in the nucleus to the ribosomes. The process of producing mRNA from instructions in the DNA is called transcription.

During transcription, the DNA molecule unwinds and separates, exposing the nitrogenous bases. Free RNA nucleotides pair with the exposed bases. There is no thymine (T) in RNA. uracil (U) pairs with adenine (A) instead. RNA contains the sugar ribose instead of deoxyribose. The mRNA molecule is completed by the formation of bonds between the RNA nucleotides, and it then separates from the DNA. The mRNA molecule is a single strand, unlike DNA.



## Codons

Each combination of three nitrogenous bases on the mRNA molecule is a codon, a three-letter code word for a specific amino acid.

The table below shows the mRNA codon for each amino acid. Use the table to answer the questions below.

- The codon for tryptophan is UGG.
- For leucine, there are 6 different codons.
- The codon GAU is for Aspartic Acid.
- In a stop codon, if the second base is G, the first and third bases are U and A.

		Second Base in Code Word				
		A	G	U	C	
A	Lysine	Arginine	Isoleucine	Threonine	A G U C	
	Lysine	Arginine	Methionine	Threonine		
	Asparagine	Serine	Isoleucine	Threonine		
	Asparagine	Serine	Isoleucine	Threonine		
G	Glutamic Acid	Glycine	Valine	Alanine	A G U C	
	Glutamic Acid	Glycine	Valine	Alanine		
	Aspartic Acid	Glycine	Valine	Alanine		
	Aspartic Acid	Glycine	Valine	Alanine		
U	"Stop" codon	"Stop" codon	Leucine	Serine	A G U C	
	"Stop" codon	Tryptophan	Leucine	Serine		
	Tyrosine	Cysteine	Phenylalanine	Serine		
	Tyrosine	Cysteine	Phenylalanine	Serine		
C	Glutamine	Arginine	Leucine	Proline	A G U C	
	Glutamine	Arginine	Leucine	Proline		
	Histidine	Arginine	Leucine	Proline		
	Histidine	Arginine	Leucine	Proline		

