

PROTEIN SYNTHESIS PRACTICE

Interpreting diagrams is an important skill in learning science. The following diagram illustrates some aspects of protein synthesis — the making of a protein from a gene. Use the Universal Genetic Code Chart to answer the questions on the next page. Some DNA, RNA, and amino acid information from the analysis of a gene present in five different species is shown in the chart on the next page.

Universal Genetic Code Chart**Messenger RNA Codons and Amino Acids for Which They Code**

		Second base					
		U	C	A	G		
First base	U	UUU } PHE UUC } UUA } LEU UUG }	UCU } UCC } SER UCA } UCG }	UAU } TYR UAC } UAA } STOP UAG }	UGU } CYS UGC } UGA } STOP UGG } TRP	U C A G	
	C	CUU } LEU CUC } CUA } CUG }	CCU } CCC } PRO CCA } CCG }	CAU } HIS CAC } CAA } GLN CAG }	CGU } CGC } ARG CGA } CGG }	U C A G	Third base
	A	AUU } ILE AUC } AUA } AUG } MET or START	ACU } ACC } THR ACA } ACG }	AAU } ASN AAC } AAA } LYS AAG }	AGU } SER AGC } AGA } ARG AGG }	U C A G	
	G	GUU } VAL GUC } GUA } GUG }	GCU } GCC } ALA GCA } GCG }	GAU } ASP GAC } GAA } GLU GAG }	GGU } GGC } GLY GGA } GGG }	U C A G	

- Using the Universal Genetic Code Chart, fill in the missing amino acids in the amino acid sequence for **species A** in the chart on the next page.
- Using the information given, fill in the missing mRNA bases in the mRNA strand for **species B** in the chart on the next page.

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	C	CUU } LEU CUC } CUA } CUG }	CCU } CCC } PRO CCA } CCG }	CAU } HIS CAC } CAA } GLN CAG }	CGU } CGC } ARG CGA } CGG }	U C A G
	A	AUU } ILE AUC } AUA } AUG } MET or START	ACU } ACC } THR ACA } ACG }	AAU } ASN AAC } AAA } LYS AAG }	AGU } SER AGC } AGA } ARG AGG }	U C A G
	G	GUU } VAL GUC } GUA } GUG }	GCU } GCC } ALA GCA } GCG }	GAU } ASP GAC } GAA } GLU GAG }	GGU } GGC } GLY GGA } GGG }	U C A G

- Using the Universal Genetic Code Chart, fill in the missing amino acids in the amino acid sequence for **species A** in the chart *on the next page*.
- Using the information given, fill in the missing mRNA bases in the mRNA strand for **species B** in the chart *on the next page*.