

44 A short mRNA sequence is shown in the box below.

5' AUG-UCU-GAU-UGG-UAC 3'

- a. Determine the DNA sequence from which this mRNA sequence was transcribed.
- b. Using the information in the table below, determine the amino acid sequence that is coded for by this mRNA sequence.

		Second Base of mRNA Codon					
		U	C	A	G		
First Base of mRNA Codon	U	UUU Phe	UCU Ser	UAU Tyr	UGU Cys	Third Base of mRNA Codon	U
		UUC Phe	UCC Ser	UAC Tyr	UGC Cys		C
		UUA Leu	UCA Ser	UAA STOP	UGA STOP		A
		UUG Leu	UCG Ser	UAG STOP	UGG Trp		G
	C	CUU Leu	CCU Pro	CAU His	CGU Arg		U
		CUC Leu	CCC Pro	CAC His	CGC Arg		C
		CUA Leu	CCA Pro	CAA Gln	CGA Arg		A
		CUG Leu	CCG Pro	CAG Gln	CGG Arg		G
	A	AUU Ile	ACU Thr	AAU Asn	AGU Ser		U
		AUC Ile	ACC Thr	AAC Asn	AGC Ser		C
		AUA Ile	ACA Thr	AAA Lys	AGA Arg		A
		AUG Met	ACG Thr	AAG Lys	AGG Arg		G
	G	GUU Val	GCU Ala	GAU Asp	GGU Gly		U
		GUC Val	GCC Ala	GAC Asp	GGC Gly		C
		GUA Val	GCA Ala	GAA Glu	GGA Gly		A
		GUG Val	GCG Ala	GAG Glu	GGG Gly		G

- c. Using the information in the table, determine the first **four** amino acids coded for in **each** of the following situations. Be sure to label each situation.
 - Situation 1: A mutation in the DNA sequence from part (a) changes the sixth base (read left to right) to cytosine (C).
 - Situation 2: A mutation in the DNA sequence from part (a) deletes the sixth base.
- d. In which situation from part (c) is the phenotype of the organism likely to change? Explain your answer.