Mutations by Analogy

Every three bases on the mRNA codes for an amino acid. Every three bases of our "Secret Pseudo-Protein Code" codes for a letter or punctuation mark. Since our "Secret Pseudo-Protein Code" is more familiar, we will use it to examine mutations. Remember the same rules hold for both codes:
1. All messages must begin with START.
2. There are no spaces between three letter words, one simply counts every three letters.

1. Original message:

A U G G U G U U C A C U A C U G C A U A A
Point substitution mutation:

A U G G U G A U C A C U A C U G C A U A A

What was the effect of this mutation?

_____

If this had been an mRNA coding for a protein, what would have been changed?

_____

2. Original message:

A U G A C A U C A U G G A G A G A U C A A A U C
Point deletion mutation:

A U G A C A U C A U G A A A G A U C A A A U C

What was the effect of this mutation?

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If this had been an mRNA coding for a protein, what would have been changed?

_____

Does the size of this mutation's effect surprise you?

3. Original message:

| A | U | G | G | A | G | U | C | U | U | U | C | A | A | A | U | A | G | U | A | G | A | G | G |

Point insertion mutation:

| A | U | G | G | A | G | U | C | U | U | U | C | A | A | U | A | U | A | G | U | A | G | A | G | G |

What was the effect of this mutation?

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If this had been an mRNA coding for a protein, what would have been changed?

_____

4. Original message:

| A | U | G | U | A | U | C | A | A | G | C | A | A | A | A | A | A | U | C | U | C | A | G | C | U |

Point substitution mutation:

| G | U | G | U | A | U | C | A | A | G | C | A | A | A | A | A | A | U | C | U | C | A | G | C | U |

What was the effect of this mutation?

_____

If this had been an mRNA coding for a protein, what would have been changed?

_____

Secret Pseudo-Protein Code

First Base		Second Base				Third Base
		U	C	A	G	
U	A	h	p	w	U
	a	I	Q	X	C
	B	i	STOP !	STOP .	A
	b	J	STOP ?	x	G
C	C	K	R	Y	U
	c	j	q	y	C
	D	k	r	Z	A
	d	L	S	z	G
A	E	l	s	N	U
	e	M	T	t	C
	F	m	t	ñ	A
	START	N	U	ç	G
G	f	n	u	≡	U
	G	O	v	;	C
	g	o	,	,	A
	H	P	W	space	G