

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## Breaking the code

### Transcription

For each DNA sequence below, write the sequence of messenger RNA (mRNA) codons that is synthesized during transcription. Be sure to separate the codons into triplets

DNA molecule #1

**T A C C G G A T G C C A G A T C A A A T C**

mRNA

\_\_\_\_\_

DNA molecule #2

**T A C G G G G G C G T A A C C A C A A C T**

mRNA

\_\_\_\_\_

DNA molecule #3

**T A C C T G T T A A G C T A C A A A A T T**

mRNA

\_\_\_\_\_

1. Where in the cell does transcription take place?

\_\_\_\_\_

2. What are three differences between DNA and RNA

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

3. Where will the mRNA codons go after transcription is complete?

\_\_\_\_\_

# Translation

## tRNA sequence

For each of the mRNA codon sequences, determine the sequence of tRNA anticodons.

tRNA anticodons for mRNA #1 \_\_\_\_\_

tRNA anticodons for mRNA #2 \_\_\_\_\_

tRNA anticodons for mRNA #3 \_\_\_\_\_

## Amino Acid Sequence

Using the **codon chart** write the amino acid sequence coded by each **mRNA** molecule

(remember, the chart is for CODONS)

Polypeptide #1 \_\_\_\_\_

Polypeptide #2 \_\_\_\_\_

Polypeptide #3 \_\_\_\_\_

**Universal Genetic Code Chart**  
**Messenger RNA Codons and the 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 } CUC } LEU CUA } CUG }	CCU } CCC } PRO CCA } CCG }	CAU } HIS CAC } CAA } GLN CAG }	CGU } CGC } ARG CGA } CGG }	U C A G
	A	AUU } AUC } ILE 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 } GUC } VAL GUA } GUG }	GCU } GCC } ALA GCA } GCG }	GAU } ASP GAC } GAA } GLU GAG }	GGU } GGC } GLY GGA } GGG }	U C A G