Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Directions: Transcribe the sense strand on DNA into mRNA.**

DNA mRNA Translate the code into amino acids

\* A T

G C

G C

T A , , ,

A T

A T

C G

C G

C G

G C

C G

T A

\*indicates the “sense” strand from which transcription will take place

**Try to do it backwards. Use the mRNA to make the corresponding DNA.**

mRNA DNA Translate the code into amino acids

C

G

C

C

U

A , , ,

U

U

G

U

A

A

# TRANSCRIPTION

1. Which type of RNA does transcription? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Where in a cell does transcription happen? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Transcribe the sense strand of DNA into mRNA

DNA mRNA Translate the code into amino acids

A T\*

C G

G C

G C , , ,

T A

T A

C G

G C

A T

1. Use the chart to translate the message. List the amino acids.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Examine the chart:

1. Which code signals the “start”? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Which 3 codes signal the “Stop”?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

This table shows the 64 codons and the amino acid each codon codes for. The direction of the mRNA is [5' to 3'](file:///E:\wiki\Directionality_(molecular_biology)).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **1st base** | | **2nd base** | | | | **3rd base** |
| **U** | **C** | **A** | G |
|  | **U** | UUU [Phenylalanine](file:///E:\wiki\Phenylalanine) UUC Phenylalanine UUA [Leucine](file:///E:\wiki\Leucine) UUG Leucine | UCU [Serine](file:///E:\wiki\Serine) UCC Serine UCA Serine UCG Serine | UAU [Tyrosine](file:///E:\wiki\Tyrosine) UAC Tyrosine UAA (*Stop*) UAG (*Stop*) | UGU [Cysteine](file:///E:\wiki\Cysteine) UGC Cysteine UGA (*Stop*) UGG [Tryptophan](file:///E:\wiki\Tryptophan) | U |
| C |
| A |
| G |
| **C** | CUU Leucine CUC Leucine CUA Leucine CUG Leucine | CCU [Proline](file:///E:\wiki\Proline) CCC Proline CCA Proline CCG Proline | CAU [Histidine](file:///E:\wiki\Histidine) CAC Histidine CAA [Glutamine](file:///E:\wiki\Glutamine) CAG Glutamine | CGU [Arginine](file:///E:\wiki\Arginine) CGC Arginine CGA Arginine CGG Arginine | U |
| C |
| A |
| G |
| **A** | AUU [Isoleucine](file:///E:\wiki\Isoleucine) AUC Isoleucine AUA Isoleucine AUG [Methionine](file:///E:\wiki\Methionine) | ACU [Threonine](file:///E:\wiki\Threonine) ACC Threonine ACA Threonine ACG Threonine | AAU [Asparagine](file:///E:\wiki\Asparagine) AAC Asparagine AAA [Lysine](file:///E:\wiki\Lysine) AAG Lysine | AGU Serine AGC Serine AGA Arginine AGG Arginine | U |
| C |
| A |
| G |
| **G** | GUU [Valine](file:///E:\wiki\Valine) GUC Valine GUA Valine GUG Valine | GCU [Alanine](file:///E:\wiki\Alanine) GCC Alanine GCA Alanine GCG Alanine | GAU [Aspartic acid](file:///E:\wiki\Aspartic_acid) GAC Aspartic acid GAA [Glutamic acid](file:///E:\wiki\Glutamic_acid) GAG Glutamic acid | GGU [Glycine](file:///E:\wiki\Glycine) GGC Glycine GGA Glycine GGG Glycine | U |
| C |
| A |
| G |

**ANSWER KEY**

**Transcribe the sense strand on DNA into mRNA.**

DNA mRNA Translate the code into amino acids

\* A T U

G C C Serine

G C C

T A A

A T U Isoleusine

A T U

C G G

C G G Glycine

C G G

G C C

C G G Arginine

T A A

**\*indicates the “sense” strand from which transcription will take place**

**Try to do it backwards. Use the mRNA to make the corresponding DNA.**

mRNA DNA Translate the code into amino acids

C C \* G

G G C Arginine

C C G

C C G

U T A Leucine

A A T

U T A

U T A Leucine

G G C

U T A

A A T Stop

A A T

**REMEMBER**: ***you must use the “mRNA” codon to translate the amino acid***

# TRANSCRIPTION

1. Which type of RNA does transcription? **mRNA from nucleus into cytoplasm**
2. Where in a cell does transcription happen? **nucleus**
3. Transcribe the sense strand of DNA into mRNA

DNA mRNA Translate the code into amino acids

A T\* A

C G C **Threonine**

G C G

G C G

T A U **Valine**

T A U

C G C

G C G **Arginine**

A T A

**\*indicates the “sense” strand from which transcription will take place**

1. Use the chart on page 298 to translate the message. List the amino acids.

**Threonine Valine Arginine**

Examine the chart on page 298:

1. Which code signals the “start”? **UAG** (methionine)
2. Which 3 codes signal the “Stop”?

**UAA (*Stop*) UAG (*Stop*) UGA (*Stop*)**