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%3A%5Cwiki%5CDirectionality_%28molecular_biology%29).

|  |  |  |
| --- | --- | --- |
|  **1stbase** | **2nd base** | **3rd base** |
| **U** | **C** | **A** | G |
|  | **U** | UUU [Phenylalanine](file:///E%3A%5Cwiki%5CPhenylalanine)UUC PhenylalanineUUA [Leucine](file:///E%3A%5Cwiki%5CLeucine)UUG Leucine | UCU [Serine](file:///E%3A%5Cwiki%5CSerine)UCC SerineUCA SerineUCG Serine | UAU [Tyrosine](file:///E%3A%5Cwiki%5CTyrosine)UAC TyrosineUAA (*Stop*)UAG (*Stop*) | UGU [Cysteine](file:///E%3A%5Cwiki%5CCysteine)UGC CysteineUGA (*Stop*)UGG [Tryptophan](file:///E%3A%5Cwiki%5CTryptophan) | U |
| C |
| A |
| G |
| **C** | CUU LeucineCUC LeucineCUA LeucineCUG Leucine | CCU [Proline](file:///E%3A%5Cwiki%5CProline)CCC ProlineCCA ProlineCCG Proline | CAU [Histidine](file:///E%3A%5Cwiki%5CHistidine)CAC HistidineCAA [Glutamine](file:///E%3A%5Cwiki%5CGlutamine)CAG Glutamine | CGU [Arginine](file:///E%3A%5Cwiki%5CArginine)CGC ArginineCGA ArginineCGG Arginine | U |
| C |
| A |
| G |
| **A** | AUU [Isoleucine](file:///E%3A%5Cwiki%5CIsoleucine)AUC IsoleucineAUA IsoleucineAUG [Methionine](file:///E%3A%5Cwiki%5CMethionine) | ACU [Threonine](file:///E%3A%5Cwiki%5CThreonine)ACC ThreonineACA ThreonineACG Threonine | AAU [Asparagine](file:///E%3A%5Cwiki%5CAsparagine)AAC AsparagineAAA [Lysine](file:///E%3A%5Cwiki%5CLysine)AAG Lysine | AGU SerineAGC SerineAGA ArginineAGG Arginine | U |
| C |
| A |
| G |
| **G** | GUU [Valine](file:///E%3A%5Cwiki%5CValine)GUC ValineGUA ValineGUG Valine | GCU [Alanine](file:///E%3A%5Cwiki%5CAlanine)GCC AlanineGCA AlanineGCG Alanine | GAU [Aspartic acid](file:///E%3A%5Cwiki%5CAspartic_acid)GAC Aspartic acidGAA [Glutamic acid](file:///E%3A%5Cwiki%5CGlutamic_acid)GAG Glutamic acid | GGU [Glycine](file:///E%3A%5Cwiki%5CGlycine)GGC GlycineGGA GlycineGGG 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*)**