Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_ Date: \_\_\_\_\_\_\_\_\_\_

**From Gene to Protein**

**Objectives:** In this activity you will follow a series of DNA base codes through transcription and translation

**Vocabulary:** gene, nucleotide, polypeptide, mRNA

**Procedure:**

1. Use the data table below to complete the following steps.
2. Complete **column B** by writing the correct mRNA codon for each sequence of DNA bases listed in the column marked DNA Base Sequence. ***Use the letters A, U, C, and G.***
3. Identify the process responsible by writing its name in **column A**.
4. Complete **column D** by writing the correct anticodon that binds to each codon from codon B.
5. Identify the process responsible by writing its name on the arrow in **column C**.
6. Complete **column E** by writing the name of the correct amino acid that is coded by each base sequence. Use the Universal Genetic Code wheel to translate the mRNA base sequences to amino acids.

|  |
| --- |
| **Data Table** |
|  | **A** | **B** | **C** | **D** | **E** |
| **DNA Base Sequence** | **Process** | **mRNA Codon** | **Process** | **tRNA Anticodon** | **Amino Acid** |
| AAT |  |  |  |  |  |
| GGG |  |  |  |
| ATA |  |  |  |
| AAA |  |  |  |
| GTT |  |  |  |

**Analyze and Conclude:**

1. Where within the cell…
	1. are the DNA instructions located? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	2. does transcription occur? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	3. are ribosomes located? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	4. does translation occur? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Explain why specific base pairing is essential to the processes of transcription and translation?

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