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

How Does DNA Determine theTraits of a SNORFLAT?\* 

Introduction:

In this simulation, you will examine the DNA sequence of an imaginary organism known as Snorflat. Snorflats were discovered on the planet Dee Enae in a distant solar system. Snorflats only have one chromosomes with 6 genes on it. Your job is to analyze the genes of its DNA and determine what traits the organism has.

SNORFLAT DNA AND TRAITS

|  |  |
| --- | --- |
| mRNA triplet | Amino Acid Number |
| ACC | 20 |
| AGC | 16 |
| CGA | 2 |
| AAC | 4 |
| CGC | 3 |
| GGG | 5 |
| AGG | 7 |

|  |  |
| --- | --- |
| Amino Acid Sequence | Trait |
| 20-11-13 | hairless |
| 20-12-13 | hairy |
| 20-21-21 | plump |
| 13-14-15 | skinny |
| 16-2-5 | 4 legged |
| 16-4-5 | 2 legged |
| 12-7-8 | Round head |

|  |  |
| --- | --- |
| AAA | 8 |
| UUU | 9 |
| GGU | 12 |
| UAU | 13 |
| CCC | 1 |
| AUC | 6 |
| CUA | 10 |
|  | 11 |

|  |  |
| --- | --- |
| 5-7-8 | Block head |
| 9-8-8 | No tail |
| 9-4-8 | Tail |
| 11-3-2 | Slanted eyes |
| 11-3-3 | Wide round eyes |
| 6-6-10 | Male |
| 6-6-14 | Female |

Observations and Analysis of Snorflat DNA

You are given a chromosome from a Snorflat with the following sequence. Each gene has only 3 amino acids. Your job is to determine the sequence of amino acids for your specimen. Write the complimentary mRNA, tRNA, the amino acid (A.A) sequence it codes for and the related trait in the chart below.

|  |  |
| --- | --- |
| DNA 1 | ACCGGTTAT l AGCCGAGGG l TTTAACAAA l GGACGCCGC l GGGAGGAAA l ATCATCCTA |
| \*DNA 2 |  |
| \*mRNA  (Use DNA 2 as mRNA template) |  |
| A.A |  |
| Trait |  |

Draw your Snorflat in the space below. Be creative! \*Color for Bonus Point(s)

|  |
| --- |
|  |

\* Adopted from Mr. Holley’s adaptation of Byron Nelson High School Biology activity