

Name: _____

Date: _____

Per: _____

Translating Snork Genes:
How Does DNA Determine the Traits of an Organism?



Introduction: In this activity, you will look at the DNA sequence of a Snork. Snorks were discovered on the planet Dee Enay in a distant solar system. Snorks only have **one chromosome** with **nine genes** on it. Your job is to analyze the genes of its DNA and find out what traits the Snork has and then **draw the organism** (you can be creative here).

The gene sequences of a Snork are much smaller than “*real*” gene sequences found in living organisms. Each gene has two versions that end up with a different trait being expressed in the Snork.

Genes	Amino Acid Sequence	Phenotype
Gene 1 - body covering	val - ser - leu	hairless (no hair)
	val - ser - lys	hairy
Gene 2 - body style	tyr - pro - glu - glu - lys	plump (fat)
	val - pro - thr - pro - lys	skinny
Gene 3 - legs	leu - leu - leu - pro	3 legs
	leu - leu - ser - ala	2 legs
Gene 4 - head shape	ala - val - val	round head
	val - ala - ala	square head
Gene 5 - tails	his - iso	tail
	his - his	no tail
Gene 6 - body pigment	ser - pro - val	blue pigment/color (hair/skin)
	val - phe - tyr	red pigment/color (hair/skin)
Gene 7 - eyes	asp - iso - leu - leu - pro - thre	small slanted eyes
	asp - iso - pro - pro - pro - thre	large round eyes
Gene 8 - mouth	val - asp - asp - ala	circular mouth
	asp - asp - asp - ala	rectangular mouth
Gene 9 - ears	phe - ser - his	pointed, standing-up ears
	phe - phe - his	rounded, floppy ears

- Each of the DNA samples on the back of this page was taken from volunteer Snorks.
- The **DNA** was **transcribed** to its complimentary **RNA strand**.
- Analyze each **RNA** sample and figure out the **phenotype** (how the organism looks) using the code/sequence.
- Remember: **AUG** is a **start codon**, and it is where each gene begins; **UAA** is a **stop codon** and it is where the gene ENDS.
- The genes are in order from gene 1 to gene 10.

For each snork, translate and write the RNA into its corresponding amino acids using the chart on the board on the blanks below. Then write the snorks' corresponding phenotype.

Snicker Snork

mRNA sequence:

AUG | GUC AGC AAA | UAC CCC CAA CAG AAA | CUC UUA AGU GCG | GCU GUU GUG | CAU
CAU | GUU UUU UAC | AAU AUC UUA CUG CCC ACC | AAU AAC AAU GCC | UUU UCU CAC |
UAA

Amino acid sequence:

Snork phenotype (physical features):

Snuffle Snork

mRNA sequence:

AUG | GUA UCU AAA | GUU CCU ACU CCA AAG | CUU CUC CUC CCC | GUU GCG GCU | CAU
CAC | GUA UUU UAU | AAU AUU CUU CUG CCC ACA | AAU AAU AAU GCA | UUC UCG CAC |
UAA

Amino acid sequence:

Snork phenotype (physical features):

Snapple Snork

mRNA sequence:

AUG | GUC AGC AAA | UAC CCC CAA CAG AAA | CUC UUA AGU GCG | GUU GCG GCU | CAC
AUU | UCU CCC GUA | AAU AUU CUC CUC CCC ACC | GUU AAU AAU GCA | UUC UUU CAU |
UAA

Amino acid sequence:

Snork phenotype (physical features):

Snookie Snork

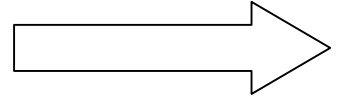
mRNA sequence:

AUG | GUA UCC CUC | UAC CCC CAA CAG AAA | UUA UUG CUG CCC | GUG GCA GCU | CAU
AUU | UCU CCC GUA | AAC AUU CUU CUG CCC ACA | AAU AAC AAU GCC | UUU UCU CAC |
UAA

Amino acid sequence:

Snork phenotype (physical features):

Good! Now that you have figured out the snork genes, on the back of this paper, accurately DRAW and COLOR your snorks! You should have four snork drawings total.



Snicker Snork

Snuffle Snork

Snapple Snork

Snookie Snork