

Name: \_\_\_\_\_

# DNA, RNA, and Snorks

Introduction: In this simulation, you will examine the DNA sequence of a fictitious organism - the Snork. Snorks were discovered on the planet Dee Enae in a distant solar system. Snorks only have one chromosome with eight genes on it. Your job is to analyze the genes of its DNA and determine what traits the organism has and then sketch the organism (You can be creative here).

For simplicity, the gene sequences are much smaller than -real- gene sequences found in living organisms. Each gene has two versions that result in a different trait being expressed in the snork.

Genes	Amino Acid Sequence	Description
Gene 1 - body covering	val - ser - leu	hairless
	val - ser - lys	hairy
Gene 2 - body style	tyr - pro - glu - glu - lys	plump
	val - pro - thr - glu - lys	skinny
Gene 3 - legs	leu - leu - leu - pro	3 legged
	leu - leu - ser - ala	2 legged
Gene 4 - head shape	ala - val - val	round head
	val - ala - ala	square head
Gene 5 - tails	his - ile	tail
	his - his	no tail
Gene 6 - body pigment	ser - pro - val	blue pigment (hair/skin)
	val - phe - tyr	red pigment (hair/skin)
Gene 7 - eyes	asp - ile - leu - leu - pro - thre	small slanted eyes
	asp - ile - 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 - gly	pointed standing-up ears
	phe - phe - gly	rounded floppy ears
Gene 10 - arms	arg - tyr - cys - lys	long spaghetti like arms
	arg - arg - asp - thre	short stumpy arms

Each of the following DNA samples was taken from volunteer snorks. The DNA was then transcribed to its complimentary RNA strand. Your job is to analyze the RNA sample and determine the phenotype (how the organism looks) based on the sequence. The genes are in order from gene 1 to gene 9. Your teacher may assign you one or all of the samples to analyze. Use the codon chart in your text or print one from the web:

codon chart

Title

snicker snork

-----

-----

-----

-----

Sketch

--- Must show decode work.

--- Detailed sketches

Get & Paste each organism's sequence in lab book

SNICKER SNORK <sup>①</sup>Hairy  
<sup>②</sup>  
<sup>③</sup>

DNA SEQUENCE:

AA → VAL-SER-LYS  
① CAGTCGTTT...ATGGGGCTTCTCTTT...GAGAATTCACGC...CGACAACAC...GTAGTA...  
RNA → GUCAGG AAA  
CAAAAAATG...

CTATAGAATGACGGGTGG...CTGCTGCTACGG...AAAAGACCC...TCTATAACA

---

SNUFFLE SNORK

DNA SEQUENCE:

CATAGATTT...CAAGGATGACTTTTC...GAAGAGGAGGGG...CAACGCCGA...GTAGTG...  
CATAAAATA...

CTATAAGAAGACGGGTGT...CAACTGCTGCGT...AAGAGCCCA...TCTATAACA

---

SNAPPLE SNORK

DNA SEQUENCE:

CAGTCGGAA...CAAGGGTGTCTTTTT...GAGAATTCACGC...CAACGCCGA...GTGTAA...  
AGAGGGCAT...

CTATAAGGGGGGGGGTGG...CTACTGCTGCGT...AAGAAACCC...GCGGCCCTG

---

SNOOPY SNORK

DNA SEQUENCE:

CATAGGGAG...ATGGGGCTCCTTTTT...AATAATGACGGG...CGACAACAT...GTATAA...  
AGAGGGCAT...

CTATAAGAAGACGGGTGT...CAACTACTACGG...AAAAGACCA...GCGGCACTG