How Gene Mutations Change Your Ability to Taste

Name: _____

Date: _____

Student quiz

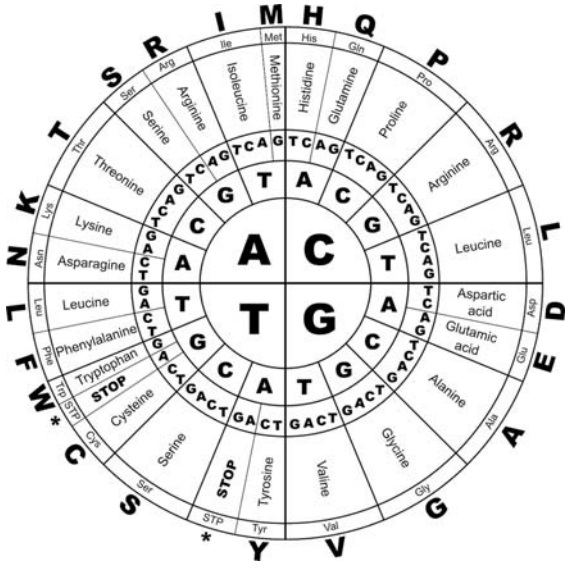
Directions: Circle the best answer for the multiple-choice question(s) below. Write your answer for the other question(s).

1. If an allergy to dust is a recessive trait ("a"), which genotypes could a person who is NOT allergic to dust have?
   a. AA or Aa
   b. Only aa
   c. AA or aa
   d. Only AA
   e. AA, Aa, or aa

2. Below is a random gene sequence with the resulting protein sequence as well as a mutated DNA sequence. Using the genetic code chart below, which mutations cause a changed amino acid sequence in the resulting protein?

Codon #	1	2	3	4	5	6	7	8	9	10	11	12
DNA	ATG	GCA	ACT	TGC	TTA	CCG	CAG	GAT	TCC	AAG	AGT	TAA
Protein	Met	Ala	Thr	Cys	Leu	Pro	Gln	Asp	Ser	Lys	Ser	Stop
Mutated DNA	ATG	GCC	ACT	TAC	TTA	CCA	CAG	GAT	GCC	AAG	AGC	TAA

   a. Codons 2, 6, and 11
   b. Codons 2, 4, and 11
   c. Codons 4 and 9
   d. All mutated codons



How Gene Mutations

Name: _____

Change Your Ability to Taste—Page 2

Directions: Circle the best answer for the multiple-choice question(s) below. Write your answer for the other question(s).

3. Explain in your own words how mutations contribute to genetic variation.

4. If your mom is a taster with the genotype "Tt," and your dad is a non-taster with the genotype "tt," how high are your chances of being a non-taster, assuming that the taster allele is dominant? Use the Punnett Square below to answer this question.

	T	t
t	tT	tt
t	tT	tt

   a. 0%
   b. 25%
   c. 50%
   d. 100%

5. Are all DNA mutations "bad mutations"? In your own words, explain why or why not.