WORKSHEET

"CODOMINANCE"

(in animals)

Name: _____
Year and Section: _____
Teacher: _____
School : _____

Objectives: Find out genetic phenomena using the concepts of multiple alleles.

BIG IDEAS:

DOMINANCE is **NOT ALWAYS COMPLETE**. Codominance is a relationship between two versions of a gene. Individuals receive one version of a gene, called an allele, from each parent. If the alleles are different, the dominant allele usually will be expressed, while the effect of the other allele, called recessive, is masked. In codominance, however, neither allele is recessive and the phenotypes of both alleles are expressed.

In a codominant relationship, neither allele is recessive or masked by the other allele (which make the pair that code a characteristic). Blending plays a role in a codominant relationship, and both alleles are equally expressed, and their features are both present (and seen) in the phenotype.

In a way, you could think of codominance like "co-parenting," where each parent plays an equal role. In a codominant relationship, both alleles are passed down from one generation to the next, rather than being bred out.

Resources: https://www.genome.gov/genetics-glossary/Codominance#:~:text=Codominance%20is%20a%20relationship%20between,%2C%20called%20recessive%2C%20is%20masked.
https://www.biologyjunction.com/codominance
https://www.dentonisd.org/cms/lib/TX21000245/Centricity/Domain/1013/Punnett%20Square%20Packet.pdf

In horses, some of the genes for hair color are incompletely dominant. Genotypes are as follows: **brown horses** are **BB**, **white horses** are **bb** and a **Bb** genotype creates a yellow-tannish colored horse with a white mane and tail, which **bb** is called ***"palomino"***. Show the genetic crosses between the following horses and record the genotypic and phenotypic percentages: Use the punnet square to show your answers. Use the color guide to help you. Look at the table for your guide.

Genotype (alleles)	Phenotype (traits/physical appearance)
BB	BROWN HORSES
bb	WHITE HORSES
Bb	yellow-tannish/ palomino

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a. brown x white

First , write the genotypes. Then , cross. Use the color of each box to help you answer the punnet square and look above to help you on what genotypes to used and the observable phenotypes.

Punnett Square

Genotype of offsprings: _____

Phenotype of offsprings: _____

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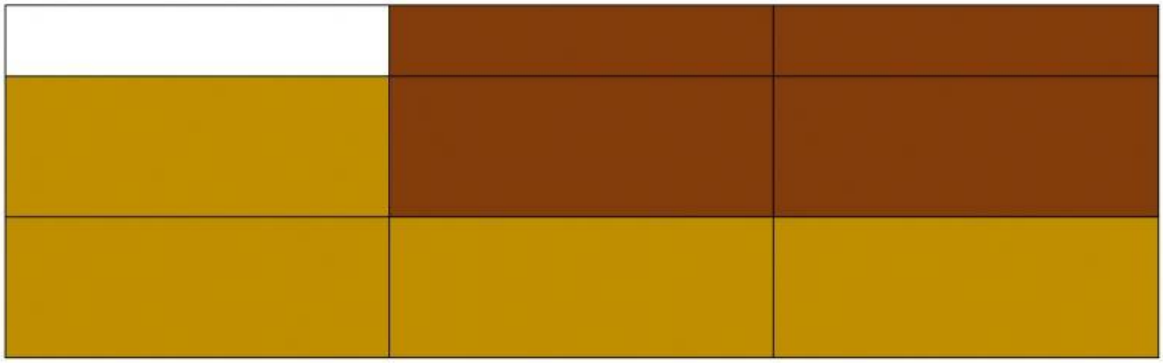
b. brown x palomino

Punnett Square



Genotype of offspring: _____

_____

Phenotype of offspring: _____

_____

Resources: https://www.genome.gov/genetics-glossary/Codominance#:~:text=Codominance%20is%20a%20relationship%20between,%2C%20called%20recessive%2C%20is%20masked.
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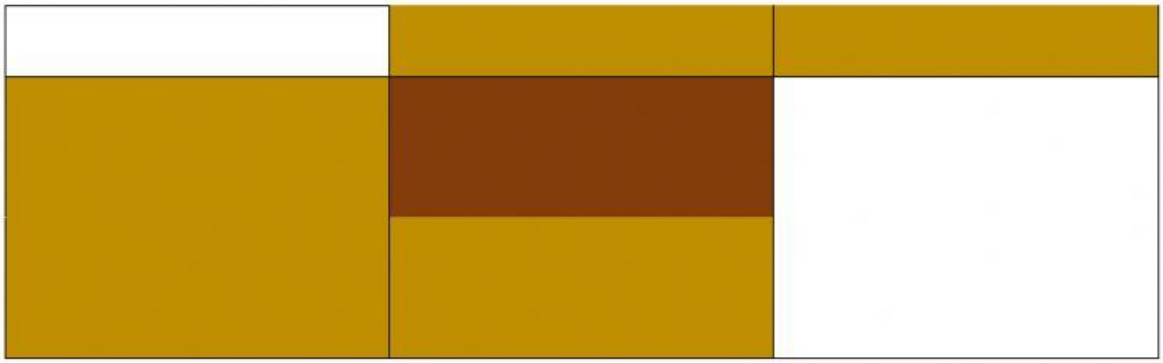
c. palomino x palomino

Punnett Square



Genotype of offspring: _____

_____

_____

Phenotype of offspring: _____

_____

_____

Which two colors of horse SHOULD you breed if you wanted to produce the maximum numbers of palominos in the shortest amount of time? _____ and _____

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