

Incomplete Dominance

So far, we have been studying genes in which one allele was completely dominant over the other. This means that when you have a heterozygous genotype, you still see the dominant phenotype. This is known as complete dominance. eg)

Today we will look at incomplete dominance. In incomplete dominance, the dominant allele is not completely expressed when the recessive allele is present. This results in a 3rd phenotype for the heterozygous genotype.

Ex.

RR - red

WW - white

RW - pink

***Note: In incomplete dominance, it is common to use 2 different capital letters for the dominant and recessive genotypes.

Sample Problem #1

A red carnation is crossed with a white carnation and the resulting offspring are all pink (indicating incomplete dominance). What would be the result of a cross between a pink and a white carnation?

Pink carnation genotype: RW

White carnation genotype: WW

Fill in the Punnett square and give the phenotype percentages of this cross.

	R	W
W	RW	WW
W	RW	WW

RW - pink 50%

WW - white 50%

Sample Problem #2

A curly haired person and a straight haired person mate and all their offspring have wavy hair (note that wavy hair is a phenotype in between that of the curly and straight haired individuals). What would be the result for a cross between 2 wavy haired individuals?

First, list the genotypes for a person with:

Curly hair: CC

Straight hair: SS

Wavy hair: CS

	C	S
C	CC	CS
S	CS	SS

List all the possible genotypes and their percentage of probability for the resulting offspring.

CC - curly 25%

CS - wavy 50%

SS - straight 25%