

TYPES OF DOMINANCE

Dominant



Recessive



Codominant

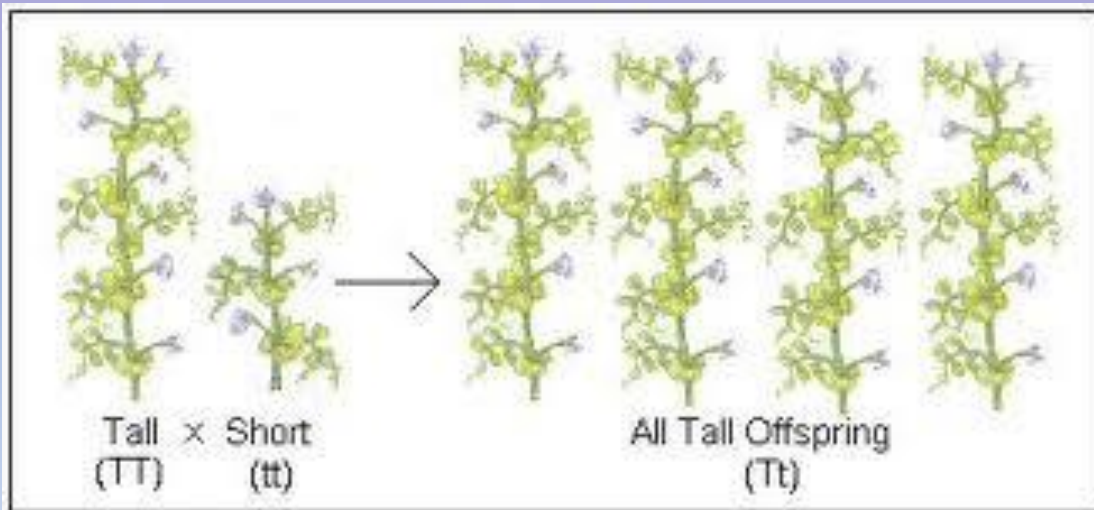


Incomplete
Dominance



Complete Dominance

- Genetic crosses that result in the dominant phenotype being shown due to a dominant gene being present.
- Ex: Tallness is dominant. Crossing a homozygous dominant pea plant (TT) with a homozygous recessive pea plant (tt) results in F1 offspring all having a dominant gene (Tt)
 - These problems use the same letter (T)

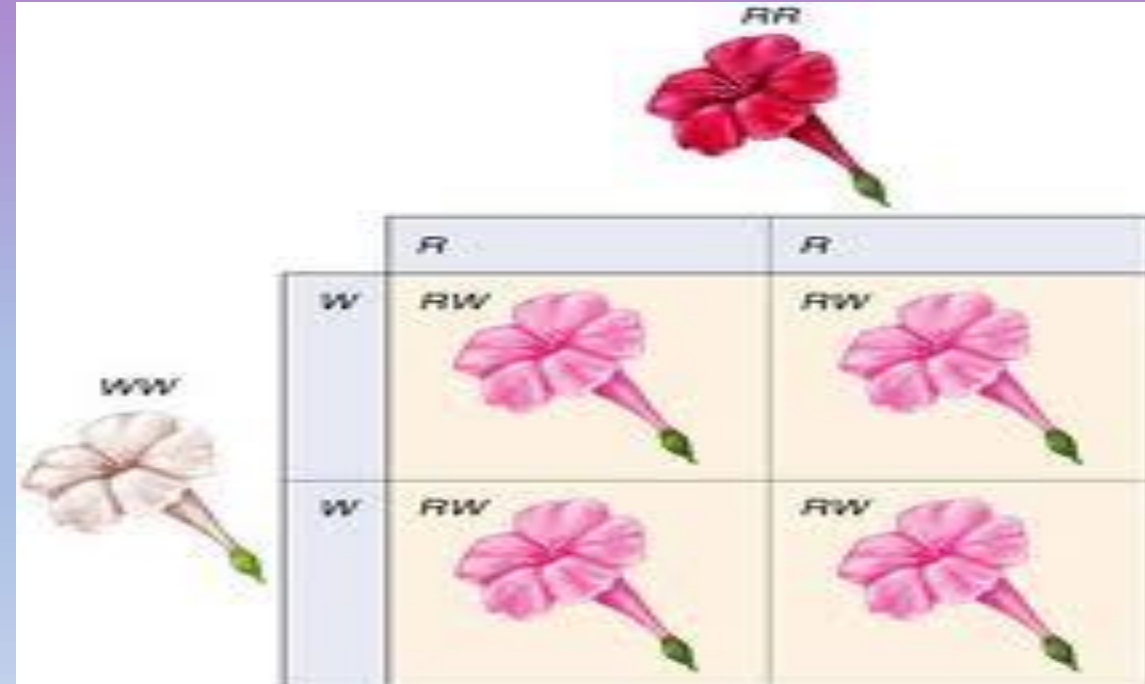


	T	T
t	Tt	Tt
t	Tt	Tt

Incomplete Dominance

- When some alleles are neither dominant nor recessive.
- One allele is not “stronger” than the other.
 - Phenotypes are **blended** together.
- Uses **TWO** letters
- Crossing a red flower (RR) with a white flower (WW) creates pink flowers (RW).

	R	R
W	RW	RW
W	RW	RW



Co-dominance

- When both of the phenotypes are visibly seen.
 - Phenotypes do NOT blend, they are both seen.
- Uses **TWO** letters
- Ex: In a breed of chickens, the allele for black feathers is co-dominant with the allele for white feathers.



Black (BB) father and White (WW) mother produced Black AND white (speckled) baby chicks

	B	B
W	BW	BW
W	BW	BW

Example 1



- In mice, the two most common colors seen are brown (BB) and white (WW). How would you cross a brown mouse with a white mouse to get a cream-colored mouse?
- **What type of dominance is this?**
- **What is the probability of getting a cream colored mouse from this cross?**



e 2

- In certain breeds of salmon, there are fish with the “A” allele for scales (Aa) and without scales (aa). When you cross the two breeds, some fish end up with scales, some don’t.

What type of dominance?

What’s the probability of getting a fish with scales?



Example 3

You have identified a new species of grasshopper that come in two different colors: ones with red stripes (RR) and ones with yellow stripes (YY). When you cross them you get a grasshoppers with red and yellow stripes.

- **What type of dominance is this?**
- **What will the offspring look like?**

Example 4

A species of chicken's color is determined by CODOMINANT genes. A Heterozygous (**BW**) chicken is crossed with a Homozygous (**BB**) chicken:

Complete a Punnett Square for this cross

What color is the Heterozygous (BW) parent chicken?

What color is the Homozygous (BB) chicken?

What is the probability that a black chick will be born?

What is the probability that a white chick will be born?

What is the probability that a black AND white chick will be born?

What is the probability that a GREY chick will be born?

What is the genotypic ratio for this cross?

What is the phenotypic ratio for this cross?

Example 5

A species of flower's color is determined by INCOMPLETELY DOMINANT genes. R is for Red and W is for White. A Heterozygous (**RW**) flower is crossed with a Homozygous (**RR**) flower:

Complete a Punnett Square for this cross

What color is the Heterozygous parent flower?

What color is the Homozygous (RR) parent flower?

What is the probability that a Red flower will be made?

What is the probability that a White flower will be made?

What is the probability that a Red AND White flower will be made?

What is the probability that a PINK flower will be made?

What is the genotypic ratio for this cross?

What is the phenotypic ratio for this cross?
