

Incomplete Dominance

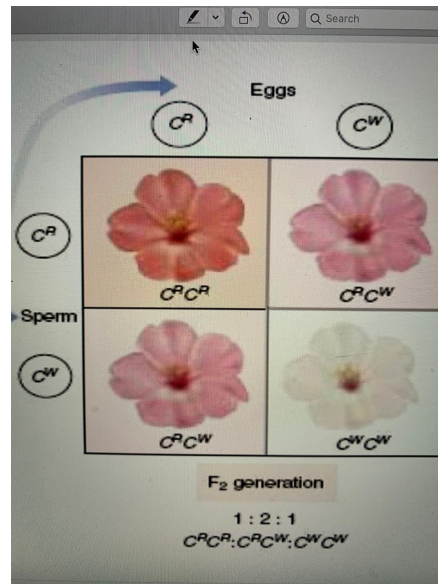
Blend of Alleles/An Intermediate Expression

Incomplete dominance is a condition in which neither of the two alleles for the same gene can completely conceal the presence of the other.

When four o'clock plants are cross breed, the true-breeding red flower and true breeding white flower produces an offspring with pink flowers. This is generation 1 or F_1



If the F_1 plants are allowed to self-fertilize, the F_2 generation will include offspring with all three colours. Ratio 1:2:1 (red:pink:white)



F_2 Generation results in an intermediate expression (blend) of pink $C^R C^W$

One way to represent alleles in incomplete dominance is to use superscripts (like we did with codominance).

C = colour C^R = red C^W = white

Example:

A red colour flower : $C^R C^R$

A blue flower: $C^B C^B$

C is for flower colour

B is blue

R is red

Remember: Incomplete alleles (blend)

	C^R	C^R
C^B	$C^R C^B$	$C^R C^B$
C^B	$C^R C^B$	$C^R C^B$

Offspring are $C^R C^B$ = purple (blend)

Assignment:

1. The alleles for hair colour in rabbits express incomplete dominance. If a black rabbit (H^B) mates with a white rabbit (H^W). What are the probable genotypes and phenotypes of their offspring? Complete a Punnett square

<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>					<p>Genotypes:</p> <p>_____ % $H^B H^B$</p> <p>_____ % $H^B H^W$</p> <p>_____ % $H^W H^W$</p>	<p>Phenotypes:</p> <p>_____ % black</p> <p>_____ % grey</p> <p>_____ % white</p>

2. If one of the offspring from question #1, grey rabbit, mates with a white rabbit...What are the possible genotypes and phenotypes of the next generation of rabbits?

<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>					Genotypes: _____ % $H^B H^B$ _____ % $H^B H^W$ _____ % $H^W H^W$	Phenotypes: _____ % black _____ % grey _____ % white

3. Tail length in dogs is determined by incomplete dominance. Long-tailed dogs ($T^L T^L$) and short-tailed dogs ($T^S T^S$) will produce medium-tailed dogs ($T^L T^S$). What are the genotypes and phenotypes if two medium-tailed dogs have offspring? Draw a Punnett square.