

# Beyond Mendel's Laws



both equally present



mixing

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## Incomplete Dominance



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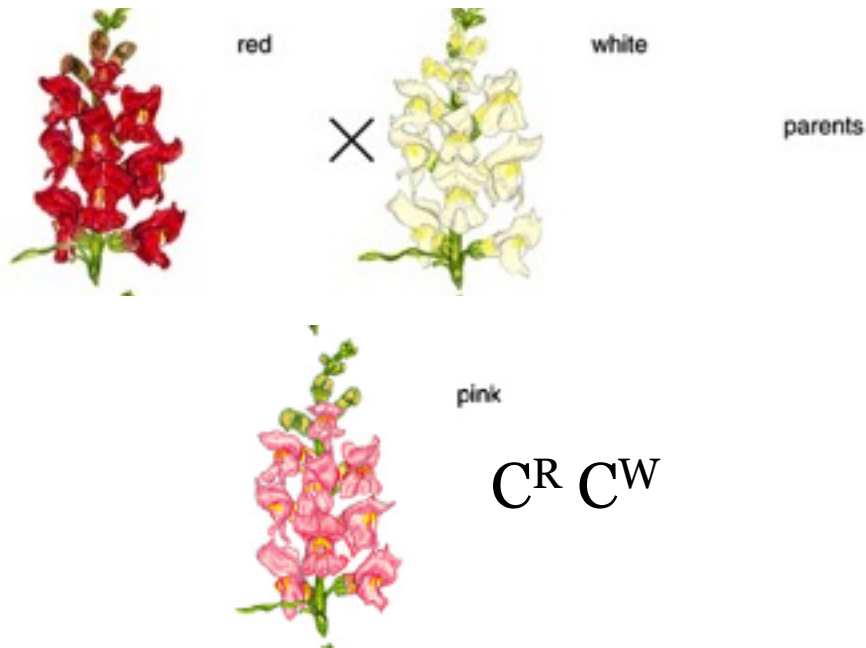
- blending of a single trait
- when heterozygous individuals expresses neither one of the trait
- > intermediate expression of traits



eg: flower colour in snapdragons - 2 alleles are red ( $C^R$ ) & white ( $C^W$ )

red ( $C^R C^R$ )    white ( $C^W C^W$ )    \_\_\_\_\_ ( $C^R C^W$ )

What do you see in the F1 generation? ( $C^R C^R$  X  $C^W C^W$ )



Pink

Pink

$C^R C^W$  x  $C^R C^W$



pink

$C^R C^W$



pink

$C^R C^W$

	$C^R$	$C^W$
$C^R$	$C^R C^R$	$C^R C^W$
$C^W$	$C^R C^W$	$C^W C^W$

Phenotype- 1 RED :

2 Pink :

1 White

Genotype- 1  $C^R C^R$  :

2  $C^R C^W$  :

1  $C^W C^W$

# Co-dominance



# Co-dominance

- both alleles are dominant; both are expressed in the heterozygous individuals

eg: Feather colour in chickens - 2 alleles are black ( $I^B$ ) and white ( $I^W$ )

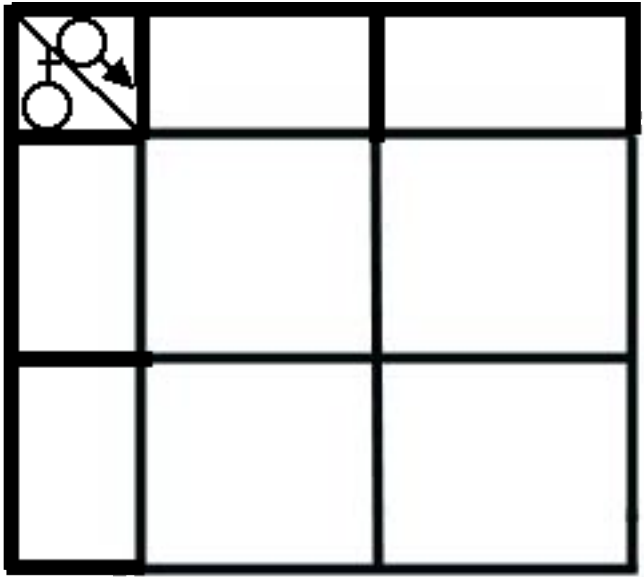
$I^B I^B = \text{Black}$

$I^B I^W = \text{Black and White}$

$I^W I^W = \text{White}$



A black chicken is crossed with a checkered chicken. What is the phenotypic and genotypic outcome?

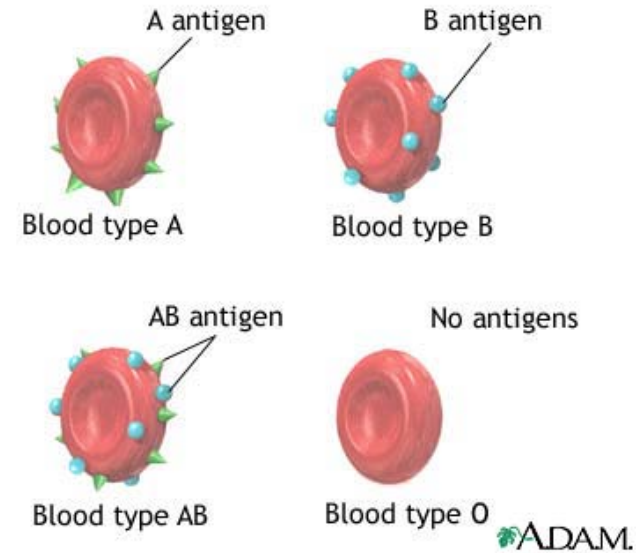


# Multiple Alleles

- more than two alleles involved

eg: blood types

- 3 alleles are A, B, O
- everyone has 2 of the 3 alleles
- represented by  $I^A$ ,  $I^B$ ,  $i$



- A & B: - co-dominant with each other
- dominant over O

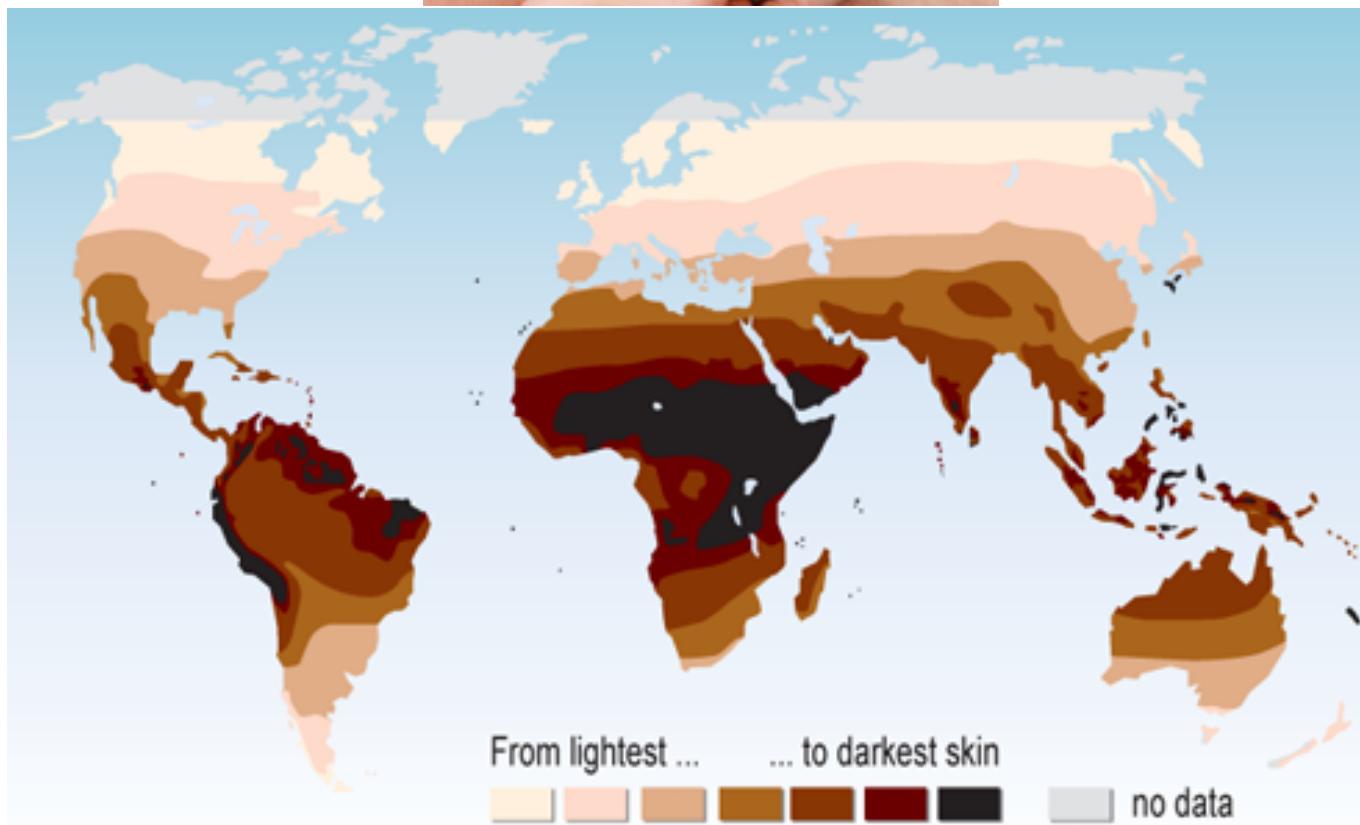
What is the genotype of:

Type A-  $I^A i$  or  $I^A I^A$

Type B-  $I^B i$  or  $I^B I^B$

Type AB-  $I^A I^B$

Type O-  $ii$



# Polygenic inheritance.

- Inheritance of traits which are determined by more than one gene.
- results in a range of phenotypic outcomes

Eg. Skin colour, height

