

GENETICS

LESSON 7: OTHER PATTERNS OF INHERITANCE

Learning Outcomes

- I can distinguish between co-dominance, incomplete dominance, multiple-allele, and polygenic traits.
- I can use a Punnett square to determine the probability of genotypes and/or phenotypes for co-dominance, incomplete dominance and multiple allele traits.

Co-Dominance

- results when different _____ for the same _____ are present in different parts of the organism
- examples: hair colour of calico cats, flowers with different colours on the petals

Incomplete Dominance

- results when the phenotype of _____ individuals is a _____ of the dominant and recessive traits
- examples: white and red carnations produce pink carnations

Multiple-Allele Traits

- Traits with more than _____ alleles at a single _____ location.
- Example: blood typing (____ different alleles)

<u>Blood Type</u>	<u>Genotype</u>	<u>Phenotype</u>
A		Type A Blood
B		Type B Blood
AB		Type AB Blood
O		Type O Blood

- blood type can be dominant/recessive ($I^A i$ or ii) or codominant ($I^A I^B$)

- in addition to this, blood is also listed as Rh _____ or negative
 - Rh is an _____ trait (i.e., Mendelian)

Polygenetic Traits – traits that are controlled by _____ genes.

- Eye colour
 - two genes (OCA2 and HERC2) on chromosome _____ have a major role in eye colour – these produce and regulate the amount of _____ (pigmentation) in the iris
 - less melanin = lighter (_____) eyes
 - more melanin = darker eyes (_____)
 - an additional 14 other _____ have minor roles in determining smaller variations in eye colour (ex: shades of blue)

