



Lesson Overview

12.3 Other Patterns of Inheritance

Mendel's principles alone cannot predict traits that are controlled by multiple alleles or multiple genes.

In most organisms, genetics is more complicated, because the majority of genes have more than two alleles.

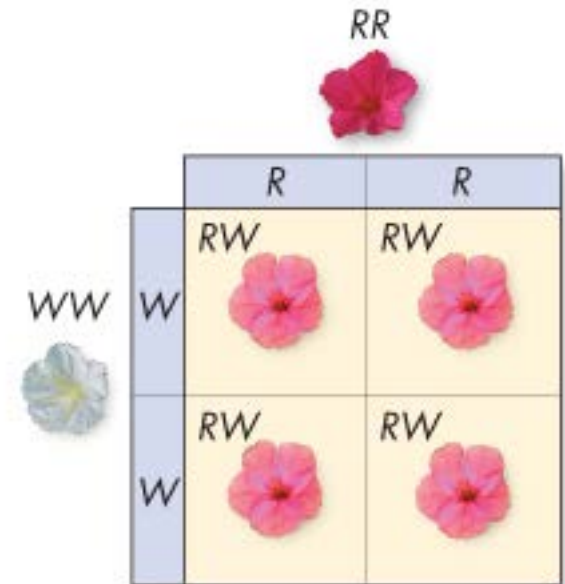
In addition, many important traits are controlled by more than one gene.

Incomplete Dominance

- one allele is not completely dominant over another

heterozygous phenotype produces a blend of the dominant and recessive phenotypes.

example: dominant red flower crossed with a recessive white flower yields a heterozygous pink flower.



Codominance

- phenotypes of both dominant and recessive alleles are clearly expressed in heterozygous genotypes

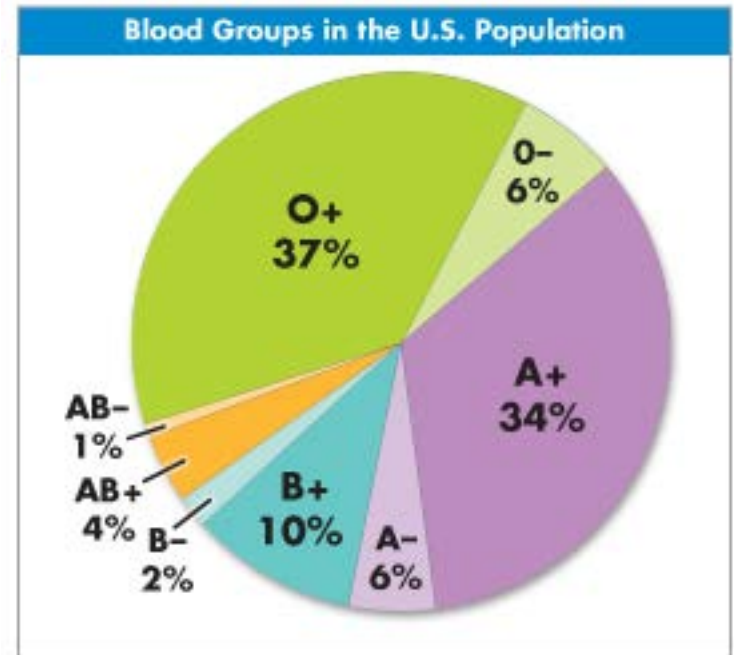
example: in certain varieties of chicken, the allele for black feathers is codominant with the allele for white feathers.

Heterozygous chickens are speckled with black and white feathers.

Multiple Alleles

- single gene with more than two alleles.

example: human blood type



Polygenic Traits

- Traits controlled by two or more genes

Polygenic traits often show a wide range of phenotypes.

example: human skin color employs more than four different genes

Genes and the Environment

The characteristics of any organism are not determined solely by the genes that organism inherits.

Genes provide a plan for development, but how that plan unfolds also depends on the environment.

The phenotype of an organism is only partly determined by its genotype.