

inherited change

genotype : genetic constitution (make-up) of an organism.

- determines the limits within which characteristics of an individual may vary.
- any change in genotype is due to mutation in DNA.

phenotype : observable or biochemical characteristics of an organism.

- result of interaction between the expression of the genotype and environment.
- environment can alter an organism's phenotype.
- any change to phenotype is modification (inherited by future generations)

gene : a length of DNA, a sequence of nucleotide bases that normally code for a particular polypeptide/protein.

allele : a particular variety of a gene.

locus : the position on the chromosome of a gene for a particular characteristic.

- only 1 allele of a gene can occur at the locus on any one chromosome

homologous chromosomes : 2 chromosomes which have similar shape and which both possess genes for the same characteristics.

- two loci carry one allele of a gene.

↳ if alleles are the same: **homozygous**

↳ if alleles are different: **heterozygous**

dominant : allele that expresses itself in phenotype

recessive : the one that is not expressed when dominant allele is present in phenotype.

codominant : 2 alleles both contribute to the phenotype

multiple alleles : 2 alleles both contribute to the phenotype.

Genetic Variation

- crossing over
- independent assortment
- meiosis halves the number and is restored by random fusion

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Monohybrid Inheritance

- inheritance of a single gene
- pure breed: alleles are homozygous [F₁ generation: first filial]
- Test cross : to find out if it is pure breeding
 - ↳ offspring show dominant trait [homozygous]
 - ↳ offspring show a mixture of 1:1 ratio [heterozygous]

possible results

Cross diagram

