

Genetics Glossary

- allele:** different version of a gene / alleles are genes that occupy the same position on homologous (similar) chromosomes
- asexual reproduction:** reproduction involving only one parent producing identical offspring
- bases:** adenine, guanine, cytosine, thymine
- carrier:** has inherited a genetic trait or mutation, but who does not display that trait, but can pass it on to their offspring
- characteristic:** an attribute of an individual e.g. tall plant, brown hair, blue eyes (also known as trait)
- chromosome:** strand of DNA which contains many genes; a normal human cell has 46 (23 pairs)
- complementary base pairing:** used to describe how the bases A always bonds with T, and C with G
- continuous variation:** variation that shows a range e.g. skin colour / gradual changes, e.g. height and weight
- diploid:** cell with the full complement of chromosomes (46 in humans)
- discontinuous variation:** variation that is "either/or" e.g. blood groups, ability to roll tongue or not
- DNA:** this is the chemical which carries genetic information in the nuclei of cells / made up of phosphate units, sugar units and 4 types of bases
- dominant:** this is the allele which will be "expressed" in the phenotype if it is present as either a single gene or as two genes. e.g. B
- double helix:** name given to the twisted ladder shape of the DNA
- fertilisation:** male sex cell (gamete) combines with a female sex cell (gamete) to form a zygote
- gamete:** a sex cell i.e. sperm or egg (ovum) in animals. Ovum and pollen in plants.
- gene:** piece of DNA which codes for a particular protein and therefore a characteristic, e.g. tongue rolling
- genetic variation:** differences in (DNA / genes / alleles) / differences within a species
- genotype:** the combination of alleles for each trait e.g. BB, Bb or bb
- haploid:** cell with half the full complement of chromosomes (23 in humans)
- heterozygous:** this means having a dominant and a recessive allele e.g. Bb
- homozygous:** a pair of alleles that are the same, e.g. HH or hh
- hydrogen bonds:** attractive forces that hold the two strands of DNA together
- inheritable:** the information can be passed on to the offspring. (It must affect the genetic information in the gametes).
- karyotype:** A photograph or diagram of the chromosomes of a cell arranged in an orderly fashion
- meiosis:** cell division that reduces the number of chromosomes to a half the normal number, producing 4 genetically different cells. This is what happens in the testis and ovary; meiosis produces gametes
- mitosis:** this is a genetically exact division of a cell – produces 2 identical daughter cells
- monohybrid cross:** a straightforward cross involving only one pair of genes or alleles
- mutation:** this is a sudden, permanent change in a gene or whole chromosome / a mutation is a change in the order of DNA bases that causes a new allele

- natural selection:** organisms with characteristics best suited to their environment become more successful, and so expand in numbers
- non-inheritable:** the information can be passed on to the offspring as it is due to a change in the somatic cells / due to environment. (Affects only that organism, not its offspring.)
- nucleotide:** a UNIT built up of a base, a sugar and a phosphate group
- pedigree chart:** A family tree drawn with standard genetic symbols, showing inheritance patterns for specific characteristics e.g. straight/curly hair
- phenotype ratio:** ratio of phenotypes e.g. 3 brown hair : 1 blond hair (a prediction of the phenotypes and their occurrence as a result of a cross)
- phenotype:** the expression of the genotype; this is what you look like e.g. brown or blue eyes, if it is a visible trait
- phosphate:** group that alternates with the ribose sugar in the DNA backbone
- Punnett square:** name given to the grid of squares that may be drawn to show the range of combinations of genes that may occur
- pure breeding:** A group of identical individuals that always produce offspring of the same phenotype when interbred / are homozygous individuals e.g. either BB or bb / homozygous for a trait
- recessive:** this is the allele which is only expressed if there are two such alleles e.g. b
- reduction division:** another name for meiosis
- ribose:** a sugar group that alternates with the phosphate group in the DNA backbone
- semi conservative:** each double-stranded DNA molecule is composed of one parental strand and one newly made strand
- sexual reproduction:** reproduction involving two parents, where the offspring has some features inherited from each
- somatic:** somatic cells are body cells
- symbols:** use of capital letter for the dominant gene and the same small letter for the recessive gene, e.g. R for round pea and r for wrinkled pea, where round is dominant
- template:** pattern
- trait:** another word for characteristics, e.g. brown hair is an example
- triplet code:** genetic code made by sequences of three bases in the DNA e.g. AAA, GCT, CAT etc
- variation:** the differences among parents and their offspring or among individuals in a population
- zygote:** cell formed when a sperm cell fuses with an egg cell