

Glossary

allele - another form of a gene. Alleles come in pairs and are located at specific positions on chromosomes. An organism has two alleles for each trait. For example, in Mendel's pea experiments, seed shape for pea plants can be expressed in two forms: one allele for round shape (R) and one for wrinkled shape (r).

biological evolution - descent with modification through genetic inheritance, and not simply change over time.

bottleneck effect - occurs if an event takes place that drastically reduces population size. The surviving group is unlikely to have the same genetic makeup as the original population.

founder effect - occurs when members of an original population form a new colony and reproduce among themselves. This could happen if a small number of individuals colonized a new environment, such as an island. The new colony is a non-random sample of genes from the original population and may have reduced genetic variation. New selective pressures, as well as changes in the gene pool of the new population, could result in speciation.

gene pool - the total collection of genes in a population at any one time.

genetic recombination - when two parents' alleles are shuffled and transmitted to offspring; one of the mechanisms leading to variation.

genotype - an organism's genetic composition or genetic makeup.

heterozygote - carrying two different alleles for any particular characteristic.

homozygote - carrying two identical alleles for any particular characteristic.

mutation - a random occurrence that is the basis for genetic variation between individuals; without mutations, evolution by means of natural selection could not take place. Often, mutations occur but disappear when the organism does not produce offspring or does not pass the mutation on to its offspring. Hereditary or germline mutations are caused by an error in the DNA of cells that produce eggs and sperm - they are passed from parent to offspring. Most mutations are neutral; others can be helpful or harmful, depending on the environment.

natural immunity - an inherited ability to remain resistant to or unaffected by a specific disease.

natural selection - the process by which evolution occurs. Organisms with traits that are favourable for survival in a given environment live and may pass on their genes to the next generation. Selection can only work on genetic variation that is already present.

phenotype - the observable characteristics of an organism.

population - a group of individuals of the same species living in the same place at the same time. It is the smallest unit that can evolve.

speciation - the evolutionary process which results in a new species. This significant genetic change in a population is often the result of a major change in a population's environment.

species - a group of individuals that are capable of interbreeding and producing fertile offspring.