

Definitions and Concepts for WJEC (Wales) Biology GCSE

Topic 2.4: Variation and Evolution

*Definitions in **bold** are for higher tier only*

*Definitions marked by '**' are for separate sciences only*

Antibiotic - A type of medication that helps cure bacterial disease by killing infective bacteria inside the body.

Antibiotic resistance - The ability of a bacteria to become resistant to the treatment that is being used to kill it, i.e. antibiotics. This provides evidence for evolution.

Asexual reproduction - A form of reproduction that only involves a single parent and creates genetically identical offspring.

Clone - A organism that is genetically identical to another and is usually produced by asexual reproduction.

Competition - When different organisms compete for the same resources (e.g. food, shelter and mates) in an ecosystem. It limits population size.

Continuous variation - **Variation that can take any value between two extremes, e.g. height or weight.**

Cystic fibrosis - A genetic disorder caused by homozygous recessive alleles which causes mucus build up in the lungs.

Discontinuous variation - **Variation that can only take discrete values, e.g. eye colour.**

Environmental variation - Variation in an organism's phenotype due to environmental factors e.g. climate.

Evolution - A gradual change in the population's inherited characteristics over time, by the process of natural selection. This may result in the formation of a new species.

Extinction - The death of all members of a species. Organisms can become extinct if the process of natural selection is too slow, so the organisms cannot adapt to new environmental conditions. †

Gamete - Sex cells (sperm and egg cells) with half the usual number of chromosomes. They are involved in reproduction.

This work by [PMT Education](https://www.pmt.education) is licensed under [CC BY-NC-ND 4.0](https://creativecommons.org/licenses/by-nc-nd/4.0/)



Gene - A section of DNA that codes for a specific amino acid sequence which is polymerised to make a specific protein.

Gene therapy - Techniques which are used to correct the defective allele (usually disease causing) in DNA.

Genetic variation - The variation in the genes of a species.

Genome - The entire genetic material of an organism.

Heritable variation - Variation in an organism's phenotype due to genetics because of a variation in alleles.

Meiosis - A form of cell division that produces gametes. They are not genetically identical and contain half the number of chromosomes.

Mutation - A random change in DNA which increases variation. They may have a neutral, beneficial or damaging effect on the phenotype.

Natural selection - The process by which advantageous alleles are passed down to offspring over many generations, increasing the allele frequency. These alleles give rise to phenotypes best suited to the environment.

Pesticide - A type of chemical that helps control pests by killing them.

Pesticide resistance - The ability of a pest to become resistant to the treatment that is being used to kill it, i.e. pesticide. This provides evidence for evolution.

Predator - A consumer that preys on and eats other animals.

Prey - A consumer that is eaten by a predator.

Sexual reproduction - Reproduction that involves the fusion of male and female gametes. This method of reproduction produces genetic variation as the offspring are genetically different from the parents.

Variation - The differences between individuals of the same species, due to genetics and the environment.

✦ Definition taken from: [WJEC \(Wales\) GCSE in BIOLOGY Specification V.2 January 2019](#)

