

Definition: Genetics



*Are you a Biology student? Then you probably have heard of the word **Genetics**. And if you haven't yet, read further to find out what **Genetics** is all about.*

Generally, organisms reproduce their kinds (Species, offspring or progeny) and never a different species. Thus, there exists a close relationship between parents and their offsprings.

The study of the similarities and differences or variations between parents and progeny or offsprings is termed **Inheritance or heredity**. And the science of heredity is known as **Genetics**.

What is genetics?

Genetics is the study of heredity. Heredity is a biological process whereby a parent passes certain genes onto their children or offspring. Every child inherits genes from both of their biological parents and these genes, in turn, express specific traits.^[1]

In other words, Genetics is a branch of biology concerned with the study of genes, genetic variation, and heredity in organisms.^[2]

The similarities between parents and offsprings suggest that some internal substances or factors are transported from parents to progeny in the gametes during reproduction. These factors are known as genes.

What is a Gene?

A gene is an internal factor which determines, control or influences the physical, morphological or physiological characters of all living organisms. Hence, genes are a unit of heredity in organisms and are usually carried in chromosomes(heredity vehicles).

Genome

A genome is the sum total of genes carried on chromosomes and controls all traits in an organism. Variations exist between parents and offsprings and these variations can either be continuous or discontinuous.

A continuous variation (height, weight, length, etc) usually presents intermediate individuals and is influenced by environmental factors. That is, a continuous variation is caused by the influence of the environment on genes.

On the other hand, a discontinuous (the sex of an individual) variation doesn't present any intermediate individuals. This type of genetic variation is only due to the influence of genes and are transmitted via successive generations.

The reason for studying this science

Genetics as a science seeks to know:

- The nature of genes (genetic material)
- How genes are transmitted from parents to offsprings through successive generations.
- How genes work. That is, the influence they have on the traits of an organism.