

Difference Between Lamarckism and Darwinism

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Key Difference - Lamarckism vs Darwinism

Evolution is defined as the heritable changes occurring in a population over a particular time period. Through the course of time, different theories have been put forward to explain the evolutionary mechanisms of organisms. Lamarckism and Darwinism are two such theories put forward. **Lamarckism is based on the theory of use and disuse and believes that the characteristics acquired can be passed on to the offspring while Darwinism believes in the theory of natural selection and survival of the fittest.** This is the **key difference** between Lamarckism and Darwinism.

What is Lamarckism?

Lamarckism is a concept introduced by French biologist Jean-Baptiste Lamarck (1744–1829). He brought forward the concept that an organism can pass on characteristics acquired during its lifetime to its offspring. This concept is also referred to as the soft inheritance or heritability of acquired characteristics.

Lamarck incorporated two ideas into his theory of evolution which is Lamarckism;

- The theory of use and disuse – Individuals lose characteristics they do not require (or use) and develop characteristics that are useful.
- The theory of Inheritance of acquired traits – Individuals inherit the traits of their ancestors

The most common example of Lamarckism was expressed in terms of giraffes having long necks. According to Lamarck, Giraffes stretching their necks to reach leaves high in trees result in strengthening and lengthening of their necks as shown in figure 01, which proved the theory of use and disuse. These giraffes had offspring with slightly longer necks. This proved the theory of soft inheritance. Lamarckism also disapproves the phenomenon of extinction. He stated that all organisms adapt in some way or the other and results in forming a new species. This also supported his theory of use and disuse.



Figure 01: Long neck of Giraffes explaining Lamarckism

But this hypothesis could not be applied for all traits, and thus Lamarckism was considered one factor for the theory of evolution. Later it was suggested that these could be due to epigenetic factors.

What is Darwinism?

Darwinism is a theory put forward by Charles Darwin. He stated that the origination and development of an organism belonging to a specific species occur through a process known as natural selection. Favorable and unfavorable variations, as an example - mutations, inherited by the organism led the organism to be naturally selected or eliminated. Favorable variations increase the chance of survival which increases the ability to compete for natural resources, survival, and reproduction.

Darwinism or Darwin's theory of evolution states that a species is created through the interbreeding of organisms belonging to a specific population will develop into a fertile offspring. The offspring are decedents of previous generations with different genetic modifications.

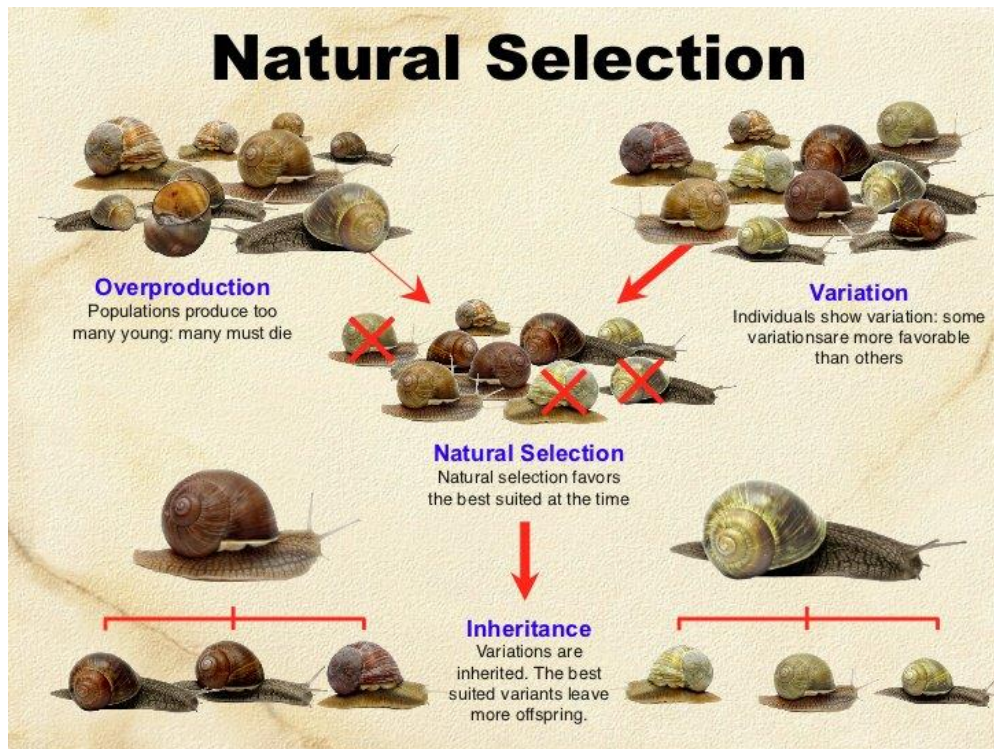


Figure 02: Darwinism – Natural Selection

This evolution of species is explained by the theory of natural selection. In the theory of natural selection, the rate of origination of organisms is greater than the rate of survival due to the limitation of natural resources. This creates a competition for natural resources including food, oxygen, and habitats. The inter-species and intra-species struggle for existence and competition for natural resources occur in the environment.

The organisms present within a population consists of different genetic traits which are heritable. When they interbreed, a fertile offspring is developed with a modified genetic composition. These genetic variants can be either advantageous or disadvantageous in the process of natural selection. The organisms with advantageous variants allow the organisms to compete for natural resources successfully which adapt them to survive and reproduce under the same environmental conditions than other species. These better-adapted organisms reproduce successfully and pass such traits onto the next generation. Therefore these species get naturally selected to retain in the environment. Other species with less adaptability get extinct from the environment.

What is the Similarity Between Lamarckism and Darwinism?

- Both are concepts for the theory of evolution

What is the Difference Between Lamarckism and Darwinism?

Lamarckism vs Darwinism	
Lamarckism is the concept that an organism can pass on characteristics acquired during its lifetime to its offspring.	Darwinism is a theory that states the origination and development of an organism belonging to a specific species occur through a process known as natural selection.
Invented by	
Lamarckism is invented by Jean-Baptiste Lamarck.	Darwinism is invented by Charles Darwin.
Development of an organism	
Development of an organism occurs due to the theory of use and disuse according to the Lamarckism.	Development of an organism occurs due to continuous variation according to the Darwinism.
Theory of the survival of the fittest	
Lamarckism is not based on the theory of the survival of the fittest.	Darwinism is based on the theory of the survival of the fittest.

Summary - Lamarckism vs Darwinism

Historians and biologists analyze theories which support evolution. It is important in order to assess the developmental patterns of different organisms. Lamarckism and Darwinism are two such theories which were put forward. Lamarckism focuses more on the theory of use and disuse, where it believes that the characteristics acquired during a lifetime can be passed on to the new generation. Darwinism disapproved this idea and changed it to the theory of natural selection and survival of the fittest. Thus Lamarckism was involved in developing Darwin's theories. This is the difference between Lamarckism and Darwinism.

Reference:

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- 2.'Natural selection'By orientation ([CC BY-SA 4.0](#)) via [Commons Wikimedia](#)

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