

Darwin Vs. Lamarck

Name _____
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A theory is a well-tested explanation that unifies a broad range of observations. The theory of evolution emerges from different lines of evidence, such as fossil records, modification by descent, and the evidence from biogeography, genetics and other forms of evidence. Jean-Baptiste Lamarck (1744-1829) and Charles Darwin (1809-1882) had different theories about how life on earth got to be the way it is now.

Jean-Baptiste Lamarck (1744-1829)

Lamarck was a French biologist who is best known for his Theory of Inheritance of Acquired Characteristics, first presented in 1801.

He believed that evolution was the “acquired traits” of a species that is inherited by its offspring. His theory was that if an organism continually used a structure to carry out a certain task, the structure used would become physically modified over time to make the task easier. This modified structure would then be passed on to any offspring. For example, if a short-nosed elephant was continually stretching out its trunk to try to reach the leaves high up in trees, its trunk would stretch and become longer over time, and any babies that it had would be born with longer trunks.



Lamarck also believed that when body parts were not being used, such as the human appendix, they gradually disappear. Eventually, people will be born without these parts. Lamarck believed that evolution happens according to a prearranged plan and that the results have already been decided.

Charles Darwin (1809 -1882)

Charles Darwin is famous for the theory of evolution and Natural Selection, or ‘Survival of the Fittest’. He dedicated his life to studying plants and animals and believed that the desires of animals have nothing to do with how they evolve. He said that organisms, even of the same species, are different in some ways, and over time those creatures which are adaptable, survive, while those that do not adapt to changing conditions, such as climatic and environmental change, do not live to breed and pass on their genes. He came to the conclusion that there was a variation of physical and behavioural features within a species. Organisms which had features that helped them to adapt to their environment and circumstances had a better chance of survival than individuals who lacked these features. These adaptable organisms survived to breed and produce offspring which generally inherited the ‘successful’ features of their parents. He called this process ‘natural selection’.



Most elephants used to have short trunks, but some had longer trunks.

When there was no food or water that they could reach with their short trunks, the ones with short trunks died off, and the ones with long trunks survived and reproduced. Eventually, all of the elephants had long trunks. Darwin also believed that evolution does not happen according to any sort of plan.

Darwin knew that organisms evolved and changed from generation to generation, but did not know how traits were passed on from one generation to another. Only after more was understood about genetics, was this explained. Darwin also suggested that each species evolves over time and adapts to the environment in which they live. Thus, the same species living in different environments will evolve differently and become more and more differentiated (different) over time. He believed that all species of life on Earth are interrelated and have a common ancestor.



Biology



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1. Define theory.
2. What is the theory of evolution?
3. Explain Lamarck's Theory of Inheritance of Acquired Characteristics.
4. What did Lamarck believe would happen to body parts that were not being used?
5. What were Lamarck's beliefs on evolution?
6. What did Charles Darwin study?
7. What did Darwin believe happened to organisms that do not adapt to changing conditions, such as climatic and environmental change?
8. Describe natural selection according to Darwin's theory.
9. What are the main differences between Lamarck and Darwin's theories of evolution?
10. Which one is now the most accepted version of the Theory of Evolution?



Biology

