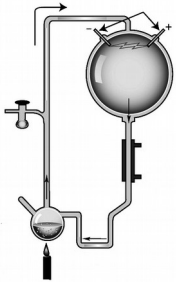


8. THE PATHS TRAVERSED BY LIFE

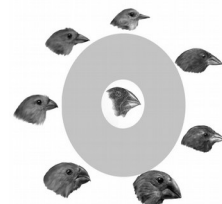
1. The hypotheses or theories that are related to the origin of life in earth ?
Theory of Chemical evolution and the Panspermia theory.
2. What were the ideas proposed by A.I. Oparin and J.B.S. Haldane on the origin of life on the earth ?
[Describe the theory of chemical evolution on the origin of life]
Theory of chemical evolution states that, life originated as a result of the changes that occurred in the chemical substances in seawater, under specific conditions in primitive earth, where free oxygen was absent.
3. The process of formation of primitive cell in primitive ocean. (Major events in the evolving of organic molecules) :
- Earth forms
- formation of primitive gases (eg:-methane, ammonia, H₂, nitrogen, CO₂, H₂S, water vapour.)
- condensation of water vapour to form rain
- formation of primitive ocean
- formation of simple organic molecules (eg:- monosaccharides, amino acids, fatty acids, nitrogen bases)
- formation of complex organic molecules (eg:- polysaccharides, proteins, nucleotides, lipids)
- formation of **primitive cell** from nucleic acids and lipids.
4. What were the possible sources of energy for chemical evolution in the primitive earth ?
Thunder and lightning, Ultra violet radiations and volcanic eruptions.
5. According to Oparin and Haldane hypotheses, life evolved in----- as a result of chemical reactions of inorganic molecules, for millions of years, after the origin of earth.
Oceans
6. The scientists who gave support to the theory of chemical evolution ?
Stanley Miller and Harold Urey.

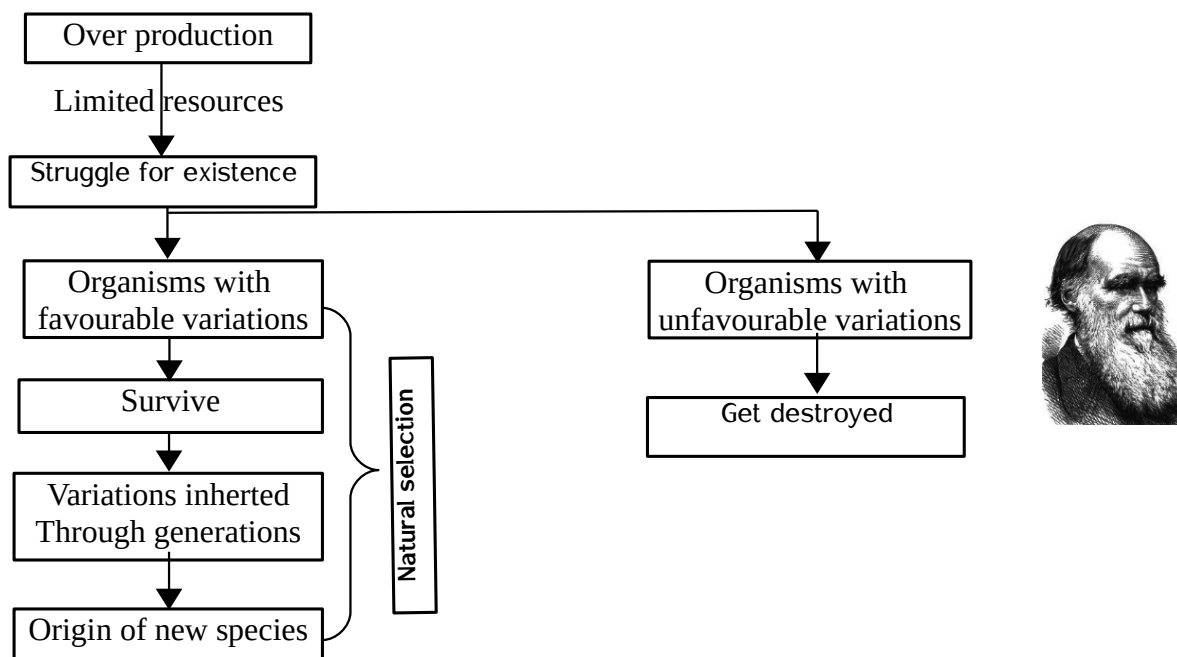
For **SSLC 2021**



They re-created an experimental set up, in which the glass flask as the primitive atmosphere that contained methane, ammonia and water vapour. Instead of lightning or other energy sources, they passed high voltage electricity through the gaseous mixture. They condensed this gaseous mixture to water, that was considered as the *primitive ocean*. Organic molecules like amino acids were found in this.

7. Oparin : Haldane, Stanley Miller : ----- ? Ans: Harold Urey.
8. The organic substances synthesized through Urey-Miller experiment ?
Amino acids.
9. The important theories related to organic evolution. Name the proponent of each theory.
 - * Theory of inheritance of acquired characters by J.B. Lamarck .
 - * Theory of natural selection by Charles Robert Darwin.
 - * Neodarwinism (eg:-Theory of mutation by Hugo deVries)
10. What were the things that influenced Charles Darwin to thought about the importance of nature in the survival or elimination of organisms ?
His studies in Galapagos Islands and the population theory of Robert Malthus.
11. The ship by which Charles Darwin reached Galapagos Islands ?
HMS Beagle.
12. Book published by Charles Darwin with his theory, Natural Selection ?
Origin Of Species by means of Natural Selection.
13. Describe the theory of **Natural Selection** (by Charles Darwin)
When over production of organisms occur, they compete for food, space, mate, and other limited resources (*Struggle for Existence*). In this struggle, only organisms with favourable variations survive in that nature. Over a long period, the favourable variations accumulate, resulting the formation of new species. (Natural selection).





14. Acquired variations : Lamarck,

Favourable variations : ----- ? Ans: Charles Darwin.

15. According to Darwin, what might be the reasons for the peculiarities of the beaks of finches ?

The finches of Darwin's had beaks adapted to their feeding habits. When scarcity of food occurred in each island, only beaks with favourable variations (or adaptations) to that nature might have survived there.

16. The theory of Robert Malthus was also influenced Charles Darwin to thought about the importance of nature in the survival or elimination of organisms. What was Malthus's theory ?

In his theory of population, Robert Malthus pointed out that rate of food production is not proportionate to the growth rate of human population, and when scarcity of food occur, it will lead to diseases, starvation and struggle for existence.



17. What, according to Darwin, is the cause of the struggle for existence ?

Over Production and hence, limited resources.

18. What was the limitation in Darwin's theory ? Who gave sufficient explanations to this ?

Darwin could not explain the reasons for variations in organisms. However, Hugo deVries explained that one of the reasons for variations in organisms is **mutation** (sudden changes that occur in genes).

Class 10 Biology Video lessons links:

Chapter 1 (Part 1): <https://youtu.be/fTAHU3eQBRQ> Chapter 1 (Part 2): <https://youtu.be/TAoOOpCzgRA>

Chapter 1 (Part 3): <https://youtu.be/IQFZ6CBXBmE> Chapter 2 (Part 1): <https://youtu.be/Q14Texfdi9c>

Chapter 2 (Part 2): <https://youtu.be/X5RvWrwrg8U> Chapter 2 (Part 3): <https://youtu.be/377Wct4nVgA>

Chapter 3 (Part 1): <https://youtu.be/ZtbtMBeUFqs> Chapter 3 (Part 2): <https://youtu.be/Mt2aHAjAcPU>

Chapter 3 (Part 3): <https://youtu.be/35TgLaBqHyk> Chapter 4 (Part 1): <https://youtu.be/-qKvdUewTs8>

Chapter 4 (Part 2): <https://youtu.be/0nq8LEbV4fw> Chapter 4 (Part 3): <https://youtu.be/zM3UAvzf1Io>

Chapter 5 (Part 1): <https://youtu.be/bgvdOC8yB48> Chapter 5 (Part 2): <https://youtu.be/Rc3Tw2YGakY>

Chapter 5 (Part 3): <https://youtu.be/a0Uq1zstbXA> Chapter 6 (Part 1): <https://youtu.be/Tu8Ztn9vQWk>

Chapter 6 (Part 2): <https://youtu.be/qivKb8Oc6Aw> Chapter 6 (Part 3): <https://youtu.be/yCWozqsFTo4>

Chapter 7 - Focus Area covered Notes : <https://youtu.be/M6DZjKdkcg4>

Chapter 8 - Focus Area covered Notes : https://youtu.be/p_ND6dAsi8Y

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