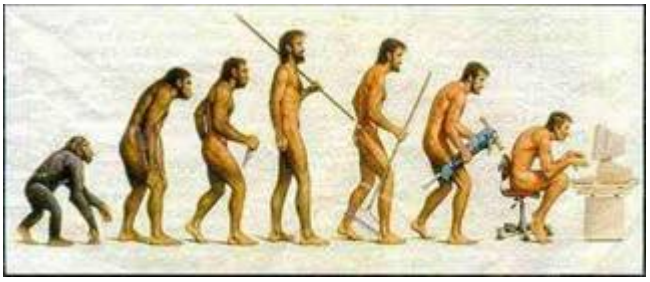
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Origin of Species

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Where do new species come from?



For more than 200 years biologists are finding evidences to prove it. Charles Darwin , in his book named ‘Origin of Species’ explained about natural selection. Mendel’s experiments in the 20th century based on ‘Heredity’, natural selection and other natural mutations cause evolution.

Through a branching pattern of evolution, (the tree of life)the diversity of life arose bycommon descent . Darwin gathered many evidences on his *Beagle* expedition and explained those in his book.

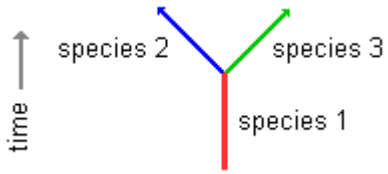
Darwin’s Key facts

- Everyspecies is fertile
- Populations remain roughly the same size in spite of periodic fluctuations.
- Limited and stable resource.
- A struggle for survival.
- Variation between individuals in the population
- Mostlyinheritable variations.
- Individuals properly adapting themselves to the environment would survive and produce off springs. Individuals not adapting themselves can’t survive and can’t even produce off springs.



In the real world, the patterns of evolution can be very complex and changing. Both adaptive radiation and successive speciation can go on simultaneously.

Adaptive Radiation



As groups adapt to various environments, Adaptive radiation is the progressive diversification of a species into two or more species. It is driven by Natural selection. Species separation into distinct breeding populations is the first step. In a time period the gene pools, diverge by mutations and genetic drift. If populations are not same, the environmental also won't be same.

So, finally nature selects for different characters existing within the gene pools of the populations. Here they become separate and followed up in the subsequent generations. For example, birth of Mule on the mating of female horses and male donkeys.

Successive speciation



- Occurs within a single line without the branching.
- Mutations and natural selection occurred as environmental changes.
- The gene pool frequencies of the population get altered.
- Same species will be there in the population at one point.
- They can mate with their distant ancestors
- Producing fertile offspring would be prevented.
- New species would be placed.
- Variation Under Domestication, Variation Under Nature, Struggle For Existence, Natural Selection; Or the Survival of the Fittest, Laws of Variation, Difficulties of the Theory, Miscellaneous Objections to the Theory of Natural Selection, Instinct, Hybridism, On the Imperfection of the Geological Record, On the Geological Succession of Organic Beings, Geographical Distribution, Geographical Distribution Continued, Mutual Affinities of Organic Beings: Morphology: Embryology: Rudimentary Organs, Recapitulation and Conclusion

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