

Marsupial Radiation

- Human hand, Whale's flippers, Bat's wing, and Cheetah's foot.
- Thorns of Bougainvillea and tendrils of Cucurbita.

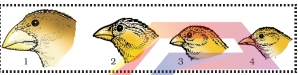
Homologous Organ

Analogous Organ

- Wings of insects and wings of birds.
- Eyes of Octopus and mammals - Flipper of Penguins and Dolphins.
- Sweet potato (modified root) and Potato (modified stem)

Evidences

- By study of fossils
- Fossils help to study phylogeny, connecting link and about extinct animals



Bio Geographical, Adaptive Radiation

Morphological & Anatomical

Paleontological Evidence

Similarities in proteins and genes.

Similarities in embryo development.

Bio-Chemical

Embryological

Placental Mammals

E.g. Placental wolf and Tasmanian wolf-marsupial.

Evolution

Lamarckism

Proposed by Lamarck.
- E.g. Long neck of giraffe.

Theories of Biological Evidences

Proposed by Charles Darwin as Theory of Natural Selection

Darwinism

Human Evolution

Theories

Hardy Weinberg

Mechanism

Origin of Life- Urey and Miller's Experiment

Theory of Panspermia

Theory of Biogenesis

Theory of Spontaneous Generation

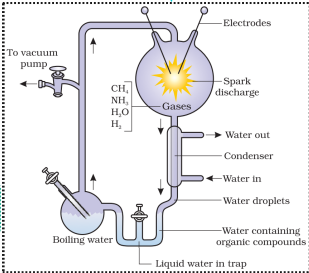
Theory of Chemical Evolution

Factors affecting

Saltation by De Vries

Single Step Mutation

Proposed by Lamarck.
- E.g. Long neck of giraffe.



Human ancestors	Origin period
Dryopithecus	20-25 mya
Ramapithecus	14-15 mya
Australopithecus	3-4 mya
Homo habilis	2 mya
Homo erectus (java man)	1.5 mya
Homo sapiens neanderthalensis (primitive man)	1,00,000-40,000 years ago
Homo sapiens sapiens (modern man)	75,000-10,000 years ago

- Gene Migration
- Genetic drift
- Mutation
- Genetic recombination
- Natural Selection