Theory of evolution

creationists
religion vs. scientific theory
Charles Darwin
Alfred Wallace
Georges Louis Leclerc, Comte de Buffon,
Erasmus Darwin
Jean Baptiste, Chevalier de Lamarck.
inheritance of acquired characteristics/ "use-disuse" theory
George Cuvier
theory of catastrophism.
Charles Lyell
uniformitarianism
Charles Darwin, naturalist, British Navy's H.M.S. Beagle mapping expedition (1831-1836).
Galapagos Islands finches
adaptive radiation
"descent with modification".
Thomas Malthus, 1798
peppered moths
On the Origin of Species, 1859.
The proof of the theory of evolution can be stated as 3 observations and 2 deductions:

1. Fact 1. There is a natural tendency for organisms to increase in number geometrically. Prefacing this:
   reproduction must occur (must reproduce).
2. Fact 2. Despite this tendency to geometrically increase, the number of a given species remains constant.
3. Deduction 1. In order to exist, there is competition for survival through reproduction and greater fertility.
   "Struggle for existence"
4. Fact 3. Individual members of a population vary in the characters they possess.
5. Deduction 2. Since there is a struggle for existence and since individuals are not all alike, some variation will
   be advantageous while other kinds of variation are unfavorable in the struggle. In other words, certain
   individuals, because of the traits they possess, are more successful in reproducing and surviving.

adaptations
an adaptation; any characteristic that allows an organism to live and reproduce in an environment where it probably
could not otherwise exist.

Definition: "Natural selection is a mechanism for evolutionary change favoring the survival and reproduction of some
organisms over others because of their biological characteristics".

opportunistic
orthogenesis
irreversible
orthoselection
extinction

Evidence of Evolution
1. fossil record of change in earlier species
2. chemical and structural similarities of related life forms
3. recorded genetic changes in living organisms over many generations
4. geographic distribution of related species

Punctuated Equilibrium
Stephen Jay Gould and Niles Eldredge