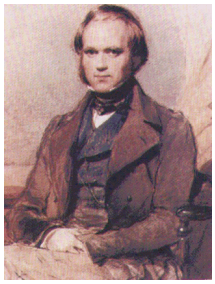
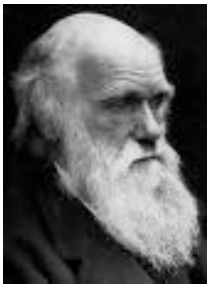
A Summary of Charles Darwin's Theory of Natural Selection



a young Darwin

an older Darwin



Darwin's Observations of Natural Selection – Darwin's explanation of how plants and animals changed was based on his theory of natural selection. Natural selection makes use of the following ideas:

Overproduction - All plants and animals produce far more offspring than can actually survive. This generalization has become known as the principle of mass production. For example, a single salmon produces 28,000,000 eggs in a season, starfish produce about 1 million eggs per season, and frogs produce about 20,000 eggs annually. But only a small number of offspring survive to adulthood.

Struggle for existence - Because of the large number of offspring starting out, there is a struggle for existence - for food, for space, for water. The offspring of any species must compete with others for the necessities of life. Many die in the struggle. A plant or animal must survive many dangers to live long enough to reproduce. Those organisms that have serious hereditary weaknesses die with them.

Variation - The members of a species vary somewhat. No two individuals are exactly alike. Even peas in a pod vary. The only individuals that are actually alike are identical twins. Differences among members of a species are variations. Some variations are helpful for survival, some are harmful, and some are neutral. Variations in desert plants that improve their ability to retain water are helpful. Longer necks help giraffes reach higher on trees for food. A larger brain enabled early man to devise animal traps and crude tools.

Survival of the fittest - The organisms best fit to their environment will tend to survive. Hereditary variations may provide advantages in the struggle for existence. Naturally, the survivors pass on such hereditary variations to their offspring. Organisms possessing disadvantageous variations do not live long enough to reproduce and so do not pass on unfavorable variations. Such organisms die or are killed by their enemies, and the variations die with them. The most fit survive and pass on their heredity to their offspring. In this way, the population of the species becomes modified.