

Charles Robert Darwin

Charles Robert Darwin (February 12, 1809-April 19, 1882) was an English naturalist who revolutionized scientific thought with the theory of evolution and natural selection. Evolution is a process in which the gene pool of a population gradually (over millions of years) changes in response to environmental pressures, natural selection, and genetic mutations. All forms of life developed by this process.

After studying at Cambridge University, Darwin served as naturalist on the ship *HMS Beagle* (captained by Robert Fitzroy) during its five-year voyage around the world traveling west (December 27, 1831-October 2, 1836). On this trip, Darwin studied a tremendous variety of plant and animal life.

In the Galapagos Islands (a series of isolated atolls located far off the coast of Ecuador, South America), Darwin observed many organisms, including finches (birds) and tortoises. Darwin noticed that the physical characteristics of the animals and plants varied noticeably from island to island. Since the finches (and other organisms) were probably descended from a common ancestor who made it to the islands, Darwin reasoned that different physical characteristics from island to island came about after years of natural selection.

Natural selection is the process in which some organisms live and reproduce and others die before reproducing. Some life forms survive and reproduce because they are better suited to environmental pressures, ensuring that their genes are perpetuated in the gene pool. For example, the environmental pressures (like weather conditions, food availability, and the number and type of competitors) in an area cause some organisms to thrive and cause others to die. For example, if finches naturally have a beak length that varies slightly, and a population of finches migrates to an island that favors those finches with extra-long beaks to get food, the finches with longer beaks will survive and reproduce at a greater rate than those finches with shorter beaks. After an extended period of time, the genes for short bills may no longer be in the gene pool, and the physical appearance of the population of finches would now appear different than the original population. Darwin noticed 13 different types of finches in the Galapagos Islands.

Darwin's book called "On the Origin of the Species by Means of Natural Selection, or the Preservation of Favored Races in the Struggle of Life" was published on November 24, 1859 (and all 1,250 copies of the book sold out in one day). This world-shaking book outlined the gradual change in a species from generation to generation through natural selection. Alfred Lord Wallace independently proposed the theory of evolution at the same time as Darwin (Wallace and Darwin wrote a joint paper on evolution in 1858). In 1871, Darwin published "The Descent of Man," which focused on the origins of people.

Darwin's theory of evolution has been debated since it was proposed, but most scientists accept evolution and natural selection as the method of species formation.

Name _____ Date _____ Period _____

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Word Bank:

plant evolution debated book	gradual Beagle University naturalist	studied voyage 1859 Man
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