

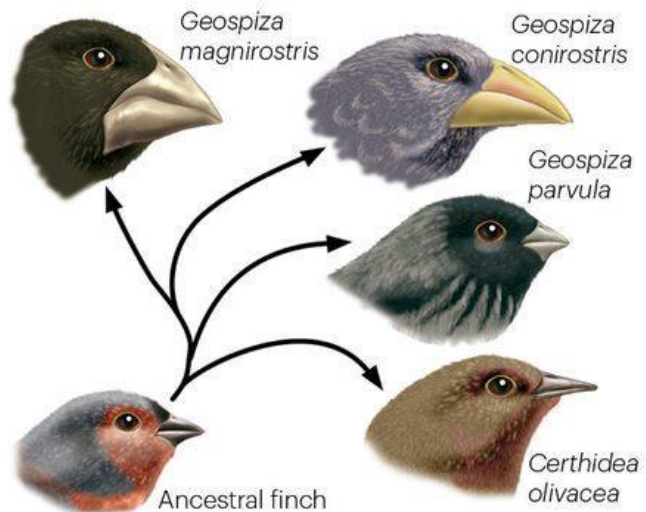
## Science V12/S4 - Natural Selection

We know that the animals we see today are different from the animals that existed millions of years ago. Life has changed over the history of Earth; some life goes extinct, but others are able to survive, especially if they are better adapted to thrive in their environment.



If an animal is born with a trait that gives it an advantage over other individuals, it will be more successful at having offspring. Organisms with this helpful trait will become more prominent while other organisms of the same species die out. When this happens, evolutionary scientists say that that animal is “selected” for having that trait. Its offspring and succeeding generations will inherit that trait, spreading it throughout the population. This is what scientists refer to today as natural selection. The term “natural selection” was coined by Charles Darwin, who is credited as developing the scientific theory of evolution.

Charles Darwin was a naturalist that accompanied a voyage to the Galapagos Islands in 1835 on a ship called The Beagle. There, he saw many unique species that led to his development of the theory of evolution. One interesting case study is that of the Galápagos finches, about 14 species of bird that were studied by Darwin. Although the birds look very much alike, there is a significant difference among them in the size and shape of their beaks. Every different beak evolved the way it did as to be suited to a particular feeding task. For



example, when the island is experiencing a drought, vegetation will wither, and the only seeds left are large and tough. The finches with larger, stronger beaks can crack through these seeds, and many more of them survive than their smaller-beaked counterparts. However, during an especially rainy time, smaller, softer seeds flourish, and the birds best adapted to eat them have smaller beaks, meaning they fare much better.

Another example of natural selection is the peppered moth. The peppered moth found in England was light in color and had speckled wings. Initially, it was lighter in color, which helped it blend into the trees and buildings and camouflage itself easily. However, during the Industrial

Revolution of the early 19th century, London became polluted, and the smog and smoke turned everything black. Now the light-colored moths could be seen more easily by predators. Around this time, dark-colored peppered moths, which are almost invisible against a dark background, began to appear and soon became widespread. The lighter moths, on the other hand, became scarce in these sooty industrial areas.



As our Earth continues its cycles, different traits will be more or less advantageous as the temperature and rainfall changes, and some species will find themselves better adapted to survive those shifts. Humans may also play a role in shaping future changes as we continue to have an impact on the environment through development and pollution. Though an uncountable number of species that have roamed the earth have become extinct, the planet has seen many others adapt and thrive.