

# The Unity and Diversity of Biological Evolution | Science

July 9, 2015 thetasctest

Have you ever wondered how living things are connected? How humans are related to other living organisms? **Living things are united by a common ancestor.** Over time, organisms have diversified to meet the specific demands of changing environments. This is proof of evolution.

Theodosius Dobzhansky, one of the founders of modern evolutionary theory once said, "Nothing in biology makes sense except in the light of evolution." To understand Dobzhansky's statement, we will look at how unity and diversity relate to biological evolution in preparation for the TASC Test Assessing Secondary Completion™ Science subtest.

## The Diversity of Life

So far, biologists have identified and named about 1.8 million species. According to [The Campbell Book](#), this diversity of life is known to include at least 6,300 species of prokaryotes (organisms with prokaryotic cells), 100 thousand fungi, 290 thousand plants, 52 thousand vertebrates (animals with backbones), and 1 million insects (more than half of all known forms of life). Identifying thousands of additional species each year, estimates of the total number of species range from about 10 million to over 100 million. Regardless of the actual number, the enormous variety of life gives biology a very broad scope. This [vast diversity](#) can become a challenge to make sense of.

## Unity in the Diversity of Life

As diverse as life is, it also displays remarkable unity. There are genetic similarities within the DNA of organisms as different as bacteria and animals. Unity is also evident in many features of cell structure.

Common ancestry means that all living things past, present, and future share an ancestor, and all descended from that one individual. Scientists believe that the most recent common ancestor to all existing life forms lived about 3.9 billion years ago. This ancestor gave rise to the three domains of life—Eukarya, Bacteria, and Archaea—and all the organisms that comprise those domains.