

## CHAPTER 4 VOCABULARY - Biodiversity and Evolution

MILLER LITE, 17<sup>th</sup> EDITION

<b>adaptation</b>	Any genetically controlled structural, physiological, or behavioral characteristic that helps an organism survive and reproduce under a given set of environmental conditions. It usually results from a beneficial mutation. See biological evolution, differential reproduction, mutation, natural selection.
<b>adaptive trait</b>	See adaptation.
<b>alien species</b>	See nonnative species.
<b>artificial selection</b>	Process by which humans select one or more desirable genetic traits in the population of a plant or animal species and then use selective breeding to produce populations containing many individuals with the desired traits. Compare genetic engineering, natural selection.
<b>background extinction rate</b>	Normal extinction of various species as a result of changes in local environmental conditions. Compare mass extinction.
<b>biodiversity</b>	Variety of different species (species diversity), genetic variability among individuals within each species (genetic diversity), variety of ecosystems (ecological diversity), and functions such as energy flow and matter cycling needed for the survival of species and biological communities (functional diversity).
<b>biological diversity</b>	See biodiversity.
<b>biological evolution</b>	Change in the genetic makeup of a population of a species in successive generations. If continued long enough, it can lead to the formation of a new species. Note that populations, not individuals, evolve. See also adaptation, differential reproduction, natural selection, theory of evolution.
<b>biome</b>	Terrestrial regions inhabited by certain types of life, especially vegetation. Examples include various types of deserts, grasslands, and forests.
<b>differential reproduction</b>	Phenomenon in which individuals with adaptive genetic traits produce more living offspring than do individuals without such traits. See natural selection.
<b>disturbance</b>	An event that disrupts an ecosystem or community. Examples of natural disturbances include fires, hurricanes, tornadoes, droughts, and floods. Examples of human-caused disturbances include deforestation, overgrazing, and plowing.
<b>ecological diversity</b>	The variety of forests, deserts, grasslands, oceans, streams, lakes, and other biological communities interacting with one another and with their nonliving environment. See biodiversity. Compare functional diversity, genetic diversity, species diversity.
<b>ecological niche</b>	Total way of life or role of a species in an ecosystem. It includes all physical, chemical, and biological conditions that a species needs to live and reproduce in an ecosystem. See fundamental niche, realized niche.
<b>endemic species</b>	Species that is found in only one area. Such species are especially vulnerable to extinction.
<b>evolution</b>	See biological evolution.
<b>extinction</b>	See biological extinction.
<b>fossils</b>	Skeletons, bones, shells, body parts, leaves, seeds, or impressions of such items that provide recognizable evidence of organisms that lived long ago.
<b>foundation species</b>	Species that plays a major role in shaping a community by creating and enhancing a habitat that benefits other species. Compare indicator species, keystone species, native species, nonnative species.
<b>functional diversity</b>	Biological and chemical processes or functions such as energy flow and matter cycling needed for the survival of species and biological communities. See biodiversity, ecological diversity, genetic diversity, species diversity.
<b>gene mutation</b>	See mutation.

<b>gene pool</b>	Sum total of all genes found in the individuals of the population of a particular species.
<b>gene splicing</b>	See genetic engineering.
<b>generalist species</b>	Species with a broad ecological niche. They can live in many different places, eat a variety of foods, and tolerate a wide range of environmental conditions. Examples include flies, cockroaches, mice, rats, and humans. Compare specialist species.
<b>genes</b>	Coded units of information about specific traits that are passed from parents to offspring during reproduction. They consist of segments of DNA molecules found in chromosomes.
<b>genetic adaptation</b>	Changes in the genetic makeup of organisms of a species that allow the species to reproduce and gain a competitive advantage under changed environmental conditions. See differential reproduction, evolution, mutation, natural selection.
<b>genetic diversity</b>	Variability in the genetic makeup among individuals within a single species. See biodiversity. Compare ecological diversity, functional diversity, species diversity.
<b>genetic engineering</b>	Insertion of an alien gene into an organism to give it a beneficial genetic trait. Compare artificial selection, natural selection.
<b>geographic isolation</b>	Separation of populations of a species into different areas for long periods of time.
<b>habitat</b>	Place or type of place where an organism or population of organisms lives. Compare ecological niche.
<b>indicator species</b>	Species whose decline serves as early warnings that a community or ecosystem is being degraded. Compare foundation species, keystone species, native species, nonnative species.
<b>invertebrates</b>	Animals that have no backbones. Compare vertebrates.
<b>keystone species</b>	Species that play roles affecting many other organisms in an ecosystem. Compare foundation species, indicator species, native species, nonnative species.
<b>mass extinction</b>	Catastrophic, widespread, often global event in which major groups of species are wiped out over a short time compared with normal (background) extinctions. Compare background extinction.
<b>mutation</b>	Random change in DNA molecules making up genes that can alter anatomy, physiology, or behavior in offspring. See mutagen.
<b>native species</b>	Species that normally live and thrive in a particular ecosystem. Compare foundation species, indicator species, keystone species, nonnative species.
<b>natural rate of extinction</b>	See background extinction.
<b>natural selection</b>	Process by which a particular beneficial gene (or set of genes) is reproduced in succeeding generations more than other genes. The result of natural selection is a population that contains a greater proportion of organisms better adapted to certain environmental conditions. See adaptation, biological evolution, differential reproduction, mutation.
<b>niche</b>	See ecological niche.
<b>nonnative species</b>	Species that migrate into an ecosystem or are deliberately or accidentally introduced into an ecosystem by humans. Compare native species.
<b>reproductive isolation</b>	Long-term geographic separation of members of a particular sexually reproducing species.
<b>specialist species</b>	Species with a narrow ecological niche. They may be able to live in only one type of habitat, tolerate only a narrow range of climatic and other environmental conditions, or use only one type or a few types of food. Compare generalist species.
<b>speciation</b>	Formation of two species from one species because of divergent natural selection in response to changes in environmental conditions; usually takes thousands of years. Compare extinction.
<b>species</b>	Group of similar organisms, and for sexually reproducing organisms, they are a set of individuals that can mate and produce fertile offspring. Every organism is a member of a certain species.

<b>species diversity</b>	Number of different species (species richness) combined with the relative abundance of individuals within each of those species (species evenness) in a given area. See biodiversity, species evenness, species richness. Compare ecological diversity, genetic diversity.
<b>species equilibrium model</b>	See theory of island biogeography.
<b>species evenness</b>	Degree to which comparative numbers of individuals of each of the species present in a community are similar. See species diversity. Compare species richness.
<b>species richness</b>	Variety of species, measured by the number of different species contained in a community. See species diversity. Compare species evenness.
<b>theory of evolution</b>	Widely accepted scientific idea that all life forms developed from earlier life forms. It is the way most biologists explain how life has changed over the past 3.6–3.8 billion years and why it is so diverse today.
<b>theory of island biogeography</b>	Widely accepted scientific theory holding that the number of different species (species richness) found on an island is determined by the interactions of two factors: the rate at which new species immigrate to the island and the rate at which species become extinct, or cease to exist, on the island. See species richness.