Brandt

Biology 30

**Key Concepts of Evolution**

Evolution is the change in a population of organisms over time. All living things evolve. Evolution doesn’t just happen (pokemon-style), it is the end result of three underlying concepts.

1. **Natural Selection: “survival of the fittest”** – the organisms that are most **fit** for their environment have a better chance to survive to adulthood and produce more offspring with their desirable traits for the next generation. Organisms less fit may not survive or reproduce, therefore less desirable traits will disappear from a population over time.

NOTE: Fitness in this definition does not mean strength or cardiovascular endurance, it is used to denote genetic characteristics such as size, height, coloration ext.

1. **Genetic Drift**: In each generation, some individuals may, just by chance, leave behind a few more descendants (and genes, of course!) than other individuals. The genes of the next generation will be the genes of the "lucky" individuals, not necessarily the healthier or "better" individuals.
2. **Mutation**: is a random change in an organisms DNA, the hereditary material of life. An organism's DNA affects how it looks, how it behaves, and its physiology. Mutations can be beneficial, neutral, or harmful for the organism, but mutations do not "try" to supply what the organism "needs." In this respect, mutations are random. Usually mutations decrease an organisms chances of survival.

To now refine our definition:

**Evolution** is the result of changes in the gene pool of a population, over time and multiple generations, by such processes as mutation, natural selection, and genetic drift.