Artificial Selection: Animals

Artificial selection is when humans select for desirable traits or purposes in animals and plants. This is also called **selective breeding**. Humans have been using artificial selection for thousands of years. Once these traits are identified, specific male and female parents are selected to sexually reproduce offspring. If the parents have a particular trait, it is more than likely one of the offspring will exhibit this trait as well. The babies with this trait will be used for reproducing the next generation, thus favoring this trait in the grandchildren.

In nature, organisms with strong characteristics that allow them to survive in their environment pass these traits to their offspring generation after generation. Those organisms with weak traits are not able to survive and die off, ultimately eliminating the weaker traits from being passed on. This is **natural selection**.

Artificial selection is similar to natural selection, but in artificial selection, humans select organisms with strong traits and breed them to promote certain traits in the offspring. Humans have been using plants and animals for almost 10,000 years. Historically, they have been using artificial selection by selecting specific plants and animals for specific purposes from the wild and developing them for their own uses. This process is called **domestication**. Although plants have also been domesticated, the information contained here will focus on animals.

Domesticated animals are used for food, clothing, medicine, and work. The most common species domesticated by humans are cows, goats, sheep, pigs, chickens, and dogs. The first use of animals was for food such as meat, eggs, and milk. Hides were used for clothing and shelter. Animals such as horses and oxen were used for plowing and transportation. Dogs were used for hunting and look different from their wild ancestor, gray wolves. Behavioral traits that allowed humans to care for and live with these animals were sought out. Some desirable traits that animals showed were that they were easy to control and could be fed with ease through grazing. These traits would subsequently be passed on to future generations, and the wild behavior in these animals would be forced out while the new domesticated traits would be solidified.

Animals with similar traits are bred to produce offspring with those traits. This is called **inbreeding** and is a way to foster these traits in future generations. For example, think of the different traits dogs might display. Dogs can be herders of livestock, hunters, guards, or carry great loads over distances. Take the Alaskan Malamute as an example whose origin is associated with the Mahlemut people of the Pacific Alaskan coast. These dogs assisted these people by hauling tremendous loads during the winter months, and each relied on the other for their survival. Without these dogs, Mahlemut people would be challenged to survive in the vast Arctic tundra. Some believe that these are the first dogs to develop relationships with humans, and they may be the first breed of dog. In the isolation of these Arctic villages, these dogs were inbred with the same breed through history. The desirable traits in Malamutes are their strength, a willingness and desire to pull, and a large body mass to sustain the energy needed to travel great distances. These traits were necessary for pulling the loads on sleds in Arctic conditions. As dog sledding became more recreational and competitive, speed became more of a desirable trait and smaller and faster dogs such as the Siberian Husky breed were used. Dogs with different traits are called **breeds**.

Some people want to bring the wild back to the northern breed dogs by breeding them with wolves. This is another artificial selection process called **hybridization**. This is when two different species are cross-bred to bring out the best traits of both. In this case, people have tried to maintain the look of the wolf while crossing it with the tamer dog. These dogs are called wolf hybrids. This process of hybridization has not worked out as predicted. Often, these wolf dogs are unpredictable in domesticated situations with humans, and in many cases, they need to be destroyed. In other cases, cross-breeding has worked as in the case of crossing a male horse with a female donkey to create a mule. Mules are healthier and live longer than horses.