

## Artificial Selection and Natural Selection

None of the organisms in these photos are “natural”. People deliberately bred each one for a specific purpose.



People have “invented” many varieties of organisms. This practice is called **artificial selection**. It involves **breeding** organisms so they have **desirable characteristics**. We have used artificial selection for thousands of years to create new varieties of corn, roses, sheep, goats and cows. However, people haven’t had anything to do with a polar bear’s thick fur or a tiny hummingbird’s fast beating wings. Characteristics like these are a result of natural processes.

### The Peppered Moth

The peppered moth is a **species** of moth. Today there are two varieties of the peppered moth. One is **dark-coloured** and the other is **light-coloured**. Before **1845**, all the peppered moths that people observed were **light-coloured**. This **adaptation** suited the moth’s **habit** of resting on light-coloured trees and rocks. Against the light-coloured background, the moths were **nearly invisible** to the eyes of birds and other **predators**.

In **1845**, people observed the **first** occurrence of a **dark-coloured** peppered moth. There were probably other dark-coloured peppered moths before then, but this was just the first sightings.

By the **mid-1800s**, in England - and many other European and North American countries – the **Industrial Revolution** was in full swing. Factories were burning coal to power new industries. The relatively **clean air** was quickly being **polluted** with **dirty smoke** and **soot** that would go up into the air and then come down to settle/land on buildings, rocks and trees darkening them. Around this same time, people began observing **more and more dark-coloured** peppered moths in and around the **industrial** areas. Over the next **100 years**, the number of **dark-coloured** peppered moths **increased** and the number of **light-coloured** peppered moths **decreased**.

Nobody set out to breed a dark-coloured peppered moth. So these changes didn’t result from artificial selection. The changes in the numbers of light-coloured and dark-coloured peppered moths are an example of a natural process called **natural selection**. It means that the individual members of a species that are **best adapted** for an **environment** are the most likely to **survive** and **reproduce**.

