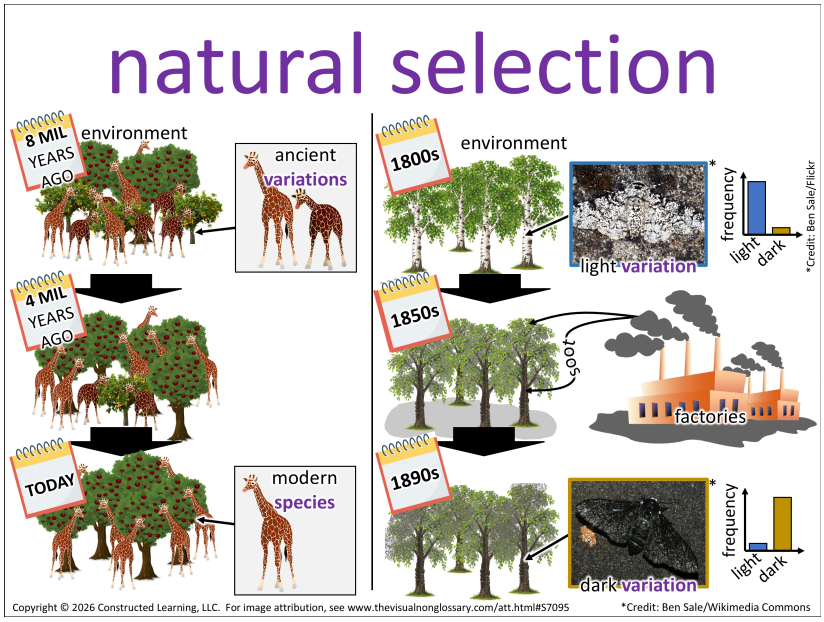
The Visual Non-Glossary™

The Story of the Peppered Moths

The purpose for reading is to understand how natural selection changes a population when the environment changes.

Look Out For:

- The different variations of the moths
- How the environment changed over time
- Which moths survived and reproduced
- How natural selection worked in this story
- The difference between the ancestral species and the descendant species



A long time ago, in England, moths lived on the trunks of light-colored trees. These moths showed two **variations**. Some had pale wings that looked like the bark. Others had dark wings that did not match. Birds hunted the moths by sight. Pale moths were harder to see, so they survived more often and had young with the same trait.

Later, factories began to spread across the land. Smoke from burning coal covered the trees with soot. The bark became darker. The **environment** had changed. Now pale moths were easy for birds to find, and dark moths blended in better. Birds ate more pale moths, so fewer of them lived to reproduce.

Over many generations, the number of dark moths grew. This did not happen because the moths chose to change. It happened because the **environment** made one **variation** more helpful than the other. This is what happens in **natural selection**. Traits that help survival in one setting may not help in another.

After years passed, the moth population looked different than before. The dark-winged moths became the common **descendant species**, while pale moths became

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rare. The pale moths were part of the **ancestral species**, but their survival had been shaped by **natural selection**.

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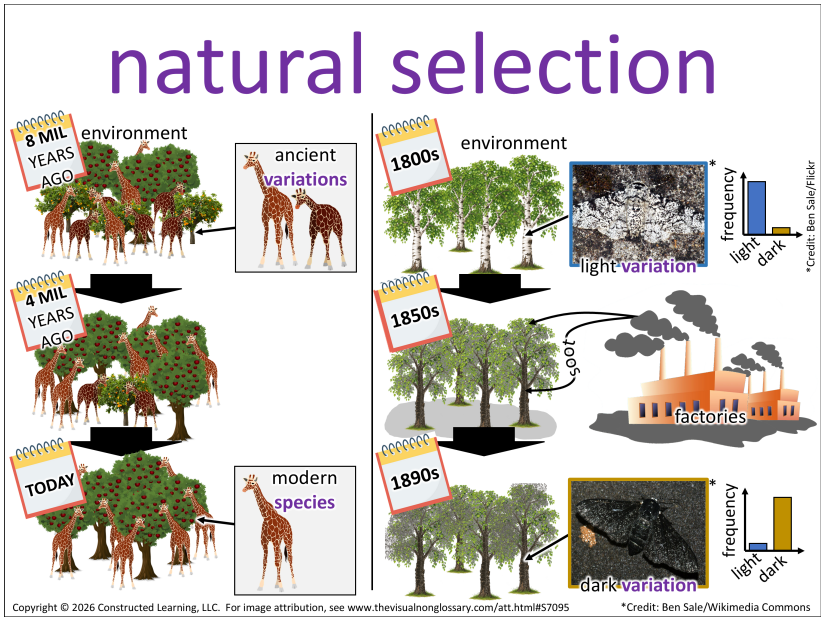

Long ago, in the English countryside, a population of moths lived on the trunks of light-colored trees. These moths came in two main **variations**. Some had pale wings that blended in with the bark, while others had dark wings that stood out. Birds hunted the moths by sight, so the pale moths were harder to see. They survived more often and passed their traits to their offspring.

As years passed, factories spread across the land. Smoke and soot from burning coal coated the trees, turning the bark darker. The **environment** had changed. Now, the pale moths were easy to spot, and the dark moths blended in better. Birds ate more of the pale moths, leaving fewer to reproduce.

Over generations, the number of dark moths increased. This change was not because moths decided to change their color. Instead, the **environment** determined which **variations** gave the best chance of survival. This is how **natural selection** works. Certain traits give an advantage in one environment but may not help in another.

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In time, people noticed that the moth population looked very different from the past. The dark-winged moths had become the most common **descendant species**, while the pale moths became rare. The **ancestral species** still existed, but its survival had been shaped by the forces of **natural selection**.

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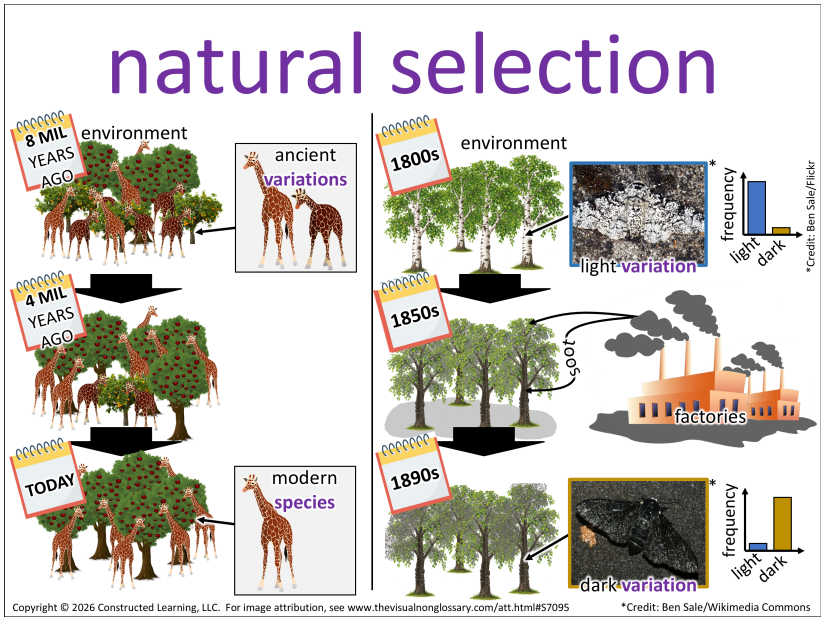

In nineteenth-century England, peppered moths offered a striking example of **natural selection** in action. Their population displayed two distinct **variations**. The pale moths blended with the lichen-covered bark of trees, while the dark moths were conspicuous against the light background. Because birds were their primary predators, pale moths survived at higher rates and reproduced more successfully.

The arrival of the Industrial Revolution transformed the **environment**. Coal-burning factories released soot, which darkened tree trunks across the countryside. Suddenly, pale moths stood out, while dark moths gained the advantage. As predation patterns shifted, the balance of survival and reproduction also shifted.

Across multiple generations, the proportion of dark moths increased dramatically. This did not occur because individual moths willed themselves to change. Rather, the **environment** favored traits that already existed within the population. Such selective pressure is the foundation of **natural selection**, linking survival to inherited differences.

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By the time scientists studied these insects closely, the once-rare dark moths had become the dominant **descendant species**. Meanwhile, the pale form, once typical of the **ancestral species**, declined. The story of the peppered moths demonstrates how **natural selection**, acting on **variations**, reshapes populations in response to their **environment**.

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