

Name: \_\_\_\_\_

## Natural Selection Activity: Peppered Moth

Charles Darwin accumulated a tremendous collection of facts to support the theory of evolution by natural selection. One of his difficulties in demonstrating the theory, however, was the lack of an example of evolution over a short period of time, which could be observed as it was taking place in nature. Although Darwin was unaware of it, remarkable examples of evolution, which might have helped to persuade people of his theory, were in the countryside of his native England. One such example is the evolution of the peppered moth *Biston betularia*.



The economic changes known as the industrial revolution began in the middle of the eighteenth century. Since then, tons of soot have been deposited on the country side around industrial areas. The soot discoloured and generally darkened the surfaces of trees and rocks. In 1848, a dark-coloured moth was first recorded. Today, in some areas, 90% or more of the-peppered moths are dark in colour. More than 70 species of moth in England have undergone a change from light to dark. Similar observations have been made in other industrial nations, including the United States

### INSTRUCTIONS

To see how peppered moths use camouflage to avoid bluejays...

Go to: <https://askabiologist.asu.edu/peppered-moths-game/play.html>

Click: A Bird's Eye View of Natural Selection

Answer: #1 below

Play for 2 minutes, you are the Blue Jay eating as many moths as possible.

### Release moths in the lichen-covered (Light) forest.

1. Before the blue jay starts to eat, what percentage of moths are light-colored?

what percentage of moths are dark-colored?

2. Feed your bluejay for 2 minutes by clicking on as many moths as possible.

What percentage of the moth population is light-colored now?

What percentage of the moth population is dark-colored now?

2. In the lichen colored forest, what trait is selected for?

What trait is selected against?

Release moths in the soot-covered (Dark) forest.

1. Before the blue jay starts to eat, what percentage of moths are

light-colored? what percentage of moths are dark-colored?

2. Feed your bluejay for 2 minutes by clicking on as many moths as possible.  
What percentage of the moth population is light-colored now?

What percentage of the moth population is dark-colored now?

3. In the soot covered forest, what trait is selected for?

What trait is selected against?

Extension Questions:

1. Explain how the color of the moths increases or decreases their chances of survival.

2. Explain the concept of "natural selection" using your moths as an example.

3. What would happen if there were no predators in the forest? Would the colors of the moths change over time? Explain why.