

## Inquiry Question

How can we observe natural selection in action?

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



Recall that evolution is the change of a population of organisms from one generation to the next.

Natural selection is the mechanism of evolution. It occurs when organisms that are best suited for the environment reproduce more often. The more successful organisms pass the favourable adaptation to their offspring.

Remember that an adaptation is a trait that has a functional role and allows the organism to be more successful than others in the population.

In this project you will simulate changes in moth population, due to pollution and predation, and observe how species can change over time. You will be able to see how natural selection occurs.

**General Instructions**

The goal of this project is to see how natural selection occurs.

**Materials you'll need:**

- the internet
- the following "Peppered Moth" worksheet

**Ideas and Hints:**

Follow the instructions on the following pages and complete the worksheet on the natural selection of the Peppered Moth.

**Project submission:**

Once you have finished your assignment submit your completed work to the Biology project drop box.

## Natural Selection Activity: Peppered Moth

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

Modern evolution theory states that if the frequency of genes in a population changes over time, then the population is evolving.

Peppered moths range in colour from dark to light. The dark moths have the dominant gene for wing scale color and are either DD or Dd. The light-coloured moths have the recessive genes and are dd



### Instructions :

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

Go to: <http://www.biologycorner.com/worksheets/pepperedmoth.html>

Click: Natural Selection Simulation

Answer: #1 below

Play for 2 minutes, you are the bluejay eating as many moths as possible. Complete each trial 3-5 times.

### Release moths in the lichen-covered forest.

- Before the blue jay starts to eat, what percentage of moths are light-coloured? \*\*  
what percentage of moths are dark-coloured? \*\*
- Feed your bluejay for 2 minutes by clicking on as many moths as possible.  
What percentage of the moth population is light-coloured now? \*\*  
What percentage of the moth population is dark-coloured now? \*\*

	Percentage of moths at the BEGINNING of the simulation		Percentage of moths at the END of the simulation	
	Light Moths	Dark Moths	Light Moths	Dark Moths
Trial 1				
Trial 2				
Trial 3				
Trial 4				
Trial 5				

- In the lichen coloured forest, what trait is selected for? \*\* \_\_\_\_\_  
What trait is selected against? \*\* \_\_\_\_\_

**NOW click on "post industrial"...DO NOT RESET**

**Release moths in the soot-covered forest.**

4. Before the blue jay starts to eat, what percentage of moths are light-coloured? \*\*  
 what percentage of moths are dark-coloured? \*\*
5. Feed your bluejay for 2 minutes by clicking on as many moths as possible.  
 What percentage of the moth population is light-coloured now? \*\*  
 What percentage of the moth population is dark-coloured now? \*\*

	Percentage of moths at the BEGINNING of the simulation		Percentage of moths at the END of the simulation	
	Light Moths	Dark Moths	Light Moths	Dark Moths
Trial 1				
Trial 2				
Trial 3				
Trial 4				
Trial 5				

6. In the soot covered forest, what trait is selected for? \*\* \_\_\_\_\_  
 What trait is selected against? \*\* \_\_\_\_\_

7. What kind of selection is changing the distribution of moth colours in the lichen and soot covered forests? **Circle** the correct answer.

directional                  disruptive                  stabilizing

