Peppered Moth Simulation

Learner Outcome:

The student will be able to:

*simulate and provide explanation how the adaptations of different colored moths survive in different environments (MS-LS4-4).

*Use mathematical data to support how the adaptations of different colored moths can survive in particular environments (MS-LS4-6).

Directions :

- Go to the 7J science web page. Under "Science Links", click on the "Peppered Moth Simulation".
- Click on the icon with the bird (Bird's Eye View of Natural Selection).
- Choose the "Dark Forest". You are the bird (predator); eat as many moths as possible in 1 minute. Answer the questions about the dark forest.
- Next, choose the "Light Forest". You are the bird; eat as many moths as possible in 1 minute. Answer the questions about the light forest.

Dark Forest:

1) What percent of black moths were left at the end of the simulation? _____

   What percent of white moths were left at the end of the simulation? _____

2) As the bird, was it easier to find and eat the white moths or dark moths?

3) Did the white moth or black moth have a better chance of survival in this environment? Why?

Light Forest:

4) What percent of black moths were left at the end of the simulation? _____

What percent of white moths were left at the end of the simulation? _____

5) As the bird, was it easier to find and eat the white moths or dark moths?

6) Did the white moth or black moth have a better chance of survival in this environment? Why?

7) In looking at either forest (white or dark), what adaptation is important for the survival of the moth population?

Direction: Click on the "Lifecycle" icon and answer the questions.

1) Describe a peppered moth's appearance. Why is the appearance helpful? What grows on the trees to help?

2) What do the larvae of these peppered moths resemble?

Directions: Click on the "Pollution" icon and answer the questions.

1) What happened to the forests during the industrial revolution? Why?

2) Did more dark or light moths appear during/after the industrial revolution? Why?

3) What is the idea of natural selection?

4) Over the last 50 years, pollution has decreased and the forests have become cleaner. What has happened to the color of the moth population?

Directions (Extension Questions): If you have extra time, click on the "Kettlewell's Experiments" icon and answer the following questions.

1. What did Dr. Kettlewell study?

2. Were there many dark moths before the industrial revolution?

3. What effects did the dark polluted forests have on the dark moth population?

4. Explain the experiment done to back up his ideas.