

Peppered Moth Simulation

Instructions

Follow the link below to read more information on Kettlewell's study of moths. To learn more about the peppered moth, natural selection and Dr. Kettlewell open the appropriate link. At the end, you will run two simulations for 1 minutes each, during this time you will play the part of a bird that eats moths.

<https://askabiologist.asu.edu/peppered-moths-game/>

Peppered Moth Life Cycle

1. How do peppered moths avoid predators?
2. Describe how the moths & larvae are camouflaged.
3. There are 3 types of peppered moths. State their names and defining characters.

a.	b.	c.
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Impact of Pollution

4. How did the Industrial Revolution affect the appearance of trees.
5. How did the dark colour on the moths come about?

Kettlewell's Experiments

6. In your own words state Kettlewells hypothesis.

7. Summarize Dr. Kettlewell's experiment.

8. What conclusions did Dr. Kettlewell come to:

Natural Selection in Action

How to Play:

This simulation allows you to watch natural selection in action. A population of moths will be released in a forest. At the beginning, the population is 50 percent light moths and 50 percent dark. During the simulation, graphs at the bottom will record any changes in the population. The only factor different between the two types of moths is the color of the wings.

Your role in the simulation is that of a predator. Guide the bird with the mouse to the moths. Click on the moth with the mouse to eat the moth. Every time you eat a moth, you will hear the crunch of an exoskeleton.

If you miss the moth, you will hear the bird call. Eat as many moths as possible in the minute you have.

Record data below after running the simulation for 1 minute in a light forest and 1 minute in a dark forest..

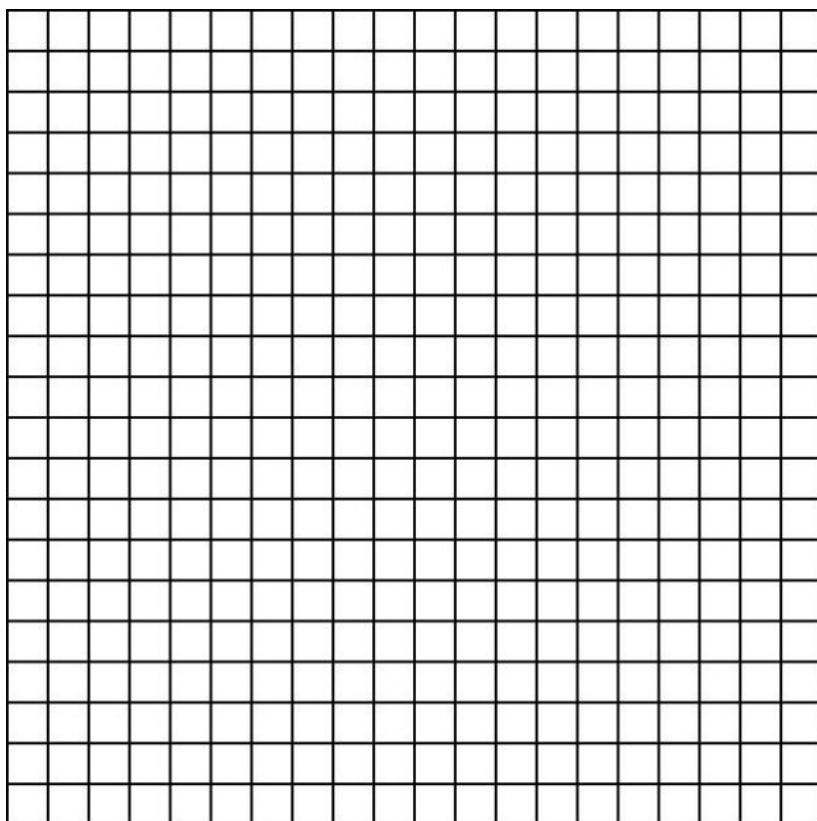
	Percent Dark Moths	Percent Light Moths
Light Forest		
Dark Forest		

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

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

11. What would happen if there were no predators in the forest? Would the colors of the moths change over time? Defend your answer.

12. Examine the table and construct a graph. Plot the years of the study on the X-axis, and the number of moths captured on the Y axis. You should have **2 lines** on your graph - one for light moths, and one for dark moths. Label your graphs.



Year	# of Light Moths Captured	# of Dark Moths Captured
2	537	112
3	484	198
4	392	210
5	246	281
6	225	337
7	193	412
8	147	503
9	84	550
10	56	599

13. Explain in your own words what the graph shows. What type of environment do you think these moths live in?