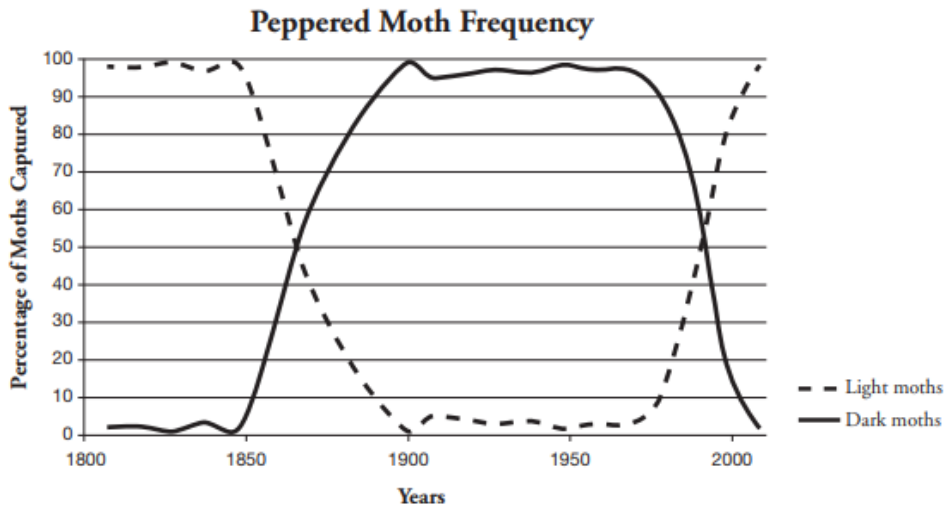


## Color Variations in Moths in Great Britain

Populations of most living organisms exhibit genetic diversity among individuals. Certain traits in a population give some organisms a greater chance of survival than individuals that lack these traits. Because these traits tend to increase the chance of survival, these individuals may produce more offspring that will also have the trait that favors survival. Over time, the number of individuals within the population possessing the favorable trait increases while the number of offspring with the unfavorable trait decreases.



**Figure 1** Frequency of peppered moth over time

1. [SP 4] Identify the moth color that was more prevalent before 1850 and the color that was more prevalent between 1900 and 1950.
2. a) [SP 4] Describe the change in the percentage of light-colored moths and dark-colored moths between 1850 and 1900.  
b. [SP 4] Describe the change in the percentage of light-colored moths and dark-colored moths between 1950 and 2000.  
c. [SP 6] Propose a reason for the changes you described.
3. [SP 6] During the Industrial Revolution through the mid-20th century, factories and power plants, which burned coal, produced large quantities of soot and smog. Near industrialized areas, black powder covered surfaces, including the moth habitat. Provide an explanation for the changes in moth color between 1850-1900.
4. [SP 6] Clean Air Acts were passed by governments of industrialized nations beginning in the mid-1950s. Use this information to explain why the color of the moth population shifted again.