

Name: _____ Period _____

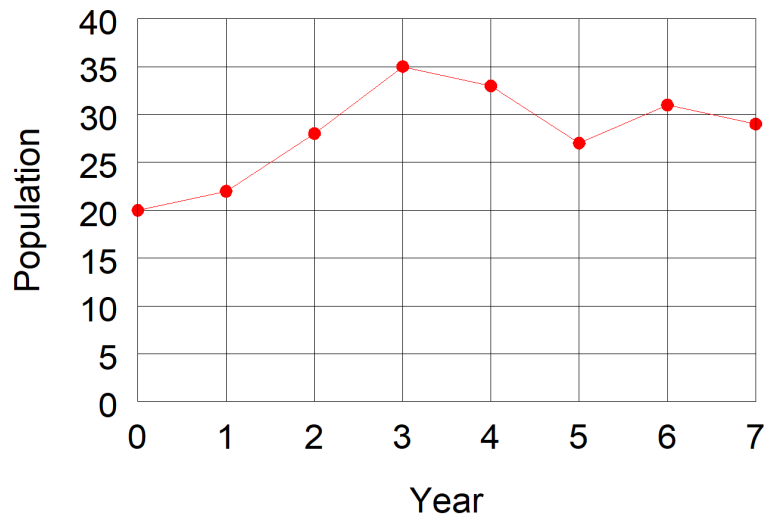
Population Dynamics Assessment

1. What is a limiting factor?

2. Define carrying capacity.

3. A scientist is studying the carrying capacity of a population of fur seals living on an island off the coast of Alaska. Identify a density-dependent limiting factor and briefly explain how it could affect the carrying capacity of the fur seals' environment.

4. The following graph shows the population of deer in a wildlife reserve over 7 years.



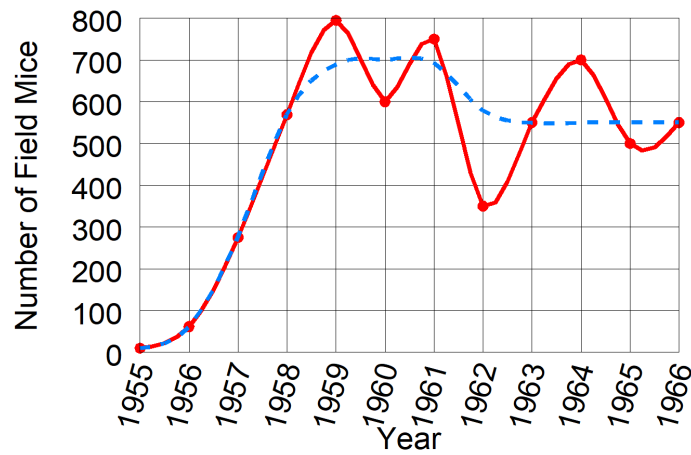
(a) Estimate the carrying capacity for deer in this reserve and explain why you chose that number.

(b) How would cutting the area of the wildlife reserve in half impart the deer population? Why?

5. Label each of the following limiting factors as density-dependent (D) or density-independent (I).

- (a) Forest fire _____
- (b) Disease _____
- (c) Availability of food _____
- (d) Availability of shelter _____
- (e) Flood _____

6. The graph shows the number of field mice living in a field before and after part of the field was turned into a parking lot. The solid line follows the population, and the dotted line shows the trend.



(a) In what year would you say the parking lot was built? How do you know?

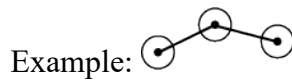
(b) What was the approximate carrying capacity before and after the parking lot was built?

Before: _____ After: _____

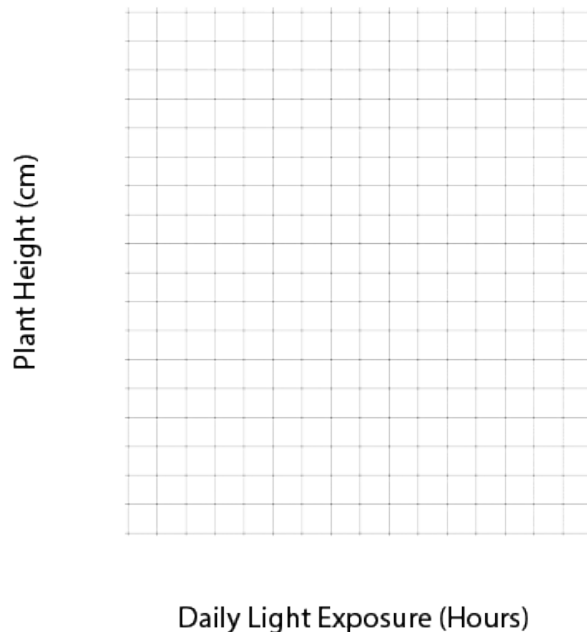
7. In an investigation, plants of the same species and the same initial height were exposed to a constant number of hours of light each day. The number of hours per day was different for each plant, but all other environmental factors were the same. At the conclusion of the investigation, the final height of each plant was measured.

Daily Light Exposure (hours)	Final Height (cm)
2	5
4	12
6	18
8	25
10	34
12	35
14	35

- (a) On the grid, mark an appropriate scale on each axis.
- (b) Plot the data for final height on the grid. Surround each point with a small circle and connect the points as shown.



Effect of Light Exposure on Plant Growth



- (c) State one possible reason why the plant exposed to 2 hours of light per day was the shortest.

- (d) If another plant of the same species had been used in the investigation and exposed to 16 hours of light per day, what would the final height of the plant probably have been? Support your answer.
