

NAME_____

PERIOD_____

Deer: Predation or Starvation

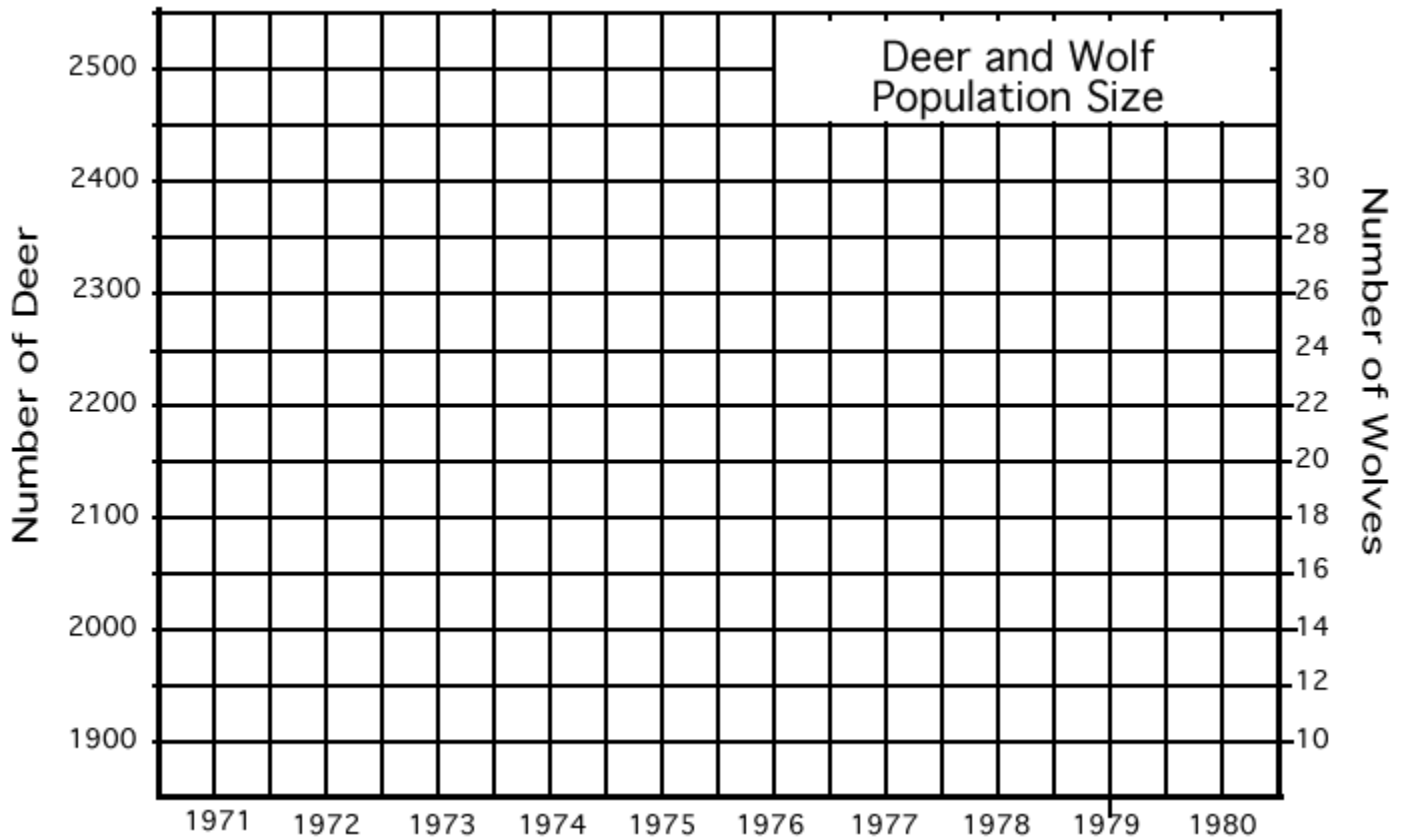
Introduction: In 1970 the deer population of an island forest reserve about 518 square kilometers in size was about 2000 animals. Although the island had excellent vegetation for feeding, the food supply obviously had limits. The forest management personnel feared that overgrazing might lead to mass starvation. Since the area was too remote for hunters, the wildlife service decided to bring in natural predators to control the deer population. It was hoped that natural predation would keep the deer population from becoming too large and also increase the deer quality (or health), as predators often eliminate the weaker members of the herd. In 1971, ten wolves were flown into the island.

The results of this program are shown in the following table. The Population Change is the number of deer born minus the number of deer that died during that year. Fill out the last column for each year (the first has been calculated for you).

Year	Wolf Population	Deer Population	Deer Offspring	Predation	Starvation	Deer Population Change
1971	10	2,000	800	400	100	+300
1972	12	2,300	920	480	240	
1973	16	2,500	1,000	640	500	
1974	22	2,360	944	880	180	
1975	28	2,224	996	1,120	26	
1976	24	2,094	836	960	2	
1977	21	1,968	788	840	0	
1978	18	1,916	766	720	0	
1979	19	1,952	780	760	0	
1980	19	1,972	790	760	0	

Graph the deer and wolf populations on the graph on the next page. Use one color to show deer populations and another color to show wolf populations.





Use complete sentences to answer the following questions. Use another sheet of paper or the back of this paper to do so.

1. Describe what happened to the deer and wolf populations between 1971 and 1980.
2. Why do you think that happened to each population?
3. What do you think would have happened to the deer on the island had wolves NOT been introduced?
4. Why do you think only 10 wolves were brought to the island in 1971?
5. Notice the number of deer who died by starvation increased at first then rapidly dropped to zero. Why do you think that happened?

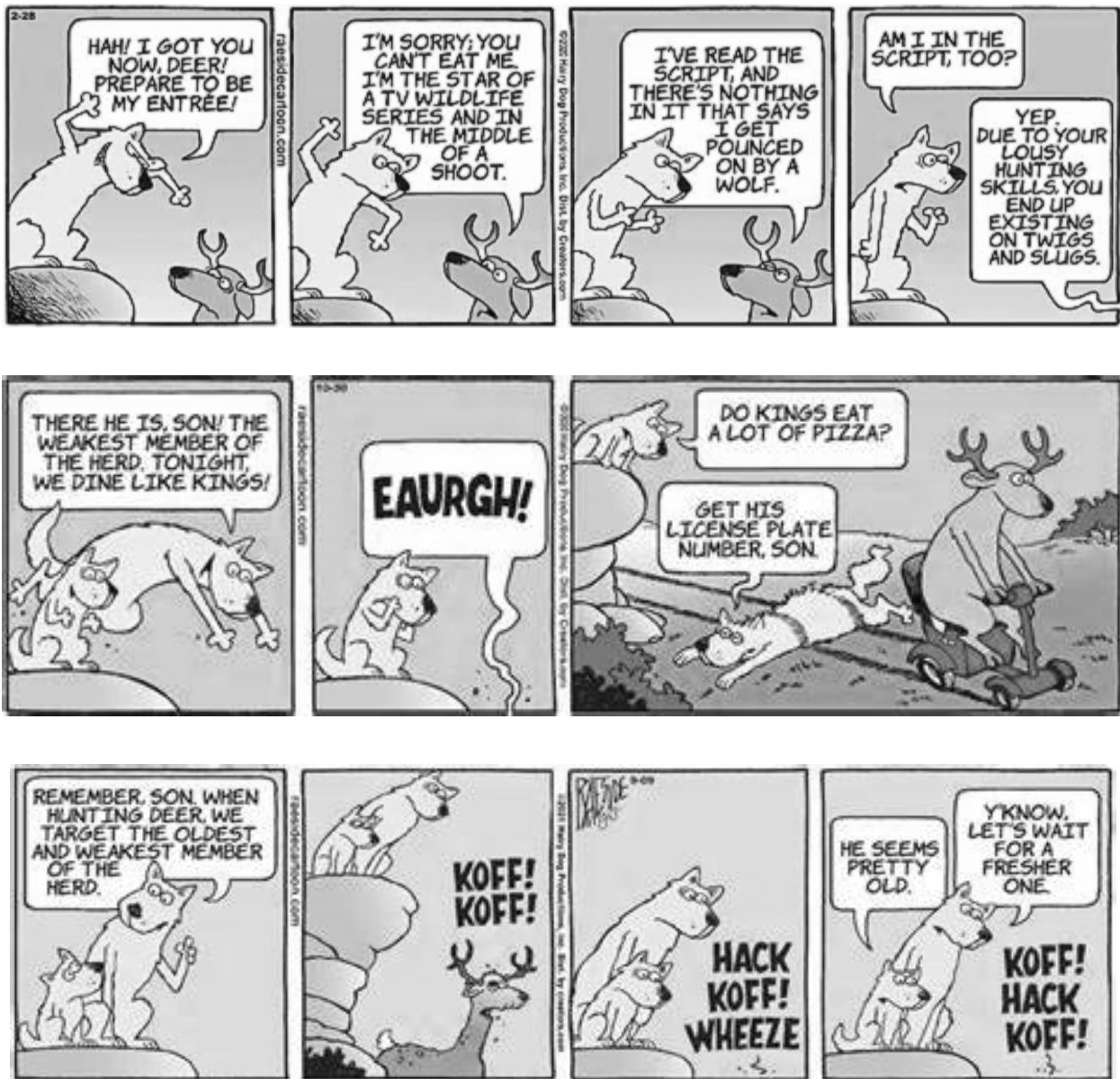


Answers

1. Both populations rose for a while then began to decrease. In the last two years, both populations rose slightly.
2. The wolf population rose because of the amount of food available. As the amount of food (deer) decreased, the number of wolves decreased. The deer population rose at first because there weren't enough wolves to make a difference. As the number of wolves increased, the deer population decreased.
3. With no natural predators, the deer population would have continued to increase. The deer would have probably eaten most of the food available to them. If the deer population continued to grow unchecked, it's possible they could have become extinct on the island because of lack of food. (At the very least, the population would have declined to a very small number until the food supply increased. Since this is an island habitat, this would have probably taken quite a long time.)
4. If too many wolves would have been introduced, it's possible they could have wiped out the deer population. Losing their main food source, it's possible the wolves could have died out.
5. Early, there was not enough food to feed all the deer; therefore, some starved to death. As the wolves thinned the number of deer, the amount foliage increased. The number of deer who died by starvation decreased because there was more than enough food for the deer to eat.

Sometimes the population of an organism grows too large for its habitat. This activity shows what happens when a here-to-fore unknown predator is introduced into a new habitat. If you've discussed the concept of carrying capacity with your students, you could include questions about that to this.





This activity aligns with Indiana 6th grade science standard MS-LS2-1 Ecosystems: Interactions, Energy, and Dynamics

Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem. [Clarification Statement: Emphasis is on cause-and-effect relationships between resources and growth of individual organisms and the numbers of organisms in ecosystems during periods of abundant and scarce resources.]