**Predator-Prey Relationships**

Ecologists gather data about population densities of different organisms in order to better understand how these organisms interact with their environments. In this activity, you will interpret and evaluate such data in graph form.

The graph in Figure 1 represents a growth curve for the population of a single species.

![Graph](image)

**Figure 1**

1. The curve is called a (an) _________ growth curve.

2. Time is represented on the _________-axis.

3. The number of individuals is represented on the _________.

4. At which point on the curve (I, II, III) is the population increasing at the fastest rate? Point _________

5. At which point on the curve (I, II, III) is the population leveling off? Point _________

6. At which point on the curve (A or B) has the population reached the carrying capacity of its environment? _________

7. a. What would happen to the growth curve if the temperature suddenly dropped, thus making the environment less than ideal for this organism? _________

   b. What type of limiting factor is temperature? _________

8. a. What would happen to the growth curve if a pollutant were introduced into this environment? _________

   b. What type of limiting factor is pollution? _________

9. What would happen to the growth curve if a new predator were introduced into this environment? _________
In the tundra, where both reindeer and wolves live, the number of reindeer herds do not exceed the carrying capacity of their environment. In 1944, the United States Coast Guard transported 29 reindeer to St. Matthew Island in the Bering Strait. St. Matthew Island has the typical climate for a tundra, but no wolves live there.

The graph shown in Figure 2 represents the growth curve for the reindeer population there.

10. By how many times did the reindeer population increase between 1945 and 1963?

11. By how many times did the reindeer population decrease between 1963 and 1966?

12. Did the reindeer exceed the carrying capacity of their environment? Explain your answer.

13. Why do you think the population increased so rapidly in less than 20 years?

14. Why do you think that the population declined so rapidly, from 6000 to 42, in 3 years?

15. What do you think would have happened if wolves had been brought to the island?