A graph of different types of population

AI-generated content may be incorrect.Weekly Graphing and Data Practice: Predator Prey

A graph showing the difference between elk and aspen trees

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In an ecosystem, predator and prey populations are closely connected. Predators, the animals that hunt and eat the prey. Scientists have closely studied the predator-prey relationships in various ecosystems to understand how the populations influence each other and other populations in the ecosystem. One highly studied relationship is the gray wolf and elk populations in Yellowstone National Park. In the early 1900s, wolves were eliminated from the park, which influenced the elk population as well as Aspen tree populations, which are browsed (eaten) by elk. Scientists collected data on wolf and elk populations as well as percent of Aspen trees browsed before removal and after removal of gray wolves to determine how populations influence each other.

Graphing

Create two graphs on the provided graph paper using the data in the table on the right: time vs. wolf and elk populations, and time vs. elk population and percent aspen browsed. Then use the graphs to answer the questions.  
  
Experimental Design

1. What is the independent variable in this experiment? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What is the dependent variable in this experiment? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Write a testable question for this experiment: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
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Data interpretation

1. What were the wolf and elk populations in 1850? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What was the wolf population when the elk population was 14,000? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What percent of Aspen was browsed when the wolf population was 170? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Which population peaks first, predator or prey? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. What year were the wolves eliminated from Yellowstone National Park? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Write a CER summarizing the results of the experiment, using evidence from the graph to support your claim and explaining with reasoning.

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Application

In 1995, conservationists reintroduced wolves to Yellowstone in an attempt to restore a healthier, balanced ecosystem.

1. Predict how reintroducing wolves to Yellowstone will impact elk populations and other aspects of the ecosystem. Explain your reasoning.

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A table with numbers and a number of people

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1. Scientists collected data for 20 years after wolves were reintroduced to Yellowstone. The data can be found on the right. Does the data support or refute your prediction in the previous question? Support your answer with evidence.

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1. Do you agree or disagree with the conservationists’ decision to reintroduce wolves back into the Yellowstone ecosystem? Support your answer with reasoning.

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A graph with a number of squares

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A graph with numbers and a grid

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