

Student #1

1. Look at the data on the graph above.
 - Describe what is happening to the deer population.
 - Use data from the graph to support your answer.

The deer population is changing.

2. List 4 possible causes for the change in the number of deer in Colorado. Predict how each change might affect the deer population.

The deer population could be decreasing because of predators, over hunting, disease, or a lack of food.

3. In the table:
 - A. Describe the patterns you saw in each of the figures (graphs and tables).
 - B. Interpret the patterns that used described--what do the patterns tell you about the change in deer population? What could cause the change?

Be sure to include data from the graphs and tables to support your answers.

Data	A. What patterns do you see?	B. What do the patterns tell you about the change in deer population?
Figure 1: Number of Deer and Elk	<i>The deer and elk populations are changing.</i>	<i>The deer are decreasing</i>
Figure 2: Amounts of Two Types of Grasses	<i>There is Sagebrush and Cheatgrass</i>	<i>The deer are decreasing</i>
Figure 3: Causes of Fawn (Baby Deer) Deaths	<i>Fawns are dying in Colorado</i>	<i>The deer are decreasing</i>
Figure 4: Yearly Rainfall	<i>There is less rain.</i>	<i>The deer are decreasing</i>

4. Once you have filled in the whole table, analyze the patterns to help you decide why the number of deer in Colorado was changing, based on these graphs.
 - Write a **claim** for the most likely cause or causes for the change in the number of deer.
 - Support your claim with patterns in the data **and** what you know about ecosystems.

The deer are mostly dying because they are being eaten by predators.

5. Sometimes patterns in data look like they are showing what *caused* the change you are investigating, but are really just *correlated* to the change.

What additional data would you want to see to help you decide if your answer to question 4 really is a cause, not a correlation? Explain how the data would help you.

I would need to know why the deer are dying.

Student #2

1. Look at the data on the graph above.
 - Describe what is happening to the deer population.
 - Use data from the graph to support your answer.

The deer population decreased from 2005 to 2013. In 2005, there were approximately 600,000 deer in Colorado. Over the next eight year, the deer population steadily decreased each year. By 2013, the number of deer in Colorado had dropped to less than 400,000.

2. List 4 possible causes for the change in the number of deer in Colorado. Predict how each change might affect the deer population.

Four possible causes for the decline in deer population from 2005 to 2013 could include increased predation, over hunting, an increase in disease, and a lack of food. If there was an increase in the number of predators that eat the deer, the deer population would decrease. An increase in hunting would also cause the number of surviving deer to decrease. An increase in diseases that affect the deer population, or a new disease that the deer have no resistance to could cause the deer population to decrease. A decrease in the amount of food that the deer eat would also cause the deer to have less resources available and fewer deer would survive.

3. In the table:
 - C. Describe the patterns you saw in each of the figures (graphs and tables).
 - D. Interpret the patterns that used described--what do the patterns tell you about the change in deer population? What could cause the change?*****Be sure to include data from the graphs and tables to support your answers.*****

Data	A. What patterns do you see?	B. What do the patterns tell you about the change in deer population?
Figure 1: Number of Deer and Elk	<i>The deer population has decreased while the elk population increased.</i>	<i>Deer and elk were competing for similar resources since they occupy a similar niche in the ecosystem. The elk are surviving better than the deer, so their population is increasing while the deer population is decreasing.</i>
Figure 2: Amounts of Two Types of Grasses	<i>From 2005 to 2013, the amount of cheatgrass has increased while the amounts of sagebrush have decreased.</i>	<i>The decrease in the amount of sagebrush caused the deer population to decrease. Deer can only eat sagebrush, so if the amount of available sagebrush decreases, there is less food for the deer to eat and fewer will survive.</i>

Figure 3: Causes of Fawn (Baby Deer) Deaths	<i>The number of fawns that died due to predators stayed the same from 2005 to 2013. There was an increase in the number of fawns that died due to a lack of food from 2005 to 2013.</i>	<i>The increase in fawn deaths due to lack of food help to explain why the deer population decreased from 2005-2013. Fewer fawns survived due to less available sagebrush.</i>
Figure 4: Yearly Rainfall	<i>The amount of yearly rainfall decreased after 2005 and remained lower through 2012.</i>	<i>Less rain would mean less water was available for the deer to drink which could cause the population to decrease. Less water can also cause a decrease in the amount of sagebrush that the deer eat.</i>

4. Once you have filled in the whole table, analyze the patterns to help you decide why the number of deer in Colorado was changing, based on these graphs.

- Write a **claim** for the most likely cause or causes for the change in the number of deer.
- Support your claim with patterns in the data **and** what you know about ecosystems.

The main cause for the decline in the deer population was the limited food source (sagebrush). Figure 3 clearly shows that the amount of sagebrush in 2013 was 100,000 square miles which is almost half of what it was in 2005. When there is less sagebrush, there is less food for the deer.

5. Sometimes patterns in data look like they are showing what *caused* the change you are investigating, but are really just *correlated* to the change.

What additional data would you want to see to help you decide if your answer to question 4 really is a cause, not a correlation? Explain how the data would help you.

While we had the rainfall information, we should have also had a chart showing the water levels in rivers near where the deer are located. This would show if the change in rainfall affects the deer because deer need water where they live.

Student #3

1. Look at the data on the graph above.
 - Describe what is happening to the deer population.
 - Use data from the graph to support your answer.

The deer population decreased from 2005 to 2013.

2. List 4 possible causes for the change in the number of deer in Colorado. Predict how each change might affect the deer population.

Deer can die from more predators eating them, less food, too much hunting, or disease. All would cause a decrease in the deer population.

3. In the table:
 - E. Describe the patterns you saw in each of the figures (graphs and tables).
 - F. Interpret the patterns that used described--what do the patterns tell you about the change in deer population? What could cause the change?

*****Be sure to include data from the graphs and tables to support your answers.*****

Data	A. What patterns do you see?	B. What do the patterns tell you about the change in deer population?
Figure 1: Number of Deer and Elk	<i>The number of elk is increasing and the number of deer is decreasing.</i>	<i>The deer population is decreasing.</i>
Figure 2: Amounts of Two Types of Grasses	<i>The amount of sagegrass is increasing and the amount of cheatgrass is decreasing.</i>	<i>Deer eat sagebrush which is decreasing.</i>
Figure 3: Causes of Fawn (Baby Deer) Deaths	<i>The number of fawns that die are decreasing.</i>	<i>If more fawns die, there will be fewer deer.</i>
Figure 4: Yearly Rainfall	<i>The amount of rainfall increased then decreased.</i>	<i>Deer need water, so their numbers would decrease.</i>

4. Once you have filled in the whole table, analyze the patterns to help you decide why the number of deer in Colorado was changing, based on these graphs.
 - Write a **claim** for the most likely cause or causes for the change in the number of deer.
 - Support your claim with patterns in the data **and** what you know about ecosystems.

Deer are dying because of a lack of food. Figure 3 shows sagebrush is decreasing and cheatgrass is increasing.

5. Sometimes patterns in data look like they are showing what *caused* the change you are investigating, but are really just *correlated* to the change.

What additional data would you want to see to help you decide if your answer to question 4 really is a cause, not a correlation? Explain how the data would help you.

I need more information on the types of human activity in the area because people could be causing it instead of water.

Student #4

1. Look at the data on the graph above.
 - Describe what is happening to the deer population.
 - Use data from the graph to support your answer.

The deer population has decreased from approximately 600,000 deer in 2005 to 400,000 in 2013.

2. List 4 possible causes for the change in the number of deer in Colorado. Predict how each change might affect the deer population.

Four possible causes for the decline in deer population from 2005 to 2013 could include increased predation, over hunting, an increase in disease, and a lack of food. If there was an increase in the number of predators that eat the deer, the deer population would decrease. An increase in hunting would also cause the number of surviving deer to decrease. An increase in diseases that affect the deer population, or a new disease that the deer have no resistance to could cause the deer population to decrease. A decrease in the amount of food that the deer eat would also cause the deer to have less resources available and fewer deer would survive.

3. In the table:

- G. Describe the patterns you saw in each of the figures (graphs and tables).
 - H. Interpret the patterns that used described--what do the patterns tell you about the change in deer population? What could cause the change?
- ***Be sure to include data from the graphs and tables to support your answers.*****

Data	A. What patterns do you see?	B. What do the patterns tell you about the change in deer population?
Figure 1: Number of Deer and Elk	<i>From 2005 to 2013, the deer population decreased from 600,000 to 400,000. During the same timeframe, the elk population increased from 300,000 to 700,000.</i>	<i>The deer population is decreasing while the elk population is increasing. Elk and deer occupy the same niche in the ecosystem which means they compete for similar resources.</i>
Figure 2: Amounts of Two Types of Grasses	<i>From 2005 to 2013, the amount of sagebrush decreased from 185,000 square miles to 100,00 square miles. During the same timeframe, the amount of cheatgrass increased from 41,000 square miles to 66,000</i>	<i>Deer can only eat sagebrush, which decreased from 2005 to 2013. Cheatgrass is an invasive species that deer cannot eat. Since the deer can only eat sagebrush, as the amount of sagebrush decreased, the number of deer also decreased.</i>

	square miles.	
Figure 3: Causes of Fawn (Baby Deer) Deaths	<i>From 2005 to 2013, the number of total fawn deaths increased. The number of fawns that died due to predators stayed the same at about 20%. The number of fawns that died from a lack of food increased from 15% to 40%.</i>	<i>From 2005 to 2013, there was less food available for fawns to eat and more fawns died from the lack of food. This caused the deer population to decrease because fewer fawns survived to adulthood. If there were fewer adult deer, there would be fewer fawns born as the years go by.</i>
Figure 4: Yearly Rainfall	<i>From 2003 to 2005, the amount of rainfall stayed consistent with between 8 and 14cm of rain per year. From 2006 to 2012, the rainfall dropped to between 2 and 6 cm per year.</i>	<i>Less rainfall from 2006 to 2013 could affect the deer population in two ways. There could be less water available for the deer to drink, which would cause the deer population to decrease. There would also be less water for the sagebrush, the deer's food source. If there is less water, less sagebrush would grow and there would be less food for the deer.</i>

4. Once you have filled in the whole table, analyze the patterns to help you decide why the number of deer in Colorado was changing, based on these graphs.

- Write a **claim** for the most likely cause or causes for the change in the number of deer.
- Support your claim with patterns in the data **and** what you know about ecosystems.

The main reason for the decrease in the number of deer in Colorado was a lack of food. There was a decrease in the amount of sagebrush (food) in a short period of time. Sagebrush decreased by 85,000 square miles in only 8 years. The deer and elk compete with one another for sagebrush (food). Because elk had another food source (cheatgrass) their population increased but the deer decreased. In addition, from 2010 to 2013 40% of the baby deer deaths were because of a lack of food. I believe the lack of sagebrush was responsible for almost 200,000 deer who died from 2005-2008.

5. Sometimes patterns in data look like they are showing what *caused* the change you are investigating, but are really just *correlated* to the change.

What additional data would you want to see to help you decide if your answer to question 4 really is a cause, not a correlation? Explain how the data would help you.

I think more information that shows the number of fawns, middle-aged deer, and adult deer who died would help me to know more about the cause of the change in number of deer. I could use the new information to determine if lack of food for just the fawns is

causing the decrease in deer population because they are never getting older and having babies or if lack of food is affecting deer of all ages.