The Lesson of the Kaibab

name_____ per_____

Ecosystems depend on balance. Natural selection is the process that helps to keep the living world in balance. Sometimes humans can throw nature out of balance by altering the environment. The example of the Kaibab deer is a perfect example of this. They live in Northern Arizona on the Kaibab plateau. By 1905, humans had brought in grazing animals like cattle, sheep and horses. This had already destroyed the natural habitat of the Kaibab. Even though the area should support 30,000 deer, the population was only 4,000. In 1906, President Theodore Roosevelt created the Grand Canyon National Game Reserve to protect the kaibab deer.
As part of this, all hunting of the deer was stopped. There was also an effort to get rid of the predators of the deer. Thousands of mountain lions, wolves, coyotes and bobcats were killed over a 20 year period.

Signs that the deer population was out of control began to appear as early as 1920. This destroyed the range that both the deer and livestock grazed on. By 1923, deer were beginning to starve. More efforts were made by people to control the situation, but it is estimated that 60,000 deer starved to death.

Today, the Arizona Game Commission carefully manages the Kaibab area with regulations geared to specific local herds. Hunting has reopened and the natural predators of the Kaibab are protected to keep the herds in balance with the food supply.

Data Analysis
1. Graph the deer population <u>over time</u>. Place year on the X-axis and <u>number of deer</u> on the Y-axis. Pay close attention to the <u>range of years</u> you are graphing. Not all of the years are the same amount apart. Attach the graph to the back of this paper.

Year	Deer Population	Year	Deer Population
1905	4,000	1927	37,000
1910	9,000	1928	35,000
1915	25,000	1929	30,000
1920	65,000	1930	25,000
1924	100,000	1931	20,000
1925	60,000	1935	18,000
1926	40,000	1939	10,000

Analysis
1. How did people alter the environment before the Kaibab were protected? How did this affect the Kaibab population?

2. What changes did people make to the ecosystem that the deer lived in when they started to try to 'protect' the deer? What was the effect of these changes?

3. Using the four stages of natural selection, explain how the process of natural selection was interrupted by humans?

Natural Selection: Use evidence to support an explanation that natural selection can lead to increases and decreases of specific traits in populations of organisms over time.

Highly Proficient (4)	Proficient (3)	Close to Proficient (2)	Developing (1)
Not possible with this assignment	❏ student understands the basics of natural selection ❏ Explanations are complete and most show thought. ❏ Graph is complete and mostly correct ❏ Kaibab example is used as evidence	❏ Student has some knowledge of natural selection ❏ Answers need more detail for higher level ❏ Some information is incorrect ❏ Graph is attempted ❏ Work is incomplete ❏ Kaibab is not used as an example	❏ no understanding is shown ❏ Graph is not included ❏ Work is mostly incomplete