Name: _____ Period: _____ Date: _____

Natural Selection Homework

**Directions:** Read the following scenarios and answer all related analysis questions.

Part 1:
There are three varieties of polar bears: ones with thick coats, ones with thin coats, and ones with medium coats. As fall turns to winter, the temperatures are dropping rapidly. The bears must be kept warm, or they will freeze to death. Almost all mother bears have had 2 cubs each, but due to the extreme temperatures, some mothers only have one cub left.

1. Describe the variation in the polar bear population.

2. Which type of polar bear will NOT be favored by natural selection? Why?

3. Which type of polar bear is best fit for the environment? Why?

4. Predict how the population of polar bears will change over time with the polar bears.

5. Explain why the polar bear population will change over time?

6. If the climate was becoming warmer instead of colder, would the polar bear population experience the same change over time? Explain.

7. If all bears had medium coats (and there was no variation), would any natural selection or change take place? Explain.

Part 2:

Time →
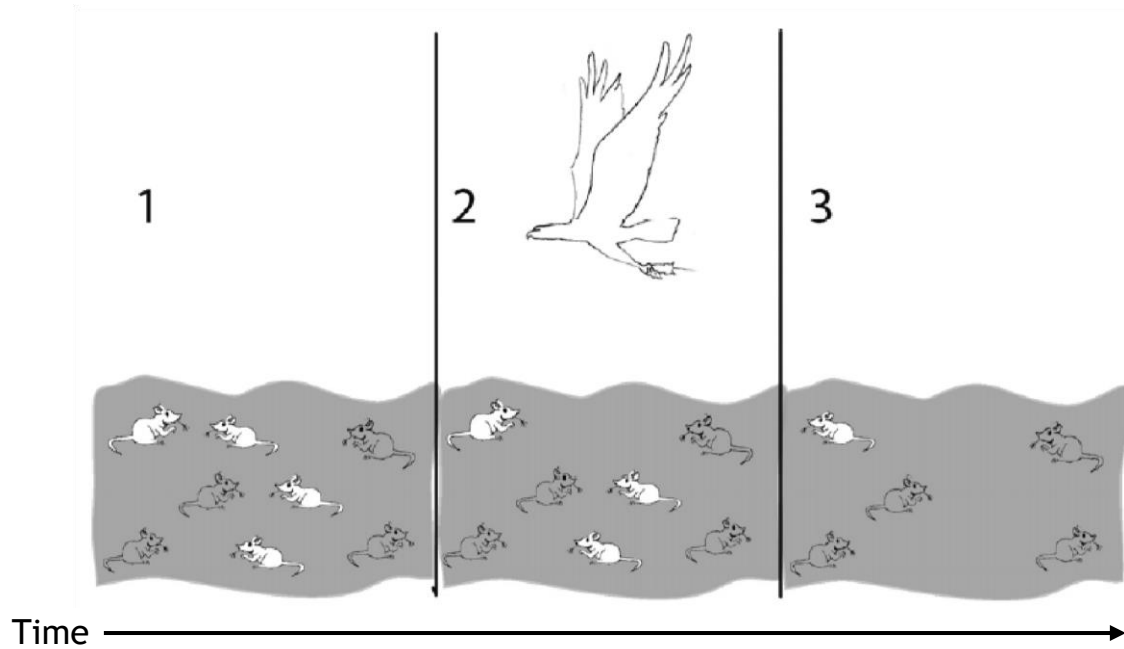
1. Describe what is happening from figure 1 to 2 to 3.

2. Is the population of mice different in figure 3 compared to figure 1? Explain.

3. Living things that are well adapted to their environment survive and reproduce. Those that are not well adapted don't survive and reproduce. An *adaptation* is any characteristic that helps the living thing survive and reproduce. What characteristic of the mice is an adaptation that increases their chance of surviving and reproducing?

4. An inheritable characteristic that helps an animal or plant have more offspring (an adaptation) will tend to become more common in a population as a result of evolution by natural selection. *Explain why* an adaptation tends to become more common in the population as a result of evolution by natural selection.