Hare and Lynx Populations

Populations are always changing. Sometimes changes are the result of humans interfering with food webs or habitats. But even when humans do not interfere, populations will still naturally shift up and down or fluctuate. For example, let us study the relationship between the Canada lynx and its primary prey, the snowshoe hare.

To understand how the population of lynx and hares changes year to year, we need to collect information about the number of individuals in a population. Unfortunately, it is impossible to count the exact number of hares in Canada in any given year. Therefore, this information must be gained by capturing a small number of individuals and then estimating the actual number out in the wild. For over 300 years, the Hudson Bay Company has been involved in the fur trade in Canada. Detailed company records list the number of snowshoe hare pelts and the number of lynx pelts collected by hunters and trappers every year since the late 1700's. A small sample of this data is presented in the table below.

Year	Hares (x1000)	Lynx(x1000)
1900	30	4
1901	47.2	6.1
1902	70.2	9.8
1903	77.4	35.2
1904	36.3	59.4
1905	20.6	41.7
1906	18.1	19
1907	21.4	13
1908	22	8.3
1909	25.4	9.1
1910	27.1	7.4
1911	40.3	8
1912	57	12.3
1913	76.6	19.5
1914	52.3	45.7
1915	19.5	51.1
1916	11.2	29.7
1917	7.6	15.8
1918	14.6	9.7
1919	16.2	10.1
1920	24.7	8.6

On the graph paper provided, use one color of pencil to graph the number of hares trapped each year between 1900 and 1920. Using another color, graph the number of lynx trapped.

Questions:

What patterns do you notice? Describe at least 3 patterns.
1.

2.

3.

First, let's think about the hares.

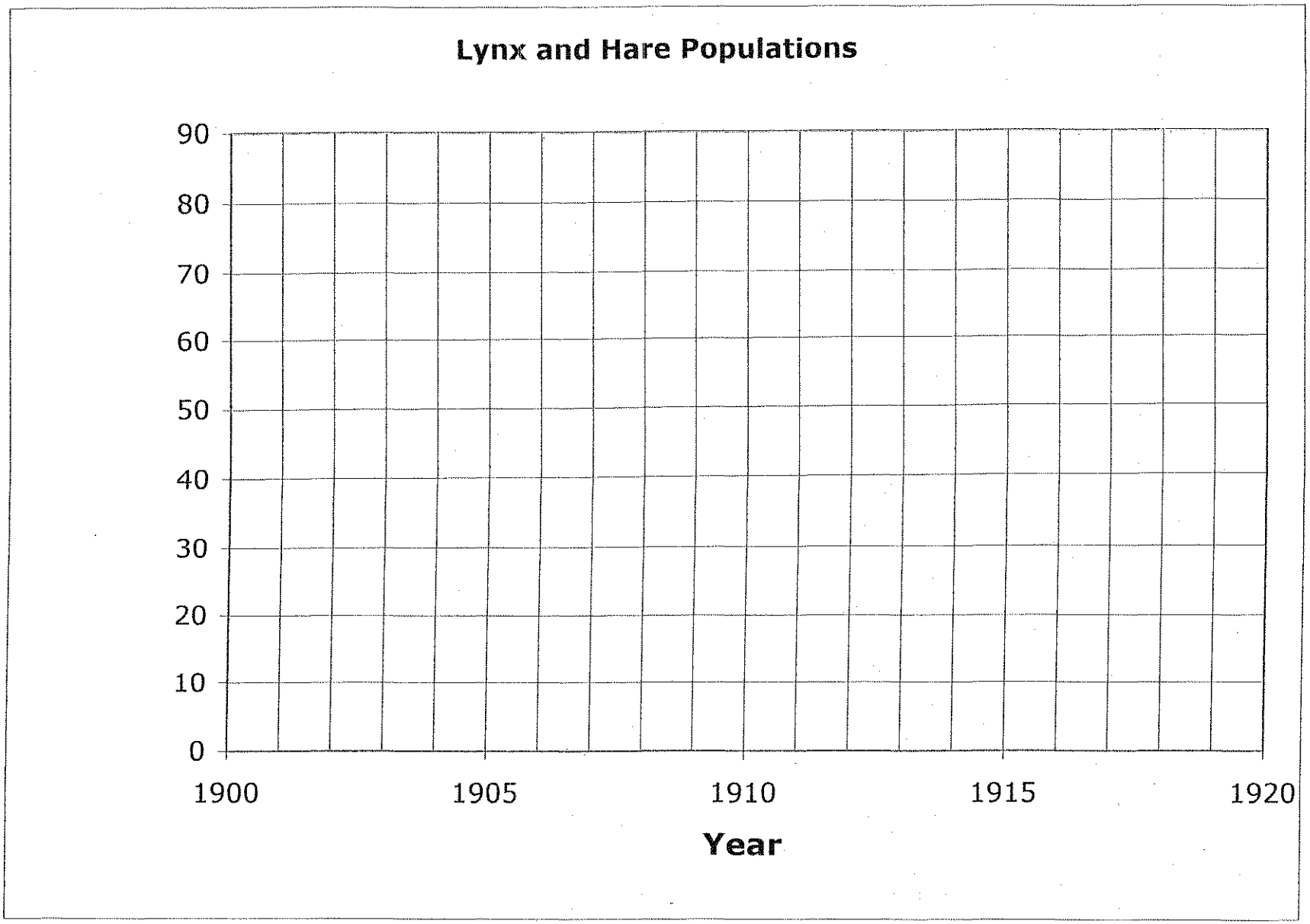
Scientists observe that as the hare population gradually increases, they eat more and more grass and seeds each year until the food supply, particularly during the winter, becomes scarce. At that point, young hares have a difficult time finding enough food to survive and fewer babies are born. On your graph, **label** these periods of hardship with arrows and a short description of what is happening in your own words.

As the number of hares *decreases*, what do you think happens to the population of grass and seeds that the hares eat? **Why?**

After a few years, the hare population begins to *increase*. Why? On your graph, **label** these periods of prosperity with arrows and a short description of what is happening in your own words.

Now, let's think about the lynx which eats the snowshoe hares.

In general, are there more lynx or more hares? **Why?**


Lynx and Hare Populations
90
80
70
60
50
40
30
20
10
0
1900
1905
1910
1915
1920
Year