

## Box and Whisker Plots and Krill Populations

### Teacher Answer Key

Throughout this assignment, we will be trying to answer the following questions: Has the krill population changed over time? If so, in what way (increase/decrease)? What could contribute to a change in population?

1. How many years are you given data on?

We are given data on 39 years. There was no data provided for 1979.

2. Will that many years provide us with an accurate look at the krill's population in Antarctica?

Either answer is acceptable. Students should support claim with full sentence reasoning.

3. Which year had the lowest krill population?

In 2015, there was only a population of 14 krill.

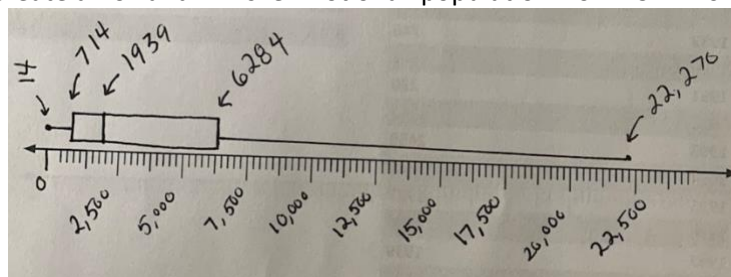
4. Which year had the highest krill population?

In 1996, there was a krill population of 22,270.

5. Before creating a box plot or calculating the averages, do you believe that there has been a change in krill population? Why or why not?

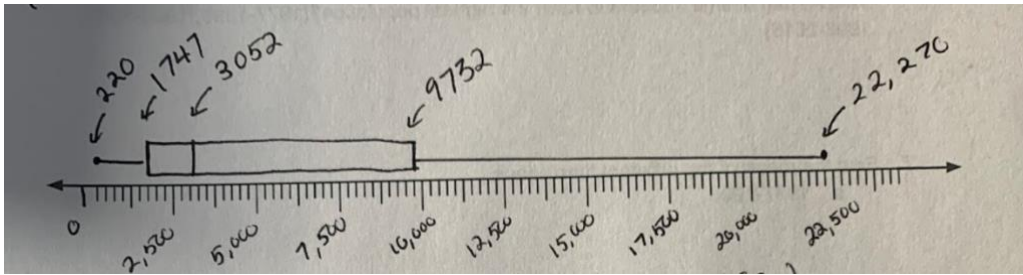
Either answer is acceptable. Students should support claim with full sentence reasoning.

Create a Box and Whisker Plot of all population from 1977-2016.



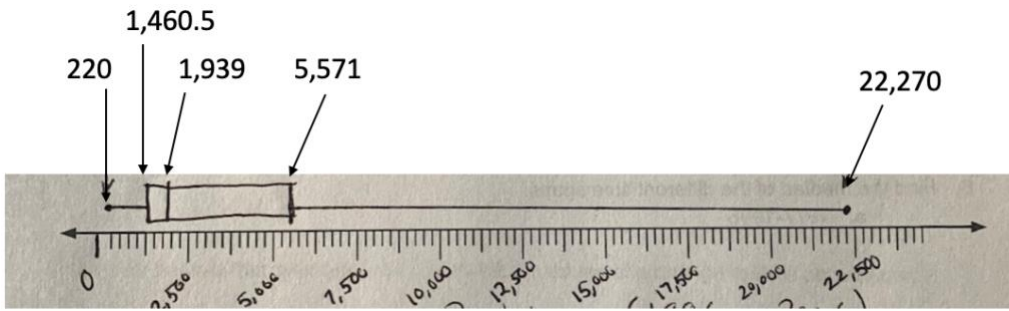
Average Krill Population (1977 – 2016)

Create a Box and Whisker plot of the population from 1977-1996.



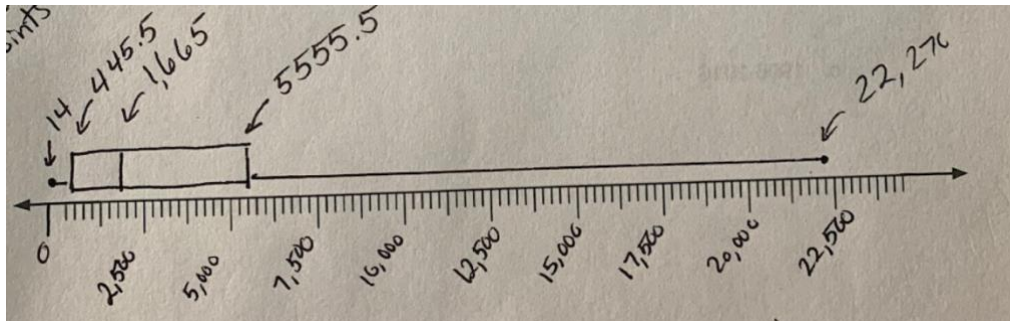
Average Krill Population (1977 – 1996)

Create a Box and Whisker plot of the population from 1986-2006.



Average Krill Population (1986 – 2006)

Create a Box and Whisker plot of the population from 1996-2016.



Average Krill Population (1996 – 2016)

6. Now that you have created several box and whisker plots, visually, during which span of time does the krill population seem the lowest?(1977-1996, 1986-2006, 1996-2016) Which span of time appears to have the highest population?(1977-1996, 1986-2006, 1996-2016)

1977-1996 appears to have the largest population.

1996 – 2016 appears to have the lowest population.

7. Find the mean of the different time spans.

a. 1977-1996

5,772.89

b. 1986-2006

3,876.29

c. 1996-2016

3,371.33

8. Find the median of the different time spans.

a. 1977-1996

3052

b. 1986-2006

1939

c. 1996-2016

1665

9. Based on the averages and box and whisker plots, do you believe that there is a change in the population of krill?

Answer based on student opinion. They must be supported with the data and plots.

10. Do you believe that there is a correlation between the temperatures in Antarctica and the population of krill?

Answer based on student opinion. They must be supported with the data and plots.

11. Do you believe that temperature COULD BE the cause of a change in krill populations?

Answer based on student opinion. They must be supported with the data and plots.