

Name _____

Date _____

Learning to Graph & Analyze Data I:

Due Date _____

When do Dark-Eyed Juncos Visit Bird Feeders?

A Maryland bird watcher recorded the largest number of Dark-eyed juncos visiting her bird feeder per month through one year. She collected these data as a participant in a national project to track the movement of birds throughout the United States.

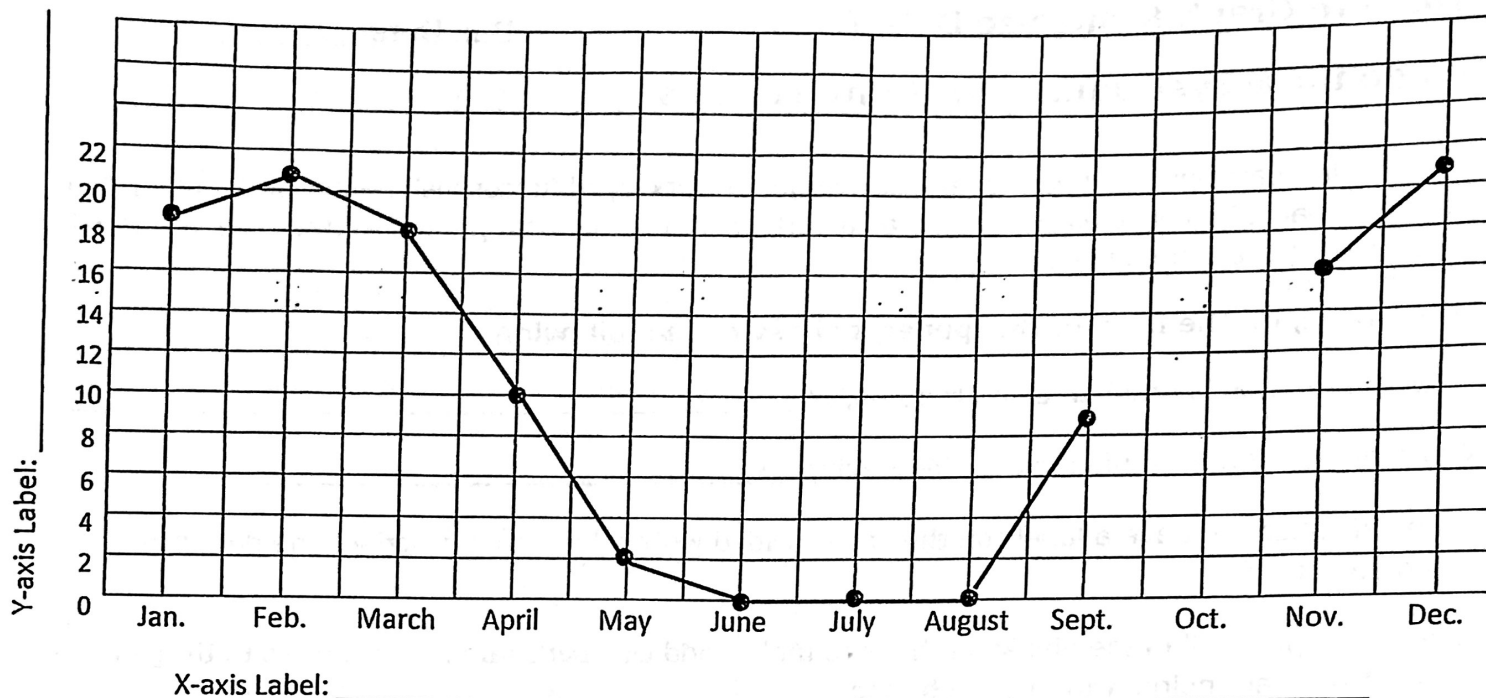
Use the graph, on the back of this paper, to answer the following.

1. What information is graphed along the x-axis? _____
2. What information is graphed along the y-axis? _____
3. Each axis needs to have a label; on the line provided write a label that describes the data presented along each axis.
4. Use the graph to fill in the blanks in the data table. Add October's number of junco's to the graph and connect the data points with a straight line.
5. Numbers on the y-axis are always written in intervals; intervals are just a fancier way to describe skip-counting. Counting by five's is an example of skip-counting (5, 10, 15, etc.) – in this case the interval would be five. What is the interval plotted on the y-axis on the junco graph? _____
6. Graphs always need to have a title to help the reader understand what the graph is about. On the line provided, write a title that clearly describes this graph.
7. In what months did no juncos visit the bird feeder? _____
8. Which three months had the most juncos visiting the feeder? _____
9. In what season are junco's most likely to visit the feeder? _____
10. Based on the data, would you hypothesize that juncos are migratory birds – meaning they move to different areas during different seasons? Explain your answer in complete sentences.

Data Table

Month	# of Juncos	Month	# of Juncos	Month	# of Juncos	Month	# of Juncos
January	19	April		July		October	18
February	21	May	2	August	0	November	
March		June	0	September	9	December	21

Title: _____



11. Do you think it is necessary for the birdwatcher always to use the same type of bird seed throughout the months of her data collection? Explain your answer in complete sentences.

12. What other factors would the birdwatcher need to control, or keep constant, to ensure **only** the time of year affects the number of birds visiting the feeder?

13. Are data from one bird feeder, for one year, enough data to make a definitive conclusion that the dark-eyed juncos in Maryland are migratory? Think of at least one other reason that might have caused the number of visits to vary so much per month.

Name _____

Date _____

Learning to Graph & Analyze Data II:

Due Date _____

How does the number of nesting pairs change from year to year?

A small uninhabited island serves as a sanctuary for dozens of bird species. The island provides a great opportunity for wildlife biologists to study bird behavior and to track the number of nesting pairs on the island each spring. Two of the annual nesters are species of heron – Great Blue herons and Great egrets. Herons are wading birds that stalk their prey – fish, frogs and other small animals, in shallow water. They mostly build their nests in tall trees. The data table shows the number of nesting pairs counted on the island each spring over a nine year period.

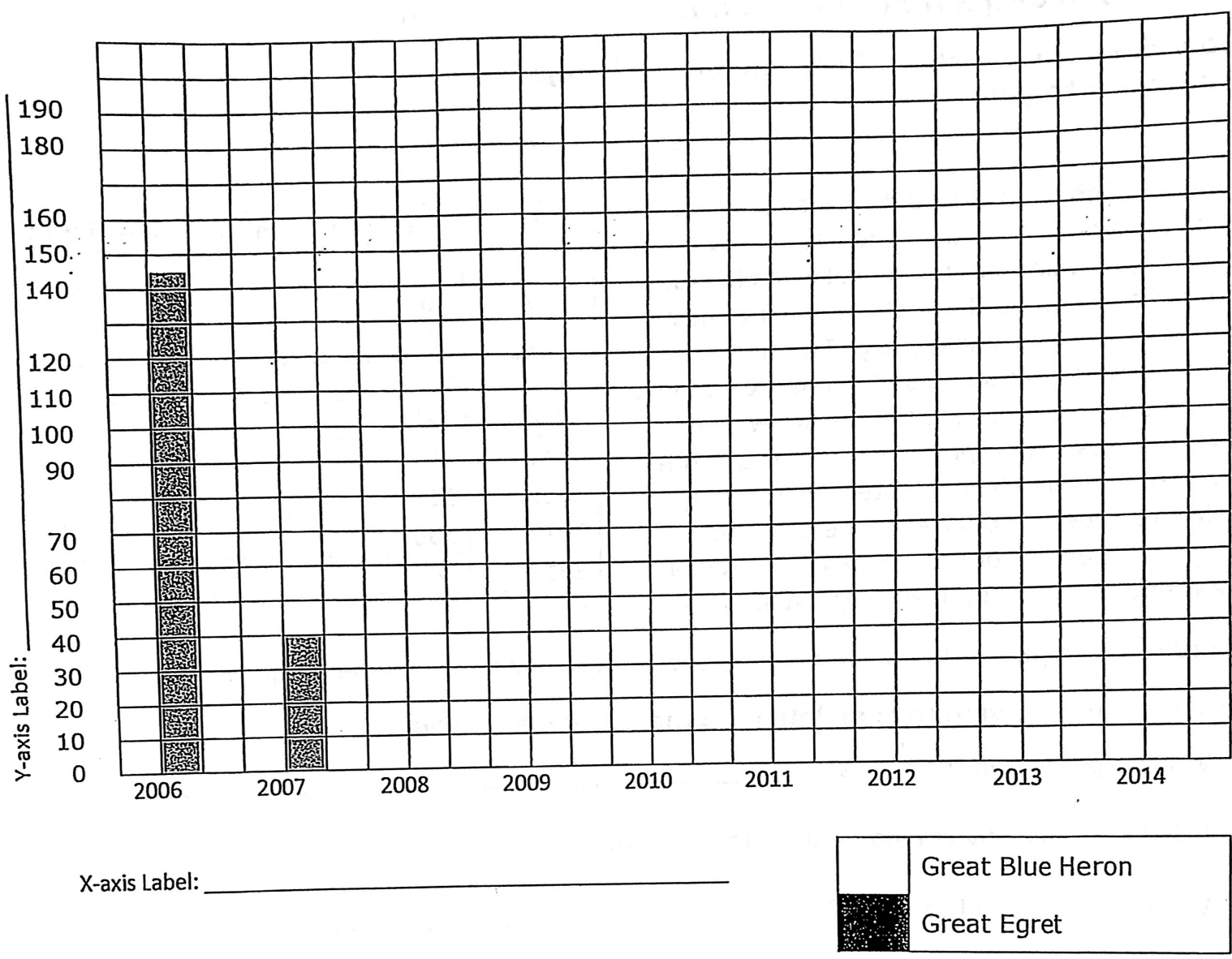
year	Great blue heron	Great Egret
2006	66	145
2007	70	40
2008	88	191
2009	92	109
2010	125	151
2011	107	139
2012	51	25
2013	130	172
2014	78	179

In order to compare data on two different species will create a double-bar graph.

Answer the following to complete the graph on the next page:

1. What is plotted on the x-axis? _____
2. Label the x-axis by writing on the line provided.
3. What is plotted on the y-axis? _____
4. Label the y-axis by writing on the line provided.
5. What is the lowest number to be plotted on y-axis? _____ The largest? _____ Now you know the scale of numbers to be plotted.
6. What is the interval plotted on the y-axis? _____
7. Note that the numbering of the y-axis is not complete; fill in the missing numbers.
8. An interval of 5 could be a good choice for the y-axis. Look at the graph and the scale and explain why an interval of 5 was not chosen.

Title: _____



9. On the line provided, write a title that describes the data being presented in the graph.
10. Using only the graph, estimate the number of Great Blue Heron nesting pairs on the island in 2006: _____; in 2007: _____. What about Great Egrets in 2006: _____; in 2007: _____?
11. How do your estimates compare to the actual numbers presented in the data table? Answer in complete sentences:

12. Using the bars for 2006 and 2007 as a guide, plot the remaining data.

Data Analysis

1. Looking at the bars representing the nesting pairs of each species, which species tends to have more nesting pairs than the other? _____

2. In which year did Great Blue herons have the smallest number of breeding pairs? _____ In which year did Great egrets have the smallest number of breeding pairs? _____.

3. In the year **after** the least number of pairs were counted, how many more breeding pairs were there on the island for each species?

Great Blue herons _____ Great egrets _____

4. Use the data to explain whether you agree or disagree with the statement below; answer in complete sentences.

In general, when the number of pairs of one species increased from one year to the next so did the number of pairs of the other species.

5. Describe three factors that might cause the number of nesting herons to drop significantly from one year to the next. Think about what can affect the population of the species in the area and the bird's habitat needs for nesting.
