

Applications

For Exercises 1 and 2, use the names of Mr. Young's students listed below.

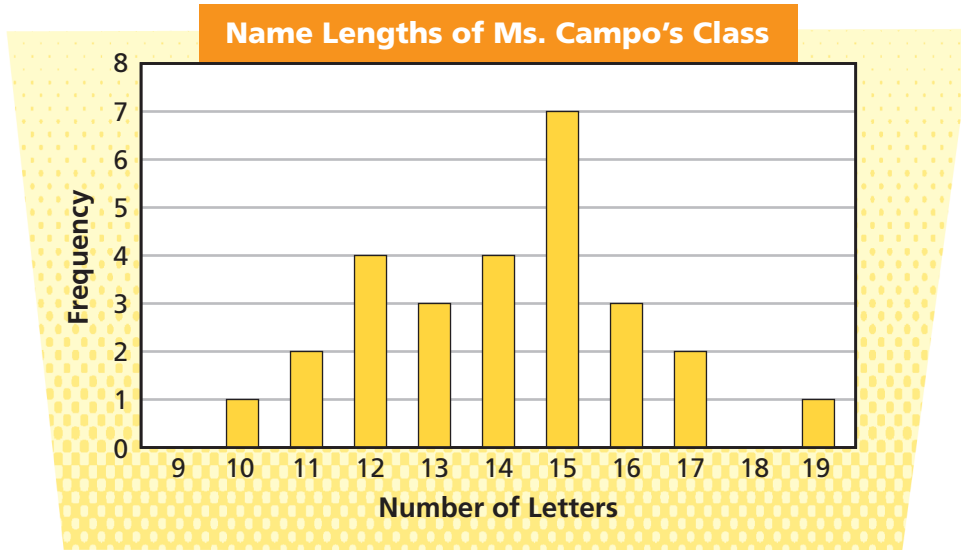
Ben Foster	Rosita Ramirez
Ava Baker	Kimberly Pace
Lucas Fuentes	Paula Wheeler
Juan Norinda	Darnell Fay
Ron Weaver	Jeremy Yosho
Bryan Wong	Cora Harris
Toby Vanhook	Corey Brooks
Katrina Roberson	Tijuana Degraffenreid

1. Make a table showing the length of each name. Then make both a line plot and a bar graph of the name lengths.
2. What is the typical name length for Mr. Young's students? Use the mode, median, and range to help you answer this question.

For Exercises 3–6, make a line plot or bar graph of a data distribution that fits each description.

3. 24 names, with a range of 12 letters
4. 7 names, with a median length of 14 letters
5. 13 names, with a median length of 13 letters, and with data that vary from 8 letters to 17 letters
6. 16 names, with a median length of $14\frac{1}{2}$ letters, and with data that vary from 11 letters to 20 letters

For Exercises 7–12, use the bar graph below.



7. How does the data distribution from Ms. Campo's class compare with the data distribution from Mr. Young's class in Exercise 1?
8. **Multiple Choice** For Ms. Campo's students, which value (name length) occurs most frequently?
 - A. 12 letters
 - B. 14 letters
 - C. 15 letters
 - D. 16 letters
9. **Multiple Choice** What is the name of the value found in Exercise 8?
 - F. range
 - G. median
 - H. mode
 - J. none of these
10. How many students are in Ms. Campo's class? Explain how you got your answer.
11. What is the range of name lengths for this class?
12. What is the median name length? Explain how you got your answer.
13. Look at the table and graph for Number of Pets from the introduction to Problem 1.4. Four new students join the class. One student has 3 pets, two students each have 7 pets, and the last student has 16 pets.
 - a. Copy the graph and show these data included.
 - b. With these new data included, does the median change or stay the same? Explain your reasoning.



For: Multiple-Choice Skills Practice
Web Code: ama-8154

For Exercises 14–20, tell whether the answers to the questions are numerical or categorical data.

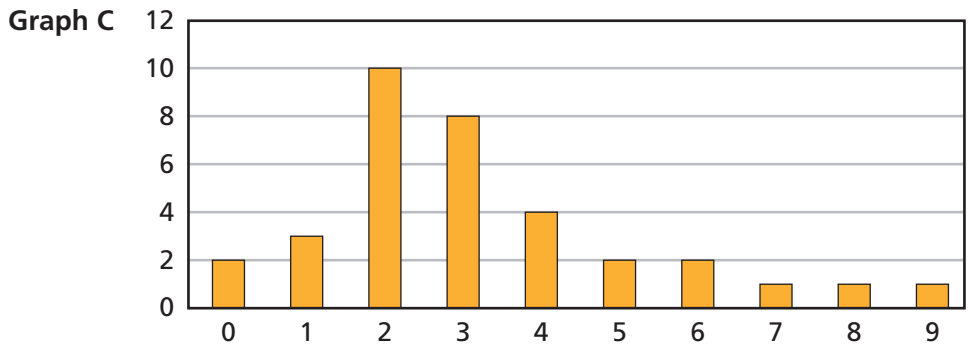
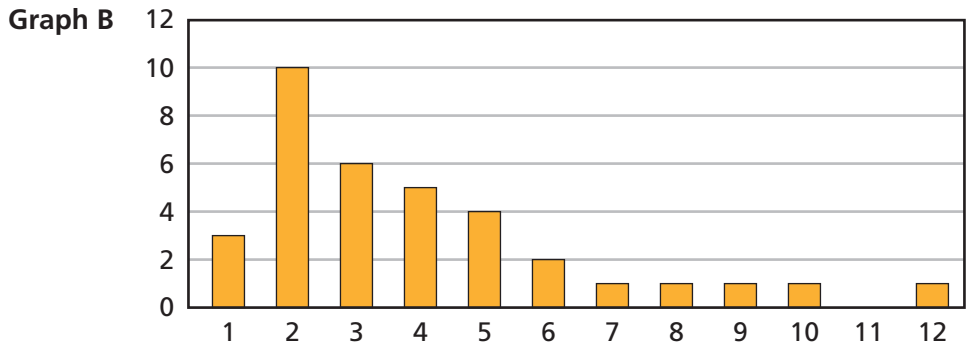
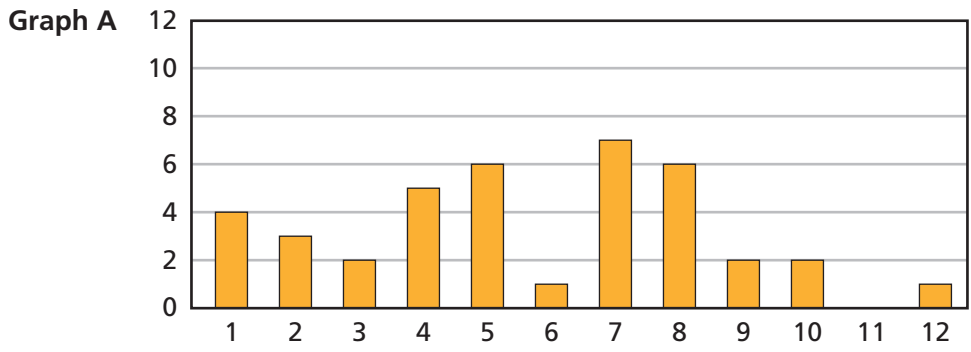
- 14.** What is your height in centimeters?
- 15.** What is your favorite musical group?
- 16.** What would you like to do after you graduate from high school?
- 17.** Are students in Mr. Perez’s class older than students in Ms. Sato’s class?
- 18.** What kind(s) of transportation do you use to get to school?
- 19.** How much time do you spend doing homework?
- 20.** On a scale of 1 to 7, with 7 being outstanding and 1 being poor, how would you rate the cafeteria food?



- 21.** Use the graph for Name Lengths from Exercises 7–12. Make a horizontal bar graph of Ms. Campo’s students’ name length data.
 - a.** What is the median name length? How does it compare with the answer you found in Exercise 12? Why do you think this is so?
 - b.** A new student joins Ms. Campo’s class. The student has a name length of 16 letters. Add this data value to your graph. Does the median change? Explain.

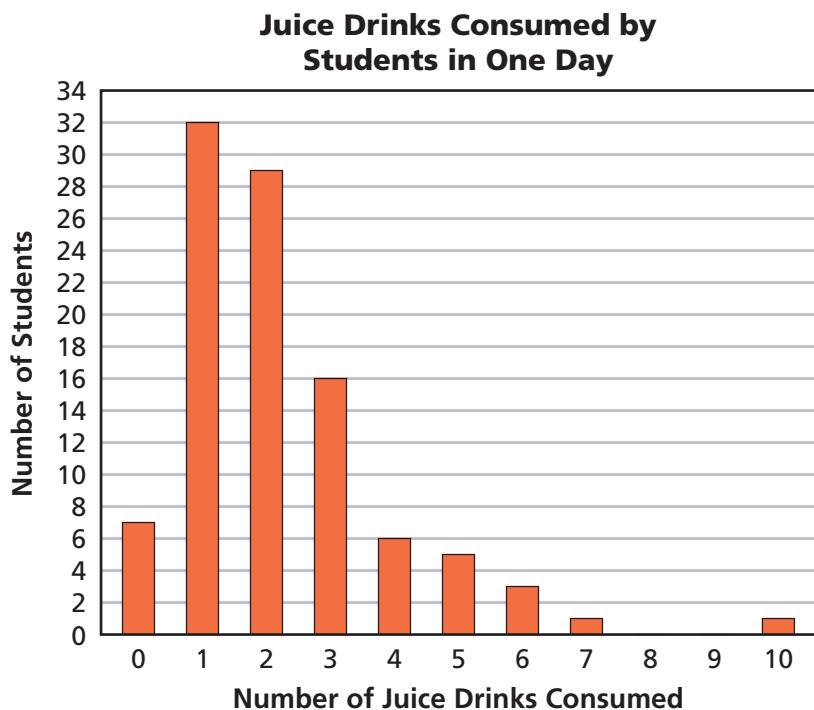
Connections

For Exercises 22–25, use the bar graphs below. The graphs show information about a class of middle-school students.



22. Which graph might show the number of children in the students' families? Explain.
23. Which graph might show the birth months of the students? Explain.
Hint: Months are often written using numbers instead of names. For example, 1 means January, 2 means February, etc.
24. Which graph might show the number of toppings students like on their pizzas? Explain.
25. Give a possible title, a label for the vertical axis, and a label for the horizontal axis for each graph based on your answers to Exercises 22–24.

For Exercises 26–31, use the graph below. The graph shows the number of juice drinks 100 middle-school students consume in one day.



26. A student used this graph to estimate that the median number of juice drinks students consume in a day is five. How can you tell that this estimate is not correct without finding the median?
27. Another student estimates that the median number of juice drinks is 1. Explain why the student is not correct.
28. **Multiple Choice** What is the range of these data?
 - A. 9 drinks
 - B. 10 drinks
 - C. 11 drinks
 - D. 12 drinks
29.
 - a. What fraction of the students consumed two juice drinks?
 - b. What percent of the students consumed three juice drinks?
30. What is the total number of juice drinks these 100 students consume in one day? How did you determine your answer?
31. Are these data numerical or categorical? Explain.
32. Alex has a rat that is three years old. He wonders if his rat is old compared to other rats. At the pet store, he finds out that the median age for a rat is $2\frac{1}{2}$ years.
 - a. What does the median tell Alex about the life span for a rat?
 - b. How would knowing how the data vary from the least value to the greatest value help Alex predict the life span of his rat?

Homework Help Online

 For: Help with Exercise 29
 Web Code: ame-8129

Extensions

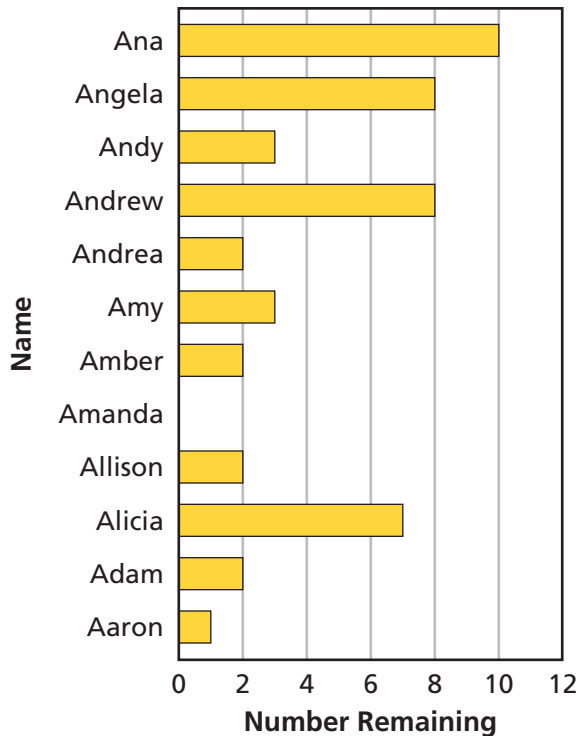
For Exercises 33–39, use the bar graphs below.

A greeting card store sells stickers and street signs with first names on them. The store ordered 12 stickers and 12 street signs for each name. The table and the four bar graphs show the numbers of stickers and street signs that remain for the names that begin with the letter A.

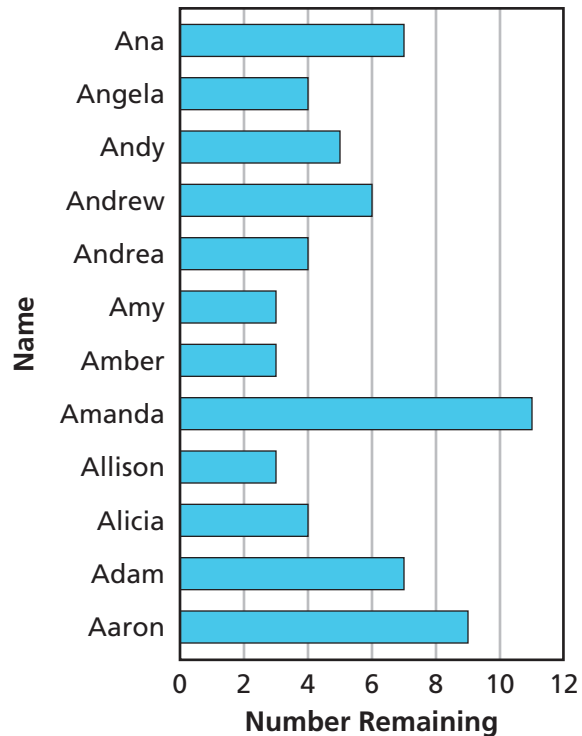
Sales of Stickers and Street Signs

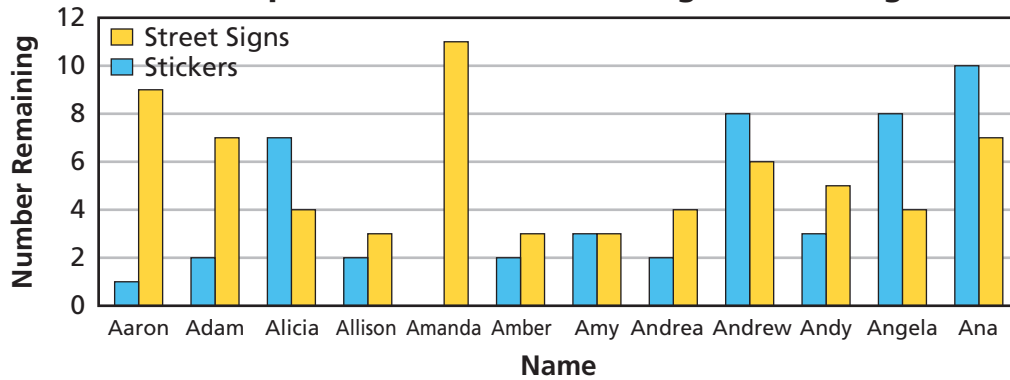
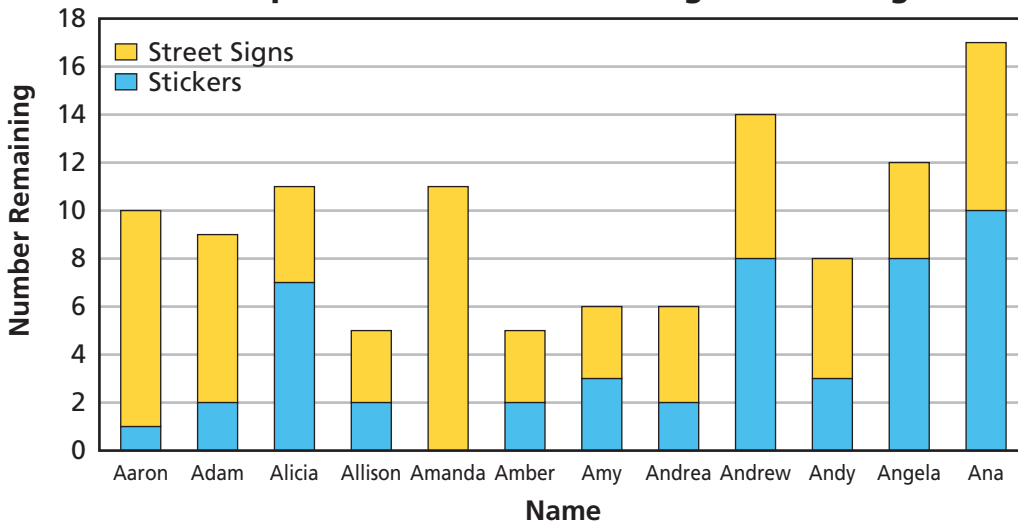
Name	Stickers Remaining	Street Signs Remaining
Aaron	1	9
Adam	2	7
Alicia	7	4
Allison	2	3
Amanda	0	11
Amber	2	3
Amy	3	3
Andrea	2	4
Andrew	8	6
Andy	3	5
Angela	8	4
Ana	10	7

**Graph A:
Stickers Remaining**



**Graph B:
Street Signs Remaining**



Graph C: Stickers and Street Signs Remaining**Graph D: Stickers and Street Signs Remaining**

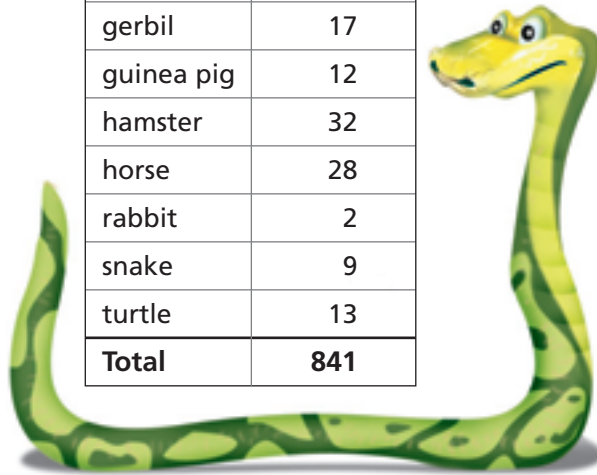
33. Use Graph A. How many Alicia stickers are left? How many Alicia stickers have been sold? Explain.
34. Use Graph B. How many Alicia street signs are left? How many Alicia street signs have been sold? Explain.
35. Are the stickers more popular than the street signs? Explain.
36. If each sticker costs \$1.50, how much money has the store collected from selling name stickers for names beginning with the letter A?
37. For which name has the store sold the most stickers? For which name has the store sold the least stickers?
38. Graph C is a *double bar graph*. Use this graph to determine the name(s) for which the number of street signs sold and the number of stickers sold are the same.
39. Graph D is a *stacked bar graph*. Use this graph to determine whether some names are more popular than others. Justify your answer.

For Exercises 40–43, use the data below.

These data show the kinds of pets middle-school students have. From these data we cannot tell how many students were surveyed. We only know that 841 pets were counted.

**Kinds of Pets
Students Have**

Pet	Frequency
bird	61
cat	184
dog	180
fish	303
gerbil	17
guinea pig	12
hamster	32
horse	28
rabbit	2
snake	9
turtle	13
Total	841



- 40.** Make a bar graph to display the distribution of these data. Think about how you will design and label the horizontal and vertical axes.
- 41.** Use the information displayed in your graph to write a paragraph about the pets these students have. Compare these data with the data in Problem 1.4.
- 42.** Jane said that close to 50% of the animals owned were birds, cats, or dogs. Do you agree or disagree? Explain.
- 43.** What might be a good estimate of how many students were surveyed? (Use the data about number of pets each student had from Problem 1.4 to help you.) Explain.