



1. Think of numerical variables you would like to study about your classmates. Add these variables to the table you created in Lesson 1. List possible values for each variable.
2. With your class, choose a numerical variable you wish to study that helps you describe your class. Choose from those variables you listed in Question 1.



Collect the data and organize it in a class table.



Graph the data in a bar graph. Use *Centimeter Graph Paper*. Be sure to title your graph and label the axes.



3. A. Which variable is on the horizontal axis on your graph?
B. What values for this variable are shown on the graph?
C. Is this variable a categorical or a numerical variable? How do you know?
4. A. Which variable is on the vertical axis on your graph?
B. Is this variable a categorical or a numerical variable? How do you know?
5. A. Which bar is the tallest on your graph?
B. What does the tallest bar represent?
6. A. Which bar is the shortest on your graph?
B. What does the shortest bar represent?

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Student Guide

Questions 1–14 (SG pp. 10–12)

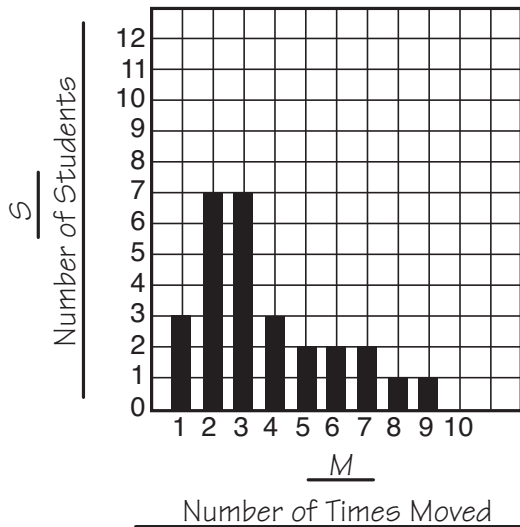
1–2.* Answers will vary. See Figure 1 in Lesson 1 for a sample table.

The answers to *Questions 3–6* are based on the sample data tables and graph in Figures 1–3 in Lesson 2. Answers for these questions will vary depending on your class data.

3. A. Number of Pets
B. 0, 1, 2, 3, 4, 5, 6
C. Numerical; the values are numbers.
4. A. Number of Students
B. Numerical; the values are numbers.
5. A. The bar for 2 pets is the tallest.
B. It shows that the most common number of pets in a household is 2 pets.
6. A. The bar for 4 pets and the bar for 6 pets are the shortest bars.
B. These bars show that the least common numbers of pets in a household are 4 pets and 6 pets.

*Answers and/or discussion are included in the lesson.

- 7. A. numerical
B. numerical
- 8.* A. No; The shape of the graph tells us more when the values are in order.
B. No.
- 9.* Answers will vary. Most of the students live near the school—3 blocks or closer.
- 10. A. 14 students
B. More than half
- 11. Number of Times Families Moved



- 12. A. numerical
B. numerical
C. Two bars are tallest: the bar that shows that seven students moved twice and the bar that shows that seven students moved three times. These two bars represent the most common number of times students have moved—2 or 3 times.
D. 9 times; The bar for 9 times is the last bar on the horizontal axis.
E. Answers will vary. The graph looks like a roller coaster. First it is not going up much, then it goes up high, and then it gradually decreases in height.

- 7. A. Look back at Room 204's graph called Number of Blocks We Live from School. Is the variable they graphed on the horizontal axis numerical or categorical?
B. Is the variable they graphed on the vertical axis numerical or categorical?
- 8. A. Would Room 204's graph be as easy to read if the numbers (values) on the horizontal axis were not in order? Explain.
B. Does it matter in what order you label the horizontal axis when the variable is categorical? Refer back to Room 204's Main Interests graph in Lesson 1.
- 9. What story does the graph tell you about the students in Room 204?
- 10. A. How many students in Room 204 live 3 blocks or less from school?
B. Is this more or less than half the class?

✓ **Check-In: Questions 11-14**

You will need one sheet of *Centimeter Graph Paper* to complete this Check-In.

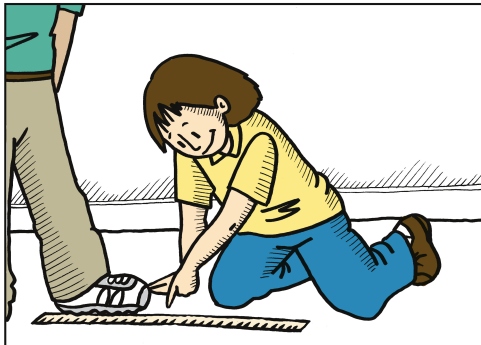
- 11. Room 204's Phoenix pen pals sent back the following data on the number of times their families have moved. Use the data to create a bar graph. Remember to label the axes and title your graph.
- 12. Answer the following questions using the bar graph you drew in Question 11.
 - A. Is the variable on your horizontal axis numerical or categorical?
 - B. Is the variable on your vertical axis numerical or categorical?
 - C. Which is the tallest bar on the graph? What does it tell you?
 - D. What is the most number of times any student has moved? How do you know?
 - E. Describe the shape of your graph.

Number of Times Families Moved

Number of Times Moved	Number of Students
0	0
1	3
2	7
3	7
4	3
5	2
6	2
7	2
8	1
9	1
10	0

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13. What story does the graph tell you about the Phoenix pen pals?
14. Decide whether each of the variables below is a numerical or categorical variable. Then, name three possible values for each variable.
- A. ice cream flavors
 - B. number of telephones in homes
 - C. heights of tables at home
 - D. favorite kind of movie
 - E. weights of newborn babies
 - F. foot size
 - G. types of vehicles



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13. Answers will vary. It is most common for a student in the Phoenix classroom to have moved 2 or 3 times. Every student has moved at least once.
14. Answers will vary.
- A. categorical: vanilla, chocolate, mint
 - B. numerical: 1, 2, 3
 - C. categorical or numerical: short, medium, tall (categorical); or 30 inches, 31 inches, 32 inches (numerical)
 - D. categorical: horror, drama, comedy
 - E. numerical: 7 lbs, 8 lbs, 9 lbs
 - F. categorical or numerical: small, medium, large; or 7 inches, 8 inches, 9 inches
 - G. categorical: small, medium, large; or trucks, cars, airplanes