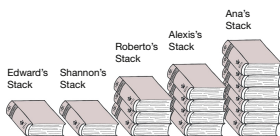


To show the class how to find the mode and median, Mr. Moreno asked five book club members to stack up *Student Guides* on his desk equal to the number of books they had read last week. Edward, Shannon, Roberto, Alexis, and Ana arranged their stacks from smallest to largest. The number of books stacked up most often is the mode. The median number of books is the number in the stack exactly in the middle.



Looking at Mr. Moreno's Data

1. Use the picture of the stacked books to answer these questions.
 - A. What are the numbers in this data set?
 - B. Whose stack has the median number of books?
 - C. What is the median number of books?
 - D. What number of books is the mode, that is, what number of books appears most often?
 - E. Which number, the median or the mode, is more "typical" for this group of data? Why?

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Using Averages to Answer Questions (SG pp. 11–15)

Questions 1–8

1. **A.** 1, 1, 3, 4, 6
B. Roberto's stack
C. 3 books is the median
D. 1 book is the mode because it appears most often.
E. Answers may vary. The median is probably more typical for this data set because it is in the middle of the data.

2. Number of Books Read Last Week

Number of books	Tally	Number of Students
0		2
1		7
2		3
3		4
4		3
5		0
6		2
7		1

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Check-In: Questions 2-5

2. Mr. Moreno's data for the whole class is shown in the table at the right. Use this data to make the "Number of Books Read Last Week" table as shown below.

Number of Books Read Last Week

B Number of Books	Tally	N Number of Students
0		
1		
2		
3		
4		
5		
6		
7		

Mr. Moreno's Book Club

Student Name	B Number of Books
Edward	1
Shannon	1
Roberto	3
Alexis	4
Ana	6
Jessie	1
Nita	0
Tanya	1
Keenya	2
Luis	4
Nicholas	1
Romesh	3
Grace	1
Frank	6
Linda	2
Jerome	4
John	0
Irma	7
Jacob	2
Maya	3
Jackie	3
Michael	1

3. Use *Centimeter Graph Paper* to make a graph of the data.



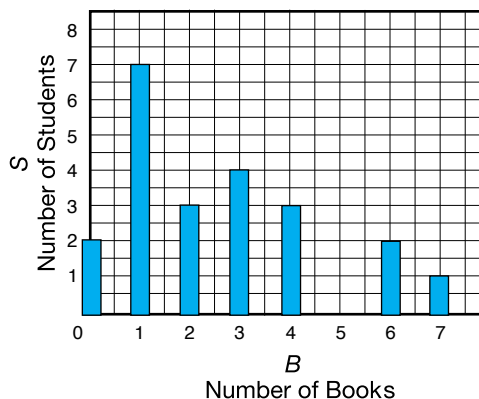
Did you
 • title your graph?
 • label the axes with the variables?
 • label the lines, not the spaces?
 • center the bars on the lines?

4. Use the data to find the median and mode for the number of books read by all of the students in Mr. Moreno's class.
5. Based on Mr. Moreno's data, how many books would you tell him to buy for each student in his book club for the whole school year? There are about 36 weeks in one school year. Explain your thinking.

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3.*

Books Read Last Week



4. The median is 2 books; the mode is 1 book.
5. Answers will vary. Using the median and the mode to make an estimate: The median tells us that half the students read 2 or more books and half read 2 or less. The mode tells us that 7 of the 22 students read just one book. So, Mr. Moreno will need at least one book for each student each week or 36 books, but not 2 per student. Estimates between 36 and 72 are reasonable.

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

6.* Possible response: Yes; since most students have at least two pets it means the class must like animals. Or, No; just because most of the student homes have pets it does not mean the class likes animals. The pets at some of the houses may belong to a different family member. The student who lives in that home may not really like animals.

7–8. Answers will depend on the question the class chose to study, the variables they selected, and the data collected.

Mr. Moreno: Those are both good. But you can also see that some children may take their animal books out of the library so they would not be able to count them in the data; or some might have more animal shows available to watch than others depending on how many channels they can choose from. Do you see how taking several different types of data might help us answer the question better?

Jacob: Yes, but will knowing we like animals persuade you to let us have a class pet?

Mr. Moreno: Well, I need enough data to predict whether or not the students in our class will take care of a pet. It would be hard for students to take care of a pet if they didn't like animals.

Maya: What do you think everybody, do we have the data?



6. Do you think the class has enough data to persuade their teacher to get a class pet? Explain your reasoning with your group. Be ready to share your group's thinking with your class.

Investigate Our Data

Use the data your class collected at the beginning of this lesson to answer the questions.

7. What is the big question our class chose to study?

8. Is there another variable you think would have answered this big question better? If so, which variable and why? If not, explain why?

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Homework (SG p. 16)

Questions 1–4

1. The median is $1\frac{1}{2}$ (1.5) television shows. The two middle numbers are 1 and 2; $1\frac{1}{2}$ is midway between the two.
2. The mode is 1 television show.
3. **A–B.** Answers will vary. Another possible numerical variable is the number of hours or minutes of TV watching; a possible categorical variable is whether the television watching comes before or after doing homework.
4. Answers will vary. Possible responses: Luis can tell his father that he watches about the average number of shows that his friends watch, since the median is 1.5 shows and the mode is 1. Or, he can say that he watches a little less than the median number, so he doesn't watch too much.

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Luis wanted to watch television after finishing his schoolwork, but his father said, "Not tonight. You watch too much TV." The next day Luis decided to take a survey of his classmates to find out how much television they watch to see if he really does watch a lot of TV compared to his friends. He recorded his data in a table.

1. What is the median number of television shows watched? Show or tell how you know.
2. What number of television shows is the mode?
3. **A.** Did Luis choose a good variable to answer his question? Why or why not?
B. What is another variable Luis could have studied to answer the question? Is your variable categorical or numerical?
4. Based on this data, what can Luis tell his father about how much television he should be able to watch?

Luis's Television Survey

Name	Number of Television Shows Watched Last Night
Michael	0
Maya	4
Jackie	3
Ming	1
Roberto	2
Nila	2
Romesh	1
Luis	1

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