PROBLEM SOLVED
MAKING SENSE OF MATHEMATICS

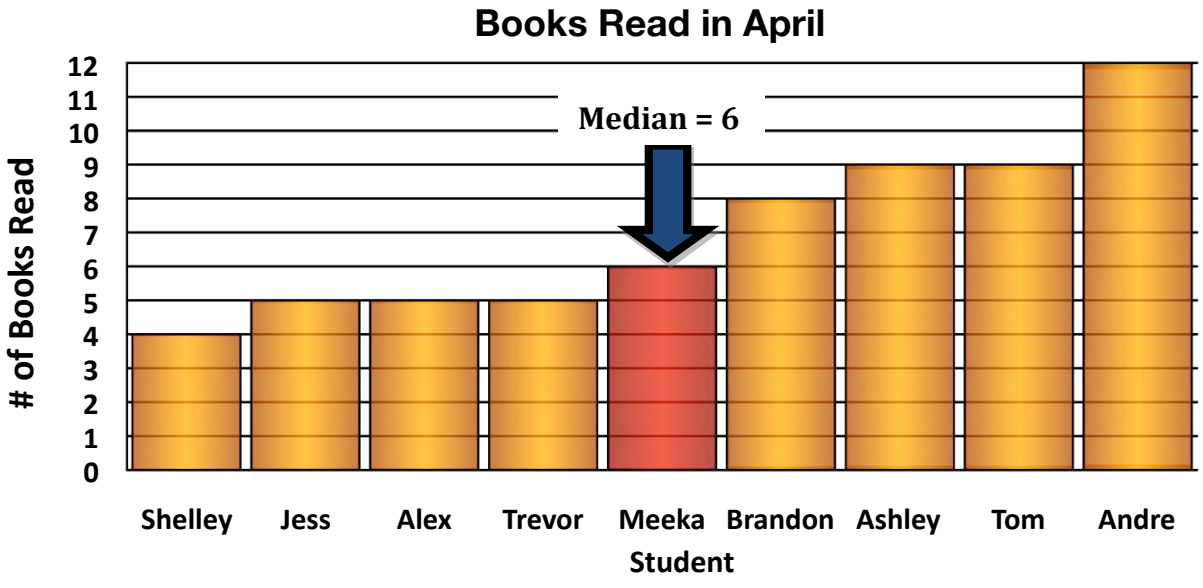
Mean, Median, Mode (Part 1)
A Closer Look at the Video

After watching the *Mean, Median, Mode (Part 1)* video, make sense of the mathematics by reading through the problem situation and solution. Use the comments and questions in bold to help you understand mean, median, and mode.

Problem: The book club wants to describe the average number of books a club member reads in one month. Club members each kept track of the number of books they read during the month of April and reported their results. Analyze the data in the table below and describe the average number of books the students read.

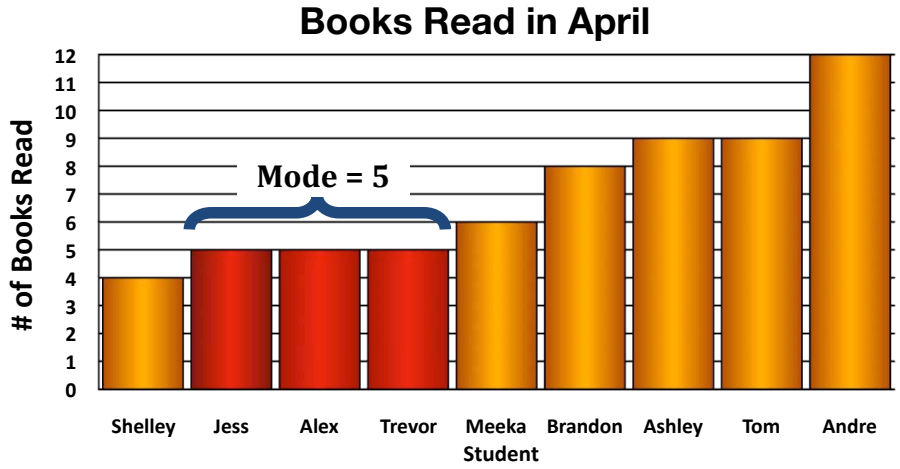
After-School Book Club	
Borrower's Name	**Books Read**
Andre	12
Tom	9
Jess	5
Brandon	8
Shelley	4
Ashley	9
Alex	5
Meeka	6
Trevor	5

What is one way to describe the number of books read by a typical club member during the month of April? One way to describe the number of books read by a typical club member is to use the middle number. We can arrange the number of books read in order from smallest to largest, as shown below, to determine the middle number. This number is called the median. In this case, the median, or middle number, is six.



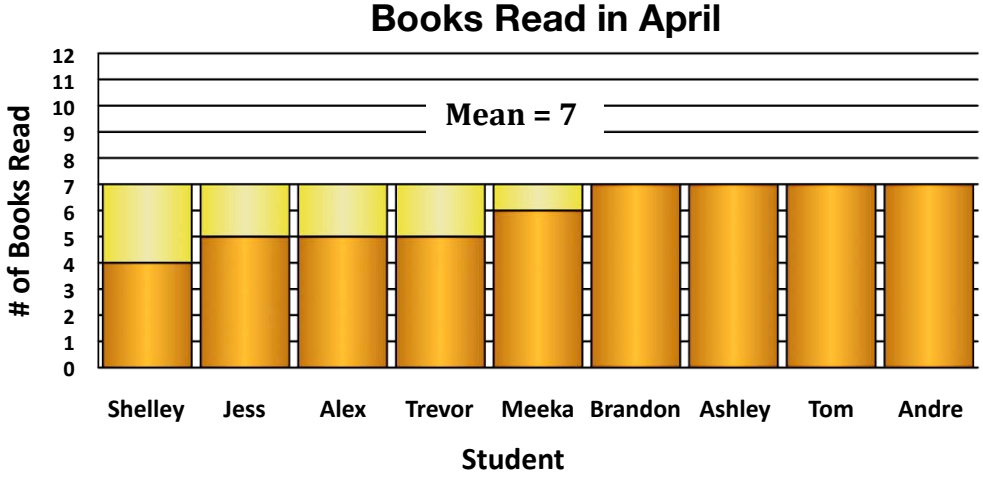
MakingSense

What is a second way to describe the number of books read by a typical club member during the month of April? Another way to describe the number of books read by a typical club member is to use the number that occurs most often, which is called the mode. If we look at the graph, we can see that three students read five books. Five is the most common number, so it is the mode.

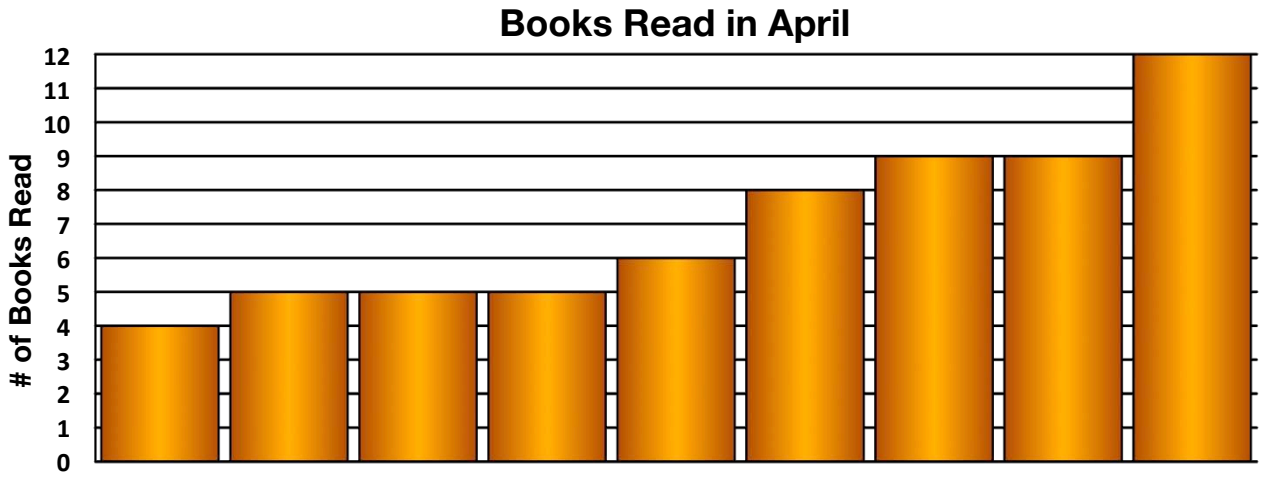


Can a set of data have more than one mode? If a data set has two numbers that occur more often than the other numbers, that data set has two modes. When a data set has two modes, it is described as bimodal. When large sets of data are bimodal, the two modes may not be equally common. If there are three or more numbers that occur more often than the others, the data set is multimodal. Statisticians usually do not use the mode as a measure of center when data sets are multimodal.

What is a third way to describe the number of books read by a typical club member? A third way to describe the number of books read by a typical club member is to use the mean. One way to determine the mean is by equalizing the total number of books read by the nine students. If some books are moved from the students who read more books to the students who read fewer books, the nine columns become equal in height. Each column now has seven books; seven is the mean number of books read. Equalizing helps you visualize what the mean represents.



What is another way to find the mean? Another way to find the mean is to add the numbers together and divide by the number of people. With both methods, you are dividing the sixty-three books equally among the nine members.



$$\text{Mean} = \frac{4 + 5 + 5 + 5 + 6 + 8 + 9 + 9 + 12}{9}$$

$$= \frac{63}{9}$$

$$= 7$$

Mean, median, and mode are three common ways to describe the center of a set of data. We used each of these values to describe the average number of books a club member read in one month.

median = 6
mode = 5
mean = 7

Notice that the values are close but not equal. Which value you do you think best describes the number of books a typical club member read in one month? With our data, there is not one correct answer to this question. Watch *Mean, Median, Mode (Part 2)* to investigate a situation where the three values – mean, median, and mode – are not equally representative of the data.