

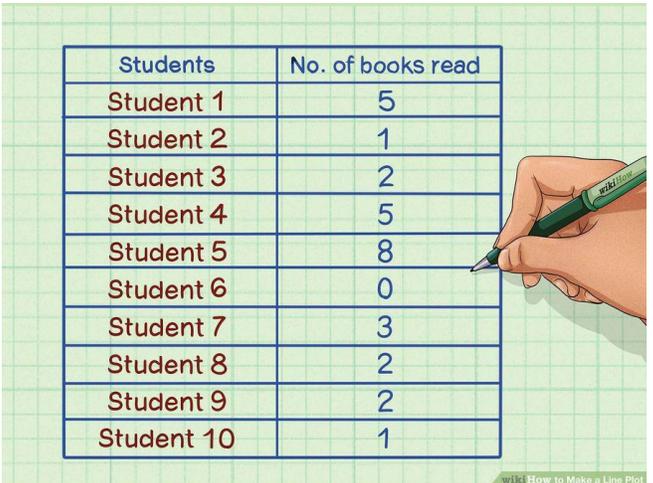
## Topic 11: Line Plots

### How To Make a Line Plot:

#### Steps:

1. Gather your data. Your data will be comprised of the frequency with which a certain act or event occurs within a given set of people or things. For example, let's say that 10 students in a third grade class were asked the following question: "How many books did you read over the summer?" Your data is the amount of books that were read by each student; it does not matter which student read how many books. What matters is how many books were read. So, let's say that these are the ten different responses for how many books were read over the summer:

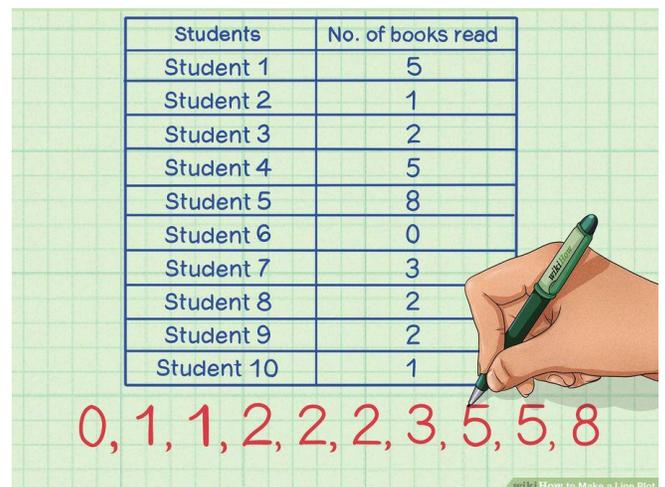
5, 1, 2, 5, 8, 0, 3, 2, 2, 1



Students	No. of books read
Student 1	5
Student 2	1
Student 3	2
Student 4	5
Student 5	8
Student 6	0
Student 7	3
Student 8	2
Student 9	2
Student 10	1

2. Organize your data in numerical order. Organizing your data from smallest to largest can help you interpret the data and to get a better sense of the numbers and scope of numbers you are working with. Take the numbers you have for how many books were read by each student and reorganize them from smallest to largest. You can cross off each number from the first list before you write it on the second list. When you're done, check to see that you still have the same amount of numbers (10). Here is how they would look:

0, 1, 1, 2, 2, 2, 3, 5, 5, 8

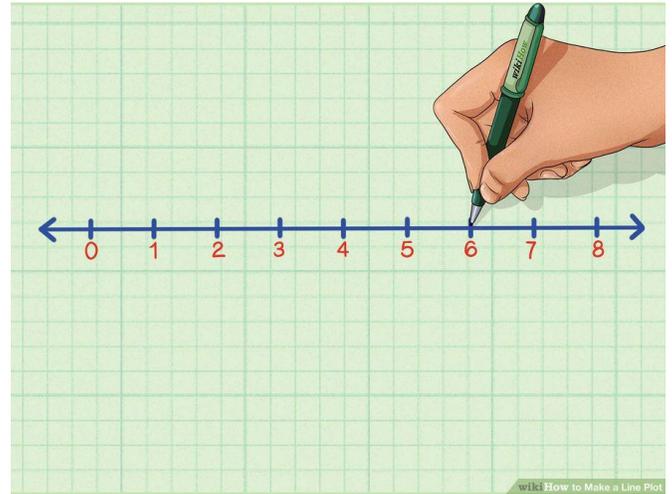


Students	No. of books read
Student 1	5
Student 2	1
Student 3	2
Student 4	5
Student 5	8
Student 6	0
Student 7	3
Student 8	2
Student 9	2
Student 10	1

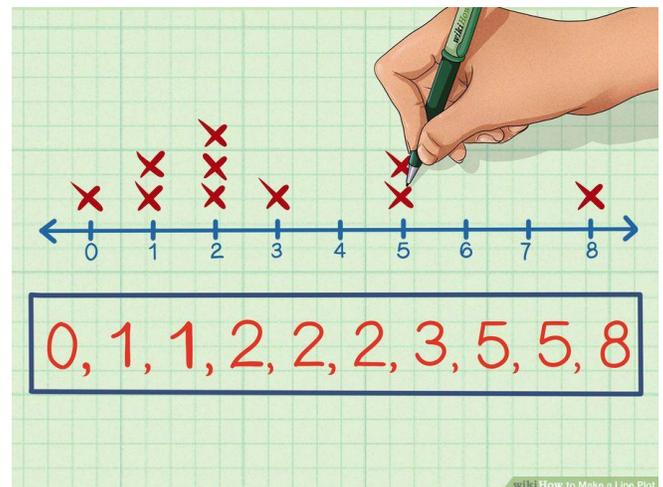
0, 1, 1, 2, 2, 2, 3, 5, 5, 8

3. Create a horizontal line. Check out your data and see what your largest and smallest data is. Your smallest number is 0 and your largest is 8, so you will have to draw a horizontal line that spans from 0 to 8. If you're working with a larger range of numbers, then you won't have to label every single number. For your purposes here, though, you can draw a horizontal line that labels the numbers from 0-8, moving from left to right. It can just look like this:

0 1 2 3 4 5 6 7 8



4. Mark an "X" above the horizontal line every time the data occurs. So, mark 1 X above 0 because it occurs once, mark 2 Xs above 1 because it occurs twice, mark 3 Xs above 2 because it occurs 3 times, mark 2 Xs above 5 because it occurs twice, and mark 1 X above 8 because it occurs once. Now that you have made a line plot of the frequency with which a class of 10 students read a certain amount of books, you can sit back and interpret the data.



Any numbers that are remarkably different or separated from the other numbers are called **outliers**. In our example, 8 would be an outlier.

The number with the most Xs is called the **mode**. In our example this would be 2.

The **range** of the data is the difference between the highest number with Xs and the lowest number with Xs. In our example this would be 8 and 0. The difference between 8 and 0 is 8. ( $8 - 0 = 8$ ) So the range of this set of data is 8.