

Dot Plots

by Sophia



WHAT'S COVERED

Constructing and interpreting a dot plot is important when visually organizing data from a table or chart. This tutorial will examine the following:

1. [Dotplots](#)
2. [Ideal Settings for Dotplots](#)

1. Dotplots

When the data is quantitative, **dot plots** are used exclusively when their values are close together and discrete. They can also be used for qualitative data.

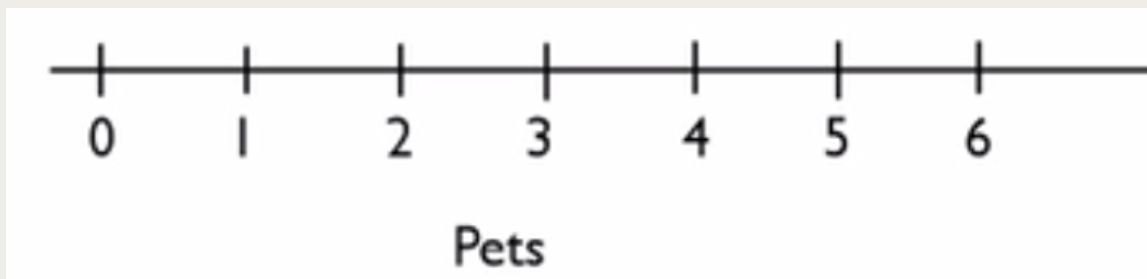
IN CONTEXT

Suppose you gathered information on students and the number of pets they have, and you want to create a dot plot to visually organize the information.

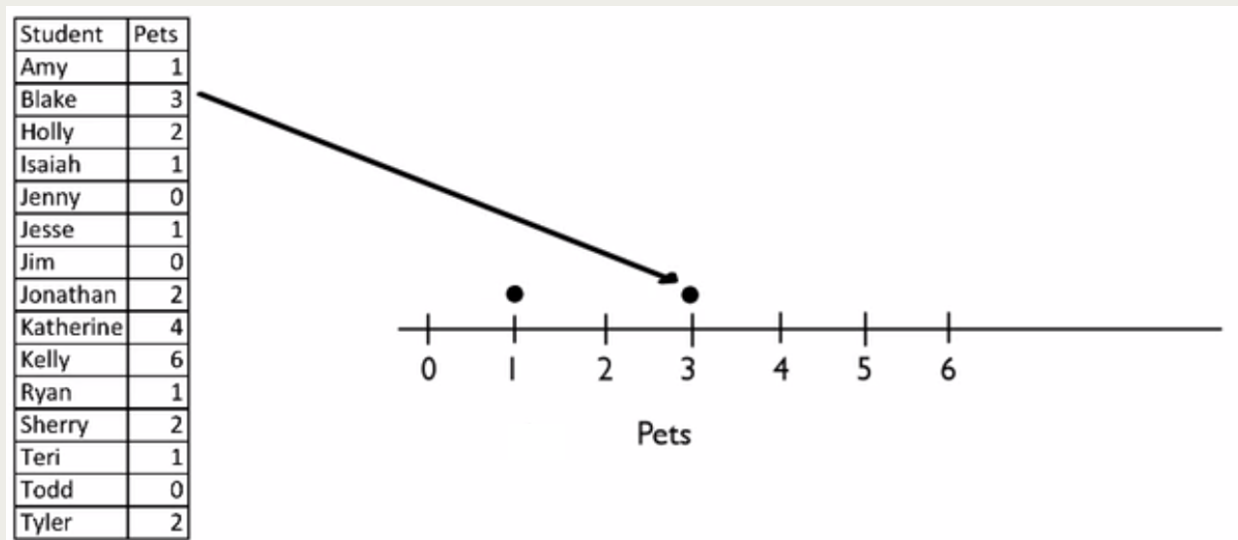
Student	Pets
Amy	1
Blake	3
Holly	2
Isaiah	1
Jenny	0
Jesse	1
Jim	0
Jonathan	2

Katherine	4
Kelly	6
Ryan	1
Sherry	2
Teri	1
Todd	0
Tyler	2

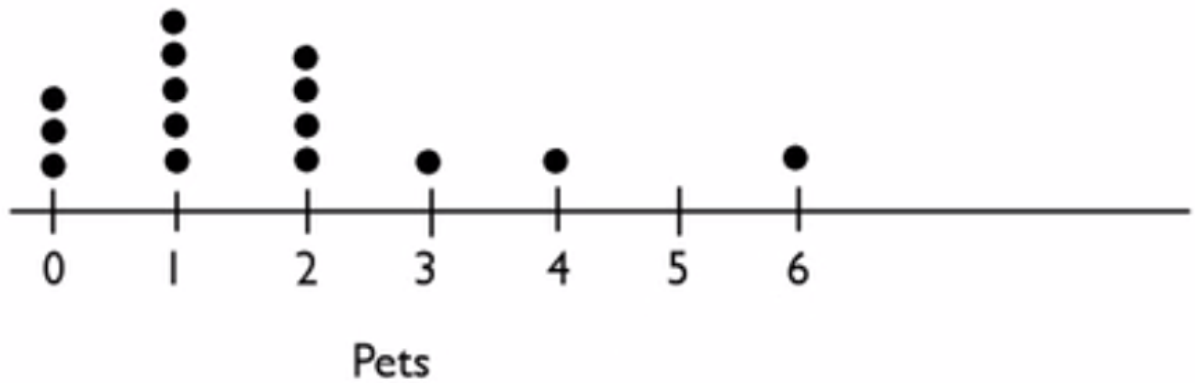
You can create a dot plot by first drawing an x-axis. It could be vertical, or it could be horizontal; the one below is horizontal. Then, you scale your axis from the smallest number, which is 0, up to the highest number, which is 6. Include even the numbers that don't appear in the list, like 5. Label the axis as "pets".



Begin with the first number, which is for Amy. You can plot the number of pets she has by placing a dot above the 1. Next is Blake, who has three pets.



Continue throughout the table, noting that Holly has two pets, and Isaiah has one until you complete notating the dots all the way through Tyler with two pets.



Notice that you stack the dots when you get more than one value at a particular number. You can see that there is a gap from 4 to 6--no one has five pets. Most of the people have either zero, one, or two pets, but you need to keep the 5 in there to visually see the gap.



TERM TO KNOW

Dot plot

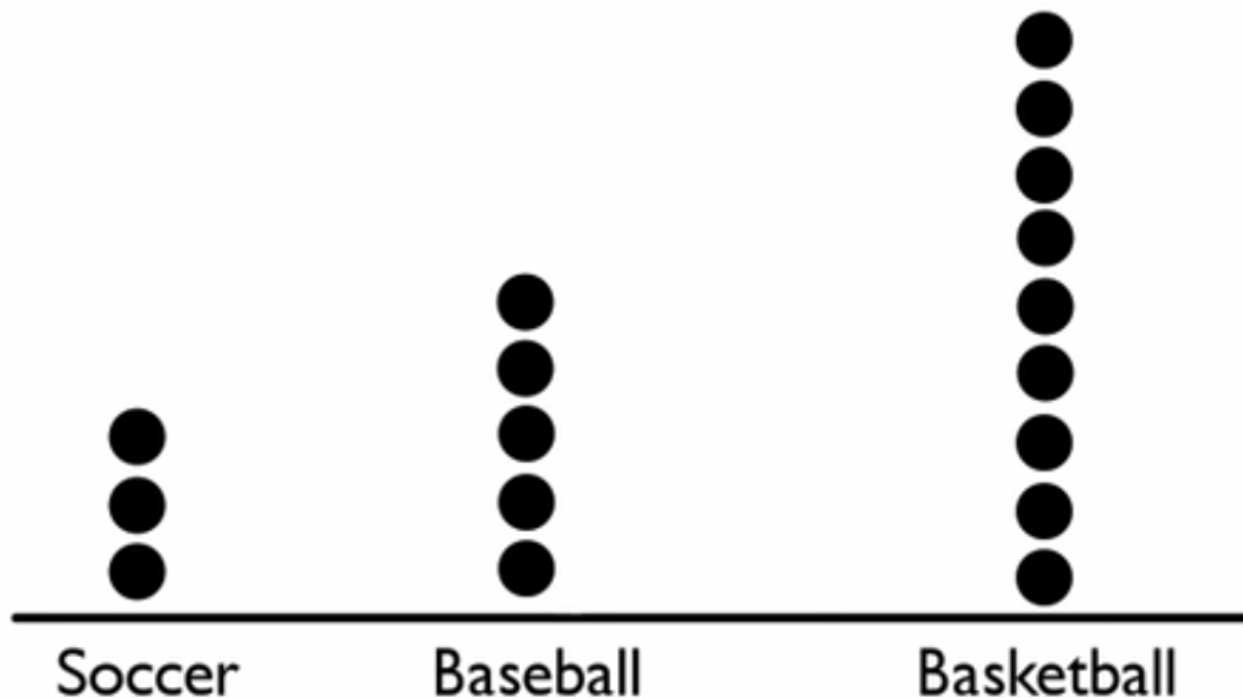
A distribution in which each data value is represented by a dot above that value on an axis.

2. Ideal Settings for Dotplots

There are certain criteria to help signal when to use dot plots. When dealing with quantitative data, it is ideal when the data set is:

- *Small*. There are not too many dots to draw. It doesn't mean there *has* to be small numbers--although the last example was small numbers. It simply can't have too many dots to draw. For example, 20 observations would work well with a dot plot.
- *Discrete*. Ideally, integers are nice and easy to plot.
- *Numbers Close Together*. The numbers should not be too spread out. Think about the number of tick marks on the x-axis. If there are more than 15 tick marks between the smallest and largest number, the dot plot will be more difficult to draw.

Dot plots can be used in a qualitative setting, as well. Suppose that you asked a class of 17 students what their favorite sport was. Three of them said soccer. Five of them said baseball. The remaining nine said basketball. This is how your dot plot would look:



Notice how the dots are stacked when multiple students are indicating the same sport as their favorite. It was constructed by creating an x-axis with sports labeled across the bottom.



SUMMARY

Dot plots are distributions for both quantitative and qualitative data. They are constructed by creating dots about an axis. They are easy to construct and even easier to interpret. Small data sets, either qualitative or quantitative, are ideal settings for dot plots. If a dot plot is quantitative, the numbers should be discrete and not too spread out.

Good luck!

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TERMS TO KNOW

Dotplot

A distribution in which each data value is represented by a dot above that value on an axis.