OREGON MARINE SCIENTIST
AND EDUCATOR ALLIANCE

Box Plots, Dot Plots, and Histograms

Guided Notes

EQ: How do we, as statisticians, plot data?

QW: Use the list of things about our class (each other) that we could count & make a set of data about (example: number of siblings, number of letters in our names) that we established in the "Measures of Center" Lesson.

The measures of center can be used to summarize the number of pets that students own. Cameron asked eight of his classmates how many pets they own. The results are listed below. **1, 0, 2, 0, 3, 7, 0, 2**		
Dot plot	data points plotted as **dots** on a graph with an x- and y-axis. These types of charts are used to graphically depict certain data trends or groupings.	Make a number line covering the range of the data (0-7) in this example. Place dots above each value to represent how many times that value is in your data. So, for this list 0 gets 3 dots, 1 gets 1 dot, 2 gets 2 dots, and 3 and 7 each get 1 dot.
Measures of Center	Three numbers which are commonly used to represent a set of numbers. (Mean, Median and Mode)	
Lower Quartile, Q1	The median of the first half of your numbers (minimum through median).	Put the numbers in order: 0, 0, 0, 1, 2, 2, 3, 7 Find the median: (see below) Find the lower half of your data:

		0, 0, 0, 1
		The median of that list is the Lower Quartile, 0
Median, Q2	When all the numbers have been put in order from least to greatest, the median is the middle number of the ordered data set.	1 and 2 are in the middle so the mean of those two numbers, 1.5 is the median
Upper Quartile, Q3	The median of the second half of your numbers (median through maximum).	Put the numbers in order: 0, 0, 0, 1, 2, 2, 3, 7 Find the median: (see above) Find the upper half of your data: 2, 2, 3, 7 The median of that list is the Upper Quartile, 2.5
Maximum	The greatest number	
Minimum	The least number	
Box plot	Sometimes known as a "box and whisker" plot.	Draw a number line that covers the range of the data Draw a dot at each: the minimum, lower quartile, median, upper quartile, and the maximum. Draw a box (rectangle) that goes from the lower to upper quartile dots. Then draw lines that connect to the minimum and maximum.
Histogram	A histogram is a bar graph which shows frequency distribution.	To make a histogram, follow these steps: On the vertical axis, place

		frequencies. Label this axis "Frequency". On the horizontal axis, place the lower value of each interval. Label this axis with the type of data shown. Draw a bar extending from the lower value of each interval to the lower value of the next interval. The height of each bar should be equal to the frequency of its corresponding interval.