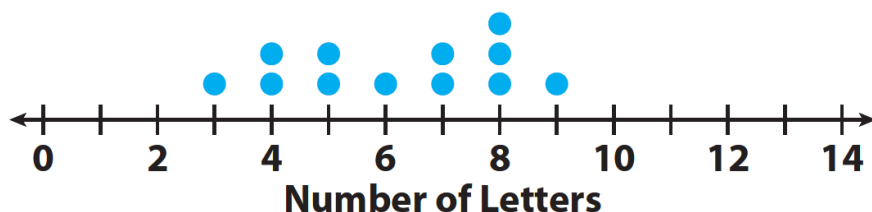# Different Types of Statistical Models

There are 8 different models that you will learn in Algebra 1. This lesson will discuss each and include examples to help you understand each model.

1) Dot Plot

Credit: www.onlinemath4all.com

A dot plot is a graphical display using dots to represent specific data points.

The dots for each value in the plot are ABOVE that particular value on the axis (for instance, 2 dots are above 4 letters on the dot plot).

2) Stem-and-Leaf Plot

Stem	Leaf
1	6, 7
2	8, 3, 6
3	4, 5, 9, 5, 5, 8, 5
4	7, 7, 7, 8

Credit: www.intmath.com

A stem-and-leaf plot is a special table where each data value is split into a "stem" (the first digit or digits) and a "leaf' (the last digit).

For instance, in the stem-and-leaf plot on the previous page, the values 16 and 17 are split up into 1 (for the "stem") in the first column and 6 and 7 (for the "leafs") in the second column.

3) Box-and-Whisker Plot
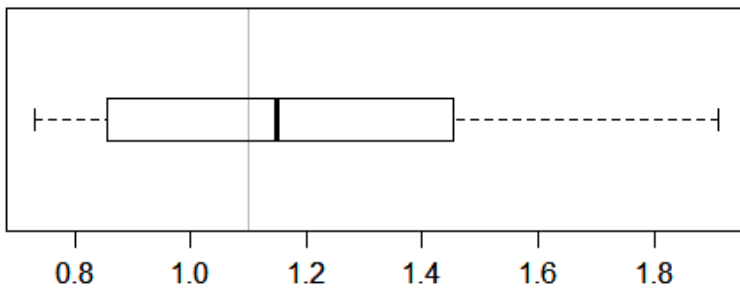
Credit: stats.stackexchange.com

A box-and-whisker plot is a chart that shows the distribution of data values across a selected measure.

It is very easy to identify the range (whisker on far RIGHT - whisker on far LEFT), median (DARK line at the CENTER of the box) and interquartile range (RIGHT value of box - LEFT value of box) from a box-and-whisker plot
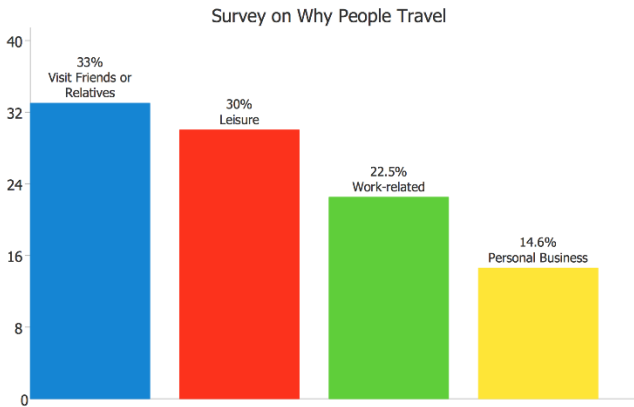
4) Histogram

Fastest Speed Ever Driven
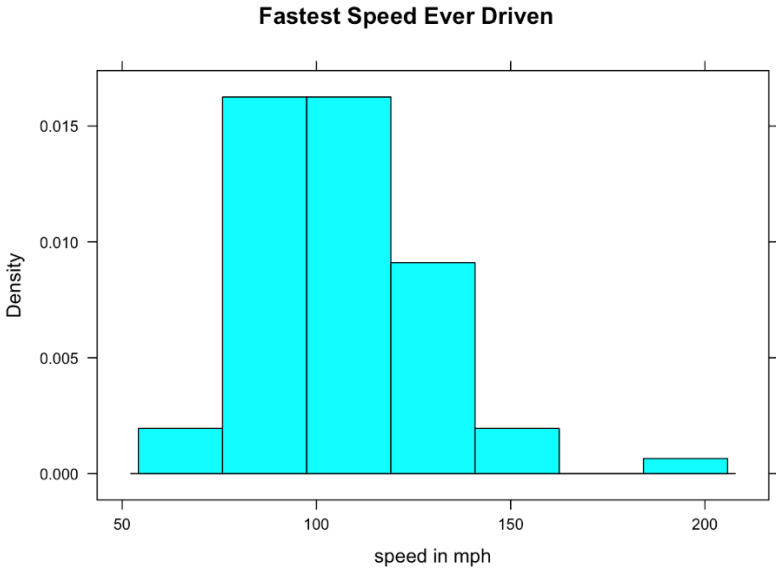
Credit: asq.org

A histogram is a frequency distribution that shows how often a set of values occur.

For instance, if we wanted to figure out how many defects were less than 4 per hour, we would add 1 (for 2 defects) and 16 (for 3 defects) to get 17.
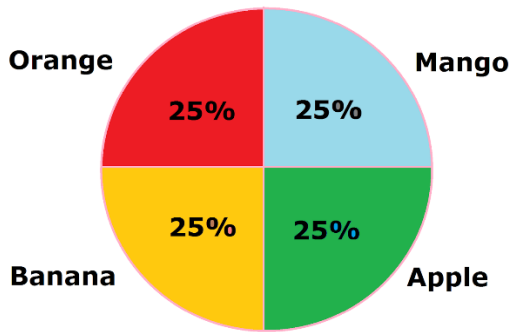
5) Bar Graph

Survey on Why People Travel

33%
Visit Friends or
Relatives

30%
Leisure

22.5%
Work-related

14.6%
Personal Business

A bar graph displays data for each category using rectangular bars.

For instance, in the bar graph on the above page, each bar represents a category.

The difference between BAR GRAPHS and HISTOGRAMS are that categories are grouped in RANGES of values and these categories TOUCH in histograms while categories are grouped as INDIVIDUAL values and these categories do NOT TOUCH in bar graphs.
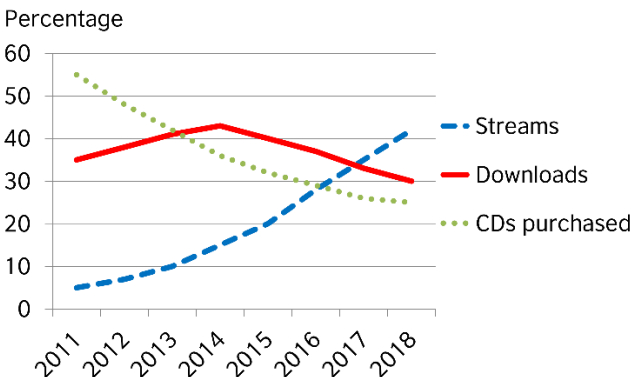
6) Pie Chart

Credit: blogspot.com

A pie chart is a circular graph that has "slices" that show the RELATIVE SIZE of each category of data.

For instance, in the pie chart above, it is divided into 4 categories (Orange. Apple, Banana and Mango) that are each 25% (RELATIVE SIZE) of the entire pie chart.

7) Line Graph

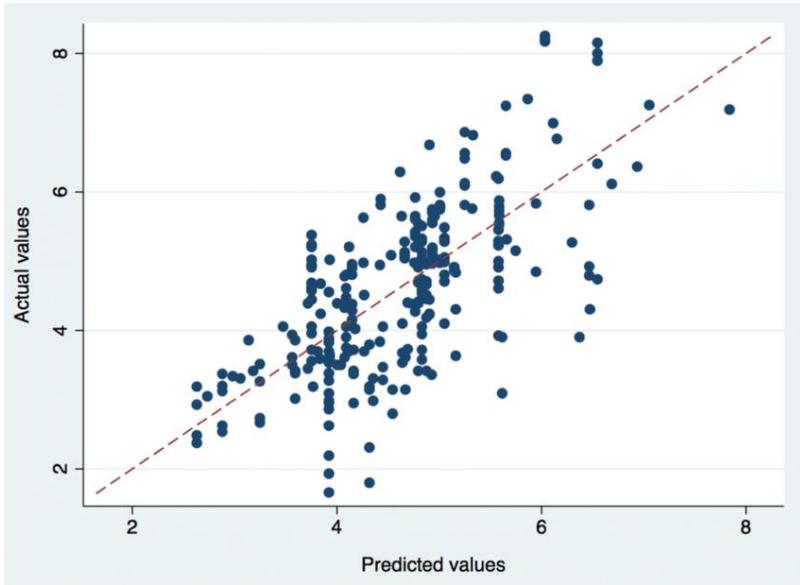Credit: learnenglish.britishcouncil.org

A line graph shows the connections between individual values to show TRENDS over time. For instance, in the graph above, as time went on, streams increased and CDs purchased decreased.

8) Scatter Plot

Credit: researchgate.net

A scatter plot are graphs that show the RELATIONSHIP between 2 variables. For instance, the scatterplot above shows a POSITIVE CORRELATION (as one variable increases, the other does too).

Tips for Solving Problems:

1. Make sure you know what each of these models look like and how to interpret them! You typically will see dot plots, bar graphs and scatter plots the most in Algebra 1, but all 8 are important to know!

2. For scatterplots, there are 2 terms that describe the relationship between the x and y variables. A POSITIVE correlation refers to a DIRECT relationship between the x and y variables (as x increases, y increases OR as x decreases, y decreases). A NEGATIVE correlation refers to an INDIRECT relationship between the x and y variables (as x increases, y decreases or vice versa).

3. The main difference between histograms and bar graphs is what each category of the graph consists of and whether the categories touch or not. Histograms cover RANGES of values and TOUCH while bar graphs cover INDIVIDUAL values and DO NOT TOUCH.