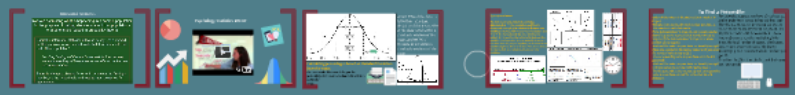
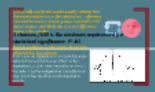
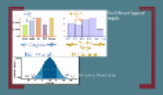
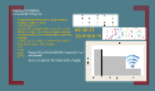
Ap Psychology Statistics Math

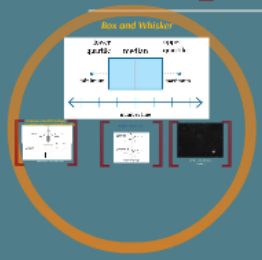
Retsel Gonzalez

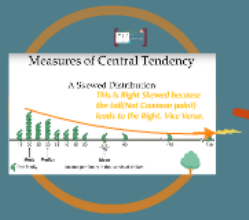


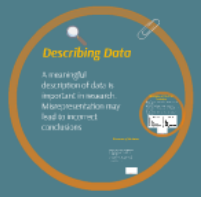


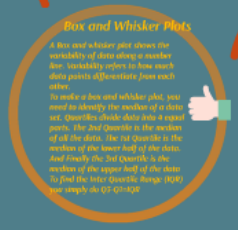












Prezi

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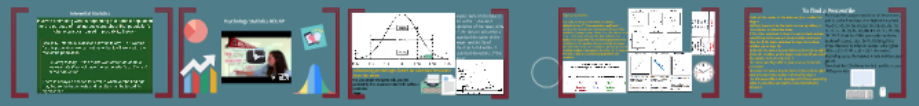

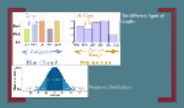

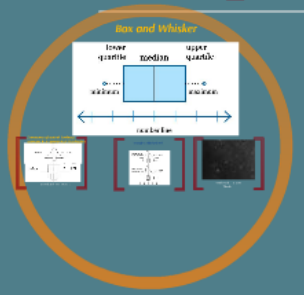

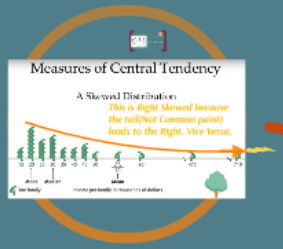

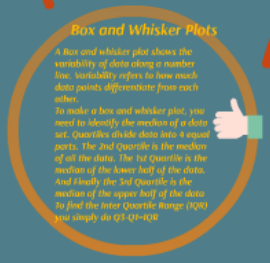

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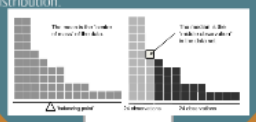
Describing Data

A meaningful description of data is important in research. Misrepresentation may lead to incorrect conclusions

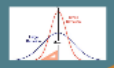
Measures of Central Tendency

Mode: The most frequently occurring score in a distribution.
Mean:The arithmetic average of scores in a distribution; add scores and divide by # of scores presented.
Median: The middle score in a rank ordered distribution.



Measures of Variation

Range: The difference between the highest and lowest scores in a distribution.
Standard Deviation a computed measure of how much scores vary around the mean



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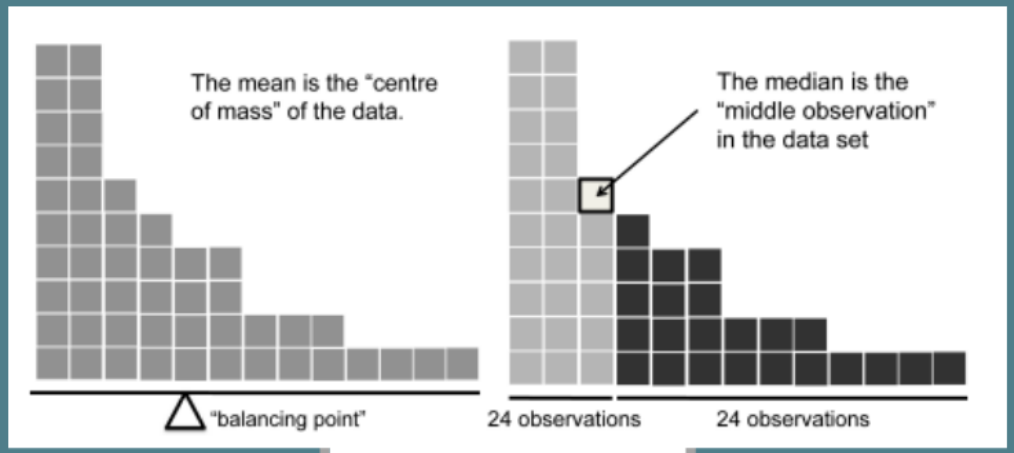

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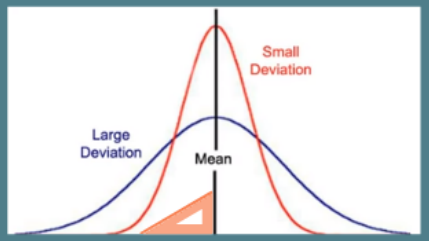

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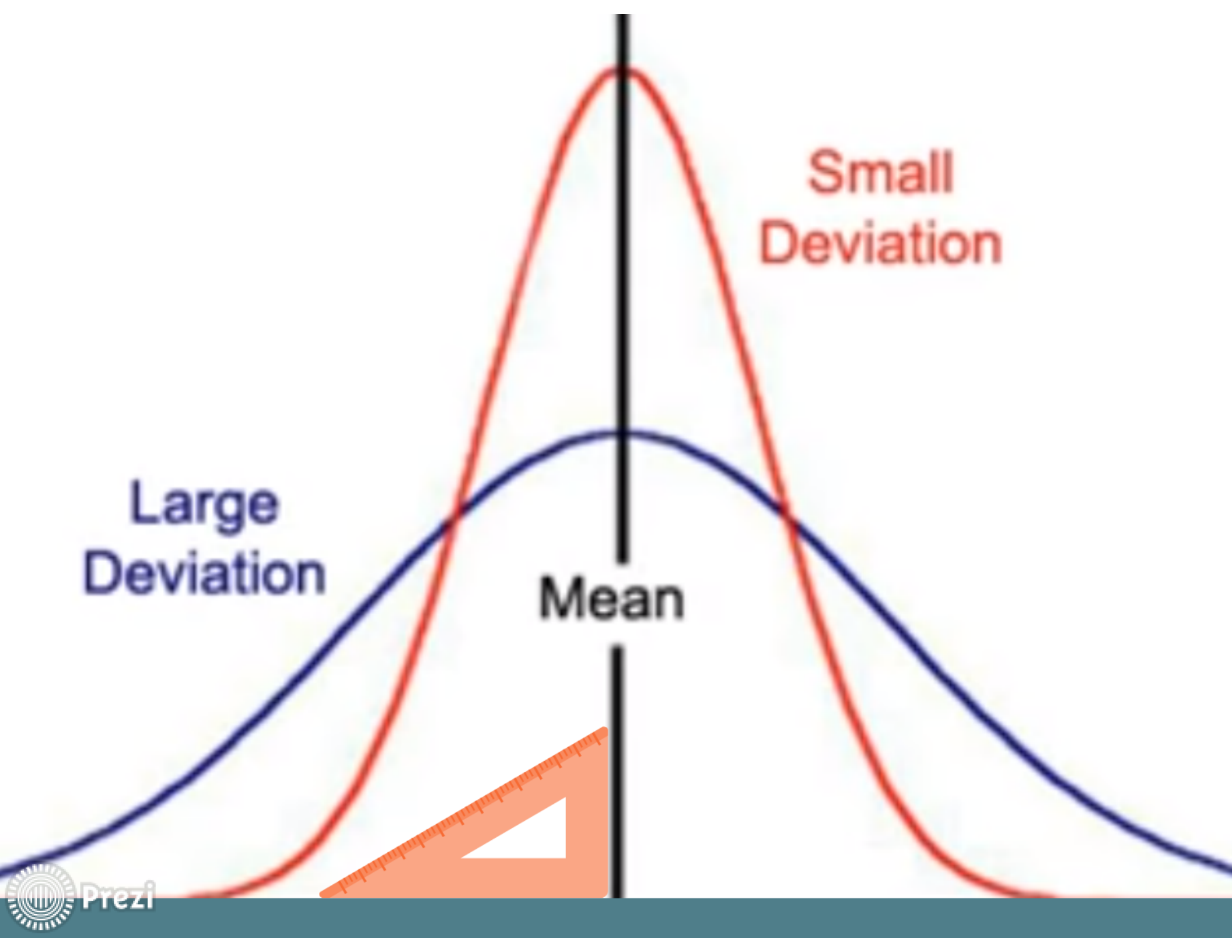
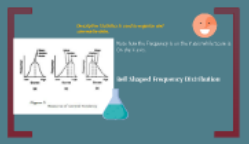
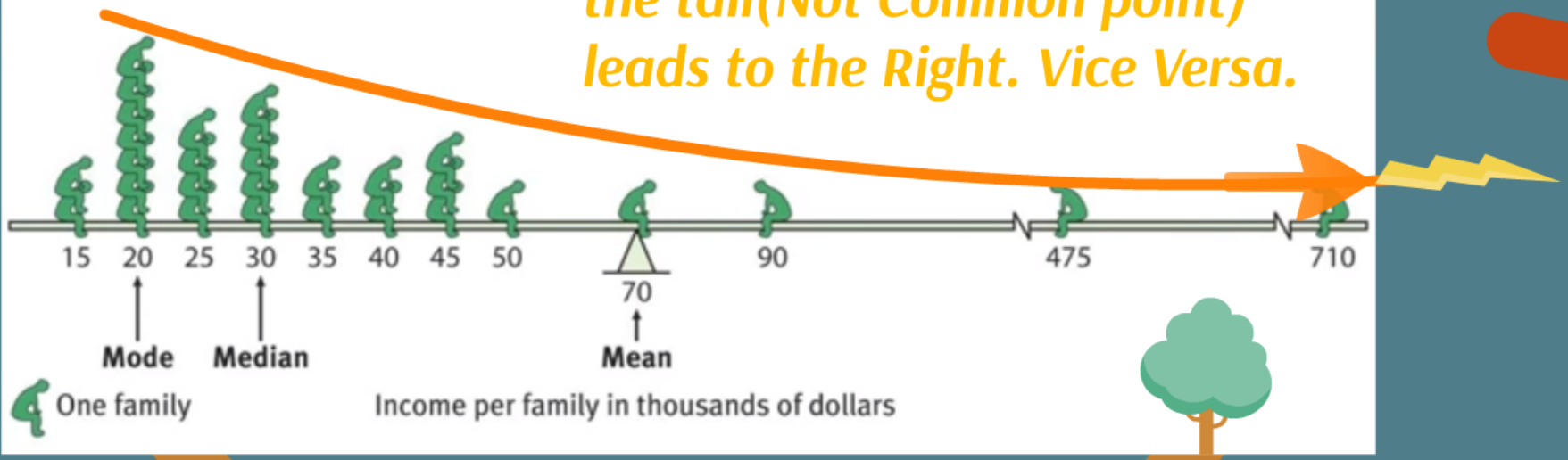

Small
Deviation
Large
Deviation
Mean



Measures of Central Tendency

A Skewed Distribution

This is Right Skewed because the tail(Not Common point) leads to the Right. Vice Versa.



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Descriptive Statistics is used to organize and summarize data.

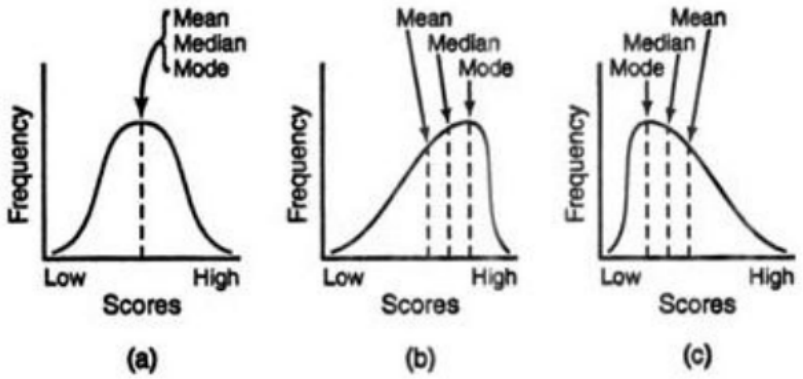

Figure 3 Measures of Central Tendency

Note how the Frequency is on the Y axis while Score is On the X axis.

Bell Shaped Frequency Distribution

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Box and Whisker Plots

A Box and whisker plot shows the variability of data along a number line. Variability refers to how much data points differentiate from each other.

To make a box and whisker plot, you need to identify the median of a data set. Quartiles divide data into 4 equal parts. The 2nd Quartile is the median of all the data. The 1st Quartile is the median of the lower half of the data. And Finally the 3rd Quartile is the median of the upper half of the data

To find the Inter Quartile Range (IQR) you simply do Q3-Q1=IQR

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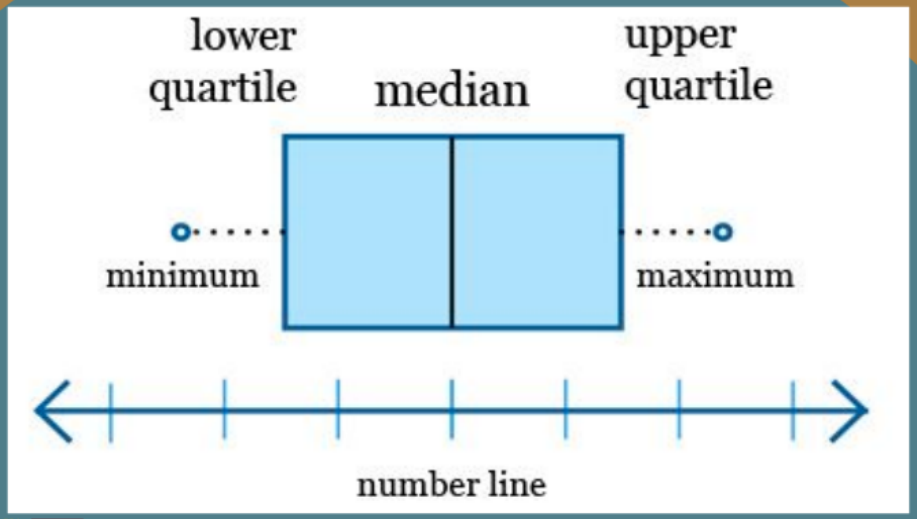
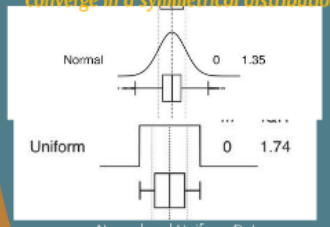
Box and Whisker

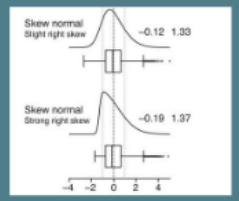


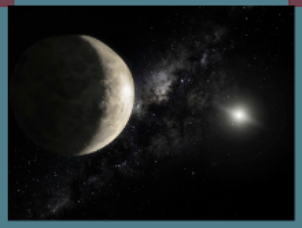
3 measures of central tendency converge in a symmetrical distribution



Normal and Uniform Data

Strongly vs Slightly Skewed





Mathematics Review
Thanks :)

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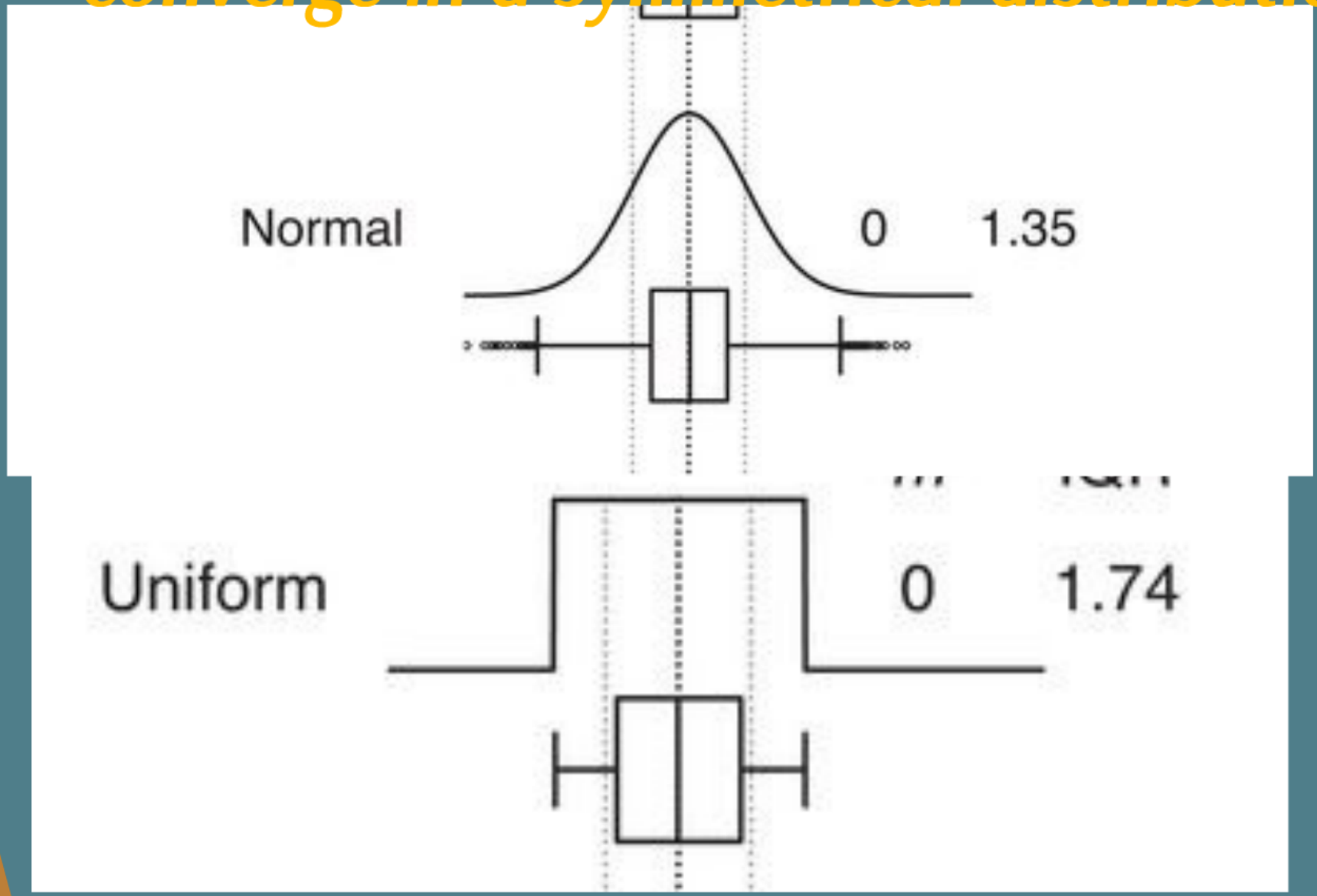

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Prezi

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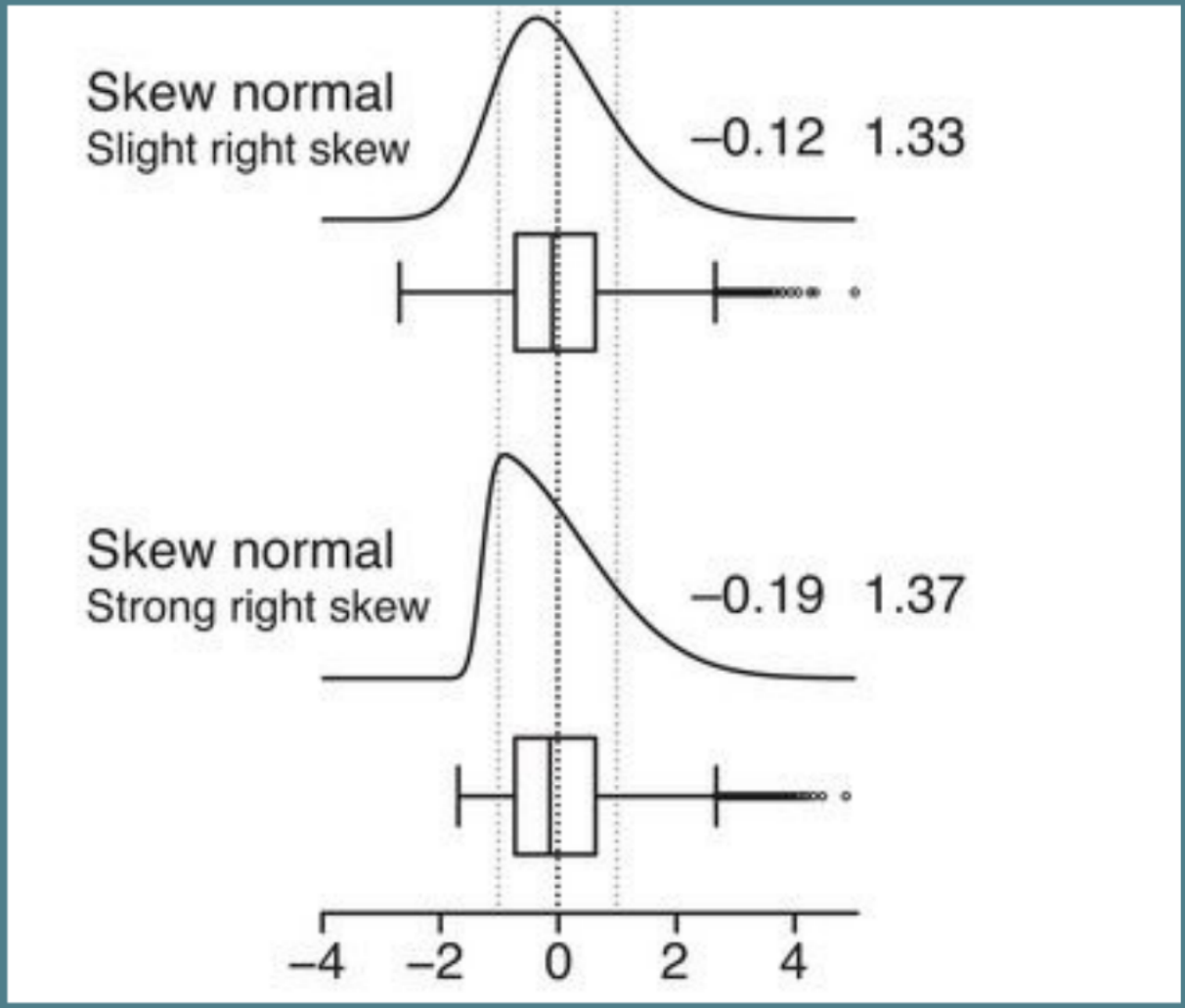

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Frequency Distributions are needed for Histograms

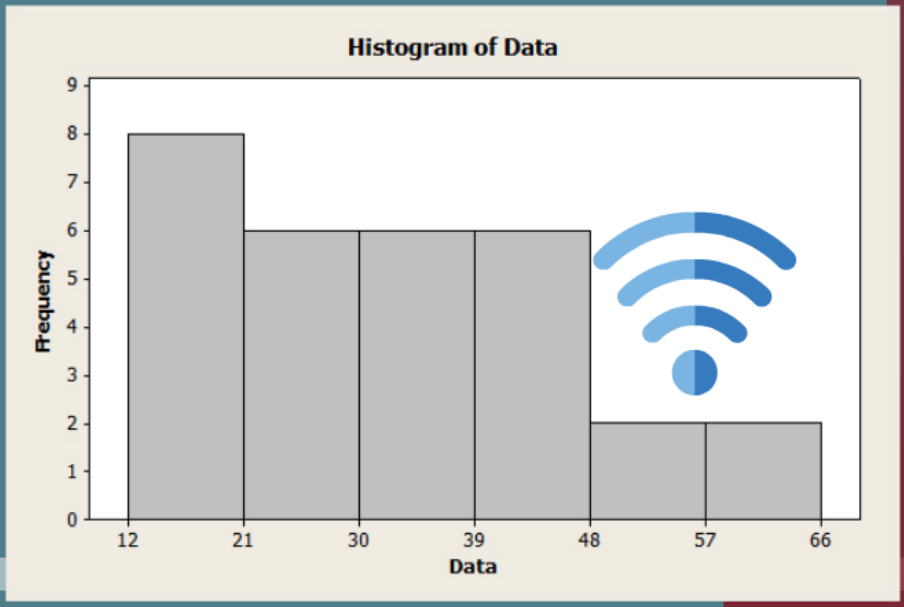
Frequency Distributions are a very good way to visually see data in a data.
To begin making one.
Calculate the range(Max-Min) of the data set(53).
Divide the range by the number of groups you want and then round up. The resulting value is your Class Width(9).
Starting with the smallest #, add the class width to begin the frequency table.Example~
12-21
21-30
30-39
39-48

Groups in X axis(horizontal) while Frequency is the Y axis(vertical)

Use bars to represent the frequency of each group

12	18	27	31	40	42
14	20	27	32	40	51
14	20	27	32	40	56
14	21	29	34	40	60
16	23	31	36	40	65

65-12=53
53/6=8.8 =9



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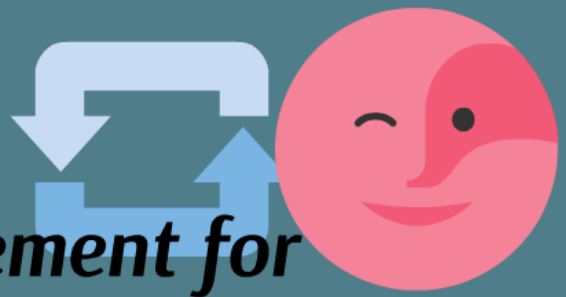
Statistically significant results usually indicate that there arent any errors in the calculations. Difference observed between 2 sample groups is probably NOT due to Chance, and likely due to a real difference between the samples.



5 chances /100 is the minimum requirement for statistical significance. P>.05

Null hypothesis is the opposite of the alternative hypothesis.

If the alternate hypothesis is the belief that the independent variable has an effect on the dependent variable, then the null hypothesis is the belief that the independ=ent variable in an experiment has no effect on the dependent variable.

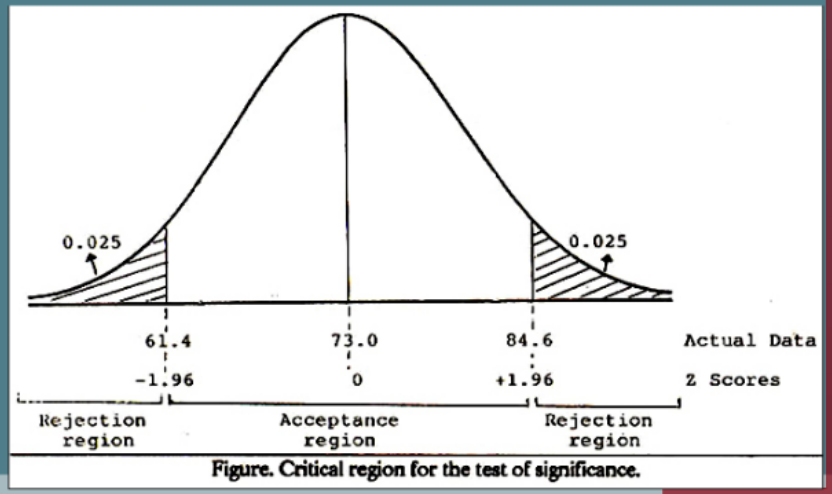


Figure. Critical region for the test of significance.

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To find a Percentile

Order all the values in the data set from smallest to largest.
Multiply k percent by the total number of values, n. This number is called the index.
If the index obtained in Step 2 is not a whole number, round it up to the nearest whole number and go to Step 4a. If the index obtained in Step 2 is a whole number, go to Step 4b.
4a.Count the values in your data set from left to right (from the smallest to the largest value) until you reach the number indicated by Step 3.
The corresponding value in your data set is the kth percentile.
4b.Count the values in your data set from left to right until you reach the number indicated by Step 2.
The kth percentile is the average of that corresponding value in your data set and the value that directly follows it.

For example, suppose you have 25 test scores, and in order from lowest to highest they look like this: 43, 54, 56, 61, 62, 66, 68, 69, 69, 70, 71, 72, 77, 78, 79, 85, 87, 88, 89, 93, 95, 96, 98, 99, 99. To find the 90th percentile for these (ordered) scores, start by multiplying 90% times the total number of scores, which gives 90% ∷ 25 = 0.90 ∷ 25 = 22.5 (the index). Rounding up to the nearest whole number, you get 23.
Then find the 23rd from the list. and thats your 90th percentile.

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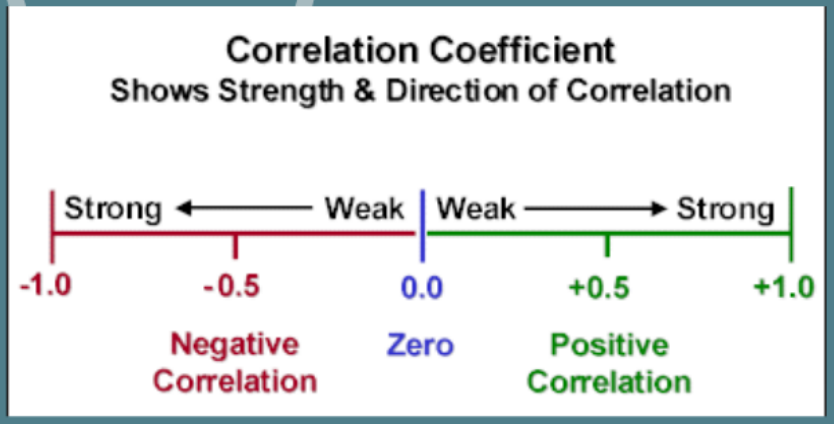
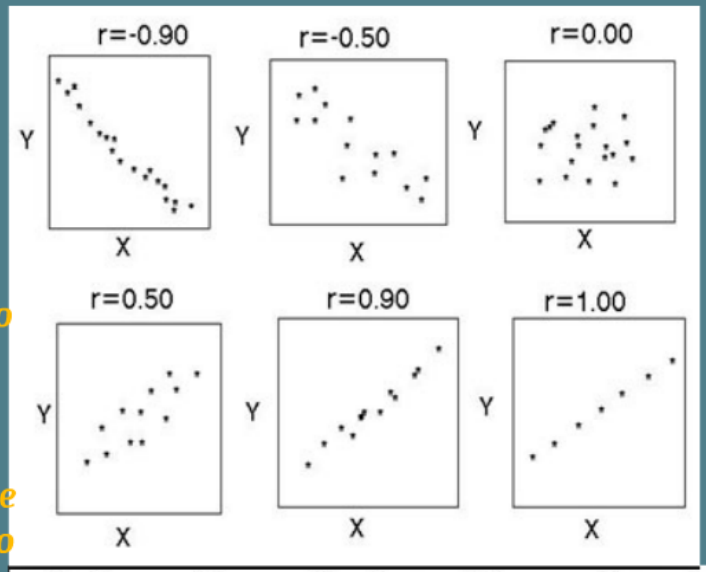
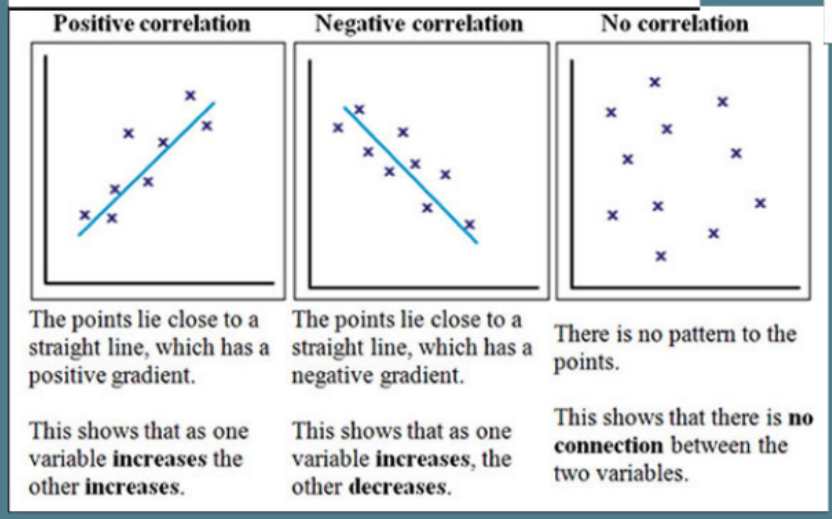
Types of correlations

The main result of a statistical correlation, abbreviated as "r". The correlation coefficient r denotes the strength of a relationship between two variables; it ranges from -1.0 to +1.0. The closer r is to +1 or -1, the more strongly the two variables are related. If r is positive, the relationship between the variables is also positive (as one variable increases, the other does too). If r is negative, an increase in one variable implies a decrease in the other. If r is close to 0, there is little or no relationship between the variables.







Range of r_s	Strength of Correlation
below 0.16	"very low"
0.16 - 0.29	"weak to low"
0.30 - 0.49	"moderate to low"
0.50 - 0.69	"moderate"
0.70 - 0.89	"strong"
0.90 - 1.00	"very strong"

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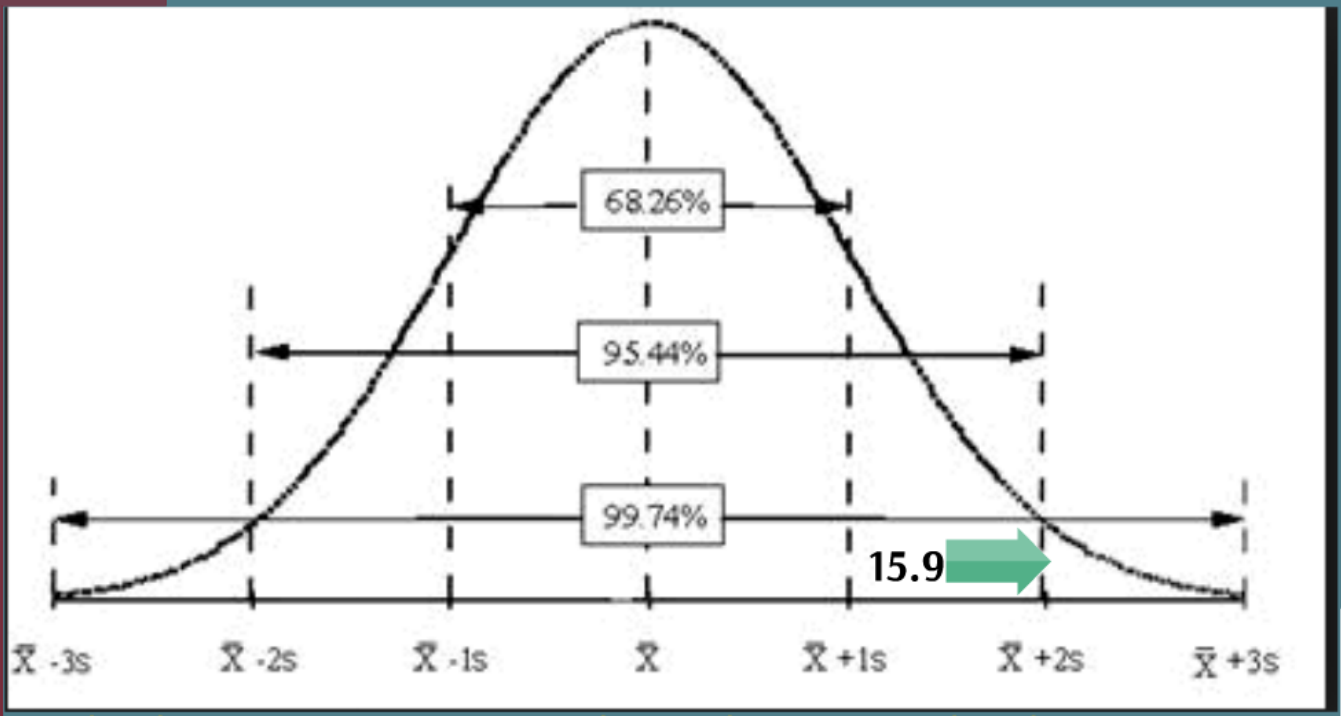
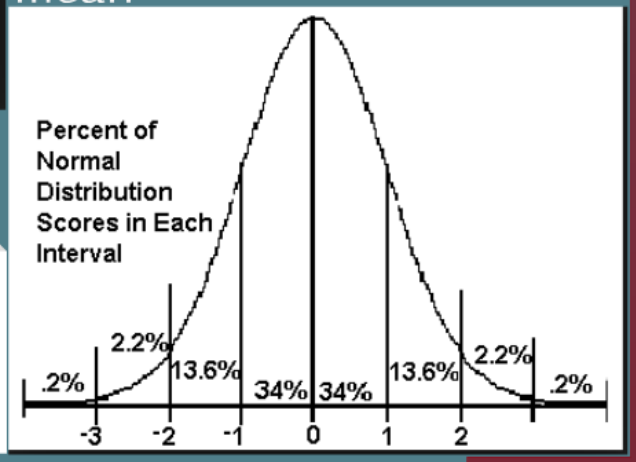


expect 68% of the data to fall within 1 standard deviation of the mean, 95% of the data to fall within 2 standard deviation of the mean, and 99.7% of the data to fall within 3 standard deviations of the mean



Calculating percentages based on Standard Deviation from the mean.

The area under the curve tells you the probability that an observation falls within a particular range.

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Inferential Statistics

involves estimating what is happening in a sample population for the purpose of making decisions about that population's characteristics (based in probability theory)

Basically, inferential statistics allow us to say…"if it worked for this population, we can estimate that it will work with the rest of the population"

i.e. drug testing – if the meds worked for the sample, we estimate they will have the same effects on the rest of the population

There is always a chance for error in whatever the findings may be, so the hypothesis and results must be tested for significance

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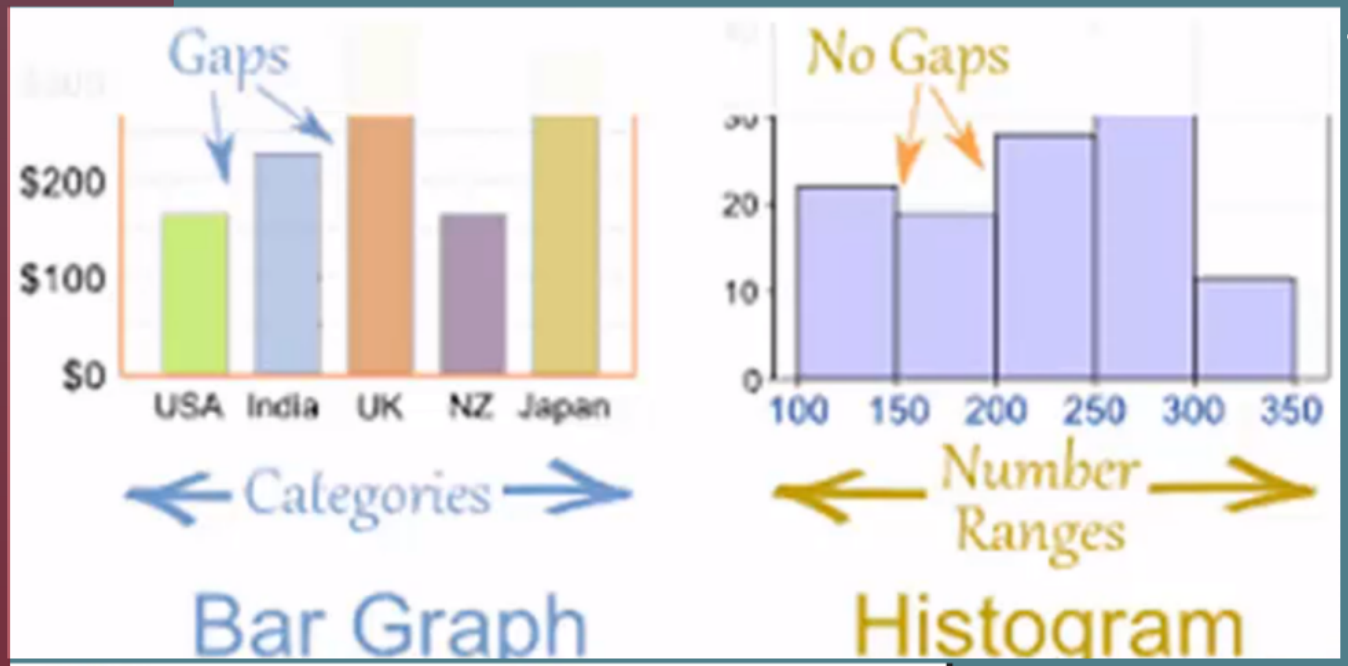
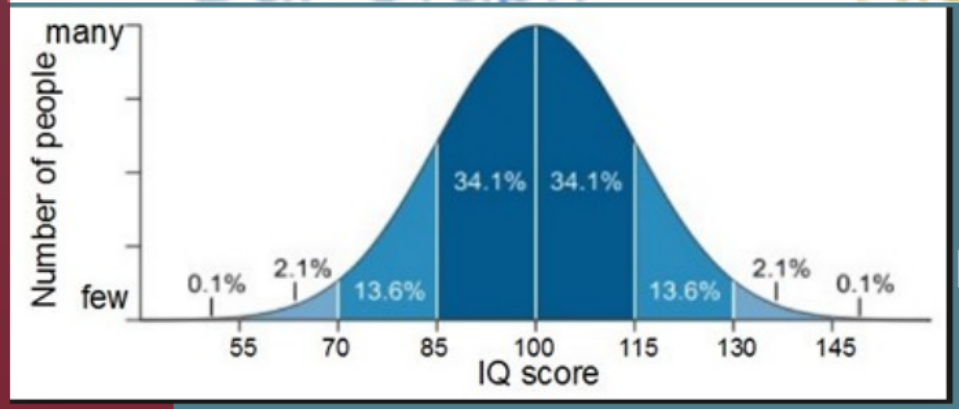
The Different Types of Graphs





Frequency Distribution

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Psychology Statistics RECAP

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Mathematics Review
Thanks ;)

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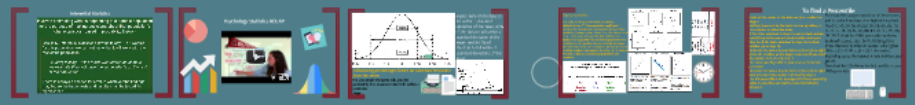

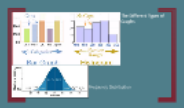

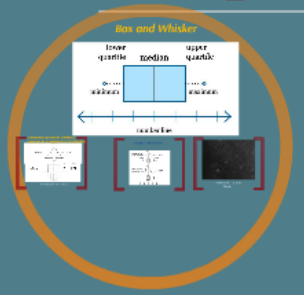

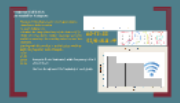

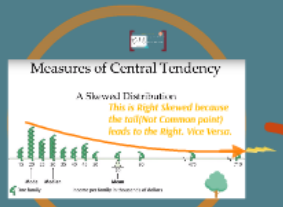

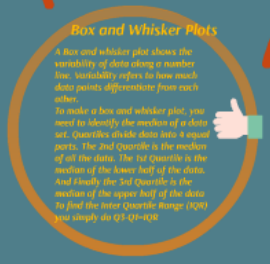

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