Statistical Measurements that Increase Certainty

N: the number of independent measurements in your observation

Average: Mean, Median, Mode: The “central tendency” if there is one.

Variance: The average ‘distance squared’ of a given data point from the mean. If the variance varies, the mean is meaningless.

Standard Deviation: =Sqrt(Variance). In the units of the measurement, a prediction of how close the next data point will be to the already computed mean. For independent measurements with random error only, about 2/3 of your data should be within one standard deviation **σ** of the current mean.

Standard Error: also known as “the standard deviation of the means”, computed as **σ/sqrt(N–1),** an estimate of how close the mean of the next ***experiment*** will be to the already computed mean of your current experiment. For independent experiments, about 2/3 of your new means should be within one standard error of your current mean.

Other representations: line plots, box plots, histograms