

1	What is statistics (Nystrom's def)?	The study of variability
2	What is variability?	Differences... how things are differ. There is variability everywhere.. We all look different, have different preferences.. Etc.
3	What is Statistics (textbook)	The science of collecting, organizing, summarizing, analyzing, and making inferences from data.
4	What are the 2 major branches of statistics we will study this year?	Inferential and Descriptive
5	What are DESCRIPTIVE STATS?	Numbers and pictures that describe nature of a data set, provide info about data that is present
6	What are INFERENTIAL STATS?	Making inferences... saying what is actually going on in the population, making predictions, using statistics to estimate parameters
7	Compare descriptive to inferential	Descriptive seeks to tell you about what is in the data at hand, inference reaches out to the world at large.
8	What is data?	Any collected information.
9	What is a population?	the group you're interested in. Sometimes its big, like "all teenagers in the US" other times it is small like "Mr. Nystrom's fifth period class." You calculate parameters from populations.
10	Compare population to sample	populations are generally large, and samples are small subsets of these population. We take samples to make an inference about what we think is true in the population. We use statistics to estimate parameters.
11	What is a parameter?	A numerical summary of a population. Like a mean, median, range... of a population
12	What is a statistic?	A numerical summary of a sample. Like a mean, median, range... of a sample.
13	What is a sample?	A subset of a population, often taken to make inferences about the population. We calculate statistics from samples.
14	What is a census?	Like a sample of the entire population, you get information from every member of the population
15	Does a census make sense?	A census is ok for small populations (like Mr. Nystrom's students) but not a good idea when the population is "all US teens". In that case, a census would be expensive, time consuming, and almost impossible.
16	What is the difference between a parameter and a statistic?	pppp parameters come from pppp populations... sss statistics come from ssss samples
17	What is the difference between a sample and a census?	With a sample, you get information from a small part of the population, in a census, you get info from the entire population
18	What are random variables?	Variables whose values are determined by chance... like, if you randomly choose a student, his hair color is a random variable, so is his height and weight.
19	What is the difference between quantitative and qualitative (categorical) ?	Quantitative are numerical measures, like height and IQ. Qualitative are qualities, or categories, like eye color, left-right handedness.
20	What is the difference between discrete and continuous variables?	Discrete can be counted, like "number of cars sold" they are generally integers (you wouldn't sell 9.283 cars), while continuous can be any value, like someones height "6.343 ft tall".
21	what is a quantitative variable?	Quantitative are numeric, like: Height, age, number of cars sold, SAT score

22	what is a qualitative variable?	Qualitative variables are like categories: Blonde, Listens to Hip Hop, Female... etc.
23	what do we sometimes call a qualitative variable?	Categorical
24	what is a continuous variable?	continuous can take on any value (along a continuum), like age. 14.237 years old.
25	What is a discrete variable?	Discrete are generally countable (integers). Like SAT score, IQ, number of days absent. There is no 611.3 SAT Verbal score.
26	What is a random sample?	When and appropriate randomizing procedure is used to choose a sample.
27	What is frequency?	How often something comes up
28	What is a frequency distribution?	A table, or a chart, that shows how often certain values or categories occur in a data set.
29	What is meant by relative frequency?	The PERCENT of time something comes up (frequency/total)
30	What is meant by cumulative frequency?	ADD up the frequencies as you go.. Suppose you are selling 25 pieces of candy. You sell 10 the first hour, 5 the second, 3 the third and 7 in the last hour, the cumulative frequency would be 10, 15, 18, 25
31	Make a guess as to what cumulative relative frequency is...	It is the ADDED up PERCENTAGES.. For the candy example, with the 25 pieces sold at 10 the first hour, 5 the second, 3 the third and 7 the last hour, the cumulative relative frequency was 10, 15, 18, 25... change these to percents by dividing each by 25 and you get .4, .6, .64, 1.00
32	How do you find relative frequency?	just divide frequency by TOTAL....
33	How could you turn a dot plot into a bar chart?	put bars over the dots....
34	What is the difference between a bar chart and a histogram?	bar charts are for categorical data (bars don't touch) and histograms are for quantitative data (bars touch)
35	What is a class (in a histogram)?	it is a numerical category, like 10-15, all values between 10 and 15 fall into this category.
36	How can you make a frequency polygon from a histogram?	connect the top of the bars with lines.
37	What is a measure of "central tendency" try to tell us about?	meant to convey the "general idea" of where most data values lie
38	What is the mean?	the old average we used to calculate. It is the balancing point of the histogram
39	What is the difference between population mean and sample mean?	population mean is the mean of a population, it is a parameter, sample mean is the mean of a sample, it is a statistic.
40	What symbols do we use for population mean and sample mean?	μ for population mean (parameter), \bar{x} for sample mean (statistic)
41	How can you think about the mean and median to remember the diff?	mean is balancing point of histogram, median splits the area of the histogram in half
42	What is the median?	the middlest number (always in the $(n+1)/2$ position)
43	What is the mode?	the most common, or the peaks of a histogram.
44	How are mean, median and mode positioned in a skewed left distribution (negatively skewed)	goes in that order from left to right. Mean-median-mode
45	How are mean, median and mode positioned in a skewed right distribution (positively skewed)	goes in the opposite order.. Mode-median-mean