AP STATS SUMMER WORK

Greetings.

Welcome to AP Stats. The summer work will take a few hours. You'll need a few days to do it.

THERE ARE 2 PARTS: WATCH VIDEOS and LEARN VOCAB QUESTIONS

HOW TO WATCH VIDEOS: Simply watch them and write a brief summary. That's all. They will be on the website www.apstatsguy.com . There will be 4 or 5 videos under "SUMMER VIDEOS" for you to watch. The videos are about 10 minutes each. You may want to watch them twice.

HOW TO STUDY VOCAB: Make flashcards and study.

ON YOUR FIRST DAY OF SCHOOL…..

You will have a 25 question test on the first class day. You will be asked five general questions about the videos and 20 of the vocab questions which will be chosen randomly.

GOOD LUCK

VOCAB AND CONCEPTS FO YO BRAIN

1.	What is statistics (Nystrom's def)?	The study of variability
2.	What is variability?	Differences… how things 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. Generally each little measurement…
9.	What is a population?	the group you're interested in. Sometimes it's 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.	Compare DATA-STATISTIC-PARAMETER using categorical example	Data are individual measures… like meal preference: “taco, taco, pasta, taco, burger, burger, taco”… Statistics and Parameters are summaries. A statistic would be “42% of sample preferred tacos” and a parameter would be “42% of population preferred tacos.”
15.	Compare DATA-STATISTIC-PARAMETER using quantitative example	Data are individual measures, like how long a person can hold their breath “45 sec, 64 sec, 32 sec, 68 sec” that is the raw data. Statistics and parameters are summaries like “the average breath holding time in the sample was 52.4 seconds” and a parameter would be “the average breath holding time in the population was 52.4 seconds”
16.	What is a census?	Like a sample of the entire population, you get information from every member of the population
17.	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. But if you are ordering pizza for five people, you won’t randomly ask two of them and base your order. Five is small enough to take a census and get a good order that will make all happy ☺
18.	What is the difference between a parameter and a statistic?	pppp parameters come from pppp populations… sss statistics come from ssss samples
19.	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
20.	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 and the diameter of his eyeball and whether or not he likes scones.
21.	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. The raw data gives a hint. Categorical: “red, red, blue, blue, green” Quantitative: “4, 5.3, 7, 8.8”
22.	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".
23.	what is a quantitative variable?	Quantitative are numeric, like: Height, age, number of cars sold, SAT score
24.	what is a categorical variable?	Qualitative variables are like categories: Blonde, Listens to Hip Hop, Female… etc.
25.	what do we sometimes call a categorical variable?	qualitative
26.	what is a continuous variable?	continuous can take on any value (along a continuum), like age. 14.237 years old.
27.	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.
28.	What is a random sample?	When and appropriate randomizing procedure is used to choose a sample.
29.	What is frequency?	How often something comes up
30.	What is a frequency distribution?	A table, or a chart, that shows how often certain values or categories occur in a data set.
31.	What is meant by relative frequency?	The PERCENT of time something comes up (frequency/total)
32.	What is meant by cumulative frequency?	ADD up the frequencies as you go.. Suppose you are selling 25 pieces of candy. Yousell 10 the first hour, 5 the second, 3 the third and 7 in the last hour, the cumulativefrequency would be 10, 15, 18, 25
33.	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
34.	How do you find relative frequency?	just divide frequency by TOTAL….
35.	What is the difference between a bar	bar charts are for categorical data (bars don't touch) and histograms are for

	chart and a histogram?	quantitative data (bars touch)
36.	What does a measure of "central tendency" try to tell us about?	meant to convey the "general idea" of where most data values lie
37.	What is the mean?	the old average we used to calculate. It is the balancing point of the histogram
38.	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 a the mean of a sample, it is a statistic. We take sample means to make inferences about population means… We take statistics to make inferences about parameters.
39.	What symbols do we use for population mean and sample mean?	mu for population mean (parameter), x-bar for sample mean (statistic)
40.	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
41.	What is the median?	the middlest number (always in the (n+1)/2 position), it splits area in half
42.	What is the mode?	the most common, or the peaks of a histogram.
43.	When do we often use mode?	With categorical variables. For instance, to describe the average teenagers preference, we often speak of what “most” students chose, which is the mode. It is also tells the number of bumps in a histogram for quantitative data (unimodal, bimodal, etc…).
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
46.	Who chases the tail?	The mean chases the tail, the mean chases the tail, high-ho the derry-oh the mean chases the tail… and outliers…….
47.		
48.		