C	AP Stats Summer Vocab Study online at https://quizlet.com/_bl3nak	
1.	What is statistics?	The study of variability.
2.	What is variability?	Differences, how things differ. There is variability everywhere. We all look different, act different, have differ- ent preferences. Statisticians look at these differences.
3.	What are 2 branches of AP Stats?	Inferential and Descriptive
4.	What are DESCRIPTIVE STATS?	Tell me what you got! Describe to me the data that you collected, use pic- tures or summaries like mean, medi- an, range, etc.
5.	What are INFERENTIAL STATS?	Look at your data, and use that to say stuff about the BIG PICTURE. Like tasting soup, a little sample can tell you a lot about the big pot of soup (the population).
6.	Compare Descriptive and Inferential STATS	Descriptive explains you about the data that you have, inference uses that data you have to try to say something about an entire population.
7.	What is data?	Any collected information. Generally, each little measurement. Like, if it is a survey about liking porridge: the data might be "yes, yes, no, yes, yes." If it is the number of saltines someone can eat in 30 seconds: the data might be "3, 1, 2, 1, 4, 3, 3, 4."
8.	What is a population?	The group you're interested in. Some- times it's big, like "all teenagers in the US." Other times it is small, like "all AP Stats students in my school."

9. What is a sample?

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	A subset of a population, often taken to make inferences about the popula- tion. We calculate statistics from sam- ples.
10. Compare population to sample	Populations are generally large, and samples are small subsets of these population. We take samples to make inferences about populations. We use statistics to estimate parameters.
11. Compare data to statistics	Data is each little bit of information collected from the subjects. They are the INDIVIDUAL little things we col- lect. We summarize them by, for ex- ample, finding the mean of a group of data. If it is a sample, then we call that mean a "statistic." If we have data from each member of popula- tion, then that mean is called a "pa- rameter."
12. Compare data to parameters	Data is each little bit of information collected from the subjects. They are the INDIVIDUAL little things we col- lect. We summarize them by, for ex- ample, finding the mean of a group of data. If it is a sample, then we call that mean a "statistic." If we have data from each member of popula- tion, then that mean is called a "pa- rameter."
13. What is a parameter?	A numerical summary of a population. Like a mean, median, range, etc. of a population.
14. What is a statistic?	A numerical summary of a sample. Like a mean, median, range, etc. of a sample.

15. We are curious about the average wait time at a Dunkin Donuts drive through in your neighborhood. You randomly sample cars one afternoon and find the average wait time is 3.2 minutes. What is the population parameter? What is the statistic? What is the parameter of interest? What is the data?

The parameter is the true average wait time at that Dunkin Donuts. This is a number you don't have and will never know. The statistic is "3.2 minutes." It is the average of the data you collected. The parameter of interest is the same thing as the population parameter. In this case, it is the true average wait time of all cars. The data is the wait time of each individual car, so that would be like "3.8 min, 2.2 min, 0.8 min, 3 min." You take that data and find the average, that average is called a "statistic," and you use that to make an inference about the true parameter.

16. Compare DATA-STATISTIC-PARA-Data are individual measures, like METER using a categorical example meal preference: "taco, taco, pasta, taco, burger, burger, tacos." Statistics and Parameters are summaries. A statistic would be "42% of sample preferred tacos" and a parameter would be "42% of population preferred tacos." 17. Compare DATA-STATISTIC-PARA-Data are individual measures, like **METER** using a quantitative examhow long a person can hold their breath: "45 sec, 64 sec, 32 sec, 68 ple 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."

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		Like a sample of the entire population, you get information from every mem- ber of the population.
19.	Does a census make sense?	A census is ok for small populations (like Mr. Martinez's students) but im- possible if you want to survey "all US teens."
20.	What is the difference between a parameter and a statistic?	BOTH ARE A SINGLE NUMBER SUMMARIZING A LARGER GROUP OF NUMBERS. But parameter come from populations. Statistics come from statistics.
21.	If I take a random sample 20 ham- burgers from FIVE GUYS and count the number of pickles on a bunch of them, and one of them had 9 pickles, then the number 9 from that burger would be called?	a datum, or a data value.
22.	If I take a random sample 20 ham- burgers from FIVE GUYS and count the number of pickles on a bunch of them, and the average number of pickles was 9.5, then 9.5 is consid- ered a?	statistic
23.	If I take a random sample 20 ham- burgers from FIVE GUYS and count the number of pickles on a bunch of them and I do this because I want to know the true average number of pickles on a burger at FIVE GUYS, the true average number of pickles is considered a?	parameter, a one number summary of the population. The truth. AKA the parameter of interest.
24.	What is the difference between a sample and a census?	With a sample, you get information from a small part of the population.

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	Study online at https://quizlet.com/_bl3nak	In a census, you get information from the entire population. You can get a parameter from a census, but only a statistic from a sample.
25.	Use the following words in one sen- tence: population, parameter, cen- sus, sample, data, statistics, infer- ence, population of interest.	I was curious about a population pa- rameter, but a census was too cost- ly so I decided to choose a sample, collect some data, calculate a statistic and use that statistic to make an infer- ence about the population parameter (aka the parameter of interest).
26.	If you are tasting soup Then the flavor of each individual thing in the spoon is the, the entire spoon is a The flavor of all of that stuff together is like theand you use that toabout the flavor of the entire pot of soup, which would be the	If you are tasting soup Then the fla- vor of each individual thing in the spoon is the DATA, the entire spoon is a SAMPLE. The flavor of all of that stuff together is like the STATISTIC and you use that to MAKE AN INFER- ENCE about the flavor of the entire pot of soup, which would be the PA- RAMETER. Notice you are interested in the parameter to begin with, that is why you took a sample.
27.	What are random variables?	If you randomly choose people from a list, then their hair color, height, weight and any other data collected from them can be considered random variables.
28.	What is the difference between quantitative and categorical vari- ables?	Quantitative variables are numerical measures, like height and IQ. Cate- gorical are categories, like eye color and music preference.

A **quantitative** variable is one that takes on numerical values for a measured or counted quantity.

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29.	What is the difference between quantitative and categorical data?	The data is the actual gathered mea- surements. So, if it is eye color, then the data would look like this: "blue, brown, brown, brown, blue, green, blue, brown, etc." The data from cate- gorical variables are usually words. If it was weight, the the data would be quantitative like: "125, 155, 223, 178, 222, etc." The data from quantitative variables are numbers.
30.	What is the difference between dis- crete and continuous variables?	Discrete can be counted, like "num- ber of cars sold" they are generally integers (you wouldn't sell 9.3 cars), while continuous would be something like weight of a mouse (4.344 oz).
31.	What is a quantitative variable?	Quantitative variables are numeric like: Height, age, number of cars sold, SAT score.
32.	What is a categorical variable?	Qualitative variables are like cate- gories: Blonde, Listens to Hip Hop, Female, yes, no etc.
33.	What do we sometimes call a cate- gorical variable?	qualitative
34.	What is quantitative data?	The actual numbers gathered from each subject: 211 pounds or 67 beats per minute.
35.	What is categorical data?	The actual individual category from a subject, like "blue" or "female" or "sophomore"

	Categorical data	
	Color	Number of toys
	Brown	2
	Yellow	5
	Red	4
	Blue	3
	Green	6
	1	
36. What is a random sample?	When you choose	a sample by roll

	dice, choosing names from a hat, or other RANDOMLY generated sample. Humans can't really do this well with- out the help of a calculator, cards, dice, or slips of paper.
37. What is frequency?	How often something comes up.
38. data or datum?	Datum is singular. Like "hey dude, come see this datum I got from this rat!" Data is the plural. Like "hey look

39. What is a frequency distribution? A table, or a chart, that shows how often certain values or categories occur in a data set.

Class (Rs.)	Tally Marks	Frequency Students
20 - 30	Ш	5
30 - 40	111 111	8
40 - 50	1111 1111	9
50 - 60	141 141	10
60 - 70	1444 1	6
70 - 80	П	2
Total		40

at all that data Edgar got from those

40. What is meant by relative frequency? The PERCENT of time something comes up (frequency/total).

- 41. How do you find relative frequency? Just divide frequency by TOTAL.
- 42. What is meant by cumulative frequency?
- ADD up the frequencies as you go. Suppose you are selling 25 pieces of



	hour, the cumulative frequency would be 10, 15, 18, 25.
43. Make a guess as to what relative cu- mulative frequency is.	It is the ADDAD up PERCENTAGES. An example is selling candy, 25 pieces sold overall, with 10 the first hour, 5 the second, 3 the third, and 7 the fourth hour. We'd take the cu- mulative frequencies, 10, 15, 18, and 25 and divide by the total giving cumulative percentages: 0.40, 0.60. 0.72, and 1.00. Relative cumulative frequencies always end at 100 per- cent.
44. 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). $I = \begin{bmatrix} 1 & 1 \\ 0 & 0 \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ $
45. What is the mean?	The old average we used to calcu- late. It is the balancing point of the histogram.
46. What is the difference between a population mean and a sample mean?	Population mean is the mean of a population, it is a parameter. Sample mean is a mean of a sample, so it is a statistic. We use sample statistics to make inferences about population parameters.
47. What symbols do we use for popula- tion mean and sample mean?	Mu for population mean (parameter), x-bar for sample mean (statistic). Population Mean = μ Sample Mean = \overline{X}

second, 3 the third and 7 in the last

C	AP Stats Summer Vocab Study online at https://quizlet.com/_bl3nak How can you think about the mean and median to remember the differ- ence when looking at a histogram?	Mean is balancing point of histogram, median splits the area of the his- togram in half.
49.	What is the median?	The middlest number, it splits area in half (always in the POSITION (n+1)/2). Find the median of 5, 8, 4, 1, 2 1, 2, 4, 5, 8
50.	What is the mode?	The most common, or the peaks of a histogram. We often use mode with categorical data.
51.	When do we often use mode?	With categorical variables. For in- stance, to describe the average teenagers preference, we often speak of what "most" students chose, which is the mode. It also tells the number of bumps in a histogram for quantitative data (unimodal, bimodal, etc).
52.	Why don't we always use the mean, we've been calculating it all of our life?	It is not RESISTANT, it is impacted by skewness and outliers.
53.	When we say "the average teenager' 54.	' It depends, if we are talking height, it are we talking about mean, median

or mode?

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m	al income, we'd probably use the
i	median, if we were talking about
g	music preference, we'd proba- bly
ĥ	use the mode to talk about the
t	average teenager.
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Study online at https:// What is a clear ex- the mean would c wouldn't? (this wo median is resistan	quizlet.com/_bl3nak ample of where hange but median ould show how the nt)	Imagine if we asked eight people how much money they had in their wallet. We found they had (1, 2, 2, 5, 5, 8, 8, 9). The mean of this set is 5, and the median is also 5. You might say "the average person this group had 5 bucks." But imagine if one of them just got back from the casino, and instead it was (1, 2, 2, 5, 5, 8, 8, 9000), in this case, the median would still be 5, but the mean goes up to over 1000. Which number better describes the amount of money the average person in the group carries, 5 bucks or 1000 bucks? I think 5 is a better description of the average person in this group and the 9000 is simply an outlier.
 		Coop in that order from left to right

55. How are mean, median and mode positioned in a skewed left histogram?

56. How are mean, median, and mode

positioned in a skewed right his-

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Goes in that order from left to right. Mean-median-mode.



Goes in the opposite order. Mode-median-mean.



57. Who chases the tail?

togram?

The mean chases the tail, the mean chases the tail, high-ho the derry-oh the mean chases the tail... and outliers.