AP Stat **1.1 Day #1** **Name:**

How are your favorite classes related?

Is your favorite elective class associated with your favorite core class? Collect class data to see if there is a relationship.

1. Which of the following is your favorite elective class? You must choose only one and mark your choice in the section. Then write down the class information.

Art	Music	Physical Education	Foreign Language	Technology
|	|||	|	||	|

2. Identify the individuals and variable?

Students, favorite elective

3. Is the variable categorical or quantitative?

Categorical (words)

4. Go to stapplet.com to enter the class data. Make a bar graph and a pie chart. Sketch them below.

Bar Graph must start @ 0.

→ have to include all categories to make whole

5. Sometimes it is helpful to investigate more than one variable. Come to the board and put a tally mark where you belong.

Find each of the following:

Core Class

Elective	Math	English	
Art	|		1
Music	|||	|	4
P.E.	|		1
Foreign Lang.		||	2
Tech.	|		1
	5	3	8

% of all students who chose P.E.: 1/8 = 12.5% → Marginal Freq

% of all students who chose Math and chose Art: 1/8 → 12.5% → Joint Freq (inside)

% of the students who prefer math that chose Tech. 1/1 = 100% → conditional Freq

6. How many variables does the table have? Are the variables categorical or quantitative?

2 Categorical → subjects

7. Which variable would best explain or predict the other variable?

Favorite core class could predict favorite elective

explanatory

Response

8. Go to stapplet.com and enter the data. Make a side-by-side bar graph and a segmented bar graph. Sketch them below.

9. How do the bars in the side-by-side-bar graph relate to the bars in the segmented bar graph?

If you stack the bars from the side by side for each core subject, you should get the same segmented graph

10. Is there an association between favorite core subject and favorite elective? If so, describe it.

No association b/c the bars are the same for each graph. * yes → the bars would be different

11. If there was not an association between favorite core subject and favorite elective, what would the graphs look like? Explain.

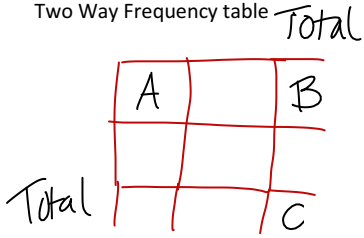
They would be the same for both math and english.

Important Ideas

Categorical
(WORDS)
bar graphs
pie charts
Freq OR Rel Freq (%)

Quantitative
(numbers)
stem leaf
box & whisker plot

Two Way Frequency table



Marginal Freq
B/C
in the margin

Joint Freq
A/C
(# in chart)

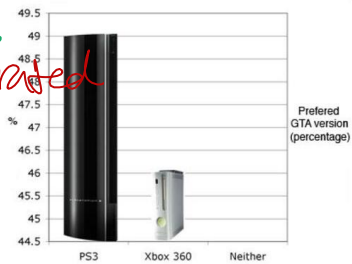
Conditional Freq
A/B
(row OR column)

*Association b/t 2 variables when knowing one affects the other.

Check

1) Some students at a local high school were asked which gaming system they preferred: the Playstation 3, the Xbox 360 or neither. The graph shown to the below shows the results. Explain why the graph may be misleading.

The graph doesn't start @ 0.
Difference in height exaggerated
The neither section looks like 0%.. Avoid Pictographs



2) An article in the Journal of the American Medical Association reports the results of a study designed to see if the herb St. John's wort is effective in treating moderately severe cases of depression. The study involved 338 patients who were being treated for major depression. The subjects were randomly assigned to receive one of three treatments: St. John's wort, Zoloft (a prescription drug) or placebo (an inactive treatment) for an 8 week period. The two way table summarizes the data from the experiment.

a. What proportion of subjects in the study were randomly assigned to take St. John's wort? Explain why this value makes sense.

$113/338 = 0.334$ There are 3 treatments, so 1/3 should get St. John's

b. Find the distribution of change in depression for the subjects in this study using relative frequencies.

FR $91/338 = 0.269$ PR $55/338 = 0.163$ NR → $192/338 = 0.568$

Change in depression	Treatment: St. John's wort	Zoloft	Placebo
Full response	27	27	37
Partial response	16	26	13
No response	70	56	66
	113	109	116

c. What percent of subjects took Zoloft and showed a full response?

$27/338 = 0.08 = 8\%$

We are going to use the calculator for this. Follow these steps

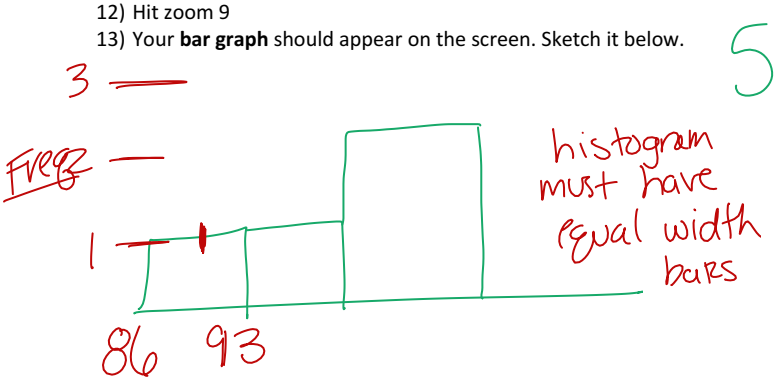
1) Hit Stat
2) Edit
3) If there are numbers in any of your lists, go to the top of each one so that the list name (L1, L2, etc) is highlighted, hit clear and then enter
4) Type in each number below individually

1. The table lists the number of home runs for each American League baseball team in 1989.

94	101	108	116	117	122	126
127	127	129	130	134	142	145

Sketch a data display for the data above and interpret the data.

5) Hit 2nd y= (or stat plot)
6) A list of plots shows up
7) Hit enter at plot 1
8) Turn it on
9) We are going to create a bar graph first (make sure the bar graph is highlighted)
10) Make sure the xlist says whatever list you used
11) Freq = 1
12) Hit zoom 9
13) Your **bar graph** should appear on the screen. Sketch it below.



5 for 5 then Finish bar graph (histogram)

Once you have copied down the bar graph, create a **box and whisker plot**.
Go back to stat plot and highlight the box and whisker plot with the outliers (the one with dots on the side)
Hit zoom 9 and you should get a box and whisker plot
Copy it below

Hallux abducto valgus (call it HAV) is a deformation of the big toe that is not common in youth and often requires surgery. Doctors used X-rays to measure the angle (in degrees) of deformity in 38 consecutive patients under the age of 21 who came to a medical center for surgery to correct HAV. The angle is a measure of the seriousness of the deformity. Here are the data.

28 32 25 34 38 26 25 18 30 26 28 18 20

21 17 16 21 23 14 32 25 21 22 20 18 26

16 30 30 20 50 25 26 28 31 38 32 21

Make a **stem and leaf** plot of the following data. Are there any outliers? How do you know?

Mode → 21, 25, 26

Med → 25

25~26

stem	leaf
1	3 4 6 6 7 8 8
2	0 0 0 1 1 1 1 2 3 5 5 5 5 6 6 6 6 8 8 8
3	0 0 0 1 2 2 2 4 8 8
4	] Gap
5	0

*Must talk about gap

Outlier = 50

Popular magazines rank colleges and universities on their "academic quality" in serving undergraduate students. List four variables that you would like to see measured for each college if you were choosing where to study. Identify each as categorical or quantitative.

Class size
Quantitative

Acceptance Rate
Quantitative

Grad Rate
(how many graduate in 4 yrs)
Quant

DORM Quality / Campus Living
Categorical

Retention Rate
Quant

Cost
Quant

Clubs/extra curricular
Categorical