

AP Statistics Summer Assignment

Welcome to AP Statistics future statisticians! The purpose of this assignment is to make you more comfortable exploring data analysis.

The summer assignment is composed of three parts.

1. Reading and Vocabulary: You will use a free online Statistical tutoring site that will give you information on variable and data displays. While reviewing the information on the site you will be completing a vocabulary list (See page 2 and 3). Follow the steps below:
 - Go to www.stat trek.com
 - Click on "AP Statistics" then "AP Tutorial"
 - On the left side of the screen is a list of general topics. Under each general topic are a list of subtopics. You will read the following subtopics to complete the vocabulary list.

General Topic: Exploring Data	
Subtopics:	Variables
	Population Vs. Sample
	Central Tendency
	Variability
	Position
General Topic: Charts and Graphs	
Subtopics:	Charts and Graphs
	Patterns in data
	Dotplots
	Histograms
	Stemplots
	Boxplots
	Scatterplots
	Comparing Data Sets

2. Practice Problems: After reading all of the material above you should be able to complete the questions in the remaining pages of this packet. You should do so in the spaces provided.

** only do the 1st section of this part. We will do the rest of them together (stop at the num)*

3. A graphing calculator is a required tool for this course. The TI Inspire is recommended. As you complete the practice problems refer to the TI Guidebook to become familiar with the list and statistical functions. For an online calculator go to www.alcula.com/calculators/statistics ← *no problems, just review*

This packet should be completed by your return to school in ~~August~~ *(on locker day)*. You are expected to complete each part of each problem and to construct all data displays neatly. This assignment will be graded, and it will count as a test grade in the first grading cycle of the school year.

Bring this with you to locker day... we will meet for an hour on that day (Sept. 2)

*Happy Summer!
Mrs. Grigor*

AP Statistics Summer Assignment

Part 1: Vocabulary List

Please define each of the following terms from the information on the stattrek website. When asked provide a UNIQUE example or sketch of the word... One NOT given on the website and Not the one your friends use.

1. Categorical Variables

Example:

2. Quantitative Variables

Example:

3. Discrete Variables

4. Continuous

5. Univariate Data

6. Bivariate Data

7. Population

Example:

8. Sample

Example:

9. Median

10. Mean

Formula:

11. Outlier

12. Parameter

13. Statistics

14. Range

15. Standard Score (z-score)

Formula:

16. Center

17. Spread

18. Variance:

Formula:

19. Standard Deviation

Formula:

20. Symmetry

Sketch:

21. Unimodal

Sketch:

22. Bimodal

Sketch:

23. Skewness

Sketch Skewed left:

Sketch Skewed right:

24. Uniform

Sketch

25. Gaps

Sketch:

26. Outliers

Sketch:

27. Dot plots

28. Bar chart

29. Histogram

30. Difference between bar chart and histogram

31. Stemplots

32. Boxplots

33. Quartiles

34. Range

35. Interquartile Range

36. Four ways to describe data sets

37. Types of graphs that can be used for comparing data

Part 2: Practice Problems

CATEGORICAL OR QUANTITATIVE

Determine if the variables listed below are *quantitative* or *categorical*.

1. Time it takes to get to school
2. Number of people under 18 living in a household
3. Hair color
4. Temperature of a cup of coffee
5. Teacher salaries
6. Gender
7. Smoking
8. Height
9. Amount of oil spilled
10. Age of Oscar winners
11. Type of Depression medication
12. Jellybean flavors
13. Country of origin
14. Type of meat
15. Number of shoes owned

STATISTIC—WHAT IS THAT?

A statistic is a number calculated from data. Quantitative data has many different statistics that can be calculated. Determine the given statistics from the data below on the number of homeruns Mark McGuire hit in each season from 1982 – 2001.

We will do this part together.

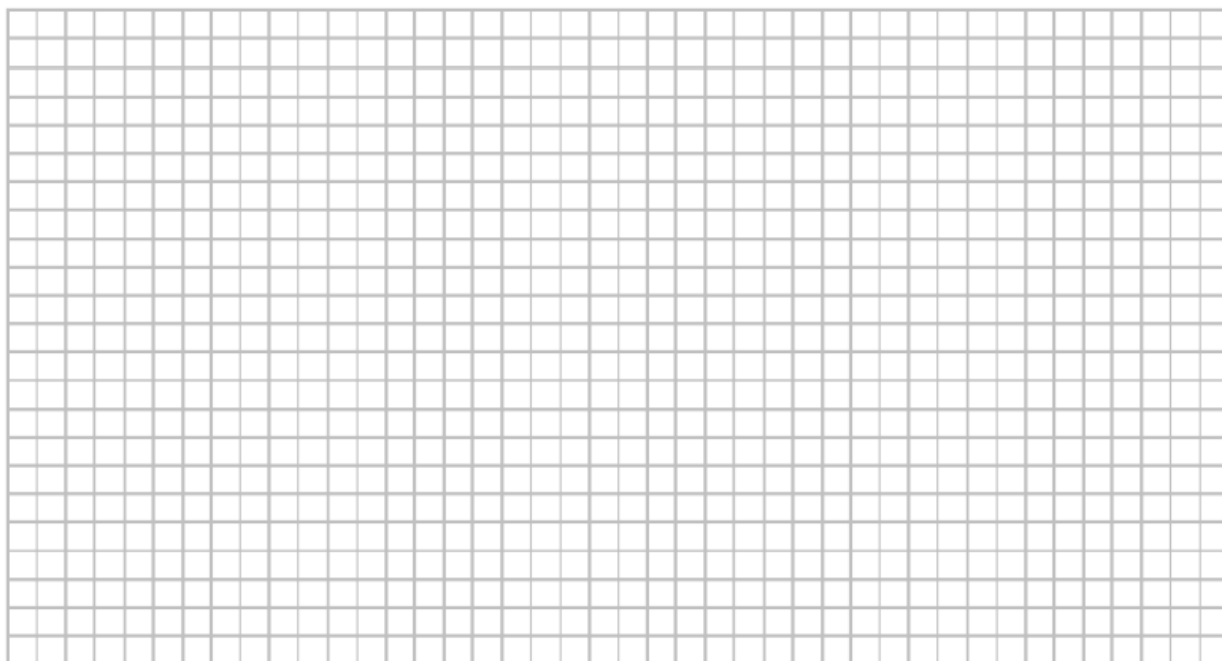
70	52	22	49	3	32	58	39
39	65	42	29	9	32	9	33

Mean	
Minimum	
Maximum	
Median	
Q1	
Q3	
Range	
IQR	

ACCIDENTAL DEATHS

In 1997 there were 92,353 deaths from accidents in the United States. Among these were 42,340 deaths from motor vehicle accidents, 11,858 from falls, 10,163 from poisoning, 4051 from drowning, and 3601 from fires. The rest were listed as “other” causes.

- Find the percent of accidental deaths from each of these causes, rounded to the nearest percent.
- What percent of accidental deaths were from “other” causes?
- NEATLY create a well-labeled **bar graph** of the distribution of causes of accidental deaths. Be sure to include an “other causes” bar.



- A pie chart is another graphical display used to show all the categories in a categorical variable relative to each other. Create a pie chart for the accidental death percentages. You may try using a software or internet source to make one and paste in the space below. (*Microsoft Excel works well*)

IT'S A TWISTA

The data below gives the number of hurricanes that happened each year from 1944 through 2000 as reported by *Science* magazine.

[illegible]

- a. Make a dotplot to display these data. Make sure you include appropriate labels, title, and scale. The graph paper should help ensure you space your markings (you may use x's or dots) consistently.

A full-page sheet of white graph paper with a light gray grid. The grid consists of small squares, approximately 10 units wide by 18 units high. There are no margins or additional markings on the page.

SHOPPING SPREE!

A marketing consultant observed 50 consecutive shoppers at a supermarket. One variable of interest was how much each shopper spent in the store. Here are the data (round to the nearest dollar), arranged in increasing order:

3	9	9	11	13	14	15	16	17	17
18	18	19	20	20	20	21	22	23	24
25	25	26	26	28	28	28	28	32	35
36	39	39	41	43	44	45	45	47	49
50	53	55	59	61	70	83	86	86	93

- a. Make a stemplot using tens of dollars as the stem and dollars as the leaves. Make sure you include appropriate labels, title and key.



WHERE DO OLDER FOLKS LIVE?

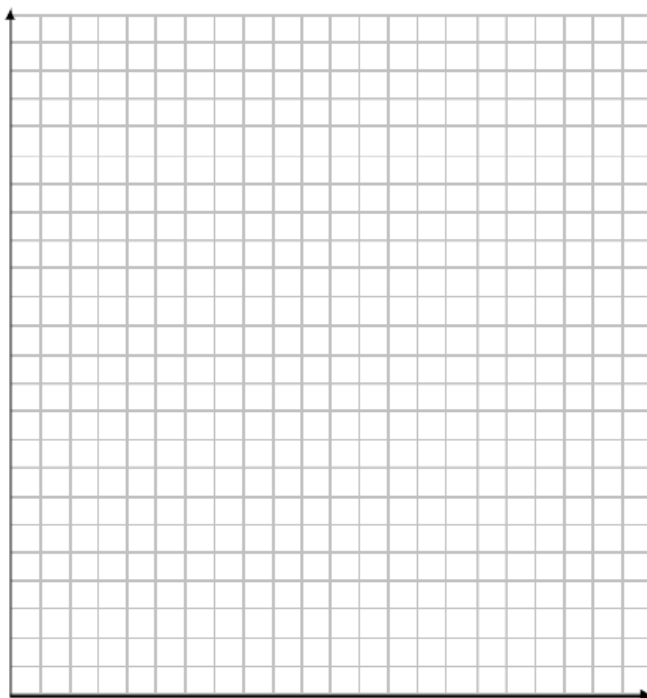
This table gives the percentage of residents aged 65 or older in each of the 50 states.

State	Percent	State	Percent	State	Percent
Alabama	13.1	Louisiana	11.5	Ohio	13.4
Alaska	5.5	Maine	14.1	Oklahoma	13.4
Arizona	13.2	Maryland	11.5	Oregon	13.2
Arkansas	14.3	Massachusetts	14.0	Pennsylvania	15.9
California	11.1	Michigan	12.5	Rhode Island	15.6
Colorado	10.1	Minnesota	12.3	South Carolina	12.2
Connecticut	14.3	Mississippi	12.2	South Dakota	14.3
Delaware	13.0	Missouri	13.7	Tennessee	12.5
Florida	18.3	Montana	13.3	Texas	10.1
Georgia	9.9	Nebraska	13.8	Utah	8.8
Hawaii	13.3	Nevada	11.5	Vermont	12.3
Idaho	11.3	New Hampshire	12.0	Virginia	11.3
Illinois	12.4	New Jersey	13.6	Washington	11.5
Indiana	12.5	New Mexico	11.4	West Virginia	15.2
Iowa	15.1	New York	13.3	Wisconsin	13.2
Kansas	13.5	North Carolina	12.5	Wyoming	11.5
Kentucky	12.5	North Dakota	14.4		

Histograms are a way to display groups of quantitative data into bins (the bars). These bins have the same width and scale and are touching because the number line is continuous. To make a histogram you must first decide on an appropriate bin width and count how many observations are in each bin. The bins for percentage of residents aged 65 or older have been started below for you.

- a. Finish the chart of Bin widths and then create a histogram using those bins on the grid below. Make sure you include appropriate labels, title and scale.

Bin Widths	Frequency
4 to < 6	1
6 to < 8	
8 to < 10	



SSHA SCORES

Here are the scores on the Survey of Study Habits and Attitudes (SSHA) for 18 first-year college women:

154 109 137 115 152 140 154 178 101 103 126 126 137 165 165
129 200 148

and for 20 first-year college men:

108 140 114 91 180 115 126 92 169 146 109 132 75 88 113
151 70 115 187 104

- Put the data values in order for each gender. Compute numeral summaries for each gender.

Women		Men	
Mean		Mean	
Minimum		Minimum	
Q1		Q1	
Median		Median	
Q3		Q3	
Maximum		Maximum	
Range		Range	
IQR		IQR	

- Using the minimum, Q1, Median, Q3, and Maximum from each gender, make parallel boxplots to compare the distributions.

