Name: _____ AP Statistics

**Summer Assignment**

Welcome to AP Statistics. I look forward to working with you next year. In order to prepare for the beginning of the year I am asking you to complete this assignment. The purpose of this assignment is to make you comfortable with the primary data displays used during this Statistics class and to review skills that I expect you to have before starting the course.

You may also use a free online Statistical tutoring site that can give you information on variables and data displays

Go to www.stattrek.com
Click on "Free statistics tutorial"

A graphing calculator is a required tool for this class. The TI-84 Plus is recommended. As you complete the Practice Problems refer to the TI Guidebook to become familiar with the list and statistical functions. You can also go to the web site given below for graphing calculator tips.

Go to www.mathbits.com
Click on **Graphing Calculator TI-83+/TI-84+**

You can also use this link to access the textbook we will be using this year.
http://libgen.io/book/index.php?md5=9568D47046138B3CB4F592361E19A04F
Once you click on this link you want to click on the link **Libgen.io** in the middle of the page and then click on the link **GET** and you should be able to download and view the textbook. You may also be able to save it to your computer so you have a digital version of the book to use throughout the year. At the very least you should bookmark it. This is the only online version of the textbook.

Upon your return to school in September, I expect you to turn in this completed packet. You are expected to complete each part of the problems and to construct all data displays neatly. ***This assignment will be counted as a quiz.*** If you have any questions, please feel free to e-mail me at dhillig1@stjohnsprepschool.org. If you misplace your copy you can download a copy from the Mathematics Department page on the school web site.

Please define each of the following terms.

1. Categorical Variables:

   Give an Example:

2. Quantitative Variables:

   Give an Example:

3. Univariate Data:

4. Bivariate Data:

5. Median:

6. Mean:

7. Unimodal and Bimodal (referring to the shape of a distribution):

8. Symmetrical (referring to the shape of a distribution):

9. Skewness (referring to the shape of a distribution):

Sketch Skewed left:

Sketch Skewed right:

10. Uniform distribution:

11. Outliers:

12. Interquartile Range (IQR):

13. Which types of graphs are used for categorical data?

14. Which types of graphs are used for quantitative data?

15. What is an advantage of using a stem plot or dot plot instead of a histogram or boxplot?

16. When is it more appropriate to use a histogram or boxplot instead of a stem plot or boxplot?

17. What is the mathematical process used to calculate whether a given set of data has outliers?

18. Explain why the median of a distribution is a resistant measure of center.

19. Explain why the mean of a distribution is not a resistant measure of center.

20. Explain what standard deviation is in a distribution.

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

21. Time it takes to get to school
22. Number of people under 18 living in a household
23. Hair color
24. Temperature of a cup of coffee
25. Teacher salaries
26. Gender
27. Smoking
28. Height
29. Amount of oil spilled
30. Age of Oscar winners
31. Type of Depression medication
32. Jellybean flavors
33. Country of origin
34. type of meat
35. 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.

36. Determine the given statistics from the data below on the number of homeruns Mark McGuire hit in each season from 1982 – 2001.

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

| | |
|---|---|
| Mean | |
| Minimum | |
| Maximum | |
| Median | |
| Q1 | |
| Q3 | |
| Range | |
| IQR | |

**IT'S A TWISTA**

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

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 2 | 1 | 4 | 3 | 7 | 2 | 3 | 3 | 2 | 5 | 2 | 2 | 4 | 2 | 2 | 6 | 0 | 2 | 5 | 1 | 3 | 1 | 0 |
| 3 | 2 | 1 | 0 | 1 | 2 | 3 | 2 | 1 | 2 | 2 | 2 | 3 | 1 | 1 | 1 | 3 | 0 | 1 | 3 | 2 | 1 | 2 | 1 |
| 1 | 0 | 5 | 6 | 1 | 3 | 5 | 3 | | | | | | | | | | | | | | | | |

Make a dotplot to display these data. Make sure you include appropriate labels, title, and scale. Discuss the shape, center, and spread for the distribution hurricanes.

**SSHA SCORES**

38. 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

a. Compute numeral summaries for each gender.

| **Women** | | | **Men** | |
|---|---|---|---|---|
| Mean | | | Mean | |
| Minimum | | | Minimum | |
| Q1 | | | Q1 | |
| Median | | | Median | |
| Q3 | | | Q3 | |
| Maximum | | | Maximum | |
| Range | | | Range | |
| IQR | | | IQR | |

b. Determine if there are any outliers for each set of data. Show your work.

c. Make parallel boxplots to compare the distributions. Write a few sentences comparing the SSHA of men and women. Be sure to comment on shape, center, and spread for each distribution.