The AP Statistics course at Wake Forest-Rolesville High School is designed to be a college-level course. This means that the level of material, workload and expectations will all be higher than you've experienced in a high school course to this point. You will be challenged by this course.

The course is designed to prepare you for the AP Statistics Exam, given in the spring. The exam is scored on a 5-point scale. Some colleges will give you mathematics credit for certain scores (usually 3 or higher). The amount of credit and score required vary by college, and not all colleges give credit.

The amount of time we have in the classroom isn't sufficient to properly cover the amount of material we need to for the AP Exam. Therefore, we must begin our course by completing this summer assignment. Some of this material will be review from earlier math classes. Some material will require research.

The assignment is in three parts (listed below).

**ALL parts of the assignment will be due during the first class period.**

We will review Part I of the assignment at that time and during the second class period, we will have a quiz over that material. Again, the expectations are high. Meet them.

**Part I:** **Terms and Questions**

Attached to this packet is a list of terms and questions. On a sheet of loose leaf paper, write “Summer Assignment - Part I Terms” at the top. On that sheet, define all the terms listed. On another sheet, labeled “Summer Assignment - Part I Questions”, answer the questions listed. This can be hand written or typed.
Information on these terms and questions are available all over the internet. I suggest Google. Please feel free to also use other internet sites, your local library, math textbooks, or any other sources you need to. If you find a great site for AP Statistics, bring it to share with everyone.

Part II:  The Survey

You will conduct a survey over the summer. You will create a question, ask that question to 25 or more people, and record your data. The answer to your question must be a numerical value. Do not use “Yes or No” questions.

Before you begin asking your question, you need to ask yourself if the question is appropriate for school and something that I would approve. If you have a question about what you have selected then you probably need to come up with a different question.

Here are some sample questions to help your thinking along:

- How many hours of TV do you watch weekly?
- How fast could you run a mile?
- How many boxes of Girl Scout Cookies did you buy?
- How many of the United States have you been to?
- How much money would your dream job pay?

You will turn in a sheet on the first day for this portion of the assignment as well. Title it: "Part II - Summer Assignment".

State your question and give the list of responses given from your survey. Take the time to detail and describe the circumstances of your survey. For example, where did you find the people you questioned? How long did it take you? How many people did you survey? Did anyone refuse to answer? etc.
Part III: **Data displays**

Once you have created a question and taken your survey, you'll need to create three different data displays for your results. Your term definitions from Part I should help you understand how to do that. You will create one boxplot, one stemplot and one histogram with your data results. Make sure each of the three plots is properly labeled. If you don't know what that entails, research or ask.

These three plots should each be labeled “Summer Assignment - Part III”. Under that, you should label your data, etc.

I hope you all have a nice summer. Don't save this until the last minute. It will show.

Ms. Martin-Smith
## Summer Assignment Terms:

### General Terms:

- **Individuals**
- **Variable**
- **Distribution**

### Types of Variables:

- **Quantitative Variable**
- **Qualitative Variable**
- **Categorical Variable**

### Ways to Display Data:

- **Pie Chart**
- **Scatterplot**
- **Histogram**
- **Bar Graph**
- **Dot Plot**
- **Boxplot**
- **Stem & Leaf Plot**
- **Ogive**
- **Time Plot**

### Terms associated with ‘shape’ of a data set:

- **Symmetrical**
- **Skewed Left**
- **Skewed Right**

### Terms associated with ‘center’ of a data set:

- **Mean**
- **Median**

### Terms associated with the ‘spread’ of a data set:

- **Variance**
- **Standard Deviation**
- **Range**
- **IQR**

### Miscellaneous terms associated with display of data:

- **Outlier**
- **5-Number Summary**
- **Quartile**
- **Maximum**
- **Minimum**
- **Decile**
- **Resistant**
- **Nonresistant**
Summer Assignment Questions:

1. What is the difference between a quantitative and qualitative variable?

2. ‘Categorical’ is another term for which type of variable?

3. Of the “Ways to Display Data above”, which ones are used to display quantitative variables? Which ones are used to display qualitative variables?

4. What is the 5-number summary of a data set?

5. How do you mathematically determine if a data set has an outlier?

6. Would the grade distribution of scores on a quiz in an AP class be symmetrical, skewed right or skewed left? Explain.

7. If data is skewed, is it better to describe its center with mean or median? Why?

8. If a data set is skewed, is it better to describe its spread with the standard deviation or IQR? Why?

9. What is a quartile? What is a decile?

10. Explain the difference between resistant measures of data and non-resistant measures of data.

11. Classify each of the following as resistant or non-resistant:

   Mean   Median   Standard Deviation   IQR   Variance

12. What does it mean to “split stems” when making a stem and leaf plot?

13. What is the relationship between variance and standard deviation?

14. When would the standard deviation of a data set be zero? When might it be negative?