

# AP Statistics

## 2009 Summer Assignment

### **Learning Goal:**

The AP Statistics course at Panther Creek 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.

### **Expectations:**

The assignment is in three parts (listed below).

**ALL parts of the assignment will be due on the first day of school, regardless of if your AP Statistics class is scheduled during the fall or spring.**

- Fall AP Students will turn this assignment in on Day 1 directly to their instructor.
- Spring AP Students will turn this assignment in to Student Services on Day 1.

### **Evaluation of Summer Assignment:**

On the first day of class, we will review Part I of the summer assignment. On the second day of class, we will have a quiz over the Part I material. Again, the expectations are high. To be successful you must rise to the expectations. Do not wait until the last minute to complete the assignment. The quality of your work will be obvious if wait to late.

### **Summer Support/Resources for Success:**

I will be available all summer by e-mail to support you if you have any questions or problems. Here is my e-mail for you. (Don't forget you'll also need it to clear your survey question.)

jbetz1@wcpss.net

- Some helpful websites:
  - [www.stattrek.com](http://www.stattrek.com)
  - [www.mrvignolini.com](http://www.mrvignolini.com)
  - [www.davidmlane.com/hyperstat](http://www.davidmlane.com/hyperstat)
  - [www.home.comcast.net/~bskerbitz/apstats.html](http://www.home.comcast.net/~bskerbitz/apstats.html)
  - <http://www.statsoft.com/textbook/esc.html>
  - [http://www.mathwords.com/index\\_prob\\_stats.htm](http://www.mathwords.com/index_prob_stats.htm)

I hope you all have a nice summer.

Mr. Betz

# GENERAL OUTLINE for AP STATISTICS SUMMER ASSIGNMENT

## 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.

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. We will not use “Yes or No” questions.

Before you begin asking your question, you must clear your question through me. Send me an e-mail this summer when you have decided on a question, and I’ll let you know if it’s okay to use. My e-mail appears at the end of this assignment.

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.



## 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
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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?