AP Statistics Summer Assignment

Welcome to AP Statistics! This packet will provide you with all necessary information you will need to complete your summer assignment in this course. **<u>Please read ALL of the information that follows, as it is extremely important</u>**.

Directions for Completing the Summer Packet:
Ultimately, the notes that you will complete within this summer packet, as well as the practice problems, will serve as your notes for the first chapter of this course. Please read the first chapter CAREFULLY. Read each section several times until it makes sense to you. Read all technology corners, examples, AP Exam Tips, etc. throughout the chapter so that you are familiar with all of this information for the first day of school. We will spend the first day or two going over the first chapter, but not much longer.

Each section in this packet requires you to fill-in definitions, write notes/answer questions, and complete practice problems. You may type definitions and notes in this packet OR you may print it out and write it in by hand. In either case, the practice problems from each section MUST be completed on separate sheets of paper (i.e. NOT directly on this packet). Please label each page of practice problems with the corresponding section number (i.e. Introduction, Section 1, Section 2, or Section 3) and your name – you and I will thank you. We will go over any topics in-class during the first couple of days, but we will mainly be focusing on the practice problems. Please come prepared with questions. **We will have an assessment on Chapter 1 on either the second or third day of class (date of test to be announced in class).** It is very important that you put in effort into this packet; you want to have a strong start to the year!

Other Notes:
- This assignment is to be completed by **the first day of school**.
- You will need either a TI-83 or TI-84 graphing calculator. You may purchase one yourself or borrow one from the school. **TI-89, TI-Inspire, or any other type of calculator is unpermitted.** I have tried allowing students to use other calculators that I am unfamiliar with – it does not go well as all of my notes use TI-83/84's, and I cannot help you if you are having issues.

If you have any questions, please email Michelle Gavin (mgavin@solebury.org). I look forward to this year in AP Statistics!

Michelle Gavin

Statistics: The Science and Art of Data

Introduction

Vocabulary (write here):
- Statistics:

- Individual:

    o Examples:

- Variable:

    o Examples:

- Categorical Variables:

    o Examples:

- Quantitative Variables:

    o Examples:

- Distribution:

Practice Problems (complete on a separate sheet of paper):
- Complete the questions in the Check Your Understanding box located on page 5.
- Page 8 #9, 10

Analyzing Categorical Data

Section 1.1

Vocabulary (write here):
- Frequency Table:

- Relative Frequency Table:

- Bar Graph:

- Pie Chart:

- Two-Way Table:

- Marginal Relative Frequency:

- Joint Relative Frequency:

- Conditional Relative Frequency:

- Side-By-Side Bar Graph:

- Segmented Bar Graph:

- Association:

Notes (write here):
- List out the three steps to creating a bar graph.

- **AP EXAM TIP:** When asked to "describe what you see" from a graph or a distribution, list FACTS; do not make any inferences or jump to any conclusions!

- When analyzing graphs, what should you be wary of?

Practice Problems (complete on a separate sheet of paper):
- Complete the questions in the Check Your Understanding boxes located on pages 12, 16, and 22.
- Page 24 #15, 19, 21, 25, 31, 40-43

Displaying Quantitative Data with Graphs
Section 1.2

Vocabulary (write here):
- Dotplot:

- Symmetric Distribution:

- Distribution Skewed to the Right:

- Distribution Skewed to the Left:

- Stemplot:

- Histogram:

Notes (write here):
- List out the three steps to creating a dotplot.

- List out the four items you should include in your description of the distribution of a quantitative variable.

- **AP EXAM TIP:** When comparing distributions of quantitative data, it's not enough just to list values for the center and variability of each distribution. You have to explicitly *compare* these values, using words like "greater than," "less than," or "about the same as." In addition, ALWAYS write responses in context to the problem by referring back to the variable(s) of interest.

- List out the four steps to creating a stemplot.

- Describe how to create a back-to-back stemplot.

- List out the five steps to creating a histogram.

- What are some of the differences between a histogram and a bar graph?

- List out the steps to making a histogram on your calculator on pages 43 and 44.

Practice Problems (complete on a separate sheet of paper):
- Complete the questions in the Check Your Understanding boxes located on pages 34, 40, 44
- Page 48 #48, 50, 54, 56, 58, 66, 72, 80-85

Describing Quantitative Data with Numbers
Section 1.3

Vocabulary (write here):
- Mean ($\bar{x}$):

- Resistant:

- Median:

- Range:

- Standard Deviation:

- First Quartile:

- Third Quartile:

- Interquartile Range (IQR):

- Five-Number Summary:

- Boxplot:

Notes (write here):
- What's the difference between $\bar{x}$ and μ? Between s_x and σ?

- What is the effect of skewness and outliers on measures of center?

- List four properties of the standard deviation.

- List out the steps to finding numerical summaries on the calculator located on page 66.

- What's the rule for identifying outliers?

- List out the seven steps to creating a boxplot.

- **AP EXAM TIP:** Use statistical terms carefully. Don't say "mean" if you really mean "median." Range is a single number; so are Q_1, Q_3, and IQR. Avoid poor use of language, like "the outlier *skews* the mean" or "the median is in the middle of the IQR." Skewed is a shape and the IQR is a single number, not a region. If you misuse a term, expect to lose some credit.

Practice Problems (complete on a separate sheet of paper):
- Complete the questions in the Check Your Understanding boxes located on pages 59, 65, and 70
- Page 75 #94, 100 (use 1-VarStats on your calculator to calculate s_x), 102, 106, 108, 110, 116, 118 (complete part b before part a), 120, 122-126