Statistics Summer Assignment

This summer you are to complete the following items:

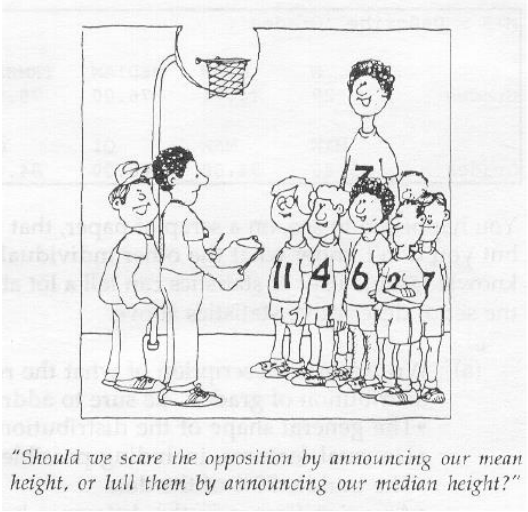
- Read the short book How to Lie with Statistics by Darrell Huff.
  - This 1954 book is old but is a classic (now in its 50th printing).
  - You can rent this book from your local library or you can purchase this paperback book from Amazon for as little as $4 (edition doesn't matter, as they are the same).
- As you read the book, answer the following questions. This will give you a good background as you start your Statistics course.
  - Your answers should be brief but do make sure you are answering all aspects of each question.
  - It is encouraged that you type your answers for easy online submission at the beginning of the school year.

Chapter 1. "The Sample with the Built-in Bias"

1. What is a sample?
2. Give an example of bias from the book.
3. What is a random sample?
4. What is a stratified random sample?
5. Give an example of a stratified random sample from the book.

Chapter 2. "The Well-Chosen Average"

1. Define the following terms.
   a. Skewed
   b. Mean
   c. Median
   d. Mode
2. Give a brief explanation of the picture to the right.



"Should we scare the opposition by announcing our mean height, or lull them by announcing our median height?"

Chapter 3. "The Little Figures That Are Not There"

1. Why should you be suspicious of a small sample?
2. Average alone is misleading. Why?
3. What is a better description than average?
4. Why is it important to label all graphs?

Chapter 4. "Much Ado about Practically Nothing"

1. What is probable error?
2. What does probability error have to do with Linda's and Peter's IQs?
3. Explain how the advertisement for Old Gold described on page 59 is dishonest.

Chapter 5. "The Gee-Whiz Graph"

1. What is a misleading graph?
2. Why is it important to label the axis of every graph you make in Statistics?

Chapter 6. "The One-Dimensional Picture"

1. Why are picture graphs used?
2. How can picture graphs be deceptive?

Chapter 7. "The Semi attached Figure"

1. What is a semi attached figure? Give an example from the book.
2. Why should you watch for semi attached figures?
3. How do before-and-after pictures use semi attached figures?

Chapter 8. "Post Hoc Rides Again"

1. Can you say that "A" causes "B" just because "B" follows "A"?
2. Name another reason why "B" follows "A" if "A" does not cause "B".
3. Why should you not take a correlation beyond the data? (see pg. 91)

Chapter 9. "How to Statisticulate"

1. How can maps be used to deceive?
2. If a number has lots of places after the decimal, is it more accurate? Explain.
3. Your pay is decreased by 50% and then increased by 50%. Is your pay back to its original amount? Explain.
4. How are Percentiles a way to Statisticulate?

Chapter 10. "How to Talk Back to a Statistic"

1. What are the five questions you should ask when looking at a statistic?
2. What was the problem with the "Journal of Commerce" survey?
3. Give an example of how the subject can be changed.
4. What did Mark Twain say about the nonsense side of extrapolation in *Life on the Mississippi*?