

Chapter 8 Investigation Guide

Before you begin the written report:

- 1.) Choose at least three athletic performances from different eras to compare, like the example comparing home run hitters (Babe Ruth, Roger Maris, Mark McGwire, Barry Bonds).
- 2.) Choose a group of comfortable athletes for each of the selected performances. This should include only athletes who played regularly during the season. Many of the websites below allow you to sort by variables such as at-bats, games played, or number of attempts. This should help identify which athletes were regular players that season.

To complete the written report:

- 1.) Write an introduction which that describes the question of interest, identifies the performances that you are using to answer the question of interest, explains why you selected the performances that you chose, and gives some historical background about each of the selected performances.
- 2.) Describe how you chose which athletes to use as comparison groups for each of the selected performances. Make sure to cite the source(s) of the data.
- 3.) For each of the selected performances, graph the distribution of performances for the comparison group of athletes. Draw an arrow on your graph to indicate where the selected performance falls in the distribution.
- 4.) For each distribution of performances, calculate the mean and standard deviation. Then, calculate and interpret the z-score for the selected performance. Show work for the calculations.
- 5.) Write a conclusion that answers the question of interest and describes possible errors or limitations to your research.

Web sites with data for multiple sports include:

- ✓ www.sports-reference.com
- ✓ www.espn.com
- ✓ www.usatoday.com/sports
- ✓ Sports.yahoo.com
- ✓ www.si.com

Chapter 8 Investigation Guide: Checklist

- Title Page**
- Table of Contents**
- Introduction**
 - *What is the question of interest and why did you select this topic*
 - *Introduce the performance that will be used to answer the question of interest*
 - *Give some historical background about each of the selected performances*
 - *Give a preliminary answer to the question of interest*
- Table and Data Collection**
 - *Explain how comparison groups were selected*
 - *Raw data table of the information and data to be used*
 - *Cites resources for data*
- Dotplots**
 - *A dotplot for the distribution of performances for each athlete*
 - *Identify the specific athlete on the dotplot (with a different color dot or an arrow)*
 - *Calculate the mean and standard deviation for each dotplot (show work for calculations)*
- Z-Scores**
 - *Calculate the z-score for each athlete (show work for calculations)*
 - *Explain what that value means*
 - *Express what a positive or a negative z-score means*
- Conclusion**
 - *Give a conclusion based on your results. (1 page minimum)*
 - *Correctly answers the question of interest based on the z-score*
- Errors/Causes**
 - *Discuss the possible reasons for your conclusion*
 - *Discuss possible errors, limitations, etc.*
 - *1 page (minimum)*
- References**