

Chapter 1 Investigation Guide

Before you begin the written report:

- 1.) Choose an athlete or team that you are interested in investigating.
- 2.) Choose a categorical variable that you will use to measure the athlete or team's performance in the regular season and in the playoffs (or in an early time period compared to a later time period.)
- 3.) Find the relevant data on the Internet or another source. Many of the websites listed below allow you to look at "splits," which break down an athlete or team's performances into different time periods, such as regular season and playoffs.

To complete the written report:

- 1.) Write an introduction which states the question of interest and briefly describe the context of the athlete or team's performances, including noteworthy accomplishments that year and why you chose to use a particular variable to measure the performances. Also, describe how and where you obtained your data.
- 2.) State the number of successes and failures in the regular season and the playoffs and make appropriate graphs to compare the athlete or team's performances. Compare the graphs, making sure to compare the percentages of successes in each context. Give a preliminary answer to the question of interest.
- 3.) Describe how to simulate the team or athlete's performance in the playoffs using a spinner, random generator or applet, assuming the athlete or team's ability is the performance in the regular season. Use the athlete or team's performance in the regular season as an estimate of their ability. Conduct at least 50 trials of your simulation using two of the three methods discussed in class. Include a well-labeled dotplot to display the results of each simulation (2 dotplots total).
- 4.) Use the results of the simulation to discuss if the athlete or team's performance in the playoffs was likely or unlikely to happen by random chance and make a conclusion about the question of interest.
- 5.) Discuss any limitations or possible errors you may have made in your conclusion. If there is convincing evidence of a change in ability, discuss the possible causes.

Websites with data for multiple spots include:

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

Website for applet/spinner:

- ✓ www.whfreeman.com/SRIS
- ✓ <http://www.shodor.org/interactivate/activities/AdjustableSpinner/>

Chapter 1 Investigation Guide: Checklist

- Title Page**
 - Title
 - Class Name
 - Your Name
 - Period
- Table of Contents**
 - Contents of Each Page
 - Page Numbers
- Introduction**
 - 1 page (minimum)
 - Double Spaced
 - 12 point font
 - 1" margins
- Graphs**
 - Pie Chart
 - Bar Chart
 - Segmented Bar Chart
 - Brief Explanation for EACH graph (3-5 sentences)
- Simulation**
 - Conduct 2 of 3 discussed in class
 - Explain the steps to conducting the simulation for each (3-5 sentences for EACH simulation)
 - Perform a minimum of 50 trials
- Dotplots**
 - Create a dotplot for EACH simulation
 - Explain the results of each dotplot (3-5 sentences for EACH explanation)
- Conclusion**
 - Give a conclusion based on your results and simulations
 - 1 page (minimum)
- Errors/Causes**
 - Discuss the possible errors and causes
 - 1 page (minimum)
- References**
 - Using appropriate citing rules and techniques, cite all the references used for the investigation