

GOAL GETTERS

This lesson will use real game statistics from the “Miracle On Ice” hockey game to learn how to calculate and interpret percentages.

CONTEXT

The 1980 “Miracle on Ice” was a historic ice hockey game during the Olympic Winter Games in Lake Placid, NY. On February 22, 1980, the underdog U.S. team, mostly amateur and college players, defeated the heavily favored Soviet Union team in a stunning 4-3 upset. This game took place during the medal round of the Olympic ice hockey tournament.

Despite scoring only three points, the Soviet players took thirty-nine shots on goal. Students will use actual statistics from the game to calculate the shot percentages of each team, and discuss how changing those percentages could have changed the outcome of the game.

AIMS & OBJECTIVES

Students will be able to:

1. Calculate and use percentages
2. Create a bar graph to visualize data

MATERIALS

Primary Sources:

- Statistic sheets from the 1980 final results book

Secondary Sources:

- The “Miracle on Ice, 35 Years Later” (2015) ABC News. 3:49.
<https://www.youtube.com/watch?v=NyRVZX3J2uQ>
- Guide to Hockey Statistics
<https://www.milehighhockey.com/pages/stats>

PROCEDURES

- Introduce the “Miracle On Ice.” Ask students what they already know about it, and encourage students who have heard of it before to help explain what it is to students who haven’t.
- Watch “Miracle on Ice, 35 Years Later.”
- Explain that a shooting percentage is the percentage of shots that become goals. It is the number of total shots taken, divided by the number of goals. Checking out the “Guide to Hockey Statistics” may be helpful. Discuss percentages with students.

- Looking at the 1980 statistic sheets, have students use their worksheets to determine what numbers and what math they need to do in order to determine the shooting percentage.
 - To calculate shooting percentages from the “Miracle On Ice” game, look at the “USAvsURS” document. The bottom right shows shots on goal for each period, as well as the final total for the game. That box also contains the goals scored in each period, as well as the final total for the game.
 - The supplemental resources include the final statistics for every game played in the medal round of the tournament. Students can use other sheets to calculate percentages for any of the five top teams in 1980.
- After calculating the shooting percentages, have students move on to creating a bar graph to visually represent the differences in shooting percentages between teams.
- Lead a discussion based on the comparison of these percentages/graphs:
 - Which team had more shots? (The Soviet Union)
 - Which team had the higher shooting percentage? (The U.S. team)
 - How did the U.S. manage to win despite taking far fewer shots?
 - The lesson here is that while the Soviet Union created more scoring opportunities (shots), the U.S. team was more efficient with their chances, and that efficiency helped them win.

EXTENSION ACTIVITY: BAR GRAPHS

Instruct students to create a bar graph in order to visually interpret the data. One bar represents the number of shots taken on goal; the other bar represents the number of goals scored. After making this for each team, students can visualize how the shooting percentage works and just how much more efficient the American team was.

NEW YORK STATE LEARNING STANDARDS

Mathematics

Ratio and Proportional Relationships

- Understand ratio concepts and use ratio reasoning to solve problems.
- Develop understanding of statistical variability.

Social Studies

- Intermediate Standard 2.4: The skills of historical analysis include the ability to: explain the significance of historical evidence; weigh the importance, reliability, and validity of evidence; understand the concept of multiple causation; understand the importance of changing and competing interpretations of different historical developments.