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A Look at the History of Baseball through Mathematical Eyes

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7th-10th Grades
Math Unit Plan

[Pittsburgh baseball gamewatchers enjoy the view](#)

Teaching Unit Type:

This project is a mini-unit plan made up of a series of several lesson plans incorporating math and the history of baseball.

Grade Level(s):

7th through 10th grade

Time Frame:

The unit will take one to two weeks. It will include class time for calculations and computer lab time for researching information.

Subject Matter:

Mathematics (particularly Algebra I) and American History

Curriculum Standards:

The unit is related to the following Illinois State Board of Education standards.

STATE GOAL 6: Demonstrate and apply a knowledge and sense of numbers, including numeration and operations (addition, subtraction, multiplication, division), patterns, ratios and proportions.

6. B. Investigate, represent and solve problems using number facts, operations (addition, subtraction, multiplication, division) and their properties, algorithms and relationships.

STATE GOAL 8: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.

8. A. Describe numerical relationships using variables and patterns.

STATE GOAL 10: Collect, organize and analyze data using statistical methods; predict results; and interpret uncertainty using concepts of probability.

10. A. Organize, describe and make predictions from existing data.

10.A.3a Construct, read and interpret tables, graphs (including circle graphs) and charts to organize and represent data. **10.A.3b** Compare the mean, median, mode and range, with and without the use of technology.

10.A.3c Test the reasonableness of an argument based on data and communicate their findings.

10.A.4a Represent and organize data by creating lists, charts, tables, frequency distributions, graphs, scatterplots and box-plots.

10.A.4b Analyze data using mean, median, mode, range, variance and standard deviation of a data set, with and without the use of technology.

10.A.4c Predict from data using interpolation, extrapolation and trend lines, with and without the use of technology.

10. B. Formulate questions, design data collection methods, gather and analyze data and communicate findings.

10.B.3 Formulate questions (e.g., relationships between car age and mileage, average incomes and years of schooling), devise and conduct experiments or simulations, gather data, draw conclusions and communicate results to an audience using traditional methods and contemporary technologies.

STATE STANDARD 3 - APPLICATION OF TECHNOLOGY IN INSTRUCTION:

The competent teacher will apply learning technologies that support instruction in their grade level and subject areas. He or she must plan and deliver instructional units that integrate a variety of software, applications, and learning tools. Lessons developed must reflect effective grouping and assessment strategies for diverse populations.

Lesson Plan Description (2-3 sentences):

Students will examine the history of baseball by looking at the Library of Congress website's 'Jackie Robinson and Other Baseball Highlights 1860s-1960s Collection.' The students will study the development of baseball and create a brief PowerPoint presentation incorporating pictures and information from the LOC website. They will then pick three players from the baseball cards in the 'Baseball Cards 1887-1914 Collection.' Using these three players and three present day baseball players that they have chosen, they will use the www.baseball-reference.com website to analyze the statistics from the 6 players they have chosen. They will mathematically calculate and compare their statistics. Analysis of these statistics will include a comparison of number of games played, etc.

Technology Required:

A. Internet access for students to use 1) the Library of Congress website and the Jackie Robinson and Other Baseball Highlights 1860s-1960s collection; 2) the www.baseball-reference.com website; and 3) Major League baseball team websites.

B. PowerPoint software

Category:

Social sciences and history, real-life applications of mathematics

Formal Assessment Tool:

Student will be assessed at the end of the unit on their final project. They will have to complete a statistical analysis of several of the players featured on the American Memory website and a modern day player. Their final project will include an oral presentation, some mathematical calculations and graphing, and a short PowerPoint presentation.

Informal Assessment Tools:

Students will be assessed throughout the unit on their class work and homework assignments. They will be responsible for navigating through the appropriate websites and collecting the data they need to begin their analysis.