

Mathematics and Football - Super Bowl Scores

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Basic Information

Summary:

This lesson is the third part in a bigger unit that combines Math and Football where students participate in activities in which they analyze information represented graphically. Students are asked to discuss, describe, read, and write about the graphs and the information they contain. The emphasis on using components of language is natural for students and helps them clarify the information depicted.

Grade/Level:

2

Time Frame:

One 30 minute class period

Subject(s):

Mathematics

Topic(s):

The lessons in this unit focuses on connections between mathematics and football by using the Super Bowl. Students are asked to look at the Super Bowl not just as "the big game" but as an opportunity to apply mathematics to some interesting problems. The activities involve number sense, geometry, measurement, statistics, estimations, and problem solving. The activities are designed to be used in multiple grad levels. They can be used by individual students, small groups, or the entire class. Also included is an activity sheet to be used as a school-home connection. Students are to be encouraged to complete this activity sheet as a family project.

Standards and Key Concepts

Standards:

NY- New York State Standards

- **Subject:** Mathematics, Science, and Technology (1996, 2005 Math update)
 - **Learning Standard 3:** Mathematics (2005 update)
Students will:
 - understand the concepts of and become proficient with the skills of mathematics;
 - communicate and reason mathematically;
 - become problem solvers by using appropriate tools and strategies;through the integrated study of number sense and operations, algebra, geometry, measurement, and statistics and probability.
 - **Grade/Subject :** Grade 2
 - **Area :** Content Strands
 - **Strand :** Number Sense and Operations Strand

• **Standard** : Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.

■ **Performance Indicator** : 2.N.7 Use a variety of strategies to compose and decompose two-digit numbers

■ **Performance Indicator** : 2.N.8 Understand and use the commutative property of addition

■ **Performance Indicator** : 2.N.11 Read written ordinal terms (first through ninth) and use them to represent ordinal relations

■ **Performance Indicator** : 2N.10 Use and understand verbal ordinal terms

■ **Performance Indicator** : 2.N.6 Develop an understanding of the base ten system: 10 ones = 1 ten 10 tens = 1 hundred 10 hundreds = 1 thousand

Understandings:

Students will be able to:

- determine mathematical combinations
- develop the concept of multiples and combinations of multiples

Essential Questions:

A final score reported for a sporting event may not say much about the game itself. For example, if a final score in football is 20-14, how were the points scored?

This question is not intended to focus on the plays used to score but rather on the different ways that a total of 20 points (or 14 points) might be earned.

Is it possible that the team scoring 20 points scored four touchdowns?

Might they have scored two touchdowns?

If so, how could their other points have been earned?

Knowledge and Skills:

This Activity Sheet focuses on analyzing the scores for football games. Students study combinations of numbers to produce possible scores for football games. Students must have an understanding of addition and subtraction as well as number patterns.

Performance Tasks and Assessment

Performance Task:

This Activity Sheet focuses on analyzing the scores for football games. Students study combinations of numbers to produce possible scores for football games

Performance Prompt:

How many different score combinations can you think of?

Assessment/Rubrics:

Rubrics:

[Super Bowl Worksheet Rubric](#)

Learning Experiences and Resources

Sequence of Activities:

Reproduce a copy of the activity sheet "[Super Bowl Scores](#)" for each student.

Structuring the Investigation

1. Read the introductory information to the students.

Discuss with the class the fact that for a football team to have a certain number of points, only certain combinations of scores can be made.

For example, for a team to have 5 points, they would have to have made one field goal and one safety.

Some students may need to be told the meaning of a safety and have a brief review of the way football is scored.

2. Encourage the students to explore and develop as many possibilities as they can generate.

The "bar-numberline" approach suggested on the Activity Page can be used to help them explore possibilities.

You might consider using other manipulatives to represent points.

Differentiated Instruction:

Have students make a bar graph for the Super Bowl. Ask them to develop a question related to the possible scores of the game.

1. Ask students to describe the different combinations of gains that a team can use to make a first down in four downs.

For example, they can make the first down in one play, or they can make 9 yards in one play and 1 yard in the second, or they can make 8 yards in one play and 2 yards in the second, and so forth.

You may want to discuss the possibility of losses, penalties, and nonintegral gains.

Resources:

- Technology resources:
Internet Explorer
- Materials and resources:
One reproducible "Super Bowl Scores" activity sheet for each student

Links:

1. [Line Jumper](#)
2. [Estimate](#)