

Field Goals, Balls, and Nets

Reporting Category Number and Number Sense

Topic Using ratios to compare quantities

Primary SOL 6.1 The student will describe and compare data, using ratios, and will use appropriate notations, such as $\frac{a}{b}$, a to b , and $a:b$.

Related SOL 6.2a

Materials

- Field Goals, Balls, and Nets graphic organizer (attached)

Vocabulary

compare, fractions, decimals (earlier grades)

ratio (6.1, 6.2)

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Begin the lesson by asking students for the definition of the word *ratio*. Make sure they understand that a ratio is a comparison of any two quantities and that it is used to represent a relationship within or between sets. Emphasize that the two quantities in a ratio must be ordered in the same order as the quantities in the relationship.
2. Distribute copies of the Field Goals, Balls, and Nets graphic organizer, and have students write the definition of *ratio* in their own words in the center oval. Direct students to write the four types of ratios in the four surrounding ovals and explain each comparison, as follows:
 - Part-Whole: Compares a part of a set to the entire set
 - Part-Part: Compares a part of a set to another part of the same set
 - Part-Part: Compares a part of one set to a part of another set
 - Whole-Whole: Compares a complete set to another complete set
3. Have students look at the given statistics from the National Basketball Association (NBA) and National Football League (NFL). Explain that in order to understand each type of ratio fully, students will use the data in this chart to create ratios to represent various relationships. Model how to do this by choosing a specific ratio (e.g., the ratio of NAB home games to regular season games—a Part-Whole ratio), and demonstrate how to write this ratio in each notation. Then, lead the class in developing one ratio for each of the other three types.
4. Have students work independently to write an additional ratio for each of the four types, using the data in the chart. (Note: Student answers will vary due to the large amount of data provided and multiple interpretations of the data.)
5. Have selected students share and explain their ratios, defining all aspects of each.

Assessment

- **Questions**
 - What is the significance of representing data as ratios?
 - In order to represent ratios in fraction form, must the fractions always be written in simplest form? Why, or why not?
 - Are there certain applications for which it would be more suitable to represent ratios in a specific form? If so, give examples.
- **Journal/Writing Prompts**
 - Describe a real-life situation in which you have seen ratios used.
 - Explain how fractions and ratios are similar and how understanding one concept can assist you to understand the other.

Extensions and Connections (for all students)

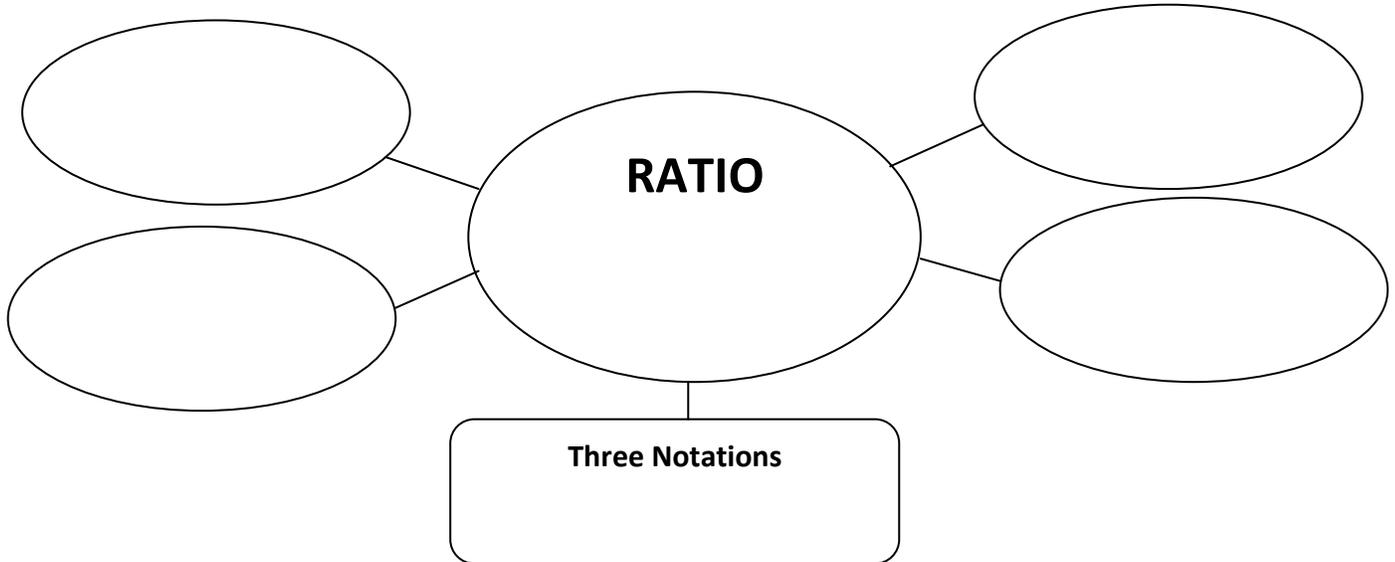
- Create an activity in which students must match the three notations of a ratio to one comparison relationship written in sentence form.

Strategies for Differentiation

- Create index cards showing each of the relationships to assist students in recognizing them.

Field Goals, Balls, and Nets

Name _____ Date _____



Statistics for the National Basketball Association and National Football League

Categories	NBA Statistics	NFL Statistics
Regular Season Games	82	16
Home Games	41	8
Away Games	41	8
Number of Teams	30	32
Total Number of Play-off Games	7	7
Number of Divisions	6	8
Number of Conferences	2	2

Comparison	Ratio Sentence	Fraction Form	<i>a</i> to <i>b</i> Form	<i>a</i> : <i>b</i> Form
Part-Whole	1. Ex: Half of the NBA's regular season games are home games.	$\frac{41}{82}$ or $\frac{1}{2}$	1 to 2	1:2
	2.			
Part-Part	1.			
	2.			
Part-Part	1.			
	2.			
Whole-Whole	1.			
	2.			