Unit Map 2012-2013

Monroe #2 - Orleans BOCES (Regional Collaboration)

Collaboration / Math 2* / Grade 2 (Math Regional Curriculum)

Wednesday, October 31, 2012, 4:04PM

Standard/Module: Proficiency with Operations 2.OA.3 (Week 24, 9 Weeks)

Stage 1: Desired Results

Standards Focus

- Major (70%) connects with 2.OA.1,2,4; 2.NBT.2,5,6,7,8,9

Gr. 2 Proficiency Map

Standards

NYS: CCLS:Mathematics, NYS: 2nd Grade , Operations & Algebraic Thinking
2.OA Work with equal groups of objects to gain foundations for multiplication.

- 3. Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.

Enduring Understandings	Essential Questions
1. Numbers are odd or even. 2. Numbers are even when that quantity of objects can be counted by 2's. 3. Odd and even attributes can be expressed using models. 4. Odd and even attributes can be expressed using an equation.	1. How do you determine if a number is odd or even?

Critical Content

1. concept of odd and even

   a. expressing odd and even numbers using objects

   b. expressing odd and even numbers using an equation.

2. use skip counting by two's to justify if a number is odd or even

3. apply their work with doubles addition facts to the concept of odd or

   even numbers

Skills	Vocabulary

1. skip-counting objects by two's 2. determine if a number is odd or even using various ways a. models b. equation c. skip-counting by two's d. apply concept of doubles	Tier two: array Tier three: equation, sum, skip count, odd numbers, even numbers, justify (will be used in fourth grade)

Stage 2: Assessment Evidence

Assessments

Justify Odd or Even
Formative: Performance: Skill Demonstration

Students work with square tiles to build problems that are given to them and determine whether the result is even or odd. Students justify their answers with precise mathematical vocuabulary.

Stage 3: Learning Plan

Learning Activities	Resources
Students need to understand that a collection of objects can be one thing or one group and that a group contains a given number of objects. Investigate separating no more than 20 objects into two equal groups. Find the numbers that will have some objects remaining and no objects remaining after separating the collections into two equal groups. Odd numbers will have some objects remaining while even numbers will not. For an even number of objects in a collection, show the total as the sum of equal addends (repeated addition). A rectangular array is an arrangement of objects in horizontal rows and vertical columns. Arrays can be made out of any number of objects that can be put into rows and columns. All rows contain the same number of items and all columns contain an equal number of items. Have students use objects to build all the arrays possible with no more than 25 objects. Their arrays should have up to 5 rows and up to 5 columns. Ask students to draw the arrays on grid paper and write two different equations under the arrays: one showing the total as a sum by rows and the	Math and Movement by Suzy Koontz www.K-5mathteachingresources.com www.livebinders.com www.illustrativemathematics.com www.illuminations.nctm.org

other showing the total as a sum by columns. Both equations will show the total as a sum of equal addends. The equation by rows: 20 = 5 + 5 + 5 +5 The equation by columns: 20 = 4 + 4 + 4 + 4 + 4 Build on knowledge of composing and decomposing numbers to investigate arrays with up to 5 rows and up to 5 columns in different orientations. For example, form an array with 3 rows and 4 objects in each row. Represent the total number of objects with equations showing a sum of equal addends two different ways: by rows, 12 = 4 + 4 + 4; by columns, 12 = 3 + 3 + 3 + 3. Show that by rotating the array 90° to form 4 rows with 3 objects in each row. Write two different equations to represent 12 as a sum of equal addends: by rows, 12 = 3 + 3 + 3 + 3; by columns, 12 = 4 + 4 + 4. Have students discuss why the 90 degree rotation produces the same sum in two different ways, and explain their reasoning: The two arrays are different and yet the same. Ask students to think of a full ten-frame showing 10 circles as an array. One view of the ten-frame is 5 rows with 2 circles in each row. Students count by rows to 10 and write the equation 10 = 2 + 2 + 2 + 2 + 2. Then students put two full ten-frames together end-to-end so they form 10 rows of 2 circles or (10 columns of 2 circles). They use this larger array to count by 2's up to 20 and write an equation that shows 20 equal to the sum of ten 2's.	

Differentiation Opportunities

This is an activity that students should be doing in pairs or triads to allow for discussions. This provides a natural differentiation for students of all levels.

<< Previous Year

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