Unit Map 2012-2013

Monroe #2 - Orleans BOCES (Regional Collaboration)

Collaboration / Math 4* / Grade 4 (Math Regional Curriculum)

Wednesday, October 31, 2012, 10:30AM

Standard/Module: Proficiency in Operations & Alg. Thinking- 4.OA.4 (Week 9, 9 Weeks)

Stage 1: Desired Results

Standards Focus

- Supporting (20%)

4th Grade Proficiency Map.pdf

Standards

NYS: CCLS:Mathematics, NYS: 4th Grade , Operations & Algebraic Thinking
4.OA Gain familiarity with factors and multiples.

- 4. Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.

Enduring Understandings

1. Two factors can be multiplied together to make a product.
2. A whole number is a multiple of each of its factors.
3. A prime number consists of two factors.
4. A composite number consists of more than two factors.

Essential Questions

1. What is a factor pair of a whole number within the range of 1 – 100?
2. What is a multiple?
3. What is a prime number?
4. What is a composite number?
5. Is 1 a prime number?
6. Are prime numbers only odd numbers?
7. What is the difference between finding the factors of a number and finding the multiples of that same number?

Critical Content

1. Factor pairs for numbers 1 – 100
2. Multiple
3. Prime numbers 1 – 100
4. Composite numbers 1 – 100
5. Whole number
6. One – digit number

Skills

Vocabulary

1. Students will be able to find all factor pairs for whole numbers 1 – 100. 2. Students will recognize that a whole number is a multiple of each of its factors. 3. Students will determine whether a given whole number 1 – 100 is a multiple of a given one – digit number. 4. Students will recognize prime and composite numbers from 1 to 100.	Tier2: whole number, one-digit number Tier3: factor, multiple, prime, composite, factor pair

Stage 2: Assessment Evidence

Assessments

The Story of my Number
Formative: Written: Essay

Students will be given a number in the range of 1 - 100 and they will write a story describing why their number is special and unique. Students will be asked to find all the factor pairs of their number. They will need to explain how they found the factor pairs and what the relationship is between a factor and the given number (multiple). Lastly, they will have to write about whether their given number is prime or composite and why.

Stage 3: Learning Plan

Learning Activities	Resources
Students investigate whether numbers are prime or composite by • building rectangles (arrays) with the given area and finding which numbers have more than two rectangles (e.g. 7 can be made into only 2 rectangles, 1 x 7 and 7 x 1, therefore it is a prime number) • finding factors of the number	nctm.org (Illuminations): *The Factor Game* engages students in a friendly contest in which winning strategies involve distinguishing between numbers with many factors and numbers with few factors. Students are then guided through an analysis of game strategies and introduced to the definitions of prime and composite numbers. nctm.org (Illuminations): *The Product Game* – Classifying Numbers. Students construct Venn diagrams to show the relationships between the factors or products of two or more numbers in the Product Game.
Multiples can be thought of as the result of skip counting by each of the factors. When skip counting, students should be able to identify the number of factors counted e.g., 5, 10, 15, 20 (there are 4 fives in 20).	nctm.org(Illuminations) *The Product Game*--In the Product Game, students start with factors and multiply to find the product. In The Factor Game, students start with a number and find its factors.

Review vocabulary so that students have an understanding of terms such as factor, product, multiples, and odd and even numbers.	nctm.org (Illuminations): *Multiplication: It's in the Cards* – More Patterns with Products.
Students need to develop strategies for determining if a number is prime or composite, in other words, if a number has a whole number factor that is not one or itself. Starting with a number chart of 1 to 20, use multiples of prime numbers to eliminate later numbers in the chart. For example, 2 is prime but 4, 6, 8, 10, 12,… are composite. Encourage the development of rules that can be used to aid in the determination of composite numbers. For example, other than 2, if anumber ends in an even number (0, 2, 4, 6 and 8), it is a composite number.	www.illustrativemathematics.org
Using area models will also enable students to analyze numbers and arrive at an understanding of whether a number is prime or composite. Have students construct rectangles with an area equal to a given number. They should see an association between the number of rectangles and the given number for the area as to whether this number is a prime or composite number.	

Differentiation Opportunities

Scaffold activities with easy, medium, and more difficult examples.

Create activities/worksheets which allows different levels of support. For example, you may put reminders of definitions on one form of the activity and not the other. Another example may include writing a question on one form of the activity to help prompt students. Another example would be to include an outline of the steps on the form to aid students.

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