Unit Map 2012-2013

Monroe #2 - Orleans BOCES (Regional Collaboration)

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

Wednesday, October 31, 2012, 10:34AM

Standard/Module: Proficiency in Base Ten - 4.NBT.5 (Week 9, 31 Weeks)

Stage 1: Desired Results

Standards Focus

- Major (70%) Connects with 4.NBT.4(F) and 4.NBT.6

4th Grade Proficiency Map.pdf

Standards

NYS: CCLS:Mathematics, NYS: 4th Grade , Number & Operations in Base Ten

4.NBT Use place value understanding and properties of operations to perform multi-digit arithmetic.

- 5. Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Enduring Understandings	Essential Questions
1. Many strategies can be used to multiply a 4-digit whole number by a 1-digit whole number and a 2-digit whole number by a 2-digit whole number.	1. Can you describe the algorithm used when multiplying a 4-digit whole number by a 1-digit whole number and a 2-digit whole number by a 2-digit whole number? 2. How do the properties of operations help you multiply numbers? 3. How would you represent a multiplication problem using rectangular arrays and area models?

Critical Content

1. Whole Numbers: 1-digit, 2-digit,3-digit, 4-digit whole numbers
2. Multiplication of whole numbers
3. Place Value/expanded notation
4. Properties of operations (commutative, associative, distributive, identities, inverses, zero property)

5. Multiplication strategies based on:

- place value
- properties of operations
- equations
- rectangular arrays
- area models

Skills	Vocabulary
1. Multiply a whole number of up to 4-digits by a 1-digit whole number. a.)using algorithm b.) using the "breaking apart" strategy, which involves using expanded form and the distributive property. 2. Multiply a 2-digit number by a 2-digit number. a.) using algorithm b.) using the "breaking apart" strategy, which involves using expanded form and the distributive property. 3. Model and explain how to multiply by using equations, rectangular arrays, and area models.	Tier 2: multiply, number, strategies, illustrate, model, explain , product, factors Tier 3: whole number, digit, place value, properties of operations, calculation, equations, rectangular arrays, area models, commutative, associative, distributive, additive identity, additive inverse, multiplicative identity, multiplicative inverse, zero property, algorithm, expanded form

Stage 2: Assessment Evidence

Assessments

Pair and Share
Formative: Performance: Skill Demonstration

Students will be in pairs and each student will receive 5 multiplication problems. Students will do their first problem and then they will switch problems to see if they have the same answer. Each student will have to explain the steps they went through and why they followed those steps.

Stage 3: Learning Plan	
Learning Activities	**Resources**
Students use base ten blocks, area models, partitioning, compensation strategies, etc. when multiplying whole numbers and use words and diagrams to explain their thinking. They use the terms factor and product when communicating their reasoning. Multiple strategies enable students to develop fluency with multiplication and transfer that understanding to division. When asking students to gain understanding about multiplying larger numbers, provide frequent opportunities to engage in mental math exercises. When doing mental math, it is difficult to even attempt to use a strategy that one does not fully understand. Also, it is a natural tendency to use numbers that are 'friendly' (multiples of 10) when doing mental math, and this promotes its understanding.	www.illustrativemathematics.org www.illuminations.nctm.org

Differentiation Opportunities

Specific strategies for students having difficulty with lining up similar place values in numbers as they are adding, subtracting, and multiplying is to have them write their calculations on grid paper. This assists the student with lining up the numbers more accurately.

Students should consistently be given scaffold problems and be exposed to various strategies. Students should also be given ample opportunities to think "out loud" with other students to help brainstorm strategies and present strategies to each other. Students need to be able to verbalize their understanding.

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