Unit Map 2012-2013

Monroe #2 - Orleans BOCES (Regional Collaboration)

Collaboration / Math 6* / Grade 6 (Math Regional Curriculum)

Wednesday, October 31, 2012, 11:52AM

Standard/Module: Proficiency with Expressions and Equations 6.EE.3 (Week 7, 5 Weeks)

Stage 1: Desired Results

Standards Focus

- Major (70%) 6.NS.4

6th Grade CCS Map.pdf

Standards

NYS: CCLS:Mathematics, NYS: 6th Grade , Expressions & Equations

6.EE Apply and extend previous understandings of arithmetic to algebraic expressions.

- 3. Apply the properties of operations to generate equivalent expressions.

Enduring Understandings	Essential Questions
1. Understand and apply the distributive property. 2. Generate equivalent expressions 3. Understand the limitations of the distributive property in regards to division. 4. When evaluating an algebraic operation, continue to use order of operations. 5. Like terms may be combined to simplify algebraic expressions.	1. How can the distributive property be used to create equivalent expressions? 2. How can like terms be combined to simplify algebraic expressions? 3. Why can only like terms be combined when simplifying an algebraic expression? 4. Why does the order of operations apply to letters (variables) as well as numbers?

Critical Content

1. Distributive property

2. Equivalent expressions

3. Properties of operations

4. Combining like terms

5. **Connects to 6.NS.4 (distributive property)**

Skills	Vocabulary
1. Apply the property of operations 2. Generate equivalent expressions a) Apply the distributive property	Tier 2 expression base power notation factor variable term constant translate evaluate simplify sum difference product quotient formula Tier 3 equivalent expressions exponent standard form exponential form factor form

	expanded form coefficient distributive property like terms

Stage 2: Assessment Evidence

Assessments

Skill based
Formative: Performance: Skill Demonstration

Generate an equivalent expression for each of the following:

4 (x - 2)

15x - 24y

$x + x + y + y$

5x + 2y

5r + (2s + 2t)

Problem Task
Formative: Performance: Authentic Task

In one packet of nuts, there are two different types of nuts. There are 5 peanuts (p) and 7 cashews (c) in each container. I have 6 packets of nuts; write two expressions that show how many nuts I have all together.

Possible answers: 6 (5 + 7) or (6 x 5) + (6 x 7)

Stage 3: Learning Plan

Learning Activities	Resources
Students must be able to make connections between what they already know about the properties of operations when used with numbers and how those properties apply when used with	

algebraic notation (using variables). Therefore, teachers should first present the topic of equivalent expressions using numbers and then shift to variables. Have students open a package of M&Ms and use the distributive property to write expressions showing how many of each color would be in 5 bags, 10 bags etc. (e.g. There are 10 red, 15 green, and 12 yellow in one bag. That could be represented by the expression 10 r + 15g+ 12y. To represent the number in 5 bags you would obtain the expression 5(10r+ 15g+ 12y). Using the distributive property, the expression is 50r+ 75g+ 60y. So there are 50 red, 75 green, and 60 yellow M&Ms in 5 bags.)	http://engageny.org/common-core/ http://illustrativemathematics.org/ www.livebinders.com/play/play/52180 http://illuminations.nctm.org/ http://www.mathsisfun.com/geometry/polyhedron.html http://www.korthalsaltes.com/ http://www.onlinemathlearning.com/distributive-property-1.html http://www.math.niu.edu/~rusin/uses-math/games/krypto/

Differentiation Opportunities

Provide a variety of expressions and problem situations for students to practice and deepen their skills. Start with simple expressions to evaluate and move to more complex expressions. Likewise start with simple whole numbers and move to fractions and decimal numbers. The use of negatives and positives should mirror the level of introduction in Grade 6 The Number System;

students are developing the concept and not generalizing operation rules.

The use of technology can assist in the exploration of the meaning of expressions. Many calculators will allow you to store a value for a variable and then use the variable in expressions. This enables the student to discover how the calculator deals with expressions like

$x2$, $5x$, xy, and $2(x + 5)$.

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