Unit Map 2012-2013

Monroe #2 - Orleans BOCES (Regional Collaboration)

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

Wednesday, October 31, 2012, 11:39AM

Standard/Module: Proficiency with Rational Numbers 6.NS.5 (Week 1, 39 Weeks)

Stage 1: Desired Results

Standards Focus

- Major (70%) 6.EE.8

6th Grade CCS Map.pdf

Standards

NYS: CCLS:Mathematics, NYS: 6th Grade , The Number System

6.NS Apply and extend previous understandings of numbers to the system of rational numbers.

- 5. Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.

Enduring Understandings	Essential Questions
1. Understand that positive and negative numbers allow us to talk about quantities that have opposite directions or values 2. Understand that a negative integer is less than zero 3. Negative number can be: a. represented on a number line i. moving on a number line ii. on a number line 4. Understand the meaning of zero a. Real world context determines the meaning of zero	1. What does –a mean as a direction? 2. What does –a mean as a value? 3. What is the difference between the positive and negative signs? 4. How does direction effect value?

Critical Content

1. Integers

-concept of zero

2. Real world application of integers

-opposite directions

-values

Skills	Vocabulary
1. Use positive and negative numbers to describe quantities having opposite directions or values 2. Explain the meaning of zero 3. Use positive and negative numbers to represent quantities in real-world contexts: - temperature above and below zero - elevations above/below sea level - credits/debits - positive/negative electric charge	Tier 2: opposite values positive negative zero neutral quantity Tier 3: integer rational

Stage 2: Assessment Evidence

Assessments

Skill based
Formative: Performance: Skill Demonstration

Joe's football team had a loss of 5 yards on first down. Write an integer to represent the situation.

Problem task
Formative: Performance: Skill Demonstration

Create a situation in which integers have opposite values and explain what zero means in this situation.

Stage 3: Learning Plan

Learning Activities	Resources
Provide multiple examples of types of contexts using positive and negative integers (such as a bank account, hot air balloons, discs to show positive and negative charges, thermometer, number line) and give the students opportunities to make sense of each context. Give students a number and have them write a real-life situation for that number and its opposite that would result in an answer of zero. Explain the meaning of zero in that situation and represent it on the number line. Use a comparison matrix: Negative Zero Positive Definition Example Picture	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://nlvm.usu.edu/en/nav/frames_asid_334_g_2_t_1.html?from=category_g_2_t_1.html

Differentiation Opportunities

Starting with examples of having/owing and above/below zero sets the stage for understanding that there is a

mathematical way to describe opposites. Students should already be familiar with the counting numbers (positive whole numbers and zero), as well as with fractions and decimals (also positive). They are now ready to understand that all numbers have an opposite. These special numbers can be shown on vertical or horizontal number lines, which then can be used to solve simple problems. Demonstration of understanding of positives and negatives involves translating

among words, numbers and models: given the words “7 degrees below zero,” showing it on a thermometer and writing -7; given -4 on a number line, writing a real-life example and mathematically -4. Number lines also give the opportunity to model absolute value as the distance from zero.

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