Unit Map 2012-2013

Monroe #2 - Orleans BOCES (Regional Collaboration)

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

Wednesday, October 31, 2012, 11:40AM

Standard/Module: Proficiency with Rational Numbers 6.NS.7 (Week 1, 39 Weeks)

Stage 1: Desired Results

Standards Focus

- Major (70%) 6.EE.8, 6.SP.5

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.

- 7. Understand ordering and absolute value of rational numbers.
- 7a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.
- 7b. Write, interpret, and explain statements of order for rational numbers in real-world contexts.
- 7c. Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation.
- 7d. Distinguish comparisons of absolute value from statements about order.

Enduring Understandings	Essential Questions
1. Absolute value is the distance from zero on the number line and is always written as a positive. 2. The further away from zero, the greater the absolute value 3. When ordering rational numbers, numbers are smaller the further left that you go.	1. How does an integers position on a number line effect whether or not if it is <, >, or = to another integer on the number line? 2. What does absolute value represent? 3. How can a rational number that is less than another rational number have a greater absolute value

Critical Content

1. Horizontal and vertical number line

   a. inequality symbols

2. Inequality statements (greater than, less than, equal to)

3. Absolute value is the distance from zero on the number line and is always written as a positive.

4. Rational numbers can be ordered based on magnitude

5. The value on a negative rational number decreases, its absolute value increases.

Skills	Vocabulary
1. Order on a number line 2. Order rational numbers 3. Statements of order using inequalities. a. write b. interpret c. explain 4. Compare rational numbers by using inequalities 5. Write statements of order that represent real word context 6. Interpret absolute value 7. Compare absolute values of rational numbers	Tier 2: diagram magnitude positive negative increase decrease equivalent equal compare order Tier 3: inequality rational numbers absolute value

Stage 2: Assessment Evidence

Assessments

Skill based (7a)
Formative: Performance: Skill Demonstration

Compare rational numbers using symbols of inequality.

Problem task (7a)
Formative: Performance: Skill Demonstration

On Tuesday the temperature was -7°F and on Wednesday the temperature was -5°F. Which day was colder? Write the inequality and show it on a number line. Explain how you know your answer is correct.

Skill based (7b)
Formative: Performance: Skill Demonstration

It is -20 ℉ in Juno, Alaska and -5 ℉ in Salt Lake City, Utah. Which city has the lowest temperature?

Problem task (7b)
Formative: Performance: Skill Demonstration

On Tuesday the temperature was -7°F and on Wednesday the temperature was -5°F. Which day was colder? Write the inequality and show it on a number line. Explain how you know your answer is correct.

Skill based (7c)
Formative: Performance: Skill Demonstration

|-5| = If Billy owes Susie $5, express Billy's debt as an integer.

Problem task (7c)
Formative: Performance: Skill Demonstration

A whale swims 40 ft. below sea level. Express the whale's location as an integer and tell how many feet below the surface the whale is swimming. Explain your answers for both parts of the problem.

Skill based (7d)
Formative: Performance: Skill Demonstration

You are $35 dollars in debt. Write your debt using mathematical symbols. How much do you need to earn to be out of debt?

Problem task (7d)
Formative: Performance: Skill Demonstration

A mother dolphin is 150.25 meters below sea level. Her calf is 45 meters below sea level. Which dolphin is farthest from the surface? A mother whale is at 35 meters below the surface and her calf is at the surface. How far does the calf have to swim to get to its mother? Which statement deals with absolute value? Which statement deals with ordering? Justify your answer.

Stage 3: Learning Plan

Learning Activities	Resources
Vertical number line: Elevator example Horizontal number line: “Jumping Flee” (on illustrative math)	http://engageny.org/common-core/ http://illustrativemathematics.org/
Give students a rational number and have them stand in order from least to greatest on the number line. Make flashcards of rational number and play “war.” Have the students create statements of inequality (e.g., -9 < 1/2) and interpret them by writing out the inequality and its meaning in a sentence or sentences, as in “Negative 9 is less than 1/2 means that negative nine is to the left of 1/2 on the number line. Negative nine is nine and one half positions to the left of 1/2”).	www.livebinders.com/play/play/52180 http://illuminations.nctm.org/ http://www.mathsisfun.com/geometry/polyhedron.html
Have a student write a real-life situation using 2 rational numbers and have another student write an inequality to represent the situation. Then switch tasks.	http://www.korthalsaltes.com/
Have students move on a number line from 0 to 3 and 0 to -3 to show they move the same distance (i.e., walking on a number line on the floor or playground). Have a student choose a place on the number line and have the rest of the class write the absolute value of the number. Develop an original story problem that uses an absolute value. Justify your use of absolute value in that context. Makeintegerplacardsforeachstudent(besureto include 0 in the set). Have students line up from least to greatest as integers and then as absolute	http://mathforum.org/library/drmath/view/57177.html

values.	

Differentiation Opportunities

REVIEW OF INTEGERS

What Integer Am I?
Draw a number line on a large sheet of paper.
Including: -10, -8, -6, -4, -2, 0, 2, 4, 6, 8, and 10

Step 1
Player 1 places a token on a negative number on the number line.

Step 2
Player 2 says, "What is my name?" "What is my opposite?" and "How many units am I away from 0?"

Step 3
Player 1 then gives the name of the integer, its opposite, and tells its distance from 0.

Step 4
Trade roles and play again. Here's an example:
Player 1 places a token on -3. Player 2: "What is my name? What is my opposite? How many units am I away from 0?" Player 1: "Negative 3, positive 3, 3 units from 0."

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