Unit Map 2012-2013

Monroe #2 - Orleans BOCES (Regional Collaboration)

Collaboration / Math 5* / Grade 5 (Math Regional Curriculum)

Wednesday, October 31, 2012, 10:57AM

Standard/Module: Proficiency in Base 10 5.NBT.3 (Week 1, 6 Weeks)

Stage 1: Desired Results

Standards Focus

- Major (70%) Connects to 5.NBT.1, 5.NBT.2, and 5.NBT.4

5th Grade Map.pdf

Standards

NYS: CCLS:Mathematics, NYS: 5th Grade , Number & Operations in Base Ten

5.NBT Understand the place value system.

- 3. Read, write, and compare decimals to thousandths.
- 3a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000).
- 3b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.

Enduring Understandings

1. The base ten numeration system is a scheme for recording numbers using digits 0-9, groups of ten, and place value.
2. Numbers can be used for different purposes, and numbers can be classified and represented in different ways
3. Numbers, expressions, measures, and objects can be compared and related to other numbers, expressions, measures, and objects in different ways.
4. Mathematics content and practices can be applied to solve problems.
5. Place value can be used to compare and order whole numbers and decimals.
6. Some problems can be solved by identifying elements that repeat in a predictable way

Essential Questions

1. How can you write a fraction as a decimal?
2. How can you write a decimal as a fraction?
3. How can you use division to write a fraction as a decimal?
4. How can you represent decimals?
5. What are equivalent decimals?
6. How can you compare and order decimals?

Critical Content

Decimals

-standard form to the thousandths

-word name to the thousandths

-expanded form to the thousandths

-fractions

-place value

-division

-equivalent

->, <, and =

-comparing and ordering

Skills	Vocabulary
1. Students will write decimals (tenths and hundredths) as fractions. Students also represent fractions with denominators of 10 and 100 as decimals. 2. Students will use division to write a fraction as a decimal. 3. Students will write decimals in standard form, word form, and expanded form through thousandths. 4. Students will represent a decimal in a place-value chart. 5. Students will compare and order decimals through thousandths. 6. Students will identify patterns with decimal-number sets in order to solve problems	Tier 2- patterns, compare, order, identify Tier 3- Digits, value, standard form, expanded form, word form, place value, base ten, equivalent decimals

Stage 2: Assessment Evidence

Assessments

Formative: Test: Written

Students read, write and compare decimals to the thousandths place. Convert decimal numbers to expanded form.

Stage 3: Learning Plan

Learning Activities	Resources
5.NBT.3a This standard references expanded form of decimals with fractions included. Students should build on their work from Fourth Grade, where they worked with both decimals and fractions interchangeably. Expanded form is included to build upon work in 5.NBT.2 and deepen students' understanding of	www.illustrativemathematics.org www.illuminations.nctm.org

place value. Students build on the understanding they developed in fourth grade to read, write, and compare decimals to thousandths. They connect their prior experiences with using decimal notation for fractions and addition of fractions with denominators of 10 and 100. They use concrete models and number lines to extend this understanding to decimals to the thousandths. Models may include base ten blocks, place value charts, grids, pictures, drawings, manipulatives, technology-based, etc. They read decimals using fractional language and write decimals in fractional form, as well as in expanded notation. This investigation leads them to understanding equivalence of decimals (0.8 = 0.80 = 0.800). **5.NBT.3b** Comparing decimals builds on work from fourth grade. **Example:** Some equivalent forms of 0.72 are: 72/100 = 7/10 + 2/100 7 x (1/10) + 2 x (1/100) = 0.70 + 0.02 70/100 + 2/100 = 0.720 7 x (1/10) + 2 x (1/100) + 0 x (1/1000) = 720/1000 Students need to understand the size of decimal numbers and relate them to **common benchmarks** such as 0, 0.5 (0.50 and 0.500), and 1. Comparing tenths to tenths, hundredths to hundredths, and thousandths to thousandths is simplified if students use their understanding of fractions to compare decimals.	

Example: Comparing 0.25 and 0.17, a student might think, "25 hundredths is more than 17 hundredths". They may also think that it is 8 hundredths more. They may write this comparison as 0.25 > 0.17 and recognize that 0.17 < 0.25 is another way to express this comparison. Comparing 0.207 to 0.26, a student might think, "Both numbers have 2 tenths, so I need to compare the hundredths. The second number has 6 hundredths and the first number has no hundredths so the second number must be larger". Another student might think while writing fractions, "I know that 0.207 is 207 thousandths (and may write 207/1000). 0.26 is 26 hundredths (and may write 26/100) but I can also think of it as 260 thousandths (260/1000). So, 260 thousandths is more than 207 thousandths." Students build on the understanding they developed in fourth grade to read, write, and compare decimals to thousandths. They connect their prior experiences with using decimal notation for fractions and addition of fractions with denominators of 10 and 100. They use concrete models and number lines to extend this understanding to decimals to the thousandths. Models may include base ten blocks, place value charts, grids, pictures, drawings, manipulatives, technology-based, etc. They read decimals using fractional language and write decimals in fractional form, as well as in expanded notation as show in the standard 3a. This investigation leads them to understanding equivalence of decimals (0.8 = 0.80 = 0.800).	

Differentiation Opportunities

A common misconception that students have when trying to extend their understanding of whole number place value to decimal place value is that as you move to the left of the decimal point, the number increases in value. Reinforcing the **concept of powers of ten** is essential for addressing this issue.

A second misconception that is directly related to comparing whole numbers is the idea that the longer the number the greater the number. With whole numbers, a 5-digit number is always greater that a 1-, 2-, 3-, or 4-digit number. However, with decimals a number with one decimal place may be greater than a number with two or three decimal places. For example, 0.5 is greater than 0.12, 0.009 or 0.499. One method for comparing decimals it to make all numbers have the same number of digits to the right of the decimal point by adding zeros to the number, such as 0.500, 0.120, 0.009 and 0.499. A second method is to use a place-value chart to place the numerals for comparison.

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Last Updated: Thursday, October 25, 2012, 11:23AM

Atlas Version 7.2.6
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