MATH NEWS

Grade 5, Module 1, Topic B

5th Grade Math

Module 1: Place Value and Decimal Fractions

Math Parent Letter

This document is created to give parents and students a better understanding of the math concepts found in the Eureka Math (© 2013 Common Core, Inc.) that is also posted as the Engage New York material taught in the classroom. Grade 5 Module 1 of Eureka Math (Engage New York) covers place value and decimal fractions. Naming decimal fractions in expanded, unit, and word forms in order to compare decimal fractions is the focus of Topic B.

Topic B: Decimal Fractions and Place Value Patterns

Words to know

- Thousandths/Hundredths/Tenths
- Standard Form
- Decimal Fraction
- Word Form
- Unit Form

Things to Remember!

Decimal Fraction - A fractional number with a denominator of 10 or a power of 10 (10, 100, 1,000) that can be written with a decimal point.

Standard form - A number written with one digit for each place value. Example: 52.64 or $52\frac{64}{100}$

Expanded form - A way to write numbers that shows the place value of each digit.
Example: 52.64 = 5 x 10 + 2 x 1 + 6 x 0.1 + 4 x 0.01
5 x 10 + 2 x 1 + 6 x $(\frac{1}{10})$ + 4 x $(\frac{1}{100})$

Unit form – A way to show how many of each size unit are in the number. 52.64 = 5 tens 2 ones 6 tenths 4 hundredths
52 ones 64 hundredths

Greater than symbol **(>)**

Less than symbol **(<)**

OBJECTIVES OF TOPIC B

- Name decimal fractions in expanded, unit, and word forms by applying place value reasoning.
- Compare decimal fractions to the thousandths using like units to express comparisons with >, <, =.

Focus Area – Topic B

Decimal Fractions and Place Value Patterns

Different ways of naming a decimal fraction

Example 1:

Standard Form

Thirteen thousandths = 0.013 = $\frac{13}{1000}$

Word Form

$\frac{13}{1000}$ =

0.013 = 1 × 0.01 + 3 × 0.001 **Expanded Form**

1 hundredth 3 thousandths

13 thousandths

Unit Forms

Example 2:

Word Form: Twenty-five and four hundred thirteen thousandths

Standard Form: $25\frac{413}{1000}$ = 25.413

Expanded Forms: (with fractions or with decimals)

$25\frac{413}{1000} = 2 \times 10 + 5 \times 1 + 4 \times \left(\frac{1}{10}\right) + 1 \times \left(\frac{1}{100}\right) + 3 \times \left(\frac{1}{1000}\right)$

25.413 = 2 × 10 + 5 × 1 + 4 × 0.1 + 1 × 0.01 + 3 × 0.001

Unit Forms:

2 tens 5 ones 4 tenths 1 hundredths 3 thousandths

25 ones 413 thousandths

Comparing decimal fractions

67.223 < 67.232

Strategy 1: Use a place value chart to compare the decimal fractions.

	6	**7**	**2**	**2**	**3**
	6	**7**	**2**	**3**	**2**

The place value chart shows that 67.223 is less than 67.232 because the digit 2 in the hundredths place in 67.223 is less than the digit 3 in the hundredths place in 67.232.

Strategy 2: Use unit form to compare decimal fractions.
67.223 = 67 ones 223 thousandths
67.232 = 67 ones 232 thousandths
67 ones is the same but 223 thousandths is less than 232 thousandths.

Mr. Pham wrote 2.619 on the board. Christy says its two and six hundred nineteen thousandths. Amy says its 2 ones 6 tenths 1 hundredth 9 thousandths. Who is right? Use words and numbers to explain your answer.

$2.619 = 2\frac{619}{1000}$ = two and six hundred nineteen thousandths

$2\frac{619}{1000} = 6 \times 1 + 6 \times \left(\frac{1}{10}\right) + 1 \times \left(\frac{1}{100}\right) + 9 \times \left(\frac{1}{1000}\right)$

2 ones 6 tenths 1 hundredth 9 thousandths

Both Amy and Christy are correct. Christy chose to represent the number in word form and Amy has chosen unit form. Both are equal to 2.619.

Lance measured 0.485 liter of water. Angel measured 0.5 liter of water. Lance said, "My beaker has more water than yours because my number has 3 decimal places and yours only has 1." Is Lance correct? Use words and numbers to explain your answer.

		0	4	8	5
		0	5	0	0

0.485 < 0.5

Lance is not correct. I know this because 5 tenths of a liter of water is equal to 500 thousandths of water. 500 thousandths is greater than 485 thousandths of water.