

# MATH NEWS

Grade 4, Module 6, Topic B

## 4<sup>th</sup> Grade Math

Module 6: Decimal Fractions

### Math Parent Letter

This document is created to give parents and students a better understanding of the math concepts found in Eureka Math (© 2013 Common Core, Inc.) that is also posted as the Engage New York material which is taught in the classroom. Module 6 of Eureka Math (Engage New York) covers decimal fractions.

### Focus Area – Topic B: *Tenths and Hundredths* Words to Know:

**Decimal point** - period used to separate the whole number part from the fractional part of a decimal number

**Hundredth** - place value unit such that 100 hundredths equals 1 one whole

**Expanded form** - addition sentence with the value of each digit written out

Example:

$$(2 \times 10) + (4 \times 1) + \left(5 \times \frac{1}{10}\right) + \left(9 \times \frac{1}{100}\right) = 24 \frac{59}{100}$$

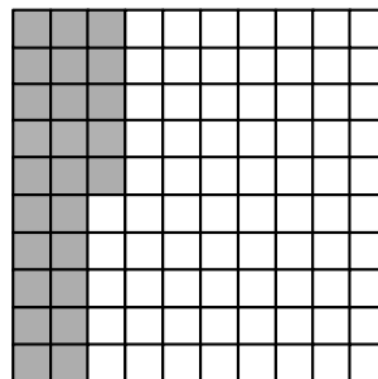
**Decimal fraction** - fraction with a denominator of 10, 100, 1,000, etc.

### OBJECTIVES OF TOPIC B

- ▶ Use meters to model the decomposition of one whole into hundredths. Represent and count hundredths.
- ▶ Model the equivalence of tenths and hundredths using the area model and number disks.
- ▶ Use the area model and number line to represent mixed numbers with units of ones, tenths, and hundredths in fraction and decimal forms.
- ▶ Model mixed numbers with units of hundreds, tens, ones, tenths, and hundredths in expanded form and on the place value chart.
- ▶ Use understanding of fraction equivalence to investigate decimal numbers on the place value chart expressed in different units.

### Focus Area Topic B: *Tenths and Hundredths* Decimal Numbers and Area Models

Students relate hundredths to the area model as shown below.



In this example, the area model is partitioned into 100 equal parts. 25 of the parts are shaded. So that's 25 hundredths.

$$25 \text{ hundredths} = \frac{25}{100} = 0.25$$

### Decimals and Expanded Form

Decimal numbers to hundredths are modeled with disks and written on the place value chart whereby each digit's value is analyzed. The value of the total number is represented in both fraction and decimal expanded form as pictured below.

Write the number in expanded form, using both decimal and fraction notation.

$$15.43 = 15 \frac{43}{100}$$

Fraction expanded form

$$(1 \times 10) + (5 \times 1) + \left(4 \times \frac{1}{10}\right) + \left(3 \times \frac{1}{100}\right)$$

$$10 + 5 + \frac{4}{10} + \frac{3}{100}$$

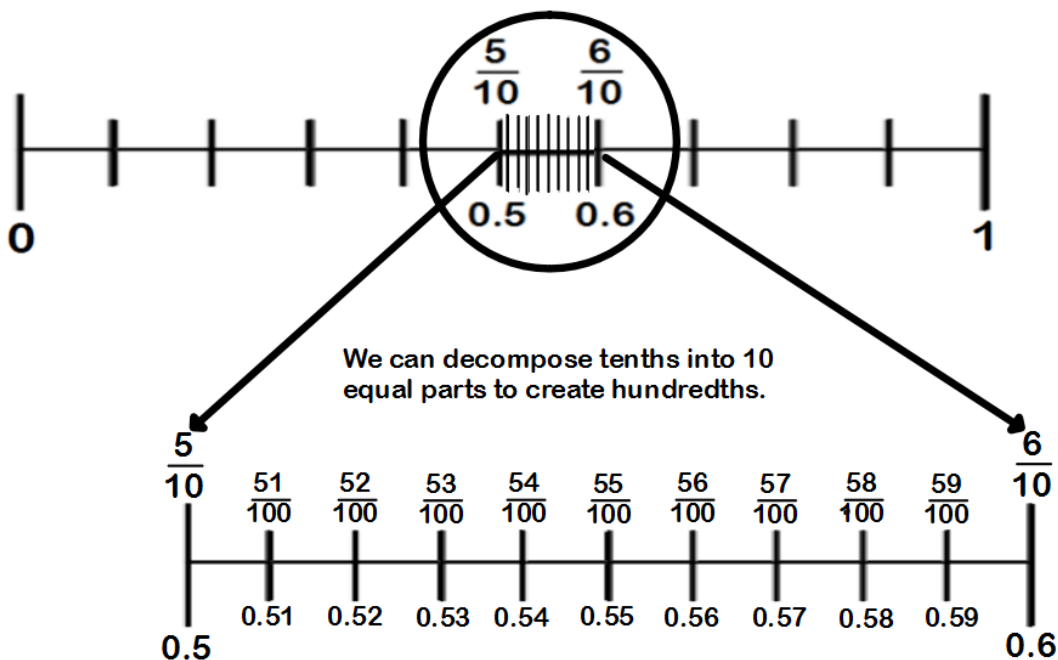
Decimal expanded form

$$(1 \times 10) + (5 \times 1) + (4 \times 0.1) + (3 \times 0.01)$$

$$10 + 5 + 0.4 + 0.03$$

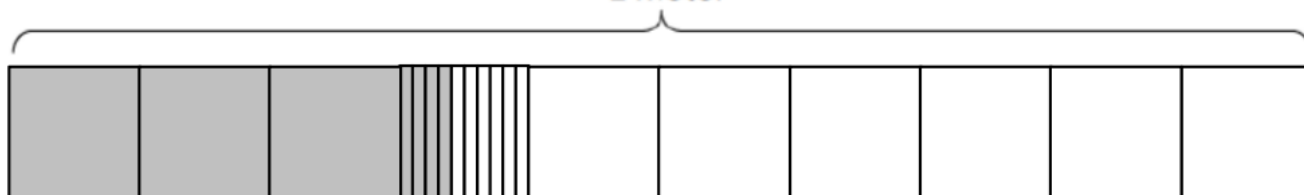
Exploring Hundredths

Students will learn to decompose tenths into 10 equal parts to create hundredths. In the example below, we can see that the space between 0.5 and 0.6 is separated into 10 equal parts. Those parts become hundredths.



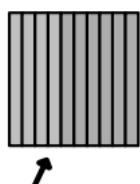
Example Problem and Answer

Use the model to add the shaded parts. Write a number bond with the total written in decimal form and the parts written as fractions.



Answer

Each square represents 1 tenth of the whole meter because the whole meter was partitioned into 10 equal parts.



Each square can be partitioned into 10 equal parts. Each of these parts is 1 hundredth. There are 100 of these parts in the whole meter.

$$\frac{1}{10} + \frac{1}{10} + \frac{1}{10} = \frac{3}{10} = \frac{30}{100}$$

That means that each 1 tenth square is equal to 10 hundredths.



$$\frac{3}{10} = \frac{30}{100} \quad \text{So} \quad \frac{3}{10} \text{ m} + \frac{4}{100} \text{ m} = \frac{34}{100} \text{ m} = 0.34 \text{ m}$$

