



# MATH NEWS



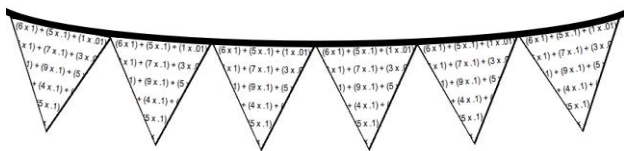
Grade 4, Module 6, Topic C

## 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 C: *Decimal Comparison*

#### Words to Know:

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

**Decimal number** - number written using place value units that are powers of 10 such as tenth or hundredths

**Tenth** - place value unit such that 10 tenths equals 1 one whole

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

**Comparing decimals**— determining which decimal number is greater than the other and using symbols to express the comparison

- symbol for greater than >
- symbol for less than <
- symbol for equal to =

### OBJECTIVES OF TOPIC C

- ▶ Use the place value chart and metric measurement to compare decimals and answer comparison questions.
- ▶ Use area models and the number line to compare decimal numbers, and record comparisons using <, >, and =.
- ▶ Compare and order mixed numbers in various forms.

### Focus Area ▶ Topic C: *Decimal Comparison*

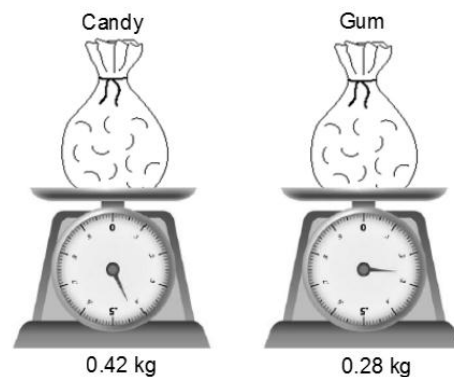
#### Comparing Decimal Measures

Students compare pairs of decimal numbers representing lengths, masses, or volumes by recording them on the place value chart. They reason about the measurements using the terms longer than, shorter than, heavier than, lighter than, more than, or less than. Comparing decimals in the context of measurement supports their justifications of their conclusions and begins their work with comparison at a more concrete level.



#### Example Problem and Answer

Here the students are asked to compare the mass of a bag of candy and a bag of gum. They will write the measures in the place value chart. Students look at the chart, from left to right. In the tenths column, they can see that the candy bag is heavier. It has 4 tenths. The bag of gum has only 2 tenths so it is lighter.



Express the mass of each item on the place value chart.

	ones (kilograms)	.	tenths	hundredths
Candy	0	.	4	2
Gum	0	.	2	8

Complete the statement below using the words **heavier than** or **lighter than** in your statement.

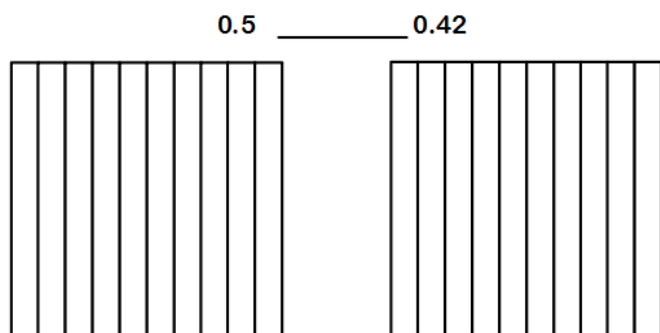
The bag of candy is heavier than the bag of gum.

## Focus Area – Topic C: *Decimal Comparison*

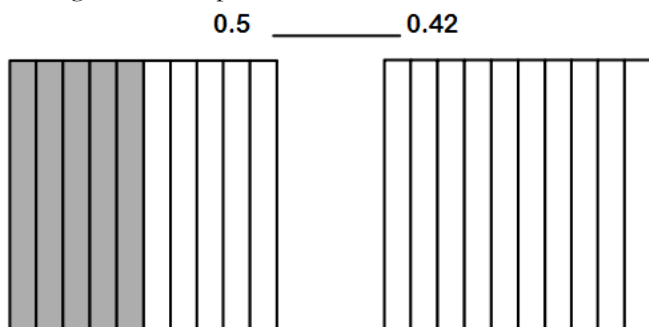
### Decimal Comparison with Area Models

Students will compare decimals using area models. This should help students overcome the common misconception that occurs when comparing numbers like 3 tenths and 28 hundredths. Students believe that 0.3 is less than 0.28 simply because it resembles the comparison of 3 ones and 28 ones.

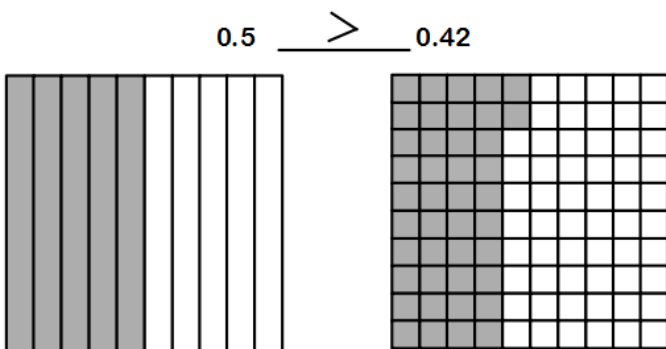
In this example, students will need to compare decimal numbers using the symbols  $<$ ,  $>$ , or  $=$ . They will represent the pairs of decimal numbers by shading in area models to match.



Students will begin by shading the first model to show 5 tenths. The model is partitioned into 10 equal parts. By shading in 5 of the parts, the student shows 0.5 shaded.



Students can then shade in 42 hundredths of the next model. However, the next model is divided into 10 parts, not 100 parts. Students will need to decompose the tenths into hundredths then shade to show 42 hundredths. Now students are ready to compare the decimal numbers using the symbols  $<$ ,  $>$ , or  $=$ .



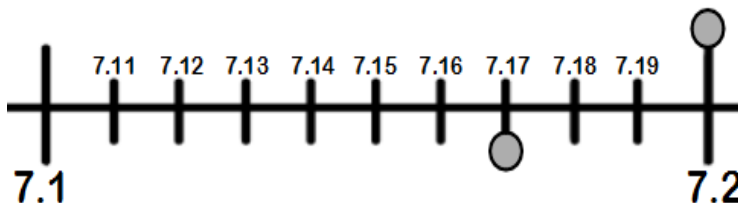
This process reinforces the idea that, in any comparison, one must consider the *size of the units*.

## Module 6: *Decimal Fractions*



### Decimal Comparison using Number Lines

Another strategy used to help students overcome misconceptions with decimals is the number line. Here students use the number line to justify their comparison of decimal numbers 7.17 and 7.2.



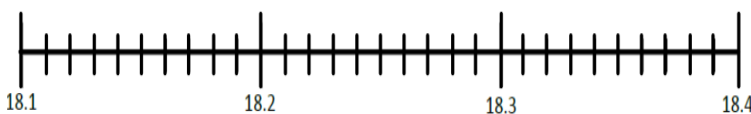
The space between 7 and 1 tenth on the line and 7 and 2 tenths can be decomposed into hundredths. Now, students can plot both locations and recognize that the location of 7.2 is farther down the number line than the location of 7.17. They can use this information to see that 7.17 is less than 7.2.

$$7.17 < 7.2$$

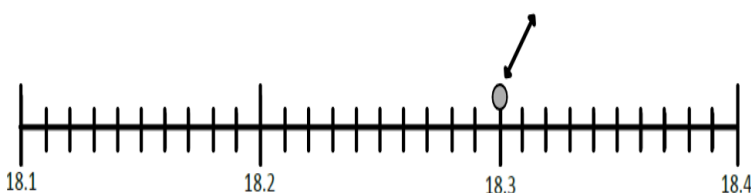
### Example Problem and Answer

Locate and label the points for each of the decimal numbers on the number line. Fill in the blank with  $<$ ,  $>$ , or  $=$  to compare the decimal numbers.

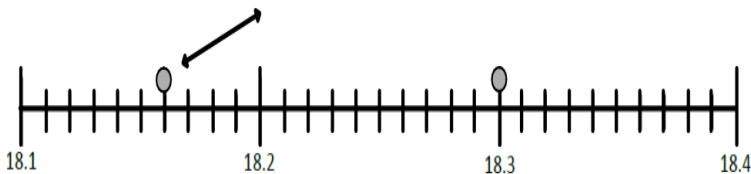
$$18.3 \quad \underline{\hspace{1cm}} \quad 18.16$$



In this example, students will mark 18 and 3 tenths with a dot.



Then they will mark 18 and 16 hundredths with a dot.



Students can see that the location of 18.3 is farther down the number line than the location of 18.16. Now they can compare the numbers.

$$18.3 > 18.16$$