



# MATH NEWS



Grade 4, Module 1, Topic B

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

Module 1: Place Value of Multi-Digit Whole Numbers

### 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 1 of Eureka Math (Engage New York) covers place value, rounding, and algorithms for addition and subtraction.



**Focus Area Topic B:** *Comparing Multi-Digit Whole Numbers*

### Words to Know:

**Digit**- a numeral between 0 and 9

**Place value** - the numerical value that a digit has by virtue of its position in a number

**Comparing numbers** – determining which 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 =

### Using Place Value Charts to Compare Numbers

Students will use the place value chart to compare the value of each digit to decide which number is of greater value. In the following example we use the place value chart to compare 23,502 and 13,420. We represent each amount on the place value chart. We can tell that 23,502 is larger because it has more ten thousands.

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
		10,000 10,000 10,000	1000 1000 1000	100 100 100 100 100		1 1
		10,000	1000 1000 1000	100 100 100 100	10 10	

We compare using the greater than symbol.

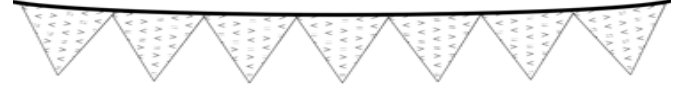
$$23,502 > 13,420$$

### OBJECTIVES OF TOPIC B

- ▶ Compare numbers based on meanings of the digits, using >, <, or = to record the comparison..
- ▶ Find 1, 10, and 100 thousand more or less than a given number.

### Focus Area Topic B:

*Comparing Multi-Digit Whole Numbers*



### Ordering Multiple Numbers

When ordering multiple numbers, students may use a place value chart to compare the values of the numbers. Using the chart helps students focus on the value of each digit. In this example, we compare three numbers.

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
		6	3	2	9	8
		6	3	7	1	8
		6	3	4	5	8

All three numbers have 6 ten thousands and 3 thousands so we compare the hundreds because they are different. The students might be asked to record these numbers in order from least to greatest like this.

63,298
63,458
63,718



### Comparing Numbers

When comparing numbers in different forms, students may find it helpful to draw mini place value charts. In the following example, the student is asked to compare a number written in expanded form to a number written in word form.

### Example Problem and Answer

Compare

$$80,000 + 3,000 + 900 + 5 \quad \bigcirc \quad \text{eight hundred three thousand, four hundred one}$$

The student uses a mini place value chart to assist in comparing the numbers.

		8	3	9	0	5
	8	0	3	4	0	1

$$80,000 + 3,000 + 900 + 5 \quad \triangleleft \quad \text{eight hundred three thousand, four hundred one}$$

The student answers using the less than symbol.

## Focus Area Topic B:

### Comparing Multi-Digit Whole Numbers

#### Finding More or Less with the Place Value Chart

Students will use number discs to increase or decrease a number by 1, 10, 100, 1,000; 10,000; or 100,000.

In the following example, a student is asked to find 100,000 more than three hundred twenty thousand, four hundred sixteen.

First, the student represents 320,416 by drawing number discs on the place value chart. ↓

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
	100,000 100,000 100,000	10,000 10,000		100 100 100 100	10	1 1 1 1 1

Then the student adds a disk representing 1 hundred thousand on the place value chart. ↓

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
	100,000 100,000 100,000 + 100,000	10,000 10,000		100 100 100 100	10	1 1 1 1 1

Now, the student will count the disks in each place on the chart to find the answer. ↓ 420,416

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
	100,000 100,000 100,000 + 100,000	10,000 10,000		100 100 100 100	10	1 1 1 1 1
	4	2	0	4	1	6

Finding 1 thousand less than 536,253 can be done using the place value chart as well. First represent 536,253 with disks on the place value chart then cross out a 1,000 disk.

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
	100,000 100,000 100,000 100,000 100,000	10,000 10,000 10,000	1,000 1,000 1,000 1,000 <del>1,000</del>	100 100	10 10 10 10	1 1

Now we have 535,253.

### Module 1: Place Value of Multi-Digit Whole Numbers

#### Regrouping with Place Value Charts

In this example, the student is asked to find 10 thousand more than 791,345.

First, this student represented 791,345 on the place value chart using dots. ↓

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
	7	9	1	3	4	5

Then, the student added 1 ten thousand. In doing so, it made 10 dots in the ten thousands place. So the student grouped those 10 together to and exchanged them for 1 hundred thousand dot. The dots in the circle became a new dot in the hundred thousand column. ↓

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
	8	0	1	3	4	5

10 thousand more than 791,345 is 801,345.



#### Place Value Charts and Patterns

Students will need to be able to complete and explain patterns using the place value chart.

#### Example Problem and Answer

Fill in the empty boxes to complete the pattern and explain how you found your answer.

234,120		254,120			284,120
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The missing number are 244,120; 264,120; 274,120

The numbers increase by 10,00 each time.

H	T	H	T	H	T	O
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	••••	••••	•	••		
	••••	••••	•	••		
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