

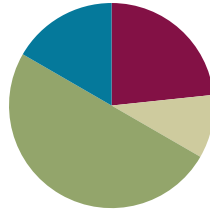
## Lesson 5

**Objective:** Compare numbers based on meanings of the digits, using  $>$ ,  $<$ , or  $=$  to record the comparison.

**Related Topics:** [More Lesson Plans for the Common Core Math](#)

### Suggested Lesson Structure

■ Fluency Practice	(14 minutes)
■ Application Problem	(6 minutes)
■ Concept Development	(30 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (14 minutes)

- Multiply by 4 **3.OA.7** (10 minutes)
- Unit Skip-Counting **4.NBT.1** (2 minutes)
- Place Value **4.NBT.2** (2 minutes)

### Sprint: Multiply by 4 (10 minutes)

Materials: (S) Multiply by 4 Sprint

Note: This fluency will review a foundational third grade standard that will help students learn standard **4.NBT.5**.

### Unit Skip-Counting (2 minutes)

Note: This fluency will apply skip-counting fluency that was built during the first four lessons and apply it to the multiplying by ten lessons.

T: Count by twos.

S: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20.

T: Now count by 2 tens. Stop counting and raise your hand when you see me raise my hand.

S: 2 tens, 4 tens, 6 tens. (Raise hand.)

Students raise hand.

T: Say the number in standard form.

S: 60.

Continue stopping the students at 12 tens, 16 tens, and 20 tens.

Repeat the process for threes and three ten thousands.

**Place Value (2 minutes)**

Note: Reviewing and practicing place value skills in isolation will prepare students for success in comparing numbers during the lesson.

- T: (Write 3,487.) Say the number.
- S: 3,487.
- T: What digit is in the tens place?
- S: 8.
- T: (Underline 8.) What’s the value of the 8?
- S: 80.
- T: State the value of the 3.
- S: 3,000.
- T: 4?
- S: 400.

Repeat for the following possible sequence: 59,607; 287,493; and 7,142,952.

**Application Problem (6 minutes)**

Draw and label the units on the place value chart. Use each of the following digits (9, 8, 7, 3, 1, 0) once to create a number that is between 7 hundred thousand and 9 hundred thousand. Write the number you created in word form.

Bonus: Create 2 more numbers following the same directions as above.

Note: This application problem builds on the content of the previous lesson, requiring students to read and write multi-digit numbers in expanded, word, and unit forms.

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
8	3	7	9	1	0

eight hundred thirty-seven thousand, nine hundred ten

**Concept Development (30 minutes)**

Materials: (S) Place value boards and markers (or place value disks)

**Problem 1**

Comparing two numbers with the same largest unit.

Display: 3,010 ○ 2,040

		1,000 1,000 1,000		10	
		1,000 1,000		10 10 10 10	

- T: Let's compare two numbers. Say the standard form to your partner and model each number on your place value board.
- S: Three thousand, ten. Two thousand, forty.
- T: What is the name of the unit with the greatest value?
- S: Thousands.
- T: Compare the value of the thousands.
- S: 3 thousand is greater than 2 thousand. → 2 thousand is less than 3 thousand.
- T: Tell your partner what would happen if we only compared tens rather than the unit with the greatest value.
- S: We would say that 2,040 is greater than 3,010 but that isn't right. → The number with more of the largest unit being compared is greater. → We don't need to compare the tens because the thousands are different.
- T: Thousands are our largest unit. 3 thousand is greater than 2 thousand so 3,010 is greater than 2,040. (Write the comparison symbol ">" in the circle.) Write this comparison statement on your board and say it to your partner in two different ways.
- S: 3,010 is greater than 2,040 and 2,040 is less than 3,010. (3,010 > 2,040)



**NOTES ON  
MULTIPLE MEANS OF  
REPRESENTATION:**

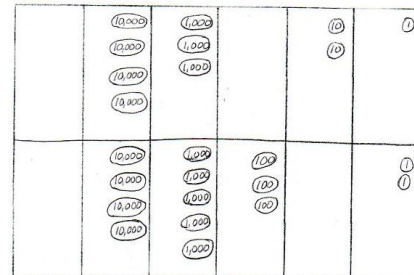
Provide sentence frames for students to refer to when using comparative statements.

**Problem 2**

Comparing two numbers with an equal amount of the largest units.

Display: 43,021 ○ 45,302

- T: Model and read each number. How is this comparison different from our first comparison?
- S: Before, our largest unit was thousands, now our largest unit is ten thousands. → In this comparison, both numbers have the same number of ten thousands.
- T: If the digits of the largest unit are equal, how do we compare?
- S: We compare the thousands. → We compare the next largest unit. → We compare the digit one place to the right.
- T: Write your comparison statement on your board. (Students write.) Say the comparison statement in two ways.
- S: 43,021 is less than 45,302 and 45,302 is greater than 43,021. (43,021 < 45,302)
- T: Write your own comparison for your partner to solve. Create a comparison in which the largest unit is the same.



Repeat comparison using 2,305 and 2,530, then 970,461 and 907,641.

**Problem 3**

Comparing values of multiple numbers using a place value chart.

T: Write the following numbers in your place value chart. Whisper the value of each digit as you do so.

Model these three numbers in your place value chart as numerals.

32,434      32,644      32,534

T: When you compare the value of these three numbers, what do you notice?

S: All three numbers have 3 ten thousands. → All three numbers have 2 thousands. → We can compare the hundreds because they are different.

T: Which number has the greatest value?

S: 32,644.

T: Tell your partner which number has the least value and how you know.

S: 32,434 is the smallest of the three numbers because it has the least number of hundreds.

T: Arrange the numbers from greatest to least. Use comparison symbols to express the relationships of the numbers.

S:  $32,644 > 32,534 > 32,434$

3	2,	4	3	4
3	2,	6	4	4
3	2,	5	3	4

MP.1



**NOTES ON  
MULTIPLE MEANS FOR  
ACTION AND  
EXPRESSION:**

For students who have difficulty converting numbers from expanded form into standard form, demonstrate, using a place value chart, how each number can be represented and then how the numbers can be added together. Alternatively, use place value cards to allow students to see the value of each digit that composes a number. The cards help students to be able to manipulate and visually display the expanded form of a number and the standard form of a number.

**Problem 4**

Comparing numbers in different number forms.

Display: Compare  $700,000 + 30,000 + 20 + 8$  and  $735,008$

T: Discuss with your partner how to solve this comparison and write your comparison.

S: I will write the numerals in my place value chart to compare.  
→ Draw disks for each number. → I'll write the first number in standard form, then compare.

S:  $730,028 < 735,008$

T: Tell your partner which units you compared and why.

S: I compared thousands because the larger units were the same. 5 thousands are greater than zero thousands, so  $735,008$  is greater than  $730,028$ .

Repeat with 4 hundred thousands, 8 thousands, and 9 tens, and  $40,000 + 8,000 + 90$ .

**Problem Set (10 minutes)**

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students solve these problems using the RDW approach used for Application Problems.

**Student Debrief (10 minutes)**

**Lesson Objective:** Compare numbers based on meanings of the digits, using  $>$ ,  $<$ , or  $=$  to record the comparison.

Invite students to review their solutions for the Problem Set and the totality of the lesson experience. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set. You may choose to use any combination of the questions below to lead the discussion.

- Which is more helpful to you: line up digits or line up number disks in a place value chart to compare numbers?
- How is comparing numbers in Problem 1(a) different from Problem 1(b)?
- How does your understanding of place value help to compare and order numbers?
- How can ordering numbers apply to real life?
- What challenges arise in comparing numbers when the numbers are written in different forms, such as in Problem 2?

**Exit Ticket (3 minutes)**

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

Name Jack Date \_\_\_\_\_

1. Label the units in the place value chart. Draw place value disks to represent each number in the place value chart. Use  $<$ ,  $>$ , or  $=$  to compare the two numbers. Write the correct symbol in the circle.

a.  $600,015$   $>$   $60,015$

b.  $409,004$   $<$   $440,002$

2. Compare the two numbers by using the symbols  $<$ ,  $>$ , and  $=$ . Write the correct symbol in the circle.

a.  $342,001$   $>$   $94,981$

b.  $500,000 + 80,000 + 9,000 + 100$   $>$  five hundred eight thousand, nine hundred one

c. 9 hundred thousands 8 thousands 9 hundreds 3 tens  $=$  908,930

d. 9 hundreds 5 ten thousands 9 ones  $<$  6 ten thousands 5 hundreds 9 ones

COMMON CORE Lesson 5: Compare numbers based on meanings of the digits, using  $>$ ,  $<$ , or  $=$  to record the comparison. Date: 4/28/13 engage<sup>ny</sup> 1.B.8

3. Use the information in the chart below to list the height in feet of each mountain from least to greatest. Then name the mountain that has the lowest elevation in feet.

Name of Mountain	Elevation in feet (ft.)
Allen Mountain	4,347 ft.
Mount Marcy	5,343 ft.
Mount Haystack	4,560 ft.
Slide Mountain	4,180 ft.

4,180 ft. 4,347 ft. 4,560 ft. 5,343 ft. Slide Mountain has the lowest elevation of 4,180 ft.

4. Arrange these numbers from least to greatest: 8,002 2,080 820 2,008 8,200

820 2,008 2,080 8,002 8,200

5. Arrange these numbers from greatest to least: 728,000 708,200 720,800 87,300

728,000 720,800 708,200 87,300

6. 1 astronomical unit, or 1 AU, is the approximate distance from the earth to the sun. The following are the approximate distances from earth to nearby stars given in AUs.

Alpha Centauri is 275,725 AUs from earth.  
 Proxima Centauri is 268,269 AUs from earth.  
 Epsilon Eridani is 665,282 AUs from earth.  
 Barnard's Star is 377,098 AUs from earth.  
 Sirius is 542,774 AUs from earth.

List the names of the stars and their distances in AUs in order from closest to farthest from earth.

Proxima Centauri - 268,269 AUs  
 Alpha Centauri - 275,725 AUs  
 Barnard's Star - 377,098 AUs  
 Sirius - 542,774 AUs  
 Epsilon Eridani - 665,282 AUs

COMMON CORE Lesson 5: Compare numbers based on meanings of the digits, using  $>$ ,  $<$ , or  $=$  to record the comparison. Date: 4/28/13 engage<sup>ny</sup> 1.B.9

**A**

# Correct \_\_\_\_\_

Multiply.

1	$1 \times 4 =$		23	$10 \times 4 =$	
2	$4 \times 1 =$		24	$9 \times 4 =$	
3	$2 \times 4 =$		25	$4 \times 4 =$	
4	$4 \times 2 =$		26	$8 \times 4 =$	
5	$3 \times 4 =$		27	$4 \times 3 =$	
6	$4 \times 3 =$		28	$7 \times 4 =$	
7	$4 \times 4 =$		29	$6 \times 4 =$	
8	$5 \times 4 =$		30	$4 \times 10 =$	
9	$4 \times 5 =$		31	$4 \times 5 =$	
10	$6 \times 4 =$		32	$4 \times 6 =$	
11	$4 \times 6 =$		33	$4 \times 1 =$	
12	$7 \times 4 =$		34	$4 \times 9 =$	
13	$4 \times 7 =$		35	$4 \times 4 =$	
14	$8 \times 4 =$		36	$4 \times 3 =$	
15	$4 \times 8 =$		37	$4 \times 2 =$	
16	$9 \times 4 =$		38	$4 \times 7 =$	
17	$4 \times 9 =$		39	$4 \times 8 =$	
18	$10 \times 4 =$		40	$11 \times 4 =$	
19	$4 \times 10 =$		41	$4 \times 11 =$	
20	$4 \times 3 =$		42	$12 \times 4 =$	
21	$1 \times 4 =$		43	$4 \times 12 =$	
22	$2 \times 4 =$		44	$13 \times 4 =$	

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**B** Improvement \_\_\_\_\_ # Correct \_\_\_\_\_

Multiply.

1	$4 \times 1 =$		23	$9 \times 4 =$	
2	$1 \times 4 =$		24	$3 \times 4 =$	
3	$4 \times 2 =$		25	$8 \times 4 =$	
4	$2 \times 4 =$		26	$4 \times 4 =$	
5	$4 \times 3 =$		27	$7 \times 4 =$	
6	$3 \times 4 =$		28	$5 \times 4 =$	
7	$4 \times 4 =$		29	$6 \times 4 =$	
8	$4 \times 5 =$		30	$4 \times 5 =$	
9	$5 \times 4 =$		31	$4 \times 10 =$	
10	$4 \times 6 =$		32	$4 \times 1 =$	
11	$6 \times 4 =$		33	$4 \times 6 =$	
12	$4 \times 7 =$		34	$4 \times 4 =$	
13	$7 \times 4 =$		35	$4 \times 9 =$	
14	$4 \times 8 =$		36	$4 \times 2 =$	
15	$8 \times 4 =$		37	$4 \times 7 =$	
16	$4 \times 9 =$		38	$4 \times 3 =$	
17	$9 \times 4 =$		39	$4 \times 8 =$	
18	$4 \times 10 =$		40	$11 \times 4 =$	
19	$10 \times 4 =$		41	$4 \times 11 =$	
20	$1 \times 4 =$		42	$12 \times 4 =$	
21	$10 \times 4 =$		43	$4 \times 12 =$	
22	$2 \times 4 =$		44	$13 \times 4 =$	

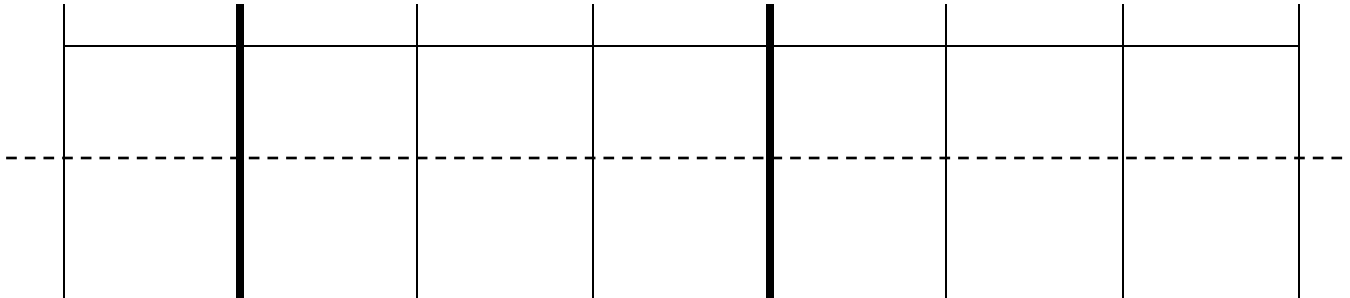
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Name \_\_\_\_\_

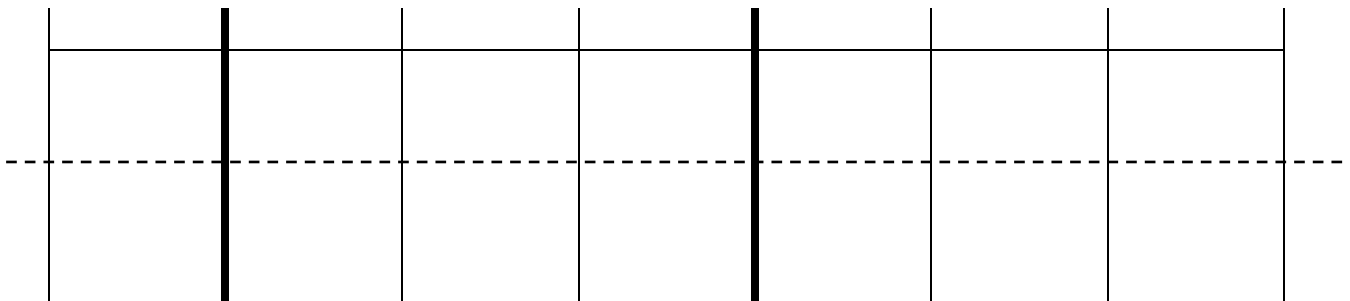
Date \_\_\_\_\_

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a. 600,015 ○ 60,015



b. 409,004 ○ 440,002



2. Compare the two numbers by using the symbols  $<$ ,  $>$ , and  $=$ . Write the correct symbol in the circle.

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b.  $500,000 + 80,000 + 9,000 + 100$  ○ five hundred eight thousand, nine hundred one

c. 9 hundred thousands 8 thousands 9 hundreds 3 tens ○ 908,930

d. 9 hundreds 5 ten thousands 9 ones ○ 6 ten thousands 5 hundreds 9 ones



3. Use the information in the chart below to list the height in feet of each mountain from least to greatest. Then name the mountain that has the lowest elevation in feet.

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4. Arrange these numbers from least to greatest: 8,002 2,080 820 2,008 8,200

5. Arrange these numbers from greatest to least: 728,000 708,200 720,800 87,300

6. One astronomical unit, or 1 AU, is the approximate distance from the earth to the sun. The following are the approximate distances from earth to nearby stars given in AUs:

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Sirius is 542,774 AUs from earth.

List the names of the stars and their distances in AUs in order from closest to farthest from earth.

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Four friends were playing a game. Use the information in the table below to order the number of points each player earned from least to greatest. Then name the person who won the game.

Player Name	Points Earned
Amy	2,398 points
Bonnie	2,976 points
Jeff	2,709 points
Rick	2,699 points

2. Use each of the digits 5, 4, 3, 2, 1 exactly once to create two different five-digit numbers.
- a. Write each number on the line and compare the two numbers by using the symbols  $<$  or  $>$ . Write the correct symbol in the circle.

\_\_\_\_\_ ○ \_\_\_\_\_

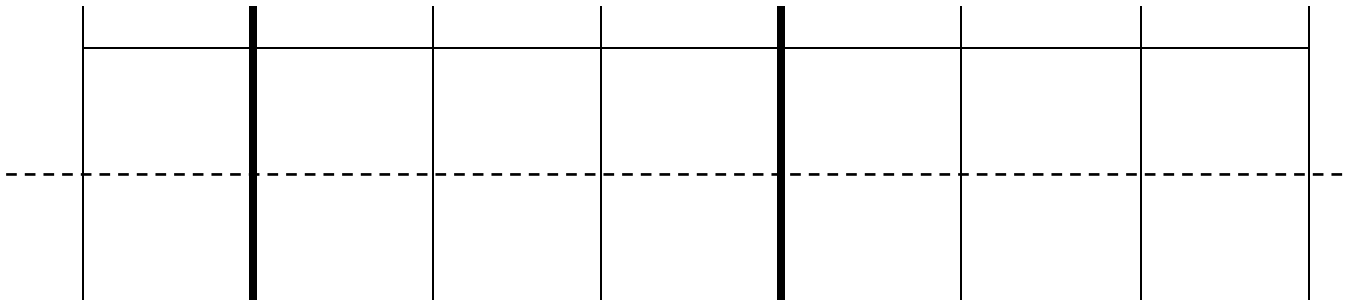
- b. Use words to write a comparison statement for the problem above.

Name \_\_\_\_\_

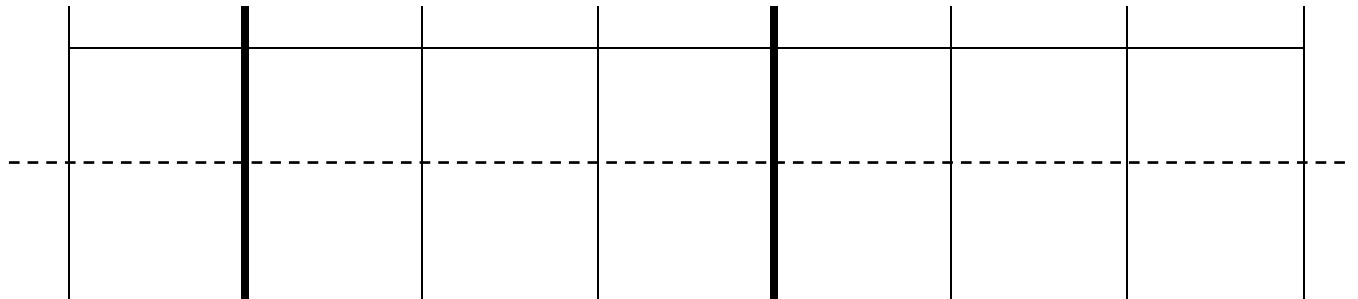
Date \_\_\_\_\_

1. Label the units in the place value chart. Draw place value disks to represent each number in the place value chart. Use  $<$ ,  $>$ , or  $=$  to compare the two numbers. Write the correct symbol in the circle.

a. 909,013 ○ 90,013



b. 210,005 ○ 220,005



2. Compare the two numbers by using the symbols  $<$ ,  $>$ , and  $=$ . Write the correct symbol in the circle.

a. 501,107 ○ 89,171

b.  $300,000 + 50,000 + 1,000 + 800$  ○ six hundred five thousand, nine hundred eight

c. 3 hundred thousands 3 thousands 8 hundreds 4 tens ○ 303,840

d. 5 hundreds 6 ten thousands 2 ones ○ 3 ten thousands 5 hundreds 1 one

3. Use the information in the chart below to list the height in feet of each skyscraper from least to greatest. Then name the tallest skyscraper.

Name of Skyscraper	Height of Skyscraper (ft.)
Willis Tower	1,450
Freedom Tower	1,776
Taipei 101	1,670
Petronas Towers	1,483

4. Arrange these numbers from least to greatest:      7,550   5,070   750   5,007   7,505
5. Arrange these numbers from greatest to least:      426,000   406,200   640,020   46,600
6. The area of the 50 states can be measured in square miles (sq. miles).

California is 158,648 sq. miles. Nevada is 110,567 sq. miles. Arizona is 114,007 sq. miles.  
Texas is 266,874 sq. miles. Montana is 147,047 sq. miles, and Alaska is 587,878 sq. miles.

Arrange the states listed by area from least to greatest.