

## Lesson 2: Comparing and Ordering Numbers

### Getting Started

You already know how to use the  $>$  and  $<$  symbols to compare numbers. During this lesson, you're going to practice comparing and ordering big numbers. Be sure to look at the numbers carefully, and use what you know about place value to answer questions and solve problems.

### Stuff You Need

- ✓ card stock (kit)
- ✓ colored pencils
- ✓ Interactive Notebook
- ✓ number cards (kit)

### Ideas to Think About

- How does place value work?
- How can you use place value to name, create, and compare numbers to a million?

### Activities

#### Activity 1: Comparing Big, Random Numbers

You probably have experience comparing numbers that are smaller than the ones in this unit. The good news is that the same steps you used with smaller numbers you use with bigger numbers, too! Take a few minutes to review the steps for comparing numbers using the following graphic.

Now, you're going to use a random number generator to come up with pairs of numbers to compare (see the following web link). Type in a lower limit of 1,000,000 and an upper limit of 9,999,999. (This generator won't let you enter commas, so you'll type 1 and six 0s for the lower limit and seven 9s for the upper limit.) Once you've set these limits, click "Enter" to see resulting numbers. Use the generator to create two numbers at a time. Write each pair on a sheet of paper and draw  $>$  or  $<$  to show how they compare. Refer to the steps shown in the graphic if you need help. Repeat this process to complete eight comparisons, leaving all of the numbers showing.

### Random Number Generator

[www.movingbeyondthepage.com/link/8394/](http://www.movingbeyondthepage.com/link/8394/)

When you've finished working with eight pairs of numbers, circle the greatest number and underline the least. Share these numbers with a parent, and explain how you determined that they are the greatest and the least.

#### **Activity 2: Comparing and Ordering Big Numbers**

Now, you'll complete the "Comparing and Ordering Big Numbers" sheet. Be sure to read the numbers carefully as you work.

Continue practicing these skills by answering the questions at the following web link.

### More Big Number Practice

[www.movingbeyondthepage.com/link/9230/](http://www.movingbeyondthepage.com/link/9230/)

#### **Activity 3: A Big Numbers Game**

Use what you know about creating 7-digit numbers to complete the "A Big Numbers Game" sheets.

#### **Activity 4: Beat My Number!**

To review the order of place value names, cut out the squares from the "Beat My Number!" activity sheet. You will use these squares to play a game, either against yourself or with a partner. The goal of the game is to create the largest possible seven-digit number. On the playing area, space out the place value squares from largest to smallest in a line. (Have a parent check the placement as needed.) To play the game with a partner, follow these steps:

1. Shuffle the number cards from your kit and place them face-down in a stack.
2. Player 1 draws a number card and chooses which place value square she wants to put the card under. For example, she might say, "I am putting the 8 in the hundred thousands place." Once a card is put down, the player cannot change its place, so she should choose carefully!

3. Player 1 should repeat Step 2 six more times to create a seven-digit number.
4. After Player 1 completes her seven-digit number, she should read it aloud and record it on a piece of paper.
5. Player 2 should collect the number cards and then follow Steps 1-4 as well, drawing and placing cards one at a time, trying to beat Player 1's number.
6. After both players have written down their seven-digit numbers, they should compare their numbers. The player with the highest number wins the round!
7. Players may want to play several rounds, each time switching which player goes first.

If you are playing against yourself, follow the same steps, drawing and placing (and not moving!) one number card at a time. Continue drawing and placing cards until you have a seven-digit number. Say the number out loud and write it on a piece of scratch paper. Shuffle all the cards again and put them face-down in a stack. Repeat the draw-and-place game to see if you can beat your original number. You can play several rounds of this game, writing down your new numbers on scratch paper.

When you are finished, glue the place value squares in order on a piece of card stock turned horizontally. Color each square a different color and draw commas in the correct places. You will store this page in your Interactive Notebook.

### **Activity 5: Quiz**

Time for a quiz! Complete the "Unit 1 Quiz 1" page. Use scratch paper as needed.

### **Wrapping Up**

During this lesson, you practiced using what you know about place value to compare and order big numbers. During the next lesson, you'll learn a quick way to think about how digits in different places are related to one another.

# COMPARING AND ORDERING BIG NUMBERS



Write  $>$  or  $<$  in the boxes to make the statements true.

$$5,934,132 \quad \square \quad 5,935,999 \quad 457,827 \quad \square \quad 6,449,341 + 10,000$$

$$845,350 \quad \square \quad 99,478 \quad 1,538,490 + 1,000 \quad \square \quad 1,548,990$$

Circle the digits that make each statement true. (Hint: there may be more than one!)

$3 \underline{\quad} 2,497 > 372,500$	$1,83 \underline{\quad},391 < 1,836,202$	$6,913,450 > 6,91 \underline{\quad},180$
5 8 7 9	1 6 3 8	2 5 9 3

Order the numbers from least to greatest. Place the commas where they belong when you write the numbers.

**LEAST**  $\longrightarrow$  **GREATEST**

263871      6261638      987251      9840012

\_\_\_\_\_

6938124      6939144      673990      6835810

\_\_\_\_\_

2896100      2897009      2896119      2896109

\_\_\_\_\_

**THINK ABOUT IT!** Use the digits **0, 1, 2, 4, 5, 7, and 9** to make a 7-digit number to answer each question.

What is the greatest number you can make? \_\_\_\_\_

What is the smallest even number you can make? \_\_\_\_\_

What is the closest number to 8,000,000 you can make? \_\_\_\_\_

# A Big Numbers Game

**Instructions:** Answer the questions provided. Use the space available on these sheets to write numbers and organize your thinking.

**S**arah and her friends were playing a math game with the digits 0 through 9. They put multiple sets of cards with these digits on them in a bag and then took turns drawing 7 cards at a time. At first, they played to see who could make the greatest number with their cards.

**Sarah**



Sarah drew:  
6, 3, 0, 1, 0, 4, 9

**Maria**



Maria drew:  
9, 5, 0, 1, 5, 7, 2

**Justin**



Justin drew:  
4, 9, 0, 8, 1, 3, 9

**Pierre**



Pierre drew:  
0, 8, 0, 9, 9, 8, 6

Who won? \_\_\_\_\_

What winning number did this player make? \_\_\_\_\_

**T**hen, using the same cards, they played to see who could make the smallest number.

Who won? \_\_\_\_\_

What winning number did this player make? \_\_\_\_\_

**N**ext, they drew new numbers and played to see who could make the greatest odd number.

**Sarah**



Sarah drew:  
4, 5, 1, 0, 9, 3, 1

**Maria**



Maria drew:  
1, 5, 2, 8, 6, 0, 3

**Justin**



Justin drew:  
9, 4, 6, 1, 0, 7, 3

**Pierre**



Pierre drew:  
9, 0, 1, 6, 3, 7, 0

Who won? \_\_\_\_\_

What winning number did this player make? \_\_\_\_\_

**F**inally, they used the same cards to see who could make the smallest even number.

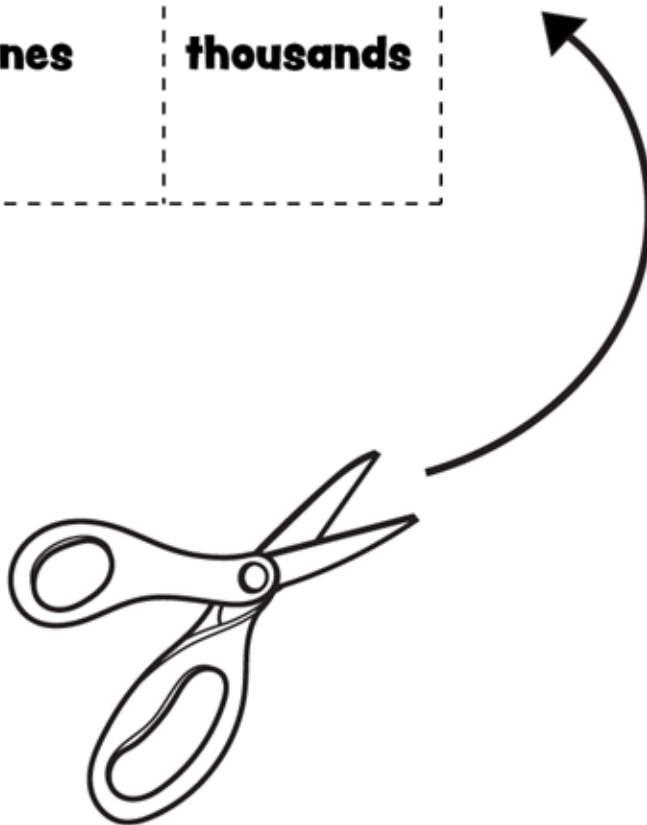
Who won? \_\_\_\_\_

What winning number did this player make? \_\_\_\_\_

**Think About It!** In the last game, which player made the number closest to 1,100,000?

# **BEAT MY NUMBER!**

<b>hundreds</b>	<b>ten thousands</b>	<b>tens</b>	<b>hundred thousands</b>
<b>millions</b>	<b>ones</b>	<b>thousands</b>	



# Unit 1 Quiz 1

**Instructions:** Use these digits to complete the following tasks:

**5, 1, 0, 9, 3, 2, and 6**

Write the greatest number you can make in number form. \_\_\_\_\_

Write this number in word form. \_\_\_\_\_

Write this number in expanded form. \_\_\_\_\_

Write this number in expanded notation. \_\_\_\_\_

Write the smallest 7-digit number you can make in number form. \_\_\_\_\_

**Instructions:** Write  $>$  or  $<$  in the boxes to make the statements true.

5,834,132  5,635,999      841,301  89,478      6,457,827  6,459,341      1,538,490  1,548,990

**Instructions:** Order the numbers from least to greatest. Place the commas where they belong when you write the numbers.

**163871      5261638      587251      5840012**

**4938124      4939144      473990      4835810**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



## Parent Overview

## Lesson 2: Comparing and Ordering Numbers

### Getting Started

#### ? Big Ideas

- How does place value work?
- How can you use place value to name, create, and compare numbers to a million?

#### ⊙ Skills

- Compare and order large numbers

### Introducing the Lesson

Tell your child that during this lesson she will practice comparing and ordering big numbers. Remind her to look closely at the digits in each place as she works. As needed, you can use the following information to help her:

- Do the numbers have the same number of digits? If they don't, the number with the most digits is the greater one.
- If they do have the same number of digits, you should look at the digits in the highest place first. If they are different, the number with the higher digit in the highest place is greater. For example, 413,554 is greater than 399,999 because 4 in the hundred thousands place is greater than 3 in the hundred thousands place (four hundred thousand is greater than three hundred thousand!).
- Are the digits in the highest place the same? If so, then you should look at the next greatest place. So, when comparing two 6-digit numbers that have the same digit in the hundred thousands place, you need to look at the digits in the ten thousands place. (If the numbers in the next greatest place are the same, look at the next greatest place to compare, and so on.)

**MATERIALS NOTE:** If you do not have the math kit, you can download the decimal grid and decimal place value chart from the following web link. You can laminate each sheet or place each in a plastic page protector for your child to use with a thin tipped dry-erase marker. If you prefer, you can instead print out several copies for your child to use in this unit with a pencil. For the number cards used in Activity 4, you can use the number cards 0-9 from a previous level's math kit or one set of 0-9 cards from an UNO card game. You can also download the number card sheet from the following web link, copy it onto card stock paper, and cut out the cards.

#### Math Downloads

[www.movingbeyondthepage.com/link/9361/](http://www.movingbeyondthepage.com/link/9361/)

### Outline of Activities and Answer Keys

#### Activity 1: Comparing Big, Random Numbers

Your child will compare eight pairs of randomly generated numbers. At the end of the activity, she will identify the greatest and the least out of all the numbers generated. At this point, ask her to explain how she found the greatest and least numbers. Be sure that she's able to talk about digits in specific places and how they compare to one another. If needed, point to two numbers that she has not already compared, and ask her to identify the greater number in the pair.

#### Activity 2: Comparing and Ordering Big Numbers

This activity provides additional practice and problem solving with comparing big numbers and then asks your child to put a series of numbers in order from least to greatest. She will also answer 10 online questions. You will receive an email that shows which questions your child answered correctly and incorrectly.

<i>"Comparing and Ordering Big Numbers" Answer Key</i>			
$5,934,132 < 5,935,999$	$457,827 < 6,449,341 + 10,000$		
$845,350 > 99,478$	$1,538,490 + 1,000 < 1,548,990$		
$3 \underline{\quad} 2,497 > 372,500$ 5 (8) 7 (9)	$1,83 \underline{\quad}, 391 < 1,836,202$ (1) 6 (3) 8	$6,913,450 > 6,91 \underline{\quad}, 180$ (2) 5 9 (3)	
<u>263,871</u>	<u>987,251</u>	<u>6,261,638</u>	<u>9,840,012</u>
<u>673,990</u>	<u>6,835,810</u>	<u>6,938,124</u>	<u>6,939,144</u>
<u>2,896,100</u>	<u>2,896,109</u>	<u>2,896,119</u>	<u>2,897,009</u>
<p>What is the greatest number you can make? <u>9,754,210</u></p> <p>What is the smallest even number you can make? <u>1,025,794</u></p> <p>What is the closest number to 8,000,000 you can make? <u>7,954,210</u></p>			

**Activity 3: A Big Numbers Game**

During this activity, your child will use a real-life situation to create big numbers and answer questions about them.

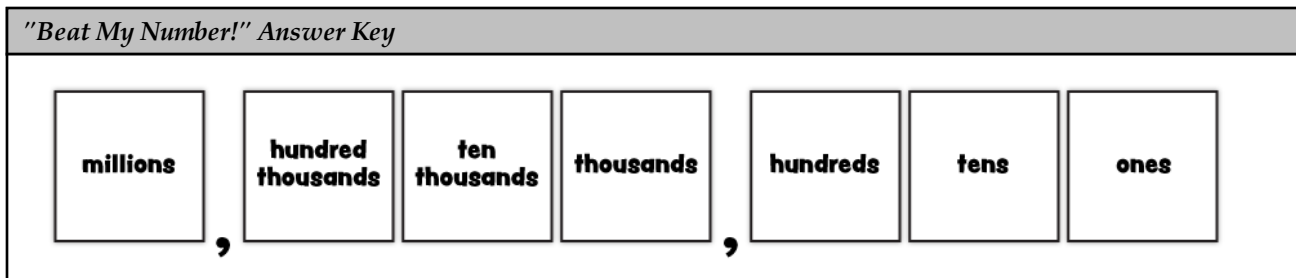
- (Biggest number) Who won? (Pierre)  
What winning number did this player make? (9,988,600)
- (Smallest number) Who won? (Sarah)  
What winning number did this player make? (1,003,469; if your child interpreted that the number could be less than 7 digits if the zeros were used in higher place values, then Sarah's number would be 13,469)
- (Greatest odd number) Who won? (Justin)  
What winning number did this player make? (9,764,301)
- (Smallest even number) Who won? (Pierre)  
What winning number did this player make? (1,003,796; if your child interpreted that the number could be less than 7 digits if the zeros were used in the higher place values, then Sarah would have the smallest even number with 13,496)
- Think About It! In the last game, which player made the number closest to 1,100,000? (Justin)

**Activity 4: Beat My Number!**

Your child will play a game, either with a partner or by herself, using the number cards from the kit to construct a number that has digits to the millions place. Make sure she writes all her seven digit numbers on a piece of paper so she can compare them for the game.

You can play this game as your child's partner, or use the time to check her work for this lesson. Be ready to discuss any mistakes so that she'll be ready to take the quiz in the next activity.

When the game is done, your child should paste the place value cards in order on a piece of card stock, insert commas in the correct places, and insert the page in her Interactive Notebook.



### Activity 5: Quiz

Once your child completes "Unit 1 Quiz 1," check her answers for it, and allow her to correct any mistakes that she makes.

- 5, 1, 0, 9, 3, 2, and 6  
Write the greatest number you can make in number form. (9,653,210)  
Write this number in word form. (nine million six hundred fifty-three thousand two hundred ten)  
Write this number in expanded form.  $(9,000,000 + 600,000 + 50,000 + 3,000 + 200 + 10)$   
Write this number in expanded notation.  $(9 \times 1,000,000) + (6 \times 100,000) + (5 \times 10,000) + (3 \times 1,000) + (2 \times 100) + (1 \times 10) + (0 \times 1)$   
Write the smallest 7-digit number you can make in number form. (1,023,569)
- $5,834,132 > 5,635,999$
- $841,301 > 89,478$
- $6,457,827 < 6,459,341$
- $1,538,490 < 1,548,990$
- Order the numbers from least to greatest. Place the commas where they belong when you write the numbers. (163,871 – 587,251 – 5,261,638 – 5,840,012); (473,990 – 4,835,810 – 4,938,124 – 4,939,144)

### Wrapping Up

#### Questions to Discuss

- Given the digits 2, 3, 4, 5, 6, 7, and 8, if you were trying to create the greatest 7-digit number possible, what digit would you put in the millions place? Why? (8 because 8 millions are more than 7 millions, 6 millions, etc.)
- Given the digits 0, 1, 2, 3, 4, 5, if you were trying to create the smallest 6-digit number possible, what digit would you put in the hundred thousands place? Why? (1 because it's the smallest digit except for 0 and you can't put 0 in the hundred thousands place and still create a 6-digit number)
- Given two numbers to compare, what's the first step you should take? (determine whether the numbers have the same number of digits)

#### Things to Review

Review the steps for comparing numbers