Lesson 16

Objective: Compare two three-digit numbers using <, >, and =.

Suggested Lesson Structure

■ Fluency Practice	(12 minutes)	
■ Application Problem	(8 minutes)	
□ Concept Development	(30 minutes)	
■ Student Debrief	(10 minutes)	
Total Time	**(60 minutes)**	
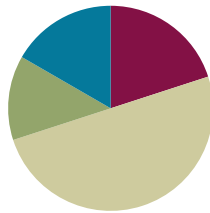
Fluency Practice (12 minutes)

▪ Sprint: Sums—Crossing Ten **2.OA.2**   (12 minutes)

Sprint: Sums—Crossing Ten (12 minutes)

Materials: (S) Sums—Crossing Ten Sprint

In Topics F and G for the next 6 days of instruction, a blitz is done on addition and subtraction sums in preparation for Module 4. As the beginning of Module 4 draws near, the goal is to energize and hone students' addition and subtraction facts before getting there.

Application Problem (8 minutes)

At recess Diane skipped rope 65 times without stopping. Peter skipped rope 20 times without stopping. How many more times did Diane skip rope than Peter?

Note: Lead students as necessary through the sequence of questions they need to internalize:

▪ What do you see?

▪ Can you draw something?

▪ What can you draw?

▪ What conclusions can you make from your drawing?

T: Use your RDW process. (Allow time to work.)

T: I notice some of you used addition, and some of you used subtraction to find the answer.

T: Who would like to share what they wrote?

S: 65 – 20 = ___ → 20 + ___ = 65.

T: Were you missing a part or the whole?

S: A part.

T: Turn and talk to your partner about what is the missing part in the story of Diane and Peter.

S: It's the number of jumps Diane did that Peter didn't do. → It's how many more Peter had to do to have the same number of jumps as Diane.

T: We are comparing. What did you learn in Grade 1 about comparing and subtraction?

S: We learned that to compare, you subtract, because you're finding the part that is missing.

T: Excellent. Let's look at that missing part in two excellent drawings made by your friends. See if you can find them. Talk to your partner.

Let the students point to the missing part in the drawings and really make that connection between the number sentence and the missing part.

Concept Development (30 minutes)

Materials: (S) Unlabeled hundreds place value chart (Lesson 8 Template), place value disks (2 hundreds, 7 tens, and 7 ones), personal white board, number comparison (Template)

Concrete (6 minutes)

T: Slide the place value chart inside your personal white boards.

T: Use place value disks to show 74 on your place value chart.

S: (Show.)

T: Which disks did you use from greatest to least?

S: Tens and ones.

T: Add 1 disk so the number becomes 174.

T: (Show.) What did you add?

S: A hundred.

T: Which number is greater? 74 or 174?

S: 174.

T: Let's state that as a sentence.

S: 174 is greater than 74.

T: Change your disks to show 105.

T: (Show.) Which disks did you use from greatest to least?

S: Hundreds and ones.
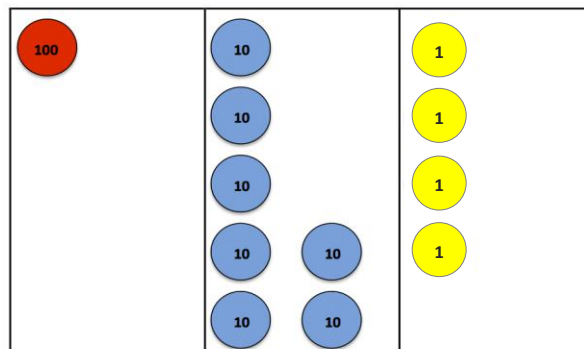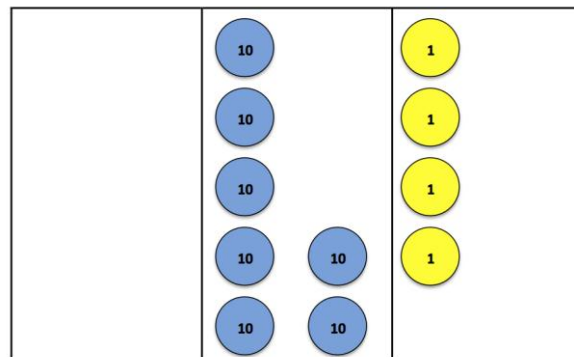
T: Now, make the number 135.

T: (Show.) Which number is less, 105 or 135?

S: 105.

T: Say it as a sentence.

S: 105 is less than 135.

T: Talk to your partner. How can you tell? (Circulate and listen.)

T: Let's hear some of your good ideas. (Choose students to share based on their thinking.)

S: 105 has fewer tens. → 135 has 3 tens. 105 has no tens. → 105 has 10 tens. 135 has 13 tens.

T: Show 257 on your place value chart.

T: (Show.) Change it to show 250.

T: (Show.) Which number is greater, 257 or 250?

S: 257.

T: Say it as a sentence.

S: 257 is greater than 250.

T: How do you know?

S: We took away the ones, and 257 got smaller.

Continue with other examples until students gain proficiency.

Pictorial (12 minutes)

Materials: (S) Number comparison pre-cut (template)

T: Take two minutes to draw each number using hundreds, tens, and ones.

T: Compare with your partner. How are your drawings alike?

S: (Compare.)

T: Look carefully at our three numbers. Which is greatest?
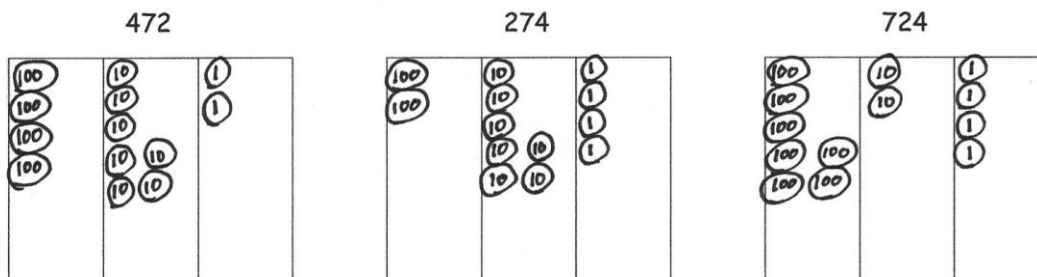
S: 724.

T: Turn and tell your partner how you know. (Encourage precise explanation.)

> **NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:**
>
> Support students by creating or posting a chart of words. It might be as simple as:
>
> | | |
> |---|---|
> | smaller | bigger |
> | smallest | biggest |
> | less than | greater than |
> | least | greatest |
> | < | > |
>
> This lesson introduces the sentence frame:
>
> _____ strategy is _____.
>
> Students benefit from articulating how another student thought about or solved a problem. Listening is essential to learning a second language. When students hear the familiar names of their peers, they sense a classroom community that is personal, respectful, and caring. This positive feeling hooks them into the lesson.

T: Some students compared the number of tens, and others compared the number of hundreds.

T: Turn and tell your partner why comparing units might help us figure out which number is greatest.

While circulating, identify exemplary explanations.

S: It works because there are the most hundreds in 724. → Hundreds come first, so it's easiest to compare them first. → There are more tens inside the hundreds. 724 really has 72 tens, and 274 has only 27.

T: Quite a few of you have excellent explanations. Melanie, will you share your thinking?

S: Hundreds are the biggest unit. So, if a number has 7 hundreds and the other has only 4, you already know that the one with 7 has to be greatest.

T: If we use Melanie's strategy, which number is least?

S: 274.

T: Anthony, will you share how you compare tens? After he shares, I'll ask everyone to retell his idea.

S: 274 has more tens in the tens place than 724, but the number is not greater. I said you have to remember to think about *all* the tens. 724 really has 72 tens, and 274 really has 27 tens.

T: (Write the sentence frame, "Anthony's strategy is _____.") Use the frame to retell Anthony's strategy to your partner.

S: (Retell.)

T: Use Anthony's strategy. Name just the tens, and say the three numbers from greatest to least.

S: 72 tens, 47 tens, 27 tens.

T: Good. Use the symbols < or > to write a number sentence with all three numbers at the bottom of Problem Set 1.

S: (Write.)

T: Check your partner's work. It might look different from yours, but make sure you agree it's true.

T: Look at 341 and 329 (write these numbers on the board). The number of hundreds is the same. What would you do to compare then?

S: Look at the tens. 4 tens is more than 2 tens.

> **NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:**
>
> The Problem Set contains a lot of repetitive written language. Reading the first problem together or referring to the chart suggested earlier may support English language learners and struggling readers. As often as possible, have students whisper or think the numbers as they write.
>
> Below is a thoughtful game for a pair of early finishers. Draw three spaces:
>
> _____ _____ _____
>
> Each player rolls the die once and decides in which place to write his number. Each player rolls again and makes a new decision. Finally, each rolls one last time. The player with the greater number is the winner.

Problem Set (12 minutes)

Materials: (S) Problem Set

Students should do their personal best to complete the Problem Set within the allotted 12 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 should solve these problems using the RDW approach used for Application Problems.

Instruct students to complete the Problem Set by drawing values on the place value chart as specified and answering the included questions.

Student Debrief (10 minutes)

Lesson Objective: Compare two three-digit numbers using <, >, and =.

Materials: (S) Problem Set

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. 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 and process the lesson.
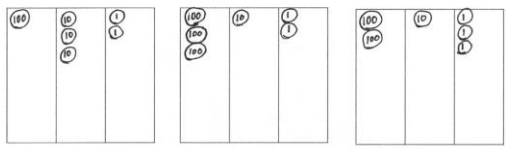
- T: Bring Problem Set to our Debrief.
- T: Check your work carefully with a partner as I circulate.
- T: (Allow two minutes.) Which problems were hard for you?
- S: (Respond.)
- T: Look at the threes in 132 and 312. What is the difference between them?
- S: One is in the tens place, and the other is in the hundreds place.

Name JoshLynn _____   Date _____

1. Draw the following numbers using place value disks on the place value charts. Answer the questions below.

   a. 132   b. 312   c. 213

   d. Which is the greatest number? __312__

   e. Which is the smallest number? __132__

   f. Order the numbers from least to greatest: __132__ , __213__ , __312__

2. Circle *less than* or *greater than*. Whisper the complete sentence.

a. 97 is (less than) greater than 102.	f. 361 is (less than) greater than 367.
b. 184 is less than / (greater than) 159.	g. 705 is less than / (greater than) 698.
c. 213 is less than / (greater than) 206.	h. 465 is less than / (greater than) 456.
d. 299 is (less than) greater than 300.	i. 100 + 30 + 8 is (less than) greater than 183.
e. 523 is (less than) greater than 543.	j. 3 tens and 5 ones is less than / (greater than) 32.

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3. Write >, <, or =. Whisper the complete number sentences as you work.

   a. 900 (>) 899
   b. 267 (<) 269
   c. 537 (>) 527
   d. 419 (<) 491
   e. 908 (<) nine hundred eighty
   f. 130 (>) 80 + 40
   g. Two hundred seventy-one (=) 70+ 200 + 1
   h. 500 + 40 (>) 504
   i. 10 tens (<) 101
   j. 4 tens 2 ones (=) 30 + 12
   k. 36 – 10 (>) 2 tens 5 ones

4. Noah and Charlie have a problem.

   Noah thinks 42 tens is less than 390.

   Charlie thinks 42 tens is greater than 390.

   Who is correct? Explain your thinking below.

   __42 tens = 420   Charlie is correct because__
   __420 is greater than 390.__
   _____

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T: You noticed place value. How did place value help you to compare the numbers on the Problem Set in Problem 3 (e)?

S: 908 and 980 sound almost the same, but if you notice what place the 8 is in, you know that 8 tens is more than 8 ones.

T: Some problems like 3(e) used word form or unit form. Could you still use place value to compare? How did you do it?

S: I just wrote the numbers in standard form. Then, it was easy to look at them and see the numbers in their places.

T: Look back at each section of our Problem Set. What was the same about your task in each one?

S: We always had to compare!

T: Now, think about your strategy for comparing. Turn and tell your strategy to your partner. Say, "My strategy is…"

S: My strategy is to compare numbers by looking at hundreds, tens, and ones. → My strategy is to compare places. → My strategy is to compare numbers using place value.

T: Write your strategy on your Problem Set so you're sure to remember it. (Allow time to write.)

T: Share with your partner about Noah and Charlie's problem and your thinking about who is correct.

S: (Share answers to Problem 4.)

T: What materials in our classroom could we use to prove who is correct?

S: The bundles of sticks. → The blocks. → The dollar bills. → Place value disks.

T: True. When we see materials, sometimes it makes the comparison so obvious!

Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

A

Number Correct: _____

Sums—Crossing Ten

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

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B

Number Correct: _____

Improvement: _____

Sums—Crossing Ten

1.	8 + 2 =	
2.	8 + 3 =	
3.	8 + 4 =	
4.	8 + 8 =	
5.	9 + 1 =	
6.	9 + 2 =	
7.	9 + 3 =	
8.	9 + 8 =	
9.	8 + 2 =	
10.	8 + 5 =	
11.	8 + 6 =	
12.	8 + 9 =	
13.	9 + 1 =	
14.	9 + 4 =	
15.	9 + 5 =	
16.	9 + 9 =	
17.	9 + 1 =	
18.	9 + 7 =	
19.	8 + 2 =	
20.	8 + 7 =	
21.	9 + 1 =	
22.	9 + 6 =	

23.	7 + 3 =	
24.	7 + 4 =	
25.	7 + 5 =	
26.	7 + 8 =	
27.	6 + 4 =	
28.	6 + 5 =	
29.	6 + 6 =	
30.	6 + 8 =	
31.	5 + 5 =	
32.	5 + 6 =	
33.	5 + 7 =	
34.	5 + 8 =	
35.	4 + 6 =	
36.	4 + 7 =	
37.	4 + 8 =	
38.	3 + 7 =	
39.	3 + 9 =	
40.	5 + 9 =	
41.	2 + 8 =	
42.	4 + 9 =	
43.	1 + 9 =	
44.	2 + 9 =	

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Name _____   Date _____

1. Draw the following numbers using place value disks on the place value charts.
   Answer the questions below.

   a. 132   b. 312   c. 213

   d. Which is the greatest number? _____

   e. Which is the least number? _____

   f. Order the numbers from least to greatest: _____, _____, _____

2. Circle *less than* or *greater than*. Whisper the complete sentence.

a. 97 is less than / greater than 102.	f. 361 is less than / greater than 367.
b. 184 is less than / greater than 159.	g. 705 is less than / greater than 698.
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3. Write >, <, or =. Whisper the complete number sentences as you work.

a. 900   ◯   899

b. 267   ◯   269

c. 537   ◯   527

d. 419   ◯   491

e. 908   ◯   nine hundred eighty

f. 130   ◯   80 + 40

g. Two hundred seventy-one   ◯   70 + 200 + 1

h. 500 + 40   ◯   504

i. 10 tens   ◯   101

j. 4 tens 2 ones   ◯   30 + 12

k. 36 – 10   ◯   2 tens 5 ones

4. Noah and Charlie have a problem.

Noah thinks 42 tens is <u>less than</u> 390.

Charlie thinks 42 tens is <u>greater than</u> 390.

Who is correct? Explain your thinking below.

_____

_____

_____

Name _____   Date _____

Write >, <, or =.

1. 499 ◯ 500

2. 179 ◯ 177

3. 431 ◯ 421

4. 703 ◯ seven hundred three

5. 2 hundred 70 ones ◯ 70 + 200 + 1

6. 300 + 60 ◯ 306

7. 4 tens 2 ones ◯ 30 + 12

8. 3 tens 7 ones ◯ 45 – 10

Name _____   Date _____

1. Draw the following numbers using place value disks on the place value charts.
    Answer the questions below.

    a. 241   b. 412   c. 124

    d. Order the numbers from least to greatest: _____, _____, _____

2. Circle *less than* or *greater than*. Whisper the complete sentence.

a. 112 is less than / greater than 135.	d. 475 is less than / greater than 457.
b. 152 is less than / greater than 157.	e. 300 + 60 + 5 is less than / greater than 635.
c. 214 is less than / greater than 204.	f. 4 tens and 2 ones is less than / greater than 24.

3. Write >, <, or =.

    a. 100 ◯ 99   e. 150 ◯ 90 + 50

    b. 316 ◯ 361   f. 9 tens 6 ones ◯ 92

    c. 523 ◯ 525   g. 6 tens 8 ones ◯ 50 + 18

    d. 602 ◯ six hundred two   h. 84 – 10 ◯ 7 tens 5 ones

Name _____   Date _____

472   274   724

| | | | | | | | | |

Name _____   Date _____

472   274   724

| | | | | | | | | |

Name _____   Date _____

472   274   724

| | | | | | | | | |

number comparison template