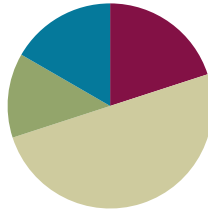


Lesson 20

Objective: Model 1 more and 1 less, 10 more and 10 less, and 100 more and 100 less when changing the hundreds place.

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: Differences **2.OA.2** (12 minutes)

Sprint: Differences (12 minutes)

Materials: (S) Differences Sprint

- T: Today is going to be a repeat of yesterday's Sprint. Let's do some related facts practice. If I say $6 - 2$, you say $16 - 2 = 14$.
- T: $5 - 4$.
- S: $15 - 4 = 11$.
- T: $8 - 4$.
- S: $18 - 4 = 14$.
- T: $6 - 3$.
- S: $16 - 3 = 13$.
- T: Turn and test your partner for 30 seconds. (Pause.) Switch. (Pause.)
- T: Okay. How many of you studied last night? Are you prepared to succeed?
- S: Yes!
- T: Take your mark, get set, think!



NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

It is up to the teacher to sustain a culture of personal growth and personal best in math class. This especially affects the students working below grade level and English language learners. This second day is important for them. Others may improve more than they do. Are they encouraged by their own growth? The students with the most ground to gain can truly surprise themselves if they fall in love with improving. Being proud of practicing and caring about achieving needs to become the norm.

Once again, when closing this fluency activity, inform the students that the same Sprint will be given tomorrow.

Application Problem (8 minutes)

399 jars of baby food are sitting on the shelf at the market. Some jars fall off and break. 389 jars are still on the shelf. How many jars broke?

(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 the RDW process.
- T: Talk with your partner about different ways you can solve this problem, using what you've learned.
- S: I notice the hundreds are the same, the ones are the same, but the tens changed. So, it's 10 less.
- T: Can you draw something that will help everyone understand your thinking?
- S: I can draw a place value chart and place value disks.
- T: Please show us.
- T: Thank you, Tegan. Can someone state what Tegan said in another way?
- S: 389 is 10 less than 399.
- T: And another way?
- S: 399 is 10 more than 389.
- T: Any other thoughts?
- S: I counted on from 389 by tens: 389, 399, and my partner counted back to check: 399, 389.
- T: So, what is the answer to the question? How many jars broke?
- S: 10 jars broke.
- T: Please add that statement to your paper.

Concept Development (30 minutes)

Materials: (S) Unlabeled hundreds place value chart (Lesson 8 Template), place value disks (hundreds, tens, ones)

Concrete (10 minutes)

- T: Show 50 on your place value chart.
- S: (Show.)
- T: Use place value disks to count by ones from 50 to 59.
- S: 51, 52, 53, 54, 55, 56, 57, 58, 59.



NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:

The complexity of moving 10 less and changing the hundreds place together can be a big jump for some students. Therefore, use the language of tens for the following problem:

- What is 10 less than 508?
- T: How many tens are in 508?
- S: 50 tens.

- T: Using a complete sentence, say the number that is 1 more than 59.
 S: 1 more than 59 is 60. 60 is 1 more than 59.
 T: Good. Add your disk to check. Can you make a new unit?
 S: (Add a disk.) Yes, a ten!
 T: Trade your ones for a ten.
 S: (Trade to show 6 ten disks.)
 T: Use place value disks to skip-count by tens from 60 to 90.
 S: 70, 80, 90.

T: Using a complete sentence, say the number that is 10 more than 90.

S: 100 is 10 more than 90. 10 more than 90 is 100.

T: Add a disk to check. Can you make a new unit?

S: (Add a disk.) Yes, a hundred.

T: Make the trade.

S: (Trade to show 1 hundred disk on their place value charts.)

T: Use place value disks to skip-count by hundreds from 100 to 600.

S: 200, 300, 400, 500, 600.

T: Using a complete sentence, say the number that is 100 less than 600.

S: 500 is 100 less than 600. 100 less than 600 is 500.

T: Use your place value disks to confirm.

S: (Confirm.)

T: How can you show me ten less than 500 with your disks?

S: Trade 1 hundred for 10 tens.

T: Perfect. (Pause.) Now, can you find 10 less?

S: Yes! It's 490.

T: Show me 500 again. (Pause.) Show me 503. (Pause.)

T: How can you show me 10 less than 503?

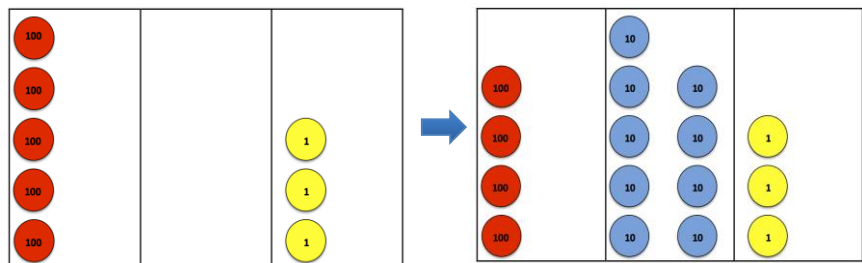
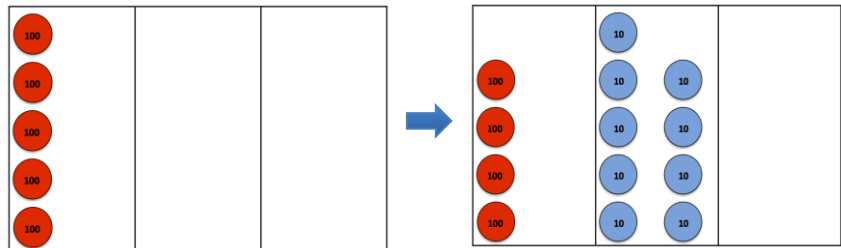
S: The same way. Change 1 hundred for 10 tens.

T: Do you need to change the 3 ones?

S: No! Don't touch them. (Pause.)

T: What is 10 less than 503?

S: 493.



- T: Give me a complete sentence.
S: 10 less than 503 is 493.
T: 10 less than 500 is...?
S: 10 less than 500 is 490.
T: 10 less than 503 is...?
S: 10 less than 503 is 493.
T: 10 more than 490 is...?
S: 10 more than 490 is 500.
T: 10 more than 493 is...?
S: 10 more than 493 is 503.

Repeat that process with a few other numbers. A suggested sequence might be 10 less than 204, 10 less than 305, 10 less than 502, and 10 less than 307. Be aware that this is setting a wonderful foundation for regrouping in subtraction and addition.

Pictorial (8 minutes)

Materials: (S) Unlabeled hundreds place value chart (Lesson 8 Template), personal white board

Begin with the place value chart inside each student's personal board.

- T: Draw 130.
S: (Draw.)
T: Make it 140.
S: (Draw.)
T: Make it 150.
S: (Draw.)
T: Name my count. 1 more, 1 less, 10 more, 10 less, 100 more, or 100 less?
S: 10 more!
T: Good. Erase. Draw 715.
S: (Draw.)
T: Make it 705.
S: (Draw.)
T: Make it 695.
S: (Draw.)
T: Name my count.
S: 10 less!

Students catch on quickly. Complete another round or two, and transition into having students play with a partner while the teacher meets with a small group.

Problem Set (12 minutes)

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 model the problems on the place value chart, fill in the blanks, and circle all that apply. They should also whisper the complete sentence.

Student Debrief (10 minutes)

Lesson Objective: Model 1 more and 1 less, 10 more and 10 less, and 100 more and 100 less when changing the hundreds place.

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 your Problem Set to the carpet. Skip-count down by hundreds as you transition, starting with 904.

S: 904, 804, 704, 604, 504, 404,...

T: Check your work with a partner.

S: (Compare answers.)

T: I'm hearing several of you disagree about how many jumps Jenny has to do to count to 147. Some say 7, and some say 8. Jackie, will you share your thinking?


S: I did the difference between tens since she was counting by tens. In 77, there are 7 tens, and in 147, there are 14. I know 7 tens + 7 tens is 14 tens. That means 7 jumps.


MP.3


NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 20 Problem Set 2•3


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
1. Model each problem with a partner on your place value chart. Then, fill in the blanks, and circle all that apply. Explain your thinking.

a. 1 more than 39 is 40. We made a ten.


b. 10 more than 190 is 200. We made a hundred.


c. 10 more than 390 is 400. We made a hundred.


d. 1 more than 299 is 300. We made a ten and hundred.


e. 10 more than 790 is 800. We made a hundred.


2. Fill in the blanks. Whisper the complete sentence.

a. 1 less than 120 is 119. f. 100 less than 938 is 838.
 b. 10 more than 296 is 306. g. 10 more than 296 is 306.
 c. 100 less than 229 is 129. h. 100 less than 994 is 894.
 d. 10 more than 598 is 608. i. 10 less than 905 is 895.
 e. 1 more than 839 is 840. j. 1 more than 999 is 1,000.

EUREKA MATH Lesson 20: Model 1 more and 1 less, 10 more and 10 less, and 100 more and 100 less when changing the hundreds place. Date: 3/6/15 engage ny 23

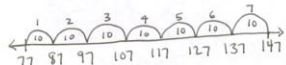
NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 20 Problem Set 2•3

3. Whisper the numbers as you count:

a. Count by 1s from 106 to 115.
 b. Count by 10s from 467 to 527.
 c. Count by 100s from 342 to 942.
 d. Count by 1s from 325 to 318.
 e. Skip-count by 10s from 888 to 808.
 f. Skip-count by 100s from 805 to 5.

4. Jenny loves jumping rope. Each time she jumps, she skip-counts by 10s. She starts her first jump at 77, her favorite number. How many times does Jenny have to jump to get to 147?

Explain your thinking below.



$77 + 70 = 147$

Jenny has to jump 7 times to reach 147.

COMMON CORE Lesson 20: Model 1 more and 1 less, 10 more and 10 less, and 100 more and 100 less when changing the hundreds place. Date: 3/6/15 engage ny 3.G.2a

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- T: Freddy, I notice you got a different answer. Will you share your thinking?
- S: I wrote the number sequence starting at 77 and finishing at 147. Then, I counted the numbers to see how many jumps. There were 8.
- T: Turn and talk to your partner. Why did Freddy and Jackie get different answers?
- S: Jackie did a plus problem, and Freddy counted by tens. → Jackie's right because $7 + 7$ is 14, but Freddy's right, too. There are 8 numbers in his sequence. → Freddy counted Jenny's first jump! Jackie didn't. She counted on from 7: 8, 9, 10, 11, 12, 13 14. That's only 7. → Are they both right? → I think so. They just counted differently. → Jackie's answer is how many more jumps, and Freddy's answer is how many in all.
- T: Many of you noticed that Freddy and Jackie both got the math right, even if they got different answers. Freddy counted how many jumps in all, and Jackie counted how many from 77. Which solution matches the way we count on? 7 or 8?
- S: 7. We usually don't count the number we start with.
- T: True.

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: _____

Differences

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

| | | |
|-----|------------|--|
| 23. | $7 - 4 =$ | |
| 24. | $17 - 4 =$ | |
| 25. | $7 - 5 =$ | |
| 26. | $17 - 5 =$ | |
| 27. | $9 - 5 =$ | |
| 28. | $19 - 5 =$ | |
| 29. | $7 - 6 =$ | |
| 30. | $17 - 6 =$ | |
| 31. | $9 - 6 =$ | |
| 32. | $19 - 6 =$ | |
| 33. | $8 - 7 =$ | |
| 34. | $18 - 7 =$ | |
| 35. | $9 - 8 =$ | |
| 36. | $19 - 8 =$ | |
| 37. | $7 - 3 =$ | |
| 38. | $17 - 3 =$ | |
| 39. | $5 - 4 =$ | |
| 40. | $15 - 4 =$ | |
| 41. | $8 - 5 =$ | |
| 42. | $18 - 5 =$ | |
| 43. | $8 - 6 =$ | |
| 44. | $18 - 6 =$ | |

B

Number Correct: _____

Improvement: _____

Differences

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

| | | |
|-----|------------|--|
| 23. | $9 - 4 =$ | |
| 24. | $19 - 4 =$ | |
| 25. | $6 - 5 =$ | |
| 26. | $16 - 5 =$ | |
| 27. | $8 - 5 =$ | |
| 28. | $18 - 5 =$ | |
| 29. | $8 - 6 =$ | |
| 30. | $18 - 6 =$ | |
| 31. | $9 - 6 =$ | |
| 32. | $19 - 6 =$ | |
| 33. | $9 - 7 =$ | |
| 34. | $19 - 7 =$ | |
| 35. | $9 - 8 =$ | |
| 36. | $19 - 8 =$ | |
| 37. | $8 - 3 =$ | |
| 38. | $18 - 3 =$ | |
| 39. | $6 - 4 =$ | |
| 40. | $16 - 4 =$ | |
| 41. | $9 - 5 =$ | |
| 42. | $19 - 5 =$ | |
| 43. | $7 - 6 =$ | |
| 44. | $17 - 6 =$ | |

Name _____

Date _____

1. Model each problem with a partner on your place value chart. Then, fill in the blanks, and circle all that apply. Explain your thinking.

a. 1 more than 39 is _____.

We made a _____.

| |
|---------|
| one |
| ten |
| hundred |

b. 10 more than 190 is _____.

We made a _____.

| |
|---------|
| one |
| ten |
| hundred |

c. 10 more than 390 is _____.

We made a _____.

| |
|---------|
| one |
| ten |
| hundred |

d. 1 more than 299 is _____.

We made a _____.

| |
|---------|
| one |
| ten |
| hundred |

e. 10 more than 790 is _____.

We made a _____.

| |
|---------|
| one |
| ten |
| hundred |

2. Fill in the blanks. Whisper the complete sentence.

a. 1 less than 120 is _____.

f. _____ less than 938 is 838.

b. 10 more than 296 is _____.

g. 10 more than _____ is 306.

c. 100 less than 229 is _____.

h. 100 less than _____ is 894.

d. _____ more than 598 is 608.

i. 10 less than _____ is 895.

e. _____ more than 839 is 840.

j. 1 more than _____ is 1,000.

3. Whisper the numbers as you count:
- Count by 1s from 106 to 115.
 - Count by 10s from 467 to 527.
 - Count by 100s from 342 to 942.
 - Count by 1s from 325 to 318.
 - Skip-count by 10s from 888 to 808.
 - Skip-count by 100s from 805 to 5.

4. Jenny loves jumping rope.

Each time she jumps, she skip-counts by 10s.

She starts her first jump at 77, her favorite number.

How many times does Jenny have to jump to get to 147?

Explain your thinking below.

Name _____

Date _____

1. Fill in the blanks, and circle the correct answer.

1 more than 209 is _____.

We made a _____.

| |
|---------|
| one |
| ten |
| hundred |

2. Fill in the blanks. Whisper the complete sentence.

a. 1 less than 150 is _____.

d. 10 more than _____ is 716.

b. 10 more than 394 is _____.

e. 100 less than _____ is 894.

c. _____ less than 607 is 597.

f. 1 more than _____ is 900.

Name _____

Date _____

1. Fill in the blanks. Whisper the complete sentence.

a. 1 less than 160 is _____.

e. _____ more than 691 is 701.

b. 10 more than 392 is _____.

f. 10 more than _____ is 704.

c. 100 less than 425 is _____.

g. 100 less than _____ is 986.

d. _____ more than 549 is 550.

h. 10 less than _____ is 815.

2. Count the numbers aloud to a parent:

a. Count by 1s from 204 to 212.

c. Skip-count by 10s from 582 to 632.

b. Skip-count by 10s from 376 to 436.

d. Skip-count by 100s from 908 to 8.

3. Henry enjoys watching his pet frog hop.

Each time his frog hops, Henry skip-counts backward by 100s.

Henry starts his first count at 815.

How many times does his frog have to jump to get to 15?

Explain your thinking below.