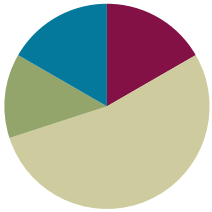
Lesson 3

Objective: Add and subtract multiples of 10 and some ones within 100.

Suggested Lesson Structure

Fluency Practice	(10 minutes)
Application Problem	(8 minutes)
Concept Development	(32 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**



Fluency Practice (10 minutes)

- More and Less: Multiples of 10 **2.NBT.5** (2 minutes)
- Sprint: Two-Digit Addition **2.NBT.5** (8 minutes)

More and Less: Multiples of 10 (2 minutes)

Note: Students review the previous lesson by adding and subtracting multiples of 10 fluently.

T: 2 tens less than 6 tens.
S: 4 tens.
T: Subtraction number sentence?
S: 60 – 20 = 40.
T: 2 tens less than 6 tens 8 ones.
S: 4 tens 8 ones.
T: Subtraction number sentence?
S: 68 – 20 = 48.

Continue with the following possible sequence: 56 – 23, 73 – 41, 60 + 22, 64 + 22, 57 + 12, and 46 + 33.

Sprint: Two-Digit Addition (8 minutes)

Materials: (S) Two-Digit Addition Sprint

Note: Students review two-digit addition in preparation for the lesson.

Application Problem (8 minutes)

Terrell puts 19 stamps in his book on Monday. He puts in 32 stamps on Tuesday. How many stamps does Terrell put in his book?

If Terrell's book holds 90 stamps, how many more stamps does he need to fill his book?

Note: This problem invites students to use mental math, arrow notation, or number bonds to solve. You may choose a method to model as guided practice, or you may have the students work independently and then share their methods.

a) 19 + 32 =

19 +30→ 49 +2→ 51

19 + 32 = 51

b) 90 − 51 =

90 −50→ 40 −1→ 39

90 − 51 = 39

Concept Development (32 minutes)

Materials: (T) Rekenrek (S) Personal white boards

Note: Students record their answers on their boards and then turn over the boards. When most students' boards are turned over, say, "Show me." Students hold up their boards for a visual check. Then they erase their boards and are ready for the next problem.

T: 40 + 20. Show me.
S: (Show 60.)
T: 48 + 20. Show me.
S: (Show 68.)
T: 48 + 21? Talk with your partner.
S: I would add 8 ones and 1 one, 9 ones, then add 4 tens and 2 tens, 6 tens. That's 69. → I added 40 + 20 and then 8 ones and 1 one, 69. → I added 48 + 20, which is 68, + 1 is 69.

MP.2

T: 48 + 19?
S: That's hard!
T: We can solve 48 + 21 and 48 + 19 using 48 + 20 to help us.
T: From 20 to 21 is one more or one less?
S: 1 more.
T: From 20 to 19 is one more or one less?

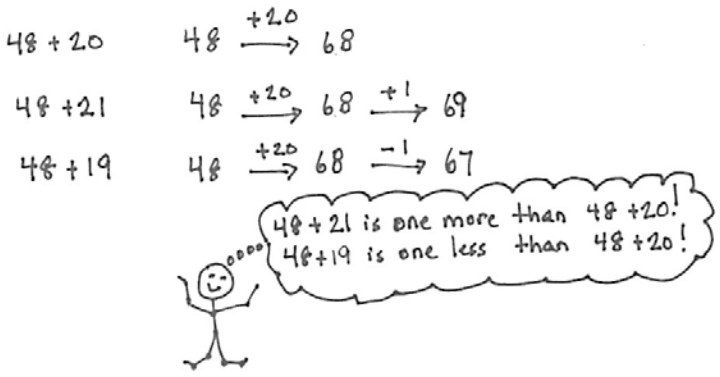
NOTES ON MULTIPLE MEANS OF REPRESENTATION:

When students turn their boards over, pay attention to students who are consistently not ready with the rest of the class, as they may need additional review or support on the foundational skills and concepts.

S: 1 less.

T: Adding 21 is adding one more than 20. (Demonstrate as shown to the right.)

T: Adding 19 is adding one less than 20. (Demonstrate as shown.)



Have students solve the following problems on their white boards as they share their thinking with a partner.

- 36 + 50, 36 + 51, 36 + 49
- 27 + 60, 27 + 61, 27 + 59
- 43 + 20, 43 + 22, 43 + 18

Then have students pair-share to explain their strategies.

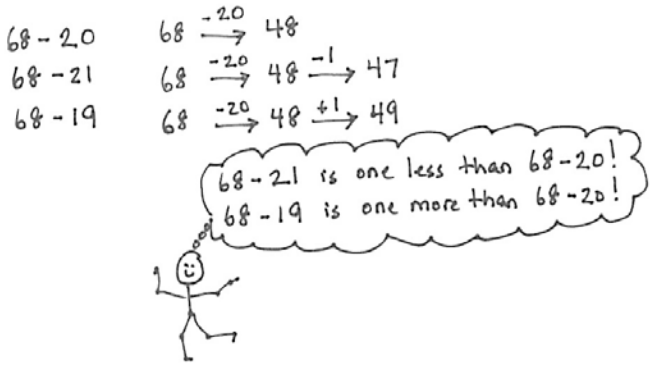
T: Let's try this with subtraction. What is 68 – 20? Show me using the arrow way.

S: (Show.)

MP.2

T: Talk with your partner. Solve 68 – 21, using 68 – 20 to help you.

T: Solve 68 – 19, using 68 – 20 to help you.



Call two volunteers to solve the following problems on their boards as they share their thinking with a partner.

- 57 – 30, 57 – 31, 57 – 29
- 63 – 40, 63 – 41, 63 – 39
- 72 – 50, 72 – 51, 72 – 49

Follow with a discussion of why the strategy works. Be aware that students may be more confused by the subtraction. To subtract 31, we are subtracting one more. To subtract 29, we are subtracting one less than 30, so we add one to the result of 68 – 20.

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.

NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:

The concept of *take away 10, add 1* in subtraction might still elude some students. With the problem 25 – 9, use a number line or hundreds chart and start with 25 – 1 = 24, working up to 25 – 10 = 15. Then go back to 25 – 9 = 16. Guide the students towards seeing that 16 is 1 greater than 15. Repeat with other examples, e.g., 61 – 29, until they grasp the concept.

Student Debrief (10 minutes)

Lesson Objective: Add and subtract multiples of 10 and some ones within 100.

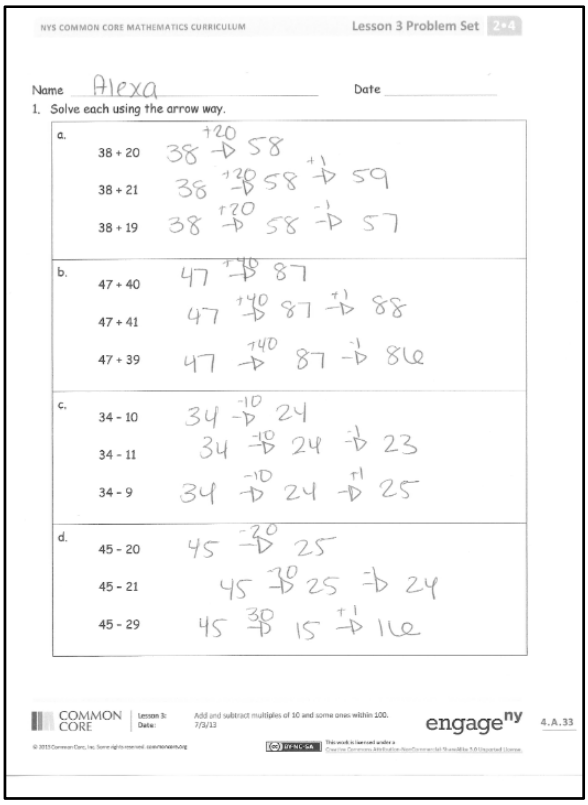
The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

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. You may choose to use any combination of the questions below to lead the discussion.

- For Problem 1(a), how does knowing 38 + 20 help you to solve the other problems in that set?
- For Problem 1(c), how does knowing 34 – 10 help you to solve the other problems in that set?
- How did using the arrow way help you to solve Problem 1(d)? What careful observations can you make about the numbers you subtracted?
- Share and compare with a partner: What were your simplifying strategies for solving Problem 2(d)? How were they the same or different?
- How does knowing the tens help us to mentally add and subtract numbers that are close to tens, like 19 and 41?

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.


NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 3 Problem Set 2•4

Name Alexa Date

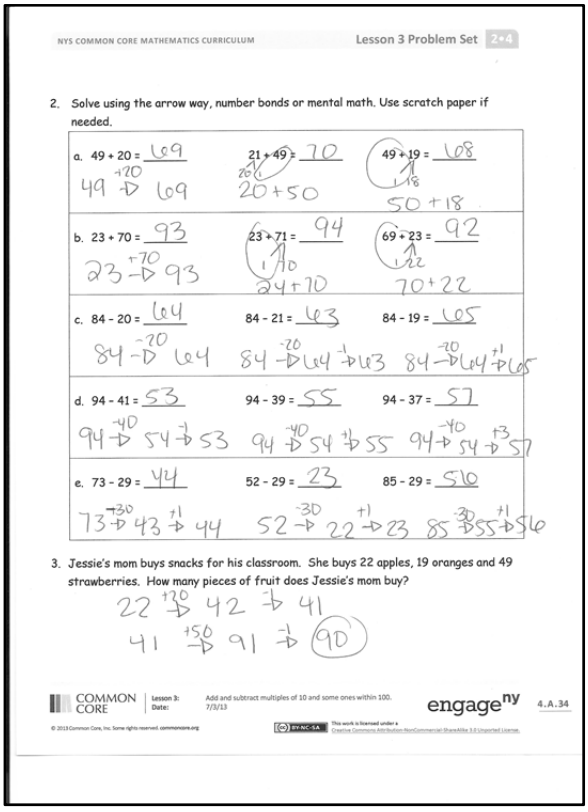
1. Solve each using the arrow way.

a. 38 + 20 = 58; 38 + 21 = 59; 38 + 19 = 57

b. 47 + 40 = 87; 47 + 41 = 88; 47 + 39 = 86

c. 34 - 10 = 24; 34 - 11 = 23; 34 - 9 = 25

d. 45 - 20 = 25; 45 - 21 = 24; 45 - 29 = 16


NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 3 Problem Set 2•4

2. Solve using the arrow way, number bonds or mental math. Use scratch paper if needed.

a. 49 + 20 = 69; 21 + 49 = 70; 49 + 19 = 68

b. 23 + 70 = 93; 23 + 71 = 94; 69 + 23 = 92

c. 84 - 20 = 64; 84 - 21 = 63; 84 - 19 = 65

d. 94 - 41 = 53; 94 - 39 = 55; 94 - 37 = 57

e. 73 - 29 = 44; 52 - 29 = 23; 85 - 29 = 56

3. Jessie's mom buys snacks for his classroom. She buys 22 apples, 19 oranges and 49 strawberries. How many pieces of fruit does Jessie's mom buy?

22 + 19 = 41; 41 + 49 = 90

A # Correct _____

Add or subtract.

1	3 + 1 =		23	50 + 30 =	
2	30 + 10 =		24	54 + 30 =	
3	31 + 10 =		25	54 + 3 =	
4	31 + 1 =		26	50 - 30 =	
5	3 - 1 =		27	59 - 30 =	
6	30 - 10 =		28	59 - 3 =	
7	35 - 10 =		29	67 + 30 =	
8	35 - 1 =		30	67 - 30 =	
9	47 + 10 =		31	67 - 3 =	
10	10 - 1 =		32	40 - 3 =	
11	80 - 1 =		33	42 - 3 =	
12	40 + 20 =		34	30 + 40 =	
13	43 + 20 =		35	32 + 40 =	
14	43 + 2 =		36	32 + 4 =	
15	40 - 20 =		37	70 - 40 =	
16	45 - 20 =		38	76 - 40 =	
17	45 - 2 =		39	76 - 4 =	
18	57 + 2 =		40	53 + 40 =	
19	57 - 20 =		41	53 + 4 =	
20	10 - 2 =		42	53 - 40 =	
21	50 - 2 =		43	90 - 4 =	
22	51 - 2 =		44	92 - 4 =	

B Improvement _____ # Correct _____

Add or subtract.

1	2 + 1 =		23	40 + 30 =	
2	20 + 10 =		24	45 + 30 =	
3	21 + 10 =		25	45 + 3 =	
4	21 + 1 =		26	40 - 30 =	
5	2 - 1 =		27	49 - 30 =	
6	20 - 10 =		28	49 - 3 =	
7	25 - 10 =		29	57 + 30 =	
8	25 - 1 =		30	57 - 30 =	
9	37 + 10 =		31	57 - 3 =	
10	10 - 1 =		32	50 - 3 =	
11	70 - 1 =		33	52 - 3 =	
12	50 + 20 =		34	20 + 40 =	
13	53 + 20 =		35	23 + 40 =	
14	53 + 2 =		36	23 + 4 =	
15	50 - 20 =		37	80 - 40 =	
16	54 - 20 =		38	86 - 40 =	
17	54 - 2 =		39	86 - 4 =	
18	64 + 2 =		40	43 + 40 =	
19	64 - 20 =		41	43 + 4 =	
20	10 - 2 =		42	63 - 40 =	
21	60 - 2 =		43	80 - 4 =	
22	61 - 2 =		44	82 - 4 =	

Name _____ Date _____

1. Solve each using the arrow way.

a. 38 + 20 38 + 21 38 + 19
b. 47 + 40 47 + 41 47 + 39
c. 34 – 10 34 – 11 34 – 9
d. 45 – 20 45 – 21 45 – 29

2. Solve using the arrow way, number bonds, or mental math. Use scratch paper if needed.

a. 49 + 20 = _____	21 + 49 = _____	49 + 19 = _____
b. 23 + 70 = _____	23 + 71 = _____	69 + 23 = _____
c. 84 – 20 = _____	84 – 21 = _____	84 – 19 = _____
d. 94 – 41 = _____	94 – 39 = _____	94 – 37 = _____
e. 73 – 29 = _____	52 – 29 = _____	85 – 29 = _____

3. Jessie's mom buys snacks for his classroom. She buys 22 apples, 19 oranges and 49 strawberries. How many pieces of fruit does Jessie's mom buy?

Name _____ Date _____

1. Solve using the arrow way or number bonds.

   a. 43 + 30 = _____

   b. 68 + 24 = _____

   c. 82 – 51 = _____

   d. 28 – 19 = _____

2. Show or explain how you used mental math to solve one of the problems above.

Name _____ Date _____

1. Solve using the arrow way. The first set is done for you.

67 + 20 = 87 67 $\xrightarrow{+20}$ 87 67 + 21 = 88 67 $\xrightarrow{+20}$ 87 $\xrightarrow{+1}$ 88 67 + 19 = 86 67 $\xrightarrow{+20}$ 87 $\xrightarrow{-1}$ 86	56 + 40 = _____ 56 + 41 = _____ 56 + 39 = _____
68 - 40 = _____ 68 - 41 = _____ 69 - 39 = _____	87 - 50 = _____ 87 - 51 = _____ 87 - 49 = _____

2. Solve using the arrow way, number bonds, or mental math. Use scratch paper if needed.

48 – 20 = _____ 48 – 21 = _____ 48 – 19 = _____	86 – 50 = _____ 86 – 51 = _____ 86 – 49 = _____	37 + 40 = _____ 37 + 41 = _____ 37 + 39 = _____
62 + 30 = _____ 62 + 31 = _____ 62 + 29 = _____	77 – 40 = _____ 77 – 41 = _____ 77 – 39 = _____	28 + 50 = _____ 28 + 51 = _____ 28 + 49 = _____

3. Marcy had $84 in the bank. She took $39 out of her account. How much does she have in her account now?

4. Brian has 92 cm of rope. He cuts off a piece 49 cm long to tie a package.

   a. How much rope does Brian have left?

   b. Brian needs another piece 8 cm shorter than the piece used to tie a different package. Does he have enough rope left?