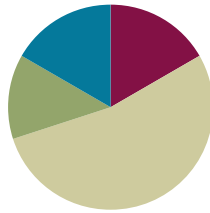


Lesson 3

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: Add and Subtract Ones and Tens **2.NBT.5** (8 minutes)

More and Less: Multiples of 10 (2 minutes)

Note: Students review Lesson 2 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: $56 - 26$, $73 - 40$, $60 + 22$, $64 + 24$, $57 + 30$, and $49 + 50$.

Sprint: Add and Subtract Ones and Tens (8 minutes)

Materials: (S) Add and Subtract Ones and Tens Sprint

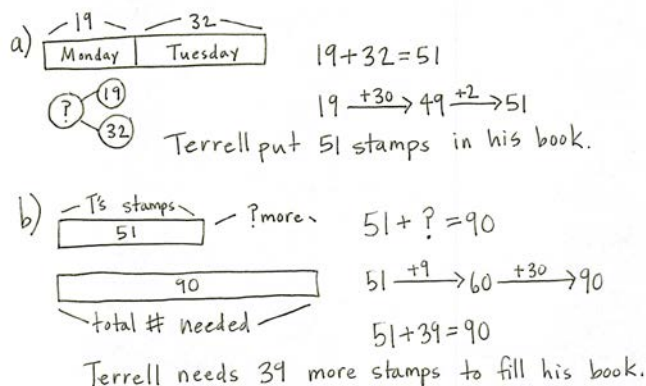
Note: This Sprint reviews addition and subtraction of multiples of 10 and some ones.

Application Problem (8 minutes)

Terrell put 19 stamps in his book on Monday. On Tuesday, he put in 32 stamps.

- How many stamps did Terrell put in his book on Monday and Tuesday?
- 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. Choose a method to model as guided practice, or have the students work independently, and then share their methods.



Concept Development (32 minutes)

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

Note: Throughout the Concept Development portion of this lesson, students record their answers on their personal white board and then turn their board over. When most students' boards are turned over, say, "Show me." Students hold up their personal white board for a visual check. They then erase their board and are ready for the next problem.

MP.2

- 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. \rightarrow I added $40 + 20$ and then 8 ones and 1 one, 69. \rightarrow I added $48 + 20$, which is 68, + 1 is 69.
 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?
 S: 1 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.

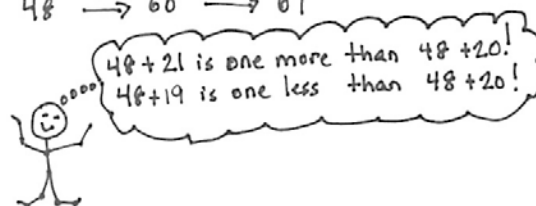
T: Adding 21 is adding one more than 20. (Demonstrate as shown to the right.)

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

$$48 + 20 \quad 48 \xrightarrow{+20} 68$$

$$48 + 21 \quad 48 \xrightarrow{+20} 68 \xrightarrow{+1} 69$$

$$48 + 19 \quad 48 \xrightarrow{+20} 68 \xrightarrow{-1} 67$$



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

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

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

S: (Show.)

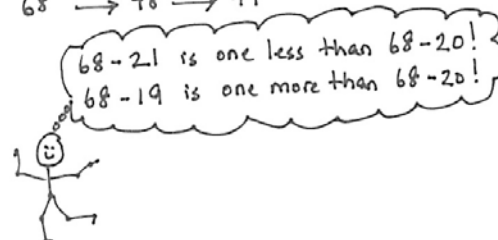
T: Talk with your partner. Solve $68 - 21$, using $68 - 20$ to help you.

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

$$68 - 20 \quad 68 \xrightarrow{-20} 48$$

$$68 - 21 \quad 68 \xrightarrow{-20} 48 \xrightarrow{-1} 47$$

$$68 - 19 \quad 68 \xrightarrow{-20} 48 \xrightarrow{+1} 49$$



Continue with the following possible sequence:

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

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 than 30. To subtract 29, we are subtracting one less than 30, so we add one to the result of $57 - 30$.

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 should 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

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, Part (a), how does knowing $38 + 20$ help you to solve the other problems in that set?
- For Problem 1, Part (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, Part (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, Part (d)? How were they the same or different?
- How does mentally adding and subtracting tens help us with 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.	$38 + 20 = 58$	$38 \xrightarrow{+20} 58$
	$38 + 21 = 59$	$38 \xrightarrow{+20} 58 \xrightarrow{+1} 59$
	$38 + 19 = 57$	$38 \xrightarrow{+20} 58 \xrightarrow{-1} 57$
b.	$47 + 40 = 87$	$47 \xrightarrow{+40} 87$
	$47 + 41 = 88$	$47 \xrightarrow{+40} 87 \xrightarrow{+1} 88$
	$47 + 39 = 86$	$47 \xrightarrow{+40} 87 \xrightarrow{-1} 86$
c.	$34 - 10 = 24$	$34 \xrightarrow{-10} 24$
	$34 - 11 = 23$	$34 \xrightarrow{-10} 24 \xrightarrow{-1} 23$
	$34 - 9 = 25$	$34 \xrightarrow{-10} 24 \xrightarrow{+1} 25$
d.	$45 - 20 = 25$	$45 \xrightarrow{-20} 25$
	$45 - 21 = 24$	$45 \xrightarrow{-20} 25 \xrightarrow{-1} 24$
	$45 - 19 = 26$	$45 \xrightarrow{-20} 25 \xrightarrow{+1} 26$

COMMON CORE Lesson 3: Add and subtract multiples of 10 and some ones within 100. Date: 6/21/14 engage^{ny} 4.A.3.1

© 2014 Common Core, Inc. Some rights reserved. commoncore.org This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported License.

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.	$49 + 20 = 69$	$21 + 49 = 70$	$49 + 19 = 68$
	$49 \xrightarrow{+20} 69$	$20 + 1 = 21$ $50 + 20 = 70$	$49 \xrightarrow{+20} 69 \xrightarrow{-1} 68$
b.	$23 + 70 = 93$	$23 + 71 = 94$	$69 + 23 = 92$
	$23 \xrightarrow{+70} 93$	$71 + 23 = 94$ $71 \xrightarrow{+20} 91 \xrightarrow{+3} 94$	$70 + 22 = 92$ $92 + 1 = 93$
c.	$84 - 20 = 64$	$84 - 21 = 63$	$84 - 19 = 65$
	$84 \xrightarrow{-20} 64$	$84 \xrightarrow{-20} 64 \xrightarrow{-1} 63$	$84 \xrightarrow{-20} 64 \xrightarrow{+1} 65$
d.	$94 - 41 = 53$	$94 - 39 = 55$	$94 - 37 = 57$
	$94 \xrightarrow{-40} 54 \xrightarrow{-1} 53$	$94 \xrightarrow{-40} 54 \xrightarrow{+1} 55$	$94 \xrightarrow{-40} 54 \xrightarrow{+3} 57$
e.	$73 - 29 = 44$	$52 - 29 = 23$	$85 - 29 = 56$
	$73 \xrightarrow{-30} 43 \xrightarrow{+1} 44$	$52 \xrightarrow{-30} 22 \xrightarrow{+1} 23$	$85 \xrightarrow{-30} 55 \xrightarrow{+1} 56$

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	49
apples	oranges	strawberries
$22 + 19 + 49$	$20 + 20 + 50$	
$22 + 19 = 41$	$40 + 50 = 90$	
$41 + 49 = 90$		

Jessie's mom bought 90 pieces of fruit.

COMMON CORE Lesson 3: Add and subtract multiples of 10 and some ones within 100. Date: 6/21/14 engage^{ny} 4.A.3.1

© 2014 Common Core, Inc. Some rights reserved. commoncore.org This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported License.

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.

$45 - 20$

$45 - 21$

$45 - 19$

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

a. $49 + 20 = \underline{\hspace{2cm}}$

$21 + 49 = \underline{\hspace{2cm}}$

$49 + 19 = \underline{\hspace{2cm}}$

b. $23 + 70 = \underline{\hspace{2cm}}$

$23 + 71 = \underline{\hspace{2cm}}$

$69 + 23 = \underline{\hspace{2cm}}$

c. $84 - 20 = \underline{\hspace{2cm}}$

$84 - 21 = \underline{\hspace{2cm}}$

$84 - 19 = \underline{\hspace{2cm}}$

d. $94 - 41 = \underline{\hspace{2cm}}$

$94 - 39 = \underline{\hspace{2cm}}$

$94 - 37 = \underline{\hspace{2cm}}$

e. $73 - 29 = \underline{\hspace{2cm}}$

$52 - 29 = \underline{\hspace{2cm}}$

$85 - 29 = \underline{\hspace{2cm}}$

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.

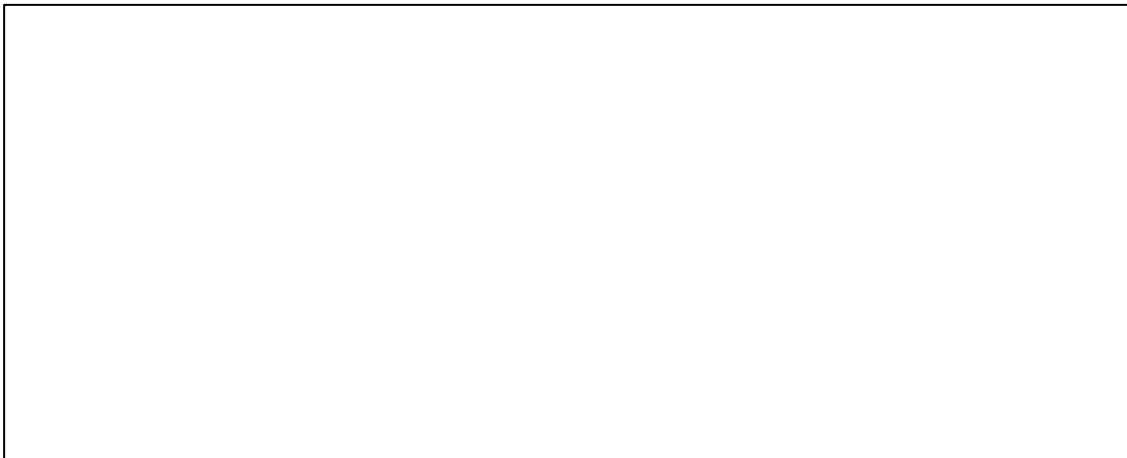
a. $43 + 30 =$ _____

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.

<p>a.</p> $67 + 20 = \underline{87}$ $67 \xrightarrow{+20} \underline{87}$ $67 + 21 = \underline{88}$ $67 \xrightarrow{+20} \underline{87} \xrightarrow{+1} \underline{88}$ $67 + 19 = \underline{86}$ $67 \xrightarrow{+20} \underline{87} \xrightarrow{-1} \underline{86}$	<p>b.</p> $56 + 40 = \underline{\hspace{2cm}}$ $56 + 41 = \underline{\hspace{2cm}}$ $56 + 39 = \underline{\hspace{2cm}}$
<p>c.</p> $68 - 40 = \underline{\hspace{2cm}}$ $68 - 41 = \underline{\hspace{2cm}}$ $68 - 39 = \underline{\hspace{2cm}}$	<p>d.</p> $87 - 50 = \underline{\hspace{2cm}}$ $87 - 51 = \underline{\hspace{2cm}}$ $87 - 49 = \underline{\hspace{2cm}}$

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

<p>a.</p> $48 - 20 = \underline{\hspace{2cm}}$ $48 - 21 = \underline{\hspace{2cm}}$ $48 - 19 = \underline{\hspace{2cm}}$	<p>b.</p> $86 - 50 = \underline{\hspace{2cm}}$ $86 - 51 = \underline{\hspace{2cm}}$ $86 - 49 = \underline{\hspace{2cm}}$	<p>c.</p> $37 + 40 = \underline{\hspace{2cm}}$ $37 + 41 = \underline{\hspace{2cm}}$ $37 + 39 = \underline{\hspace{2cm}}$
<p>d.</p> $62 + 30 = \underline{\hspace{2cm}}$ $62 + 31 = \underline{\hspace{2cm}}$ $62 + 29 = \underline{\hspace{2cm}}$	<p>e.</p> $77 - 40 = \underline{\hspace{2cm}}$ $77 - 41 = \underline{\hspace{2cm}}$ $77 - 39 = \underline{\hspace{2cm}}$	<p>f.</p> $28 + 50 = \underline{\hspace{2cm}}$ $28 + 51 = \underline{\hspace{2cm}}$ $28 + 49 = \underline{\hspace{2cm}}$

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.
- How much rope does Brian have left?
 - To tie a different package, Brian needs another piece of rope that is 8 cm shorter than the piece he just cut. Does he have enough rope left?