



Core Knowledge[®] MATHEMATICS

Adding and Subtracting within 1,000



Teacher Guide



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Adding and Subtracting within 1,000

Table of Contents

Introduction	i
Unit Overview	1
Section Overview	2
Center Overview	10
Lessons Plans and Student Task Statements:	
Section A: Lessons 1–5 Add and Subtract within 1,000 without Composition or Decomposition	29
Section B: Lessons 6–11 Add within 1,000 using Place Value Strategies	71
Section C: Lessons 12–18 Subtract within 1,000 using Place Value Strategies	122
Teacher Resources	181
Family Support Materials	
Assessments	
Cool Downs	
Instructional Masters	



Adding and Subtracting within 1,000 **Teacher Guide**

Core Knowledge Mathematics™

Unit 7: Adding and Subtracting within 1,000

At a Glance

Unit 7 is estimated to be completed in 16-20 days including 2 days for assessment.

This unit is divided into three sections including 14 lessons and 4 optional lessons.

- Section A—Add and Subtract within 1,000 without Composition or Decomposition (Lessons 1-5)
- Section B—Add within 1,000 using Place Value Strategies (Lessons 6-11)
- Section C—Subtract within 1,000 using Place Value Strategies (Lessons 12-18)

On pages 8-9 of this Teacher Guide is a chart that identifies the section each lesson belongs in and the materials needed for each lesson.

This unit uses nine student centers.

- Jump the Line
- Number Line Scoot
- Five in a Row; Addition and Subtraction
- How Close?
- Get Your Numbers in Order
- Mystery Number
- Greatest of Them All
- Number Puzzles: Addition and Subtraction
- Target Numbers

Unit 7: Adding and Subtracting within 1,000

Unit Learning Goals

- Students use place value understanding, the relationship between addition and subtraction, and properties of operations to add and subtract within 1,000.

In this unit, students add and subtract within 1,000, with and without composing and decomposing a base-ten unit.

Previously, students added and subtracted within 100 using methods such as counting on, counting back, and composing or decomposing a ten. Here, they apply the methods they know and their understanding of place value and three-digit numbers to find sums and differences within 1,000.

Initially, students add and subtract without composing or decomposing a ten or hundred. Instead, they rely on methods based on the relationship between addition and subtraction and the properties of operations. They make sense of sums and differences using counting sequences, number relationships, and representations (number line, base-ten blocks, base-ten diagrams, and equations).

As the unit progresses, students work with numbers that prompt them to compose and decompose one or more units, eliciting strategies based on place value. When adding and subtracting by place, students first compose or decompose only a ten, then either a ten or a hundred, and finally both a ten and a hundred. They also make sense of and connect different ways to represent place value strategies. For example, students make sense of a written method for subtracting 145 from 582 by connecting it to a base-ten diagram and their experiences with base-ten blocks.

*How do Jada's equations match Lin's diagram?
Finish Jada's work to find $582 - 145$.*

<i>Lin's diagram</i>	<i>Jada's equations</i>
	$500 - 100 =$ $\begin{array}{r} 70 \\ 80 \\ \hline \end{array} - 40 =$ $\begin{array}{r} 12 \\ \hline \end{array} - 5 =$

Students learn to recognize when composition or decomposition is a useful strategy when adding or subtracting by place. In the later half of the unit, they encounter lessons that encourage them to think flexibly and use strategies that make sense to them based on number relationships, properties of operations, and the relationship between addition and subtraction.

Section A: Add and Subtract within 1,000 without Composition or Decomposition

Standards Alignments

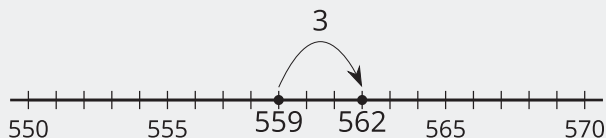
Addressing 2.NBT.A, 2.NBT.A.2, 2.NBT.A.4, 2.NBT.B.5, 2.NBT.B.7, 2.NBT.B.8, 2.NBT.B.9
 Building Towards 2.NBT.B.7

Section Learning Goals

- Add and subtract numbers within 1,000 without composition or decomposition, and use strategies based on the relationship between addition and subtraction and the properties of operations.

In this section, students add and subtract within 1,000 using methods where they do not explicitly compose or decompose a ten or a hundred.

The number line is used early in this section to help students recognize that when numbers are relatively close, they can count on or count back to find the value of the difference. For example, they may count on from 559 to 562 to find $562 - 559$.



Students also analyze counting sequences of three-digit numbers that increase or decrease by 10 or 100. They observe patterns in place value before adding and subtracting multiples of 10 or 100.

Fill in the missing numbers. Does the number line show counting on by 10 or by 100?



Students then engage with problems and expressions that encourage them to reason about sums and differences using the relationship between addition and subtraction and the properties of operations.

*Diego has 6 tens. Tyler has 8 hundreds, 3 tens, and 6 ones.
 What is the value of their blocks together?*

Later in the section, students analyze and make connections between methods that use different representations, such as number lines, base-ten diagrams, and equations. They then use methods or representations that make sense to them to add and subtract three-digit numbers.

Suggested Centers

- Jump the Line (2–5), Stage 1: Add and Subtract within 100 (Supporting)
- Number Line Scoot (2–3), Stage 1: Twos, Fives, and Tens (Supporting)
- Five in a Row: Addition and Subtraction (1–2), Stage 6: Add within 100 with Composing (Supporting)
- How Close? (1–5), Stage 3: Add to 100 (Supporting)

Section B: Add within 1,000 using Place Value Strategies

Standards Alignments

Building On 2.NBT.A.2

Addressing 2.NBT.B.5, 2.NBT.B.6, 2.NBT.B.7, 2.NBT.B.8, 2.NBT.B.9

Section Learning Goals

- Add numbers within 1,000 using strategies based on place value understanding, including composing a ten or hundred.

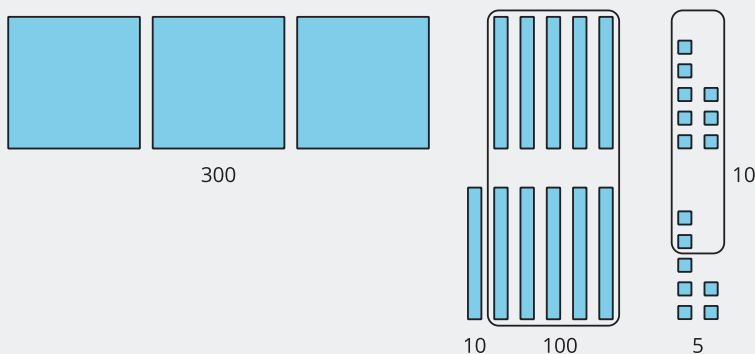
In this section, students use strategies based on place value to add three-digit numbers. They learn that it is sometimes necessary to compose a hundred from 10 ones to find the value of such sums.

Students begin with sums that allow them to decide when to make a ten. They then work with larger values in the tens place and determine when to compose a hundred. As the lessons progress, they encounter sums of two- and three-digit numbers that involve composing two units.

Throughout the section, students analyze and use representations such as base-ten blocks, base-ten diagrams, expanded form, and other equations to build conceptual understanding and show place value reasoning. They also develop their understanding of the properties of operations as they observe that the order in which they add the units doesn't affect the value of the sum.

What is the same and what is different about how Priya and Lin found $358 + 67$?

Priya's work



$$300 + 100 + 10 + 10 + 5$$

$$400 + 20 + 5 = 425$$

Lin's work

$$3 \text{ hundreds} + 11 \text{ tens} + 15 \text{ ones}$$

$$11 \text{ tens} = 110$$

$$15 \text{ ones} = 15$$

$$300 + 110 + 15 = 425$$

Later in the section, students add within 1,000 using any method they have learned and thinking flexibly about the numbers they are adding.

Suggested Centers

- Five in a Row: Addition and Subtraction (1–2), Stage 7: Add within 1,000 without Composing (Addressing)
- How Close? (1–5), Stage 3: Add to 100 (Supporting)
- Number Puzzles: Addition and Subtraction (1–4), Stage 4: Within 100 with Composing (Supporting)

Section C: Subtract within 1,000 using Place Value Strategies

Standards Alignments

Addressing 2.MD.D.10, 2.NBT.A.1, 2.NBT.A.2, 2.NBT.A.3, 2.NBT.B.7, 2.NBT.B.8, 2.NBT.B.9
 Building Towards 2.NBT.B.7

Section Learning Goals

- Subtract numbers within 1,000 using strategies based on place value understanding, including decomposing a ten or hundred.

As they have done when adding, students subtract numbers within 1,000 using place value strategies that involve decomposing a ten, a hundred, or both. This work builds on their previous experience of subtracting two-digit numbers by place value and decomposing a ten.

Students use base-ten blocks to subtract hundreds from hundreds, tens from tens, and ones from ones, which offers a concrete experience of exchanging a ten for 10 ones or a hundred for 10 tens as needed.

Along the way, they begin to think strategically about how to decompose the minuend when using base-ten blocks or diagrams. They learn that by analyzing the value of the digits in each place, they can initially represent the minuend in a way that would require decomposing fewer units when subtracting by place.

For example, this is a helpful way to represent 244 if we are subtracting a number with more than 4 ones, such as when finding $244 - 67$:



Throughout the section, students compare the steps they use to decompose units and the different ways to represent and record the units being decomposed.

The section ends with students choosing subtraction methods flexibly. They apply their understanding of place value, the relationship between addition and subtraction, and the properties of operations, to analyze number relationships and decide how to find the value of differences within 1,000.

 PLC: Lesson 14, Activity 1, Agree to Disagree

Suggested Centers

- How Close? (1–5), Stage 4: Add to 1,000 (Addressing)
- Five in a Row: Addition and Subtraction (1–2), Stage 8: Add within 1,000 with Composing (Addressing)
- Target Numbers (1–5), Stage 5: Subtract Two-digit Numbers (Supporting)
- Number Puzzles: Addition and Subtraction (1–4), Stage 4: Within 100 with Composing (Supporting)
- Target Numbers (1–5), Stage 6: Add Hundreds, Tens, or Ones (Addressing)
- Target Numbers (1–5), Stage 7: Subtract Hundreds, Tens, or Ones (Addressing)

Throughout the Unit

The Number Talk routines in this unit offer opportunities for students to use their understanding of place value, the relationship between addition and subtraction, and the properties of operation to mentally add and subtract within 1,000.

Here is a sampling of Number Talk warm-ups in the unit.

lesson 1	lesson 2	lesson 3	lesson 4	lesson 6
$586 - 6$	$34 + 20$	$120 + 20$	$586 - 100$	$28 + 2$
$586 - 8$	$34 + 60$	$120 + 200$	$486 - 20$	$28 + 12$
$434 - 5$	$58 + 30$	$124 + 30$	$457 - 200$	$67 + 3$
$352 - 4$	$158 + 40$	$124 + 300$	$257 - 30$	$67 + 23$

lesson 9	lesson 10	lesson 11	lesson 17
$528 + 2$	$199 + 23$	$80¢ + 20¢ + 37¢$	$34 - 9$
$528 + 7$	$198 + 24$	$80¢ + 20¢ + 37¢ + 42¢$	$434 - 99$
$487 + 3$	$297 + 25$	$75¢ + 37¢ + 25¢$	$367 - 98$
$487 + 8$	$395 + 27$	$75¢ + 80¢ + 25¢ + 20¢$	$635 - 298$

Materials Needed

LESSON	GATHER	COPY
A.1	<ul style="list-style-type: none"> • none 	<ul style="list-style-type: none"> • none
A.2	<ul style="list-style-type: none"> • Base-ten blocks • Number cubes 	<ul style="list-style-type: none"> • none
A.3	<ul style="list-style-type: none"> • Base-ten blocks 	<ul style="list-style-type: none"> • none
A.4	<ul style="list-style-type: none"> • Base-ten blocks 	<ul style="list-style-type: none"> • none
A.5	<ul style="list-style-type: none"> • Materials from previous centers • Paper clips • Two-color counters 	<ul style="list-style-type: none"> • Five in a Row Addition and Subtraction Stage 7 Gameboard (groups of 2)
B.6	<ul style="list-style-type: none"> • Base-ten blocks 	<ul style="list-style-type: none"> • Card Sort Perfect 10 (groups of 3)
B.7	<ul style="list-style-type: none"> • Base-ten blocks 	<ul style="list-style-type: none"> • Walk About and Add Cards (groups of 24)
B.8	<ul style="list-style-type: none"> • Base-ten blocks 	<ul style="list-style-type: none"> • none
B.9	<ul style="list-style-type: none"> • Base-ten blocks 	<ul style="list-style-type: none"> • none
B.10	<ul style="list-style-type: none"> • Base-ten blocks 	<ul style="list-style-type: none"> • How Did You Do That? Addition Card Sort (groups of 1)
B.11	<ul style="list-style-type: none"> • Materials from previous centers • Number cards 0–10 • Paper clips • Two-color counters 	<ul style="list-style-type: none"> • How Close? Stage 4 Recording Sheet (groups of 1) • Five in a Row Addition and Subtraction Stage 8 Gameboard (groups of 2)
C.12	<ul style="list-style-type: none"> • Base-ten blocks 	<ul style="list-style-type: none"> • none
C.13	<ul style="list-style-type: none"> • Base-ten blocks 	<ul style="list-style-type: none"> • none
C.14	<ul style="list-style-type: none"> • Base-ten blocks 	<ul style="list-style-type: none"> • none

C.15	<ul style="list-style-type: none">● Base-ten blocks	<ul style="list-style-type: none">● Walk About and Subtract Cards (groups of 24)
C.16	<ul style="list-style-type: none">● Base-ten blocks	<ul style="list-style-type: none">● none
C.17	<ul style="list-style-type: none">● Materials from previous centers● Number cubes	<ul style="list-style-type: none">● Target Numbers Stage 6 Recording Sheet (groups of 1)
C.18	<ul style="list-style-type: none">● none	<ul style="list-style-type: none">● none

Center: Jump the Line (2–5)

Stage 1: Add and Subtract within 100

Lessons

- Grade2.7.A1 (supporting)
- Grade2.7.A2 (supporting)

Stage Narrative

Both players start at 30 on a number line marked by 1. Spinners show adding or subtracting 10, 5, or 1.

Standards Alignments

Addressing 2.MD.B.6

Materials to Gather

Dry erase markers, Paper clips, Sheet protectors

Materials to Copy

Jump the Line Stage 1 Gameboard (groups of 2),
Jump the Line Stage 1 Spinners (groups of 2)

Additional Information

Each group of 2 needs a sheet protector, a dry erase marker, and 2 paper clips.

Center: Number Line Scoot (2–3)

Stage 1: Twos, Fives, and Tens

Lessons

- Grade2.7.A1 (supporting)
- Grade2.7.A2 (supporting)

Stage Narrative

Students take turns spinning a spinner and moving their cube that interval on one of the shared number lines. Students may use their whole spin on one number line or split it between multiple number lines. Each time a cube lands exactly on the last tick mark of one of the number lines, the player who moved it keeps the cube and puts a new cube on zero on that number line. The first player to collect five cubes wins.

Standards Alignments

Addressing 2.MD.B.6, 2.NBT.A.2

Materials to Gather

Centimeter cubes, Paper clips

Materials to Copy

Number Line Scoot Stage 1 Directions (groups of 2), Number Line Scoot Stage 1 Gameboard (groups of 2), Number Line Scoot Stage 1 Spinner (groups of 2)

Additional Information

Each group of 2 needs 12 centimeter cubes.

Center: Five in a Row: Addition and Subtraction (1–2)

Stage 6: Add within 100 with Composing

Lessons

- Grade2.7.A3 (supporting)
- Grade2.7.A4 (supporting)

Activities

- Grade2.7.A5.2 (supporting)

Stage Narrative

Partner A chooses two numbers and places a paper clip on each number. They add the numbers and place a counter on the sum. Partner B moves one of the paper clips to a different number, adds the numbers, and places a counter on the sum. Students take turns moving one paper clip, finding the sum, and covering it with a counter.

Standards Alignments

Addressing 1.NBT.C.4, 2.NBT.B.5

Materials to Gather

Paper clips, Two-color counters

Materials to Copy

Five in a Row Addition and Subtraction Stage 6 Gameboard (groups of 2)

Additional Information

Each group of 2 needs 25 counters and 2 paper clips.

Stage 7: Add within 1,000 without Composing

Lessons

- Grade2.7.B6 (addressing)
- Grade2.7.B7 (addressing)
- Grade2.7.B8 (addressing)
- Grade2.7.B9 (addressing)
- Grade2.7.B10 (addressing)

Activities

- Grade2.7.A5.1 (addressing)
- Grade2.7.A5.2 (addressing)
- Grade2.7.B11.2 (addressing)
- Grade2.7.C17.2 (addressing)

Stage Narrative

Partner A chooses two numbers and places a paper clip on each number. They add the numbers and place a counter on the sum. Partner B moves one of the paper clips to a different number, adds the numbers, and places a counter on the sum. Students take turns moving one paper clip, finding the sum, and covering it with a counter.

Standards Alignments

Addressing 2.NBT.B.7

Materials to Gather

Paper clips, Two-color counters

Materials to Copy

Five in a Row Addition and Subtraction Stage 7 Gameboard (groups of 2)

Additional Information

Each group of 2 needs 25 counters and 2 paper clips.

Stage 8: Add within 1,000 with Composing

Lessons

- Grade2.7.C12 (addressing)
- Grade2.7.C13 (addressing)
- Grade2.7.C14 (addressing)
- Grade2.7.C18 (addressing)

Activities

- Grade2.7.B11.2 (addressing)
- Grade2.7.C17.2 (addressing)

Stage Narrative

Partner A chooses two numbers and places a paper clip on each number. They add the numbers and place a counter on the sum. Partner B moves one of the paper clips to a different number, adds the numbers, and places a counter on the sum. Students take turns moving one paper clip, finding the sum, and covering it with a counter.

Standards Alignments

Addressing 2.NBT.B.7

Materials to Gather

Paper clips, Two-color counters

Materials to Copy

Five in a Row Addition and Subtraction Stage 8 Gameboard (groups of 2)

Additional Information

Each group of 2 needs 25 counters and 2 paper clips.

Stages used in Grade 1

Stage 1

Addressing

- Grade1.1.A
- Grade1.1.B
- Grade1.1.C
- Grade1.3.D

Supporting

- Grade1.4.A
- Grade1.4.B
- Grade1.4.C
- Grade1.5.A
- Grade1.5.B
- Grade1.5.C
- Grade1.6.A
- Grade1.6.B

Stage 2

Addressing

- Grade1.1.A
- Grade1.1.B
- Grade1.1.C
- Grade1.3.D

Supporting

- Grade1.4.A
- Grade1.4.B
- Grade1.4.C
- Grade1.5.A
- Grade1.5.B
- Grade1.5.C
- Grade1.6.A
- Grade1.6.B

Stage 3

Addressing

- Grade1.3.C
- Grade1.3.D

Supporting

- Grade1.4.A
- Grade1.4.B
- Grade1.4.C
- Grade1.5.A
- Grade1.5.B
- Grade1.5.C
- Grade1.6.A
- Grade1.6.B

Stage 4

Addressing

- Grade1.4.A
- Grade1.4.B

Supporting

- Grade1.5.A
- Grade1.5.B
- Grade1.5.C
- Grade1.6.A
- Grade1.6.B

Stage 5

Addressing

- Grade1.5.A
- Grade1.5.B
- Grade1.5.C

Supporting

- Grade1.6.A
- Grade1.6.B

Stage 6

Addressing

- Grade1.5.C

Supporting

- Grade1.6.A
- Grade1.6.B

Center: How Close? (1–5)

Stage 3: Add to 100

Lessons

- Grade2.7.A3 (supporting)
- Grade2.7.A4 (supporting)
- Grade2.7.B6 (supporting)

Stage Narrative

Before playing, students remove the cards that show the number 10 and set them aside.

Each student picks 7 cards and chooses 4 of them to create 2 two-digit numbers. Each student adds the numbers and the student whose sum is closest to 100 wins a point for the round. Students pick new cards so that they have 7 cards in their hand and then start the next round.

Standards Alignments

Addressing 1.NBT.C.4, 2.NBT.B.5

Materials to Gather

Number cards 0–10

Materials to Copy

How Close? Stage 3 Recording Sheet (groups of 1)

Stage 4: Add to 1,000

Lessons

- Grade2.7.C12 (addressing)
- Grade2.7.C13 (addressing)
- Grade2.7.C14 (addressing)
- Grade2.7.C18 (addressing)

Activities

- Grade2.7.B11.1 (addressing)
- Grade2.7.B11.2 (addressing)
- Grade2.7.C17.2 (addressing)

Stage Narrative

Before playing, students remove the cards that show 10 and set them aside.

Each student picks 8 cards and chooses 6 of them to create 2 three-digit numbers. Each student adds the numbers. The score for the round is the difference between each student's sum and 1,000. Students pick new cards so that they have 8 cards in their hand and then start the next round. The player with the lowest score wins.

This center stage is the first time Number Cards 0–10 are used in Grade 3, so they are provided as a Instructional master. Students will continue to use these throughout the year. Consider copying them on cardstock or laminating them and keeping them organized to be used repeatedly.

Standards Alignments

Addressing 2.NBT.B.7, 3.NBT.A.2

Materials to Copy

How Close? Stage 4 Recording Sheet (groups of 1),
Number Cards (0-10) (groups of 2)

Stages used in Grade 1

Stage 1

Addressing

- Grade1.3.C
- Grade1.3.D

Supporting

- Grade1.4.A
- Grade1.4.B
- Grade1.6.B
- Grade1.7.A

Stage 2

Addressing

- Grade1.3.D

Supporting

- Grade1.4.A
- Grade1.4.B
- Grade1.6.B
- Grade1.7.A

Stage 3

Addressing

- Grade1.6.A
- Grade1.6.B

Supporting

- Grade1.7.A

Center: Get Your Numbers in Order (1–5)

Stage 2: Three-digit Numbers

Activities

- Grade2.7.A5.2 (supporting)

Stage Narrative

Students remove the cards that show 10 before they start. Then they choose three number cards and make a three-digit number. Students write their number in any space on the board, as long as the numbers from left to right go from least to greatest. If students cannot place their number, they get a point. The player with the fewest points when the board is filled is the winner.

Standards Alignments

Addressing 2.NBT.A.4

Materials to Gather

Dry erase markers, Number cards 0–10, Sheet protectors

Materials to Copy

Get Your Numbers in Order Stage 2 Gameboard (groups of 2)

Stages used in Grade 1

Stage 1

Addressing

- Grade1.4.C
- Grade1.4.D

Supporting

- Grade1.5.C
- Grade1.6.A

Center: Mystery Number (1–4)

Stage 2: Three-digit Numbers

Activities

- Grade2.7.A5.2 (supporting)

Stage Narrative

Students pick three cards and make a mystery three-digit number. Students give clues based on the sentence starters.

Standards Alignments

Addressing 2.NBT.A

Materials to Gather

Number cards 0–10

Materials to Copy

Mystery Number Stage 2 Directions (groups of 2)

Stages used in Grade 1

Stage 1

Addressing

- Grade1.4.D

Supporting

- Grade1.5.C

Center: Greatest of Them All (1–5)

Stage 2: Three-digit Numbers

Activities

- Grade2.7.A5.2 (supporting)

Stage Narrative

Students make three-digit numbers.

Variation:

Students try to make the number with the least value.

Standards Alignments

Addressing 2.NBT.A

Materials to Gather

Number cards 0–10

Materials to Copy

Greatest of Them All Stage 2 Recording Sheet
(groups of 1)

Stages used in Grade 1

Stage 1

Addressing

- Grade1.4.C
- Grade1.4.D

Supporting

- Grade1.5.A

Center: Number Puzzles: Addition and Subtraction (1–4)

Stage 4: Within 100 with Composing

Lessons

- Grade2.7.B7 (supporting)
- Grade2.7.B8 (supporting)
- Grade2.7.B9 (supporting)
- Grade2.7.B10 (supporting)
- Grade2.7.C15 (supporting)
- Grade2.7.C16 (supporting)

Stage Narrative

Students use digit cards to make addition and subtraction equations true. They work with sums and differences within 100 with composing and decomposing. Each digit card may only be used one time on a page.

Standards Alignments

Addressing 1.NBT.C.4, 1.OA.D.8, 2.NBT.B.5

Materials to Copy

Number Puzzles Addition Stage 4 Gameboard (groups of 2), Number Puzzles Digit Cards (groups of 2)

Stages used in Grade 1

Stage 1

Addressing

- Grade1.2.D
- Grade1.3.C

Supporting

- Grade1.3.A
- Grade1.3.B
- Grade1.4.A
- Grade1.4.B
- Grade1.5.A
- Grade1.5.B
- Grade1.5.C

Stage 2

Addressing

- Grade1.3.B
- Grade1.3.C

Supporting

- Grade1.4.A
- Grade1.4.B
- Grade1.5.A
- Grade1.5.B
- Grade1.5.C

Stage 3

Addressing

- Grade1.5.A
- Grade1.5.B
- Grade1.5.C

Stage 4

Addressing

- Grade1.5.C

Center: Target Numbers (1–5)

Stage 5: Subtract Two-digit Numbers

Lessons

- Grade2.7.C15 (supporting)
- Grade2.7.C16 (supporting)

Stage Narrative

Students subtract two-digit numbers to get as close to 0 as possible. Students start their first equation with 100. Then, they take turns rolling the three cubes to get a number to subtract. They choose one of the numbers on the cubes to represent the tens and the other number to represent the ones. Students subtract their tens and ones from the starting number. The difference becomes the first number in the next equation. The player who gets closest to 0 in 6 rounds, without going below 0, is the winner.

Standards Alignments

Addressing 2.NBT.B.5

Materials to Gather

Base-ten blocks, Number cubes

Materials to Copy

Target Numbers Stage 5 Recording Sheet (groups of 1)

Additional Information

Each group of 2 needs 3 number cubes.

Stage 6: Add Hundreds, Tens, or Ones

Lessons

- Grade2.7.C18 (addressing)

Activities

- Grade2.7.C17.1 (addressing)
- Grade2.7.C17.2 (addressing)

Stage Narrative

Students add hundreds, tens, and ones to get as close to 1,000 as possible. Students start by rolling three number cubes to get a starting number. Then, they take turns rolling the three cubes to create a number to add. For each number they roll, they choose whether they want it to represent hundreds, tens, or ones. Students add their hundreds, tens, and ones to the starting number. The sum becomes the first addend in the next round. The player who gets closest to 1,000 in 6 rounds, without going over, is the winner.

Standards Alignments

Addressing 2.NBT.B.7, 2.NBT.B.8, 3.NBT.A.2

Materials to Gather

Number cubes

Materials to Copy

Target Numbers Stage 6 Recording Sheet (groups of 1)

Additional Information

Each group of 2 needs three number cubes.

Stage 7: Subtract Hundreds, Tens, or Ones

Lessons

- Grade2.7.C18 (addressing)

Activities

- Grade2.7.C17.2 (addressing)

Stage Narrative

Students subtract hundreds, tens, and ones to get as close to 0 as possible. Students start their first equation with 1,000 and take turns rolling three cubes to get a number to subtract. For each number they roll, they choose whether they want it to represent hundreds, tens, or ones. Students subtract their hundreds, tens, and ones from the starting number. The difference becomes the first number in the next equation. The player who gets closest to 0 in 6 rounds, without going below 0, is the winner.

Standards Alignments

Addressing 2.NBT.B.7, 2.NBT.B.8, 3.NBT.A.2

Materials to Gather

Number cubes

Materials to Copy

Target Numbers Stage 7 Recording Sheet (groups of 1)

Additional Information

Each group of 2 needs three number cubes.

Stages used in Grade 1

Stage 1

Addressing

- Grade1.5.B

Supporting

- Grade1.5.C
- Grade1.6.A
- Grade1.6.B
- Grade1.7.B
- Grade1.7.C

Stage 2

Addressing

- Grade1.5.B

Supporting

- Grade1.5.C
- Grade1.6.A
- Grade1.6.B
- Grade1.7.B
- Grade1.7.C

Stage 3

Addressing

- Grade1.5.C

Supporting

- Grade1.6.A
- Grade1.6.B
- Grade1.7.B
- Grade1.7.C

Section A: Add and Subtract within 1,000 without Composition or Decomposition

Lesson 1: Compare, Count on, and Count Back

Standards Alignments

Addressing 2.NBT.A.2, 2.NBT.B.7, 2.NBT.B.8
 Building Towards 2.NBT.B.7

Teacher-facing Learning Goals

- Add and subtract within 1,000 using number relationships.

Student-facing Learning Goals

- Let's compare numbers and add or subtract.

Lesson Purpose

The purpose of this lesson is for students to add or subtract within 1,000 using number relationships.

In a previous unit, students compared three-digit numbers using a number line and considered how close they were to one another and their distance from zero. In this lesson, students compare numbers and use the number line to consider ways to find the difference between 2 three-digit numbers. When locating numbers on the number line, students recognize that when the numbers are relatively close, they can simply count on or count back to determine the difference between the two numbers.

In the second activity, students analyze number lines and counting sequences that increase or decrease by 10 or 100. Using these number relationships, students label number lines by counting on or back by 10 or 100. The work of this activity helps prepare students to use and make sense of computation methods based on counting or adding on by place in upcoming lessons.

Access for:

Students with Disabilities

- Engagement (Activity 1)

English Learners

- MLR8 (Activity 2)

Instructional Routines

Number Talk (Warm-up)

Lesson Timeline

Warm-up	10 min
Activity 1	20 min
Activity 2	15 min
Lesson Synthesis	10 min
Cool-down	5 min

Teacher Reflection Question

In previous lessons, students located and compared numbers on the number line. How did the number line help them make sense of subtraction methods based on counting on by place? How could you use number lines to help students make their thinking visible for others?

Cool-down (to be completed at the end of the lesson)

🕒 5 min

Subtract and Count

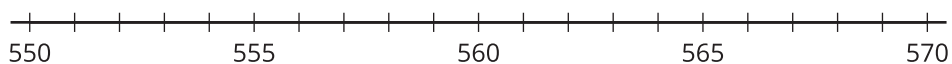
Standards Alignments

Addressing 2.NBT.A.2, 2.NBT.B.7, 2.NBT.B.8

Student-facing Task Statement

1. Locate and label 562 and 559 on the number line.

Find the value of $562 - 559$. Show your thinking.



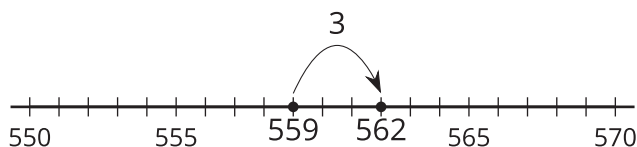
2. Complete the list of numbers to show counting on by 100.

552, _____, _____, 852, 952

Explain how you know your list shows counting on by 100 and not counting on by 10.

Student Responses

1. $562 - 559 = 3$



2. 552, 652, 752, 852, 952. Sample response: I know it shows counting on by 100 and not 10

because the digit in the hundreds place changes and the digit in the tens place stays the same.

Begin Lesson

Warm-up

🕒 10 min

Number Talk: Count Back

Standards Alignments

Addressing 2.NBT.B.7

The purpose of this Number Talk is to elicit strategies and understandings students have for counting back as a strategy for finding the value of differences. These understandings help students develop fluency and will be helpful later in this lesson when students subtract within 1,000. As students share their thinking, represent it on an open number line to help them make connections.

Instructional Routines

Number Talk

Student-facing Task Statement

Find the value of each expression mentally.

- $586 - 6$
- $586 - 8$
- $434 - 5$
- $352 - 4$

Student Responses

- 580: I just took away the 6 ones. 580 is what is left.
- 578: I took away the 6 ones. $586 - 6 = 580$. Then I counted back 2 to get to 578.

Launch

- Display one expression.
- "Give me a signal when you have an answer and can explain how you got it."
- 1 minute: quiet think time

Activity

- Record answers and strategies on an open number line.
- Keep expressions and work displayed.
- Repeat with each expression.

- 429: I took away 4 from 434 to get 430. Then I counted back one more to get to 429.
- 348: I took away 2 from 352, then I counted back 2 more.

Synthesis

- “Even though there were three-digit numbers, I noticed that some of you used the same strategies you’ve used before. Why does that work?” (If you are subtracting a small amount, you can count back by ones to find the answer.)
- “Today we are going to look at other ways we can use strategies we’ve used for adding and subtracting two-digit numbers to add and subtract with three-digit numbers.”

Activity 1

🕒 20 min

Notice the Difference

Standards Alignments

Addressing 2.NBT.B.7

The purpose of this activity is for students to compare three-digit numbers and find the value of their difference. Students used the number line to compare three-digit numbers in an earlier unit. They build on this understanding as they find the difference between 2 three-digit numbers that are within 10 of one another. Students notice that when the numbers in a subtraction expression are close together, they can count on or count back to find the value of the difference (MP7, MP8).

♿ Access for Students with Disabilities

Engagement: Provide Access by Recruiting Interest. Optimize meaning and value. Invite students to represent the jumps/movement on the number line using an animal (frog, rabbit, grasshopper, etc.). Focus on the minimal jumping the animal does when the numbers are close on the number line.

Supports accessibility for: Conceptual Processing, Attention

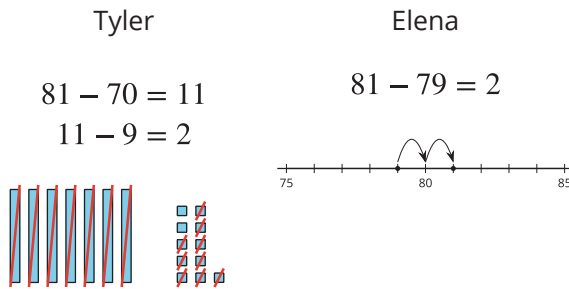
Student-facing Task Statement

Tyler and Elena were asked to find the value of $81 - 79$.

Launch

- Groups of 2

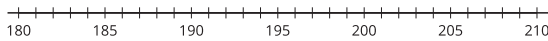
Their work is shown.



What do you notice? What do you wonder?



1. Locate and label 203 and 198 on the number line.

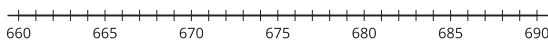


Compare using $>$, $<$, or $=$.

_____ _____

Find the value of $203 - 198$. Show your thinking.

2. Locate and label 673 and 680 on the number line.

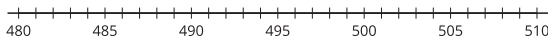


Compare using $>$, $<$, or $=$.

_____ _____

Find the value of $680 - 673$. Show your thinking.

3. Locate and label 501 and 499 on the number line.



Find the value of $501 - 499$. Show your

Activity

- “Tyler and Elena were asked to find $81 - 79$. This is their work.”
- “What do you notice? What do you wonder?” (The numbers are really close on the number line. Tyler drew out all the tens and ones for 81 and subtracted almost all the tens and ones. Why did Elena put a point on 79 and count up instead of subtracting 79?)
- “You have learned in an earlier lesson that you can subtract by taking an amount away. You also learned you can count on or count back from one number to the other to find the difference between the 2 numbers.”
- “This works with three-digit numbers too.”
- “Do the next few problems on your own, and then compare your thinking with a partner.”
- 8 minutes: independent work time
- 4 minutes: partner discussion
- Monitor for students who count on or count back.

Synthesis

- Invite previously identified students to share how they found the value of $400 - 396$.
- As time permits, invite students to share their comparisons and how they found the value of each difference.
- “What did you notice about the numbers when you located them on the number line?” (They were close together. It was easy to see a way to just count from one number to the other.)

thinking.

4. Find the value of $400 - 396$. Show your thinking.

Student Responses

1. Sample response: $203 > 198$.

$$203 - 198 = 5$$

2. Sample response: $673 < 680$.

$$673 + 7 = 680$$

3. Sample response: $501 - 499 = 2$

$$499, 500, 501$$

4. Sample response: $400 - 396 = 4$

$$396 + 4 = 400$$

Advancing Student Thinking

If students find the difference by subtracting the second number from the first using base-ten blocks or base-ten diagrams, consider asking:

- “What did you notice when you located the numbers on the number line? How could that help you think about finding the difference without a number line?”
- “How could you use one of the strategies we shared in the warm-up to find the difference?”
- “How could you think about this difference as an unknown addend equation?”

Activity 2

🕒 15 min

What’s the Big Difference?

Standards Alignments

Addressing 2.NBT.A.2, 2.NBT.B.8

Building Towards 2.NBT.B.7

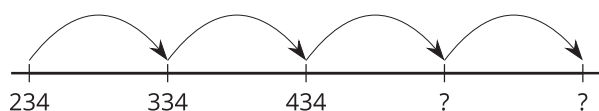
The purpose of this activity is for students to use what they know about counting within 1,000 to make sense of number lines that show counting on or counting back by 10 or 100. This work helps build fluency with counting within 1,000 and connects to an upcoming lesson where students add and subtract multiples of 10 or 100 using equations.

Access for English Learners

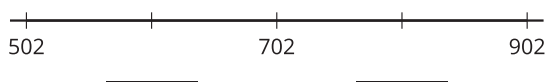
MLR8 Discussion Supports. Invite students to begin partner interactions by repeating the question, “What pattern do you notice?” This gives both students an opportunity to produce language.

Advances: Conversing

Student-facing Task Statement

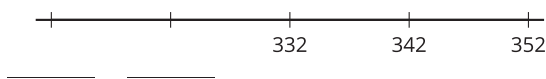


1. Fill in the missing numbers.



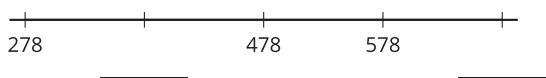
Does this number line show counting on by 10 or counting on by 100?

2. Fill in the missing numbers.



Does this number line show counting on by 10 or counting on by 100?

3. Fill in the missing numbers.



Does this number line show counting on by 10 or counting on by 100?

4. Fill in the missing numbers to show counting on by 10.

Launch

- Groups of 2
- Display the number line with jumps of 100.
- “On this number line there are 5 tick marks, but only 3 are labeled. What are the missing numbers and how do you know?” (534 and 634 because the jumps are the same length and they must be jumps of 100. The hundreds place is increasing by 1, but the other places are not changing.)
- 30 seconds: quiet think time
- 30 seconds: partner discussion
- Share and record responses.
- “You recognized that the length between each tick mark must represent 100. The tick marks and arrows show counting on by 100 on the number line.”

Activity

- “For each of the problems, use what you know about counting, representing numbers on the number line, and place value to find the missing numbers.”
- 10 minutes: partner work time
- Monitor for a student to share their reasoning for ____, ____, 332, 342, 352

739, 749, _____, 769, _____

5. Explain how you can tell your numbers show counting on by 10 and not counting on by 100.

Student Responses

1. 502, 602, 702, 802, 902. Sample response: It shows counting by 100 because when you go to the right, the hundreds place changes by 1 and no other digits change.
2. 312, 322, 332, 342, 352. Sample response: It shows counting by 10. I had to count backwards from the number on the right and I saw the digit in the tens place was changing by 1.
3. 278, 378, 478, 578, 678. Sample response: It shows counting by 100. I notice each number had 78, but the digit in the hundreds place changed by 1.
4. 739, 749, 759, 769, 779. Sample response: It shows counting on by 10. If it showed counting on by 100 the next number after 739 would be 839.

Synthesis

- Invite a student to share their reasoning for _____, _____, 332, 342, 352.
- "How did you figure out the starting number?" (I saw that it was going up by 10, so I knew I had to count back by 10 to find the starting numbers.)
- Record responses with an open number line and equations.

Advancing Student Thinking

If students find the missing numbers by counting by 1 instead of using patterns increasing by 10 or 100, consider asking:

- "What digit is changing? Is it going up or down?"
- "How can that help you figure out the count?"

Lesson Synthesis

 10 min

"Today you compared three-digit numbers and found the difference between them."

"You also made sense of counting on and counting back by 10 or 100 on the number line."

"How can this help you think about $234 + 200$?" (It is like 2 jumps of 100 on the number line, so it

would be 434.)

Suggested Centers

- Jump the Line (2–5), Stage 1: Add and Subtract within 100 (Supporting)
- Number Line Scoot (2–3), Stage 1: Twos, Fives, and Tens (Supporting)

Complete Cool-Down

Response to Student Thinking

Students find the difference by subtracting 559 from 562.

This work of this lesson builds on the place value and number relationships understanding developed in a prior unit.

Next Day Support

- Before the warm-up review strategies used to solve the cool-down of today's lesson.

Prior Unit Support

Grade 2, Unit 5, Section B: Compare and Order Numbers within 1,000

Lesson 2: Add and Subtract with Tens and Hundreds

Standards Alignments

Addressing 2.NBT.B.5, 2.NBT.B.7

Teacher-facing Learning Goals

- Add and subtract multiples of 10 or 100 to/ from a three-digit number.

Student-facing Learning Goals

- Let's add and subtract tens or hundreds.

Lesson Purpose

The purpose of this lesson is for students to add and subtract multiples of 10 and 100 within 1,000.

In grade 1, students added and subtracted multiples of 10 within 100. In a previous unit, students represented three-digit numbers with base-ten blocks, drawings, and words. Students used equations to represent three-digit numbers as sums of the value of hundreds, tens, and ones using the number and name of each unit ($235 = 2 \text{ hundreds} + 3 \text{ tens} + 5 \text{ ones}$) and using expanded form ($235 = 200 + 30 + 5$).

In this lesson, students add and subtract three-digit numbers and multiples of 10 and 100 using what they know about tens and hundreds. Students compare representations such as base-ten blocks, base-ten diagrams, and equations to understand that when adding or subtracting multiples of 10, the tens place changes and when adding or subtracting multiples of 100 the hundreds place changes (MP7, MP8).

Access for:

Students with Disabilities

- Representation (Activity 2)

English Learners

- MLR7 (Activity 2)

Instructional Routines

Number Talk (Warm-up)

Materials to Gather

- Base-ten blocks: Activity 1, Activity 2
- Number cubes: Activity 1

Lesson Timeline

Warm-up	10 min
Activity 1	15 min
Activity 2	20 min
Lesson Synthesis	10 min
Cool-down	5 min

Teacher Reflection Question

In previous lessons, students represented three-digit numbers as sums of hundreds, tens, and ones. How does that understanding support students as they add and subtract multiples of 10 and 100?

Cool-down (to be completed at the end of the lesson)

🕒 5 min

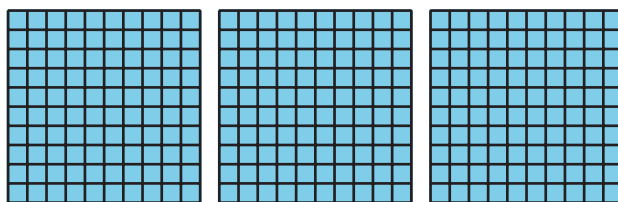
How Many Blocks?

Standards Alignments

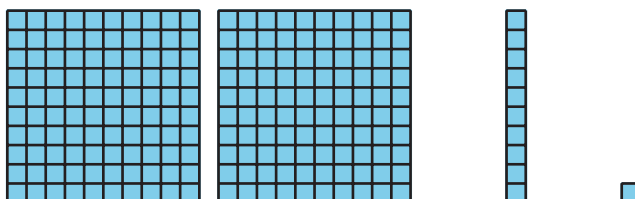
Addressing 2.NBT.B.7

Student-facing Task Statement

Tyler's blocks



Jada's blocks



1. What is the value of their blocks altogether?
2. Write an equation to show your thinking.

Student Responses

1. 511
2. Sample response: $300 + 211 = 511$

Begin Lesson

Warm-up

 10 min

Number Talk: Add Multiples of 10

Standards Alignments

Addressing 2.NBT.B.5

The purpose of this Number Talk is to elicit strategies and understandings students have for adding multiples of 10 to two- and three-digit numbers. This activity helps students extend their fluency with adding multiples of 10 to two-digit numbers to their work in the lesson activities with adding and subtracting multiples of 10 and 100 within 1,000. As students share their thinking, consider recording on an open number line.

Instructional Routines

Number Talk

Student-facing Task Statement

Find the value of each expression mentally.

- $34 + 20$
- $34 + 60$
- $58 + 30$
- $158 + 40$

Student Responses

- 54: I started at 34 and counted on by ten two times.

Launch

- Display one expression.
- "Give me a signal when you have an answer and can explain how you got it."
- 1 minute: quiet think time

Activity

- Record answers and strategy on an open number line.
- Keep expressions and work displayed.

- 94: I added 3 tens and 6 tens get 9 tens. 9 tens and 4 ones is 94.
- 88: I added 5 tens and 3 tens to get 8 tens. 8 tens and 8 ones is 88.
- 198: it's like the last problem but we are adding 4 tens instead of 3. It's adding one more ten and the hundreds place stays the same so the sum is 198.

- Repeat with each expression.

Synthesis

- "How did you find the value of these expressions?" (We noticed we could count on by tens. We added the number of tens in each one. The number in the ones place didn't change.)

Activity 1

🕒 15 min

Show It with Base-ten Blocks

Standards Alignments

Addressing 2.NBT.B.7

The purpose of this activity is to add and subtract three-digit numbers and multiples of 10 or 100 using base-ten blocks and equations. The structure of the base-ten blocks encourages students to notice that hundreds are added to or subtracted from hundreds and tens are added to or subtracted from tens (MP7). To help students focus on this structure, the numbers are chosen so that the addition and subtraction of tens can take place without needing to compose or decompose a hundred.

If you do not have enough hundred blocks for each group of 2 students, students may work in larger groups.

Materials to Gather

Base-ten blocks, Number cubes

Student-facing Task Statement

Use your base-ten blocks to show each number. Then, roll a number cube to see how many tens or hundreds to add or subtract.

1. Show 297.
 - a. Add ____ hundreds.

Launch

- Groups of 2
- Give each group base-ten blocks and a number cube.

- b. Complete the equation:
 $297 + \underline{\quad} = \underline{\quad}$
2. Show 432.
- a. Add $\underline{\quad}$ tens.
 b. $432 + \underline{\quad} = \underline{\quad}$
3. Show 982.
- a. Subtract $\underline{\quad}$ tens.
 b. $982 - \underline{\quad} = \underline{\quad}$
4. Show 351.
- a. Add $\underline{\quad}$ hundreds.
 b. Write an equation:
5. Show 805.
- a. Subtract $\underline{\quad}$ hundreds.
 b. Write an equation:

Student Responses

1. Sample response:
 a. 2
 b. $297 + 200 = 497$
2. Sample response:
 a. 4
 b. $432 + 40 = 472$
3. Sample response:
 a. 6
 b. $982 - 60 = 922$
4. Sample response:
 a. 5
 b. $351 + 500 = 851$
5. Sample response:
 a. 1
 b. $805 - 100 = 705$

Activity

- “Work with your partner to show each number with base-ten blocks.”
- “Take turns rolling the number cube to see how many tens or hundreds to add or subtract.”
- 10 minutes; partner work time
- Monitor for students to share their equations for the number of hundreds they subtract from 805.

Synthesis

- Invite previously identified students to share equations or display
 - $805 - 400 = 405$
- Display a base-ten diagram, or, if possible, allow students to demonstrate with base-ten blocks.
- “How does the equation connect to the diagram or blocks?” (You take away 4 hundreds from the blocks and you’re left with 4 hundreds and 5 ones.)
- “What did you notice about how the value of the blocks changed?” (There are fewer blocks. The hundreds place changed because you subtracted hundreds.)

Activity 2

🕒 20 min

How Many with Base-ten Blocks and Equations

Standards Alignments

Addressing 2.NBT.B.7

The purpose of this activity is for students to add and subtract multiples of 10 and 100 within 1,000. Students interpret situations with base-ten blocks and base-ten diagrams and use equations to represent sums and differences. In the activity synthesis, students relate the situation, base-ten diagram, and equation and notice, through repeated reasoning, that when adding and subtracting, one can add or subtract hundreds and hundreds and tens and tens (MP7, MP8).

🌐 Access for English Learners

MLR7 Compare and Connect. Synthesis: Lead a discussion comparing, contrasting, and connecting their different ways of representing the value of Mai and Lin's blocks together. Ask, "How do these different representations show the same information?" "How are they different?"

Advances: Representing, Conversing

♿ Access for Students with Disabilities

Representation: Access for Perception. Invite students to act out the scenario of giving and taking hundreds on a number line. Discuss the individual jumps of 100 if a jump of 400 is too much to begin.

Supports accessibility for: Conceptual Processing, Language, Organization

Materials to Gather

Base-ten blocks

Student-facing Task Statement

- Mai has 2 hundreds, 2 tens, and 3 ones. Lin has 4 hundreds.

Represent their values with base-ten blocks or diagrams.

What is the value of their blocks altogether?

Launch

- Groups of 2
- Give students access to base-ten blocks.

Activity

- "These students were using base-ten blocks

Show your thinking.

2. Andre has 4 hundreds, 2 tens, and 8 ones.

Represent his value with base-ten blocks or diagrams.

Andre gives 2 hundreds to Clare.

What is the value of his blocks now? Show your thinking.

3. Diego has 6 tens. Tyler has 8 hundreds, 3 tens, and 6 ones.

What is the value of their blocks together? Show your thinking.

4. Elena has 5 hundreds, 7 tens, and 2 ones. She gives 2 tens to Kiran.

What is the value of her blocks now? Show your thinking.

5. Priya has 6 hundreds, 5 tens, and 8 ones. Han gives her 3 hundreds.

What is the value of her blocks now? Show your thinking.

6. Jada has 4 hundreds, 8 tens, and 2 ones. She gives 3 hundreds to Noah.

What is the value of her blocks now? Show your thinking.

Student Responses

1. Sample response:
 - a. 623
 - b. $223 + 400 = 623$
2. Sample response:
 - a. 228
 - b. $428 - 200 = 228$
3. Sample response:
 - a. 896
 - b. $60 + 836 = 896$

to find the value of sums and differences.”

- “For each problem, represent the student’s value in a way that makes sense to you. You can use base-ten blocks, diagrams, or equations.”
- 10 minutes: partner work time
- For Priya and Jada’s blocks, monitor for students who:
 - write equations to show the sums and differences.
 - use base-ten diagrams to show subtraction.

Synthesis

- Invite a student to share their representation and equation for Jada’s blocks. If no students use a base-ten diagram, select a student to share how they use base-ten blocks, and use a base-ten diagram to record their steps.
- “How does the base-ten diagram show Jada’s blocks?” (The blocks show how many Jada started with. The lines show the 3 hundreds that were taken away.)
- Display $482 - 300 = 182$
- “How does the equation show Jada’s blocks?” (482 is what Jada started with and 300 is the 3 hundreds she gave away. 182 is how much she has left.)

4. Sample response:
- 552
 - $572 - 20 = 552$
5. Sample response:
- 958
 - $600 + 300 = 900$
 $900 + 50 + 8 = 958$
6. Sample response:
- 182
 - $482 - 300 = 182$

Advancing Student Thinking

If students draw diagrams that do not match the situation or write equations that are not true, consider asking:

- “Can you explain what you did?”
- “Do you notice any patterns when you add or subtract hundreds and hundreds? Tens and tens?”

Lesson Synthesis

🕒 10 min

“Today you added and subtracted hundreds or tens to and from three-digit numbers.”

Invite previously identified students to share representations for Priya’s blocks.

Display $658 + 300 = 958$.

“How is the representation of Jada’s blocks different from the representation for Priya’s blocks?” (Jada’s blocks show 3 hundreds crossed out. Priya’s show 3 hundreds added.)

Suggested Centers

- Jump the Line (2–5), Stage 1: Add and Subtract within 100 (Supporting)
- Number Line Scoot (2–3), Stage 1: Twos, Fives, and Tens (Supporting)

Complete Cool-Down

Response to Student Thinking

Students find a value for the sum other than 511 or write an equation that shows a sum other than $300 + 211 = 511$.

The work of this lesson builds on the place value concepts developed in a prior unit.

Next Day Support

- Launch Activity 1 with a discussion about this cool-down.

Prior Unit Support

Grade 2, Unit 5, Section A: The Value of Three Digits

Lesson 3: Count on or Count Back to Subtract

Standards Alignments

Addressing 2.NBT.B.7

Teacher-facing Learning Goals

- Subtract within 1,000 using an understanding of the relationship between addition and subtraction.

Student-facing Learning Goals

- Let's find the difference between numbers.

Lesson Purpose

The purpose of this lesson is for students to subtract within 1,000 using strategies that demonstrate an understanding of the relationship between addition and subtraction, including counting on and counting back.

In previous units, students used counting on or counting back to subtract within 100. In this lesson, they analyze different methods, including counting on and counting back, to subtract within 1,000. They make connections between sums of 10 and sums of 100, for example $5 + 5 = 10$ and $50 + 50 = 100$. Students use the relationship between addition and subtraction as they find unknown values in subtraction and addition equations.

Access for:

Students with Disabilities

- Engagement (Activity 2)

English Learners

- MLR8 (Activity 2)

Instructional Routines

Number Talk (Warm-up)

Materials to Gather

- Base-ten blocks: Activity 1

Lesson Timeline

Warm-up

10 min

Teacher Reflection Question

What strategies are students using to subtract? How can you help students see the connections between addition and subtraction as they

Activity 1	20 min	consider ways to subtract within 1,000?
Activity 2	15 min	
Lesson Synthesis	10 min	
Cool-down	5 min	

Cool-down (to be completed at the end of the lesson)

🕒 5 min

Mystery Number

Standards Alignments

Addressing 2.NBT.B.7

Student-facing Task Statement

Find the number that makes the equation true.

Show your thinking.

$$600 - \text{☀} = 360$$

Student Responses

240. Sample responses:

- $360 + 40 = 400$
 $400 + 200 = 600$
 $200 + 40 = 240$
- $600 - 300 = 300$
 $300 = 60 + 240$

----- Begin Lesson -----

Warm-up

 10 min

Number Talk: Tens and Hundreds

Standards Alignments

Addressing 2.NBT.B.7

This Number Talk encourages students to think about adding multiples of 10 or 100. The expressions in this activity help students recognize that adding multiples of 10 to a number only changes the number in the tens place and adding multiples of 100 to a number only changes the number in the hundreds place when there is no need to compose a new ten or hundred. As students share their thinking, consider recording on an open number line.

Instructional Routines

Number Talk

Student-facing Task Statement

Find the value of each expression mentally.

- $120 + 20$
- $120 + 200$
- $124 + 30$
- $124 + 300$

Student Responses

- 140: 120, 130, 140
- 320: $100 + 200 + 20 = 320$
- 154: $100 + 20 + 4 + 30 = 154$
- 424: 124, 224, 324, 424

Launch

- Display one expression.
- “Give me a signal when you have an answer and can explain how you got it.”
- 1 minute: quiet think time

Activity

- Record students’ thinking on an open number line and with equations.
- Keep expressions and work displayed.
- Repeat with each expression.

Synthesis

- “What patterns did you notice with these expressions?” (We added numbers that changed the tens place and numbers that changed the hundreds place. Only the number in the tens place or hundreds place changed depending on the number.)

Activity 1

🕒 20 min

Jump Back, Back, Back

Standards Alignments

Addressing 2.NBT.B.7

The purpose of this activity is for students to consider counting back by place as a method for subtracting. Students analyze different methods for finding the value of a difference. After making connections between subtracting by place and counting back by decomposing the subtrahend, students try using an open number line to show their thinking. There is not an expectation for precision with the length of the jumps, as this representation is used as a tool to get students thinking about the idea of moving along the number line. The numbers are selected so that no decomposition is needed when subtracting by place value, allowing students to focus on the structure of subtracting tens from tens and ones from ones using base-ten blocks, base-ten diagrams, or the number line (MP7).

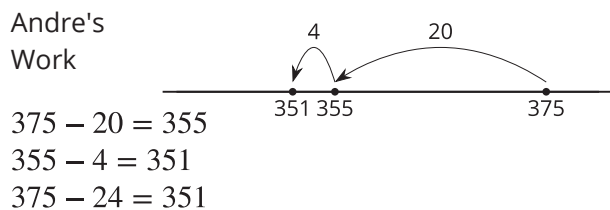
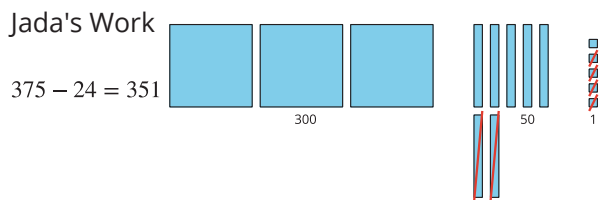
Materials to Gather

Base-ten blocks

Student-facing Task Statement

Jada and Andre found the value of $375 - 24$.

Here is their work.



Launch

- Groups of 2
- Give students access to base-ten blocks.
- Display the images for Jada's work and Andre's work.
- "Jada and Andre both found the value of $375 - 24$, but thought about it a little differently."
- "Take a minute to look at their work. What do you notice? What do you wonder?"
- 1-2 minutes: quiet think time
- 2 minutes: partner discussion
- Share responses.
- As needed:
 - "What did you notice about the

What do you notice? What do you wonder?

1. Try Andre's way to find the value of $189 - 73$.

Show your thinking. Use a number line if it helps.

2. Find the value of $647 - 46$ in your own way.

Show your thinking. Use a number line if it helps.

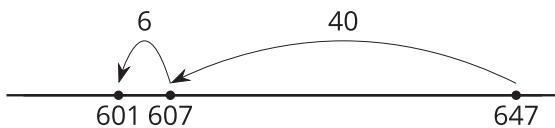
Student Responses

1. 116. Sample response:

$$189 - 70 = 119$$

$$119 - 3 = 116$$

2. 601. Sample response:



representations?" (Jada used a base-ten diagram and Andre used a number line and equations. They showed subtraction with jumps and by crossing out.)

- "Where in her representation can you see Jada subtracting 4 ones?" (She subtracts 4 by crossing out 4 ones.)
- "Where in his representation can you see Andre subtracting 4 ones?" (He jumped 20 and then 4. So his second jump shows subtracting 4.)
- "We have been using base-ten blocks and base-ten diagrams to find differences."
- "When we use these representations, we subtract by place, taking ones from ones and tens from tens."
- "Another way we can find the difference is by counting back. We can use what we know about place value to count back in parts to make it easier."

Activity

- "Now, try using Andre's way to find the value of $189 - 73$. Then, find the value of $647 - 46$ your own way."
- 8 minutes: independent work time
- "Compare your work with a partner."
- 2 minutes: partner discussion
- Monitor for students who:
 - represent their thinking using base-ten diagrams
 - represent their thinking using a number line
 - represent their thinking using equations

Synthesis

- Invite previously identified students to

share for each expression.

- Consider sharing work from students who use base-ten diagrams and students who use number lines or equations to make connections and show reasoning about place value.
- “What is the same and what is different between ____’s representation and ____’s representation?”
- Highlight connections based on place value across representations.

Advancing Student Thinking

If students use base-ten diagrams without making the connection to counting on the number line, show jumps of 10 instead of a multiple of 10. For example, show 70 as 7 jumps of 10. Consider asking:

- “Where do you see the 7 tens on this number line representation?”
- “How does this connect to your base-ten representation?”

Activity 2

🕒 15 min

Who Spilled Paint?

Standards Alignments

Addressing 2.NBT.B.7

The purpose of this activity is for students to analyze equations to determine the unknown value. Students use their understanding of place value and counting within 1,000 to find the value that makes each equation true. Students are given equations with an unknown addend and a sum that is a multiple of 100 or equations with a number that is subtracted from a multiple of 100. They use any method that works for them to find the numbers that make each equation true. Monitor for ways students use what they know about sums of 10 and 100 and counting on or back by place. They may also use an open number line or base-ten diagrams as needed to make

sense of each equation or show their thinking. If they do use base-ten diagrams, look for ways they consider composing or decomposing units. All students will make sense of this method in upcoming lessons.

Access for English Learners

MLR8 Discussion Supports. Synthesis: At the appropriate time, give students 2–3 minutes to make sure that everyone in their group can explain how they found the values hidden by the spilled paint. Invite groups to rehearse what they will say when they share with the whole class.

Advances: Speaking, Conversing, Representing

Access for Students with Disabilities

Engagement: Develop Effort and Persistence. Differentiate the degree of difficulty or complexity. Begin with a slightly more accessible problem. For example, $?? + 400 = 1,000$. Discuss the strategy used to determine the missing number.

Supports accessibility for: Attention, Organization, Language

Student-facing Task Statement

Oh no! Diego spilled paint on his paper and now he can't see all the numbers. Find the number hidden by the paint.

$$\text{☀} + 540 = 1,000$$

Find the number that makes each equation true.

1. $250 + \text{☀} = 1,000$
2. $600 - 440 = \text{☀}$
3. $680 + \text{☀} = 900$
4. $\text{☀} + 590 = 1,000$
5. $900 - 370 = \text{☀}$

1. _____
2. _____
3. _____
4. _____

Launch

- Groups of 2
- Display the image for Diego's equation.

$$\text{☀} + 540 = 1,000$$

- "Oh no! Diego spilled paint on his paper and now he can't see all the numbers."
- "What number do you think got smudged? How do you know?" (460 because $540 + 60 = 600$ and $600 + 400 = 1,000$)
- 30 seconds: quiet think time
- 1 minute: partner discussion
- Share responses.

Activity

- "Now you are going to work on a few more equations where Diego made a mess."
- "How can sums of 10 help you think about these equations?" ($3 + 7 = 10$ and $30 + 70 = 100$)

5. _____

Student Responses

1. $250 + 750 = 1,000$
2. $600 - 440 = 160$
3. $680 + 220 = 900$
4. $410 + 590 = 1,000$
5. $900 - 370 = 530$

- “You’ll work on your own first and then have time to share with a partner.”
- 4 minutes: independent work time
- “I know you may not have finished all of the problems. That is okay.”
- “Compare with a partner and solve the rest together if you’d like.”
- 6 minutes: partner work
- Monitor for students who find $900 - 370 = 530$ by:
 - counting on by hundreds then tens
 - counting on by tens then hundreds
 - counting back by hundreds then tens
 - using a number line to keep track of their method

Synthesis

- Invite previously identified students to share how they found the value of $900 - 370$.
- Display $370 + ? = 900$.
- “How could this expression help us think about this problem?” (You can start at 370 and count up to 900 to find the difference.)

Lesson Synthesis

🕒 10 min

“Today you used the relationship between addition and subtraction to find the value of differences and numbers that make equations true.”

“Think about all of the ways you saw used to find the value of differences and unknown addends. Tell your partner about one that you feel really confident about using and why.”

Share responses.

Suggested Centers

- Five in a Row: Addition and Subtraction (1–2), Stage 6: Add within 100 with Composing (Supporting)
- How Close? (1–5), Stage 3: Add to 100 (Supporting)

Complete Cool-Down

Response to Student Thinking

Students find a difference other than 240.

Next Day Support

- Launch Warm-up or Activity 1 by highlighting important ideas from previous lessons.

Lesson 4: Add and Subtract Three-digit Numbers in Different Ways

Standards Alignments

Addressing 2.NBT.B.7, 2.NBT.B.8, 2.NBT.B.9

Teacher-facing Learning Goals

- Add and subtract numbers within 1,000 using strategies that do not include composing or decomposing tens or hundreds.

Student-facing Learning Goals

- Let's add and subtract three-digit numbers.

Lesson Purpose

The purpose of this lesson is for students to add and subtract within 1,000 without composing a ten or hundred using place value understanding, properties of operations, and the relationship between addition and subtraction.

In previous lessons, students used what they know about counting within 1,000 and place value to subtract multiples of 10 and 100 from three-digit numbers. In this lesson, students continue to apply methods they used when adding and subtracting within 100 to add and subtract within 1,000. They also make sense of methods that are represented with equations. In the first activity, they make sense of different methods for subtracting a three-digit number from a multiple of 100. In the second activity, they make sense of methods based on adding by place. Students are invited to try the methods for adding and subtracting that they analyze in this lesson or choose any method that makes the most sense to them. They will continue to analyze and use methods based on adding and subtracting by place in upcoming lessons.

This lesson has a Student Section Summary.

Access for:

Students with Disabilities

- Action and Expression (Activity 1)

English Learners

- MLR7 (Activity 2)

Instructional Routines

Number Talk (Warm-up)

Materials to Gather

- Base-ten blocks: Activity 1, Activity 2

Lesson Timeline

Warm-up	10 min
Activity 1	20 min
Activity 2	15 min
Lesson Synthesis	10 min
Cool-down	5 min

Teacher Reflection Question

What opportunities are you giving students to reflect on their understanding of the mathematical content?

Cool-down (to be completed at the end of the lesson)

 5 min

Find the Sum, Find the Difference

Standards Alignments

Addressing 2.NBT.B.7

Student-facing Task Statement

Find the value of each expression. Show your thinking.

1. $382 + 216$
2. $700 - 428$

Student Responses

1. 598. Sample response:
 $300 + 200 = 500$
 $80 + 10 = 90$
 $2 + 6 = 8$
 $500 + 90 + 8 = 598$
2. 272. Sample response:

$$428 + 2 = 430$$

$$430 + 70 = 500$$

$$500 + 200 = 700$$

$$2 + 70 + 200 = 272$$

Begin Lesson

Warm-up

🕒 10 min

Number Talk: Count Back by Place

Standards Alignments

Addressing 2.NBT.B.7, 2.NBT.B.8

The purpose of this Number Talk is to elicit strategies and understandings students have for counting back by place as a strategy for subtraction. These understandings help students develop fluency with subtracting multiples of 10 and 100 from three-digit numbers. As students share, represent their thinking on an open number line.

Instructional Routines

Number Talk

Student-facing Task Statement

Find the value of each expression mentally.

- $586 - 100$
- $486 - 20$
- $457 - 200$
- $257 - 30$

Launch

- Display one expression.
- “Give me a signal when you have an answer and can explain how you got it.”
- 1 minute: quiet think time

Activity

- Record answers and strategy on an open number line.

Student Responses

- 486: I took away a hundred.
- 466: I took away 20 more.
- 257: I counted back by 100. 457, 357, 257.
- 227: I took away 3 tens.

- Keep expressions and work displayed.
- Repeat with each expression.

Synthesis

- Display $457 - 230$.
- “How can the last 2 expressions help us think about this problem?” (Even though it is 230 being taken away, we can still subtract the hundreds and then the tens.)
- “Today we will see how we can use counting methods to help us subtract bigger numbers.”

Activity 1

Zero Tens and Zero Ones

 20 min

 PLC Activity

Standards Alignments

Addressing 2.NBT.B.7

The purpose of this activity is for students to use the relationship between addition and subtraction to make sense of different counting methods for subtracting three-digit numbers. Students analyze 2 different methods for a given problem where a number is being subtracted from a multiple of 100. They consider how thinking about a subtraction expression as an unknown addend equation can be helpful and discuss how counting on can be a useful method for subtraction. The number line can support this method, so they have the opportunity to make connections between counting on a number line and adding on or subtracting by place using equations.

Access for Students with Disabilities

Action and Expression: Develop Expression and Communication. Identify connections between the strategies that Mai and Lin use alongside a number line representation. The strategies result in the same outcomes but use differing approaches. The number line is less abstract. Add the context of an animal jumping (frog, rabbit, grasshopper, etc.) to enhance the conceptual model as well.

Supports accessibility for: Conceptual Processing, Organization

Materials to Gather

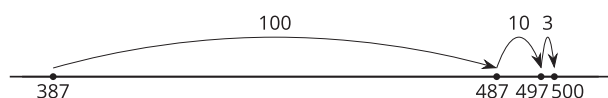
Base-ten blocks

Student-facing Task Statement

Mai and Lin were asked to find the value of $500 - 387$.

Here is their work.

Mai's Work



$$387 + ? = 500$$

$$387 + 100 = 487$$

$$487 + 10 = 497$$

$$497 + 3 = 500$$

$$100 + 10 + 3 = 113$$

Lin's Work

$$387 = 300 + 80 + 7$$

$$500 - 300 = 200$$

$$200 - 80 = 120$$

$$120 - 7 = 113$$

Find the value of each expression.

Show your thinking.

1. Try Mai's way to find the value of $600 - 476$.

2. Try Lin's way to find the value of $400 - 134$.

Student Responses

1. 124. Sample response:

Launch

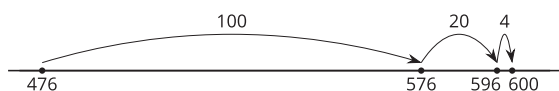
- Groups of 2
- Give students access to base-ten blocks.
- "Mai and Lin were asked to find the value of $500 - 387$. Here is their work."
- Display the images of Mai and Lin's work.
- "What is the same and different about the methods they used to find the difference?" (They both represented it with equations, but Mai also used a number line. Mai showed it as addition with a missing addend. They both broke apart the second number. They both got 113 as the answer.)
- 30 seconds: quiet think time
- "Discuss with a partner."
- 2 minutes: partner discussion
- If it doesn't come up, ask, "Where do you see the answer in Mai's representation?" (How far she jumped shows the difference.)
- "Why do you think Lin started with $387 = 300 + 80 + 7$?" (That way she could see each part that she needed to take away.)

Activity

- "Now try Mai's way and Lin's way."
- 10 minutes: independent work time

Synthesis

- "Which method do you prefer? Explain." (I prefer counting on because you count until you get to the number. When you count on, you can do it in parts so you can make each part something that is easy for you and get to a ten. The number line helped



$$476 + 100 = 576$$

$$576 + 20 = 596$$

$$596 + 4 = 600$$

$$100 + 20 + 4 = 124$$

2. 266. Sample response:

$$134 = 100 + 30 + 4$$

$$400 - 100 = 300$$

$$300 - 30 = 270$$

$$270 - 4 = 266$$

me. I prefer the equations because it helps me see the parts as they are taken away.)

Activity 2

🕒 15 min

Add or Subtract with Expanded Form

Standards Alignments

Addressing 2.NBT.B.7, 2.NBT.B.9

The purpose of this activity is for students to use their understanding of expanded form, place value, and properties of operations to reason about adding and subtracting by place (MP7). Students analyze different methods and representations that show adding hundreds and hundreds, tens and tens, and ones and ones. Students notice that hundreds, tens, and ones can be added in any order. In the next section, the focus will be on strategies based on place value and will include composing and decomposing tens and hundreds. In the synthesis, there are discussions that honor all methods while connecting each strategy to place value in preparation for the work of the upcoming lessons.



MLR7 Compare and Connect. Synthesis: After all strategies have been presented, lead a discussion comparing, contrasting, and connecting the different approaches. Ask, “Did anyone solve the problem the same way, but would explain it differently?”

Access for English Learners

Advances: Representing, Conversing

Materials to Gather

Base-ten blocks

Student-facing Task Statement

1. Andre and Diego showed their thinking with equations to find the value of $427 + 351$.

Andre's Work

$$\begin{aligned} 7 + 1 &= 8 \\ 20 + 50 &= 70 \\ 400 + 300 &= 700 \\ 700 + 70 + 8 &= 778 \end{aligned}$$

Diego's Work

$$\begin{aligned} 400 + 20 + 7 \\ 300 + 50 + 1 \\ 700 + 70 + 8 &= 778 \end{aligned}$$

What is the same or different about their work?

Discuss with your partner.

2. Try Andre's way to find the value of $725 + 243$.
3. Try Diego's way to find the value of $863 - 432$.
4. Choose your own way to find the value of $163 + 326$. Show your thinking.
5. Choose your own way to find the value of $692 - 571$. Show your thinking.

Student Responses

1. They both grouped the same places together. Andre used a different equation to show adding each place. Diego put each number in expanded form and put the places on top of one another.
2. 968. Sample response:

Launch

- Groups of 2
- Give students access to base-ten blocks.

Activity

- "We have used base-ten blocks, diagrams, and equations to add and subtract numbers using what we know about place value."
- "Andre and Diego showed their thinking in different ways. What is the same and what is different about their work?" (They both grouped the same places together. Andre used a different equation to show adding each place. Diego put each number in expanded form and put the places on top of one another.)
- 1 minute: quiet think time
- 3 minutes: partner discussion
- Record responses.
- "Where do you see each number in their work?" (Diego shows the place value in expanded form, but Andre adds 1 place at a time. In Andre's I see the numbers up and down, but in Diego's I see the numbers across.)
- 30 seconds: quiet think time
- Share responses
- "Try Andre's way and Diego's way."
- 8 minutes: independent work time

$$5 + 3 = 8$$

$$20 + 40 = 60$$

$$700 + 200 = 900$$

$$900 + 60 + 8 = 968$$

3. 431. Sample response:

$$800 + 60 + 3$$

$$400 + 30 + 2$$

$$400 + 30 + 1 = 431$$

4. 489. Sample response:

$$100 + 60 + 3$$

$$300 + 20 + 6$$

$$400 + 80 + 9 = 489$$

5. 121. Sample response:

$$600 - 500 = 100$$

$$90 - 70 = 20$$

$$2 - 1 = 1$$

$$100 + 20 + 1 = 121$$

- “Compare with a partner”
- 2 minutes: partner discussion
- Monitor for students who use Andre’s way, but add by place value in different orders.

Synthesis

- Invite 1–2 students to share how they used each way.
- “Which way did you prefer? Why?” (I prefer Diego’s way because I can see how things are grouped and I write fewer equations OR I prefer Andre’s way because it helps me remember to add ones and ones, tens and tens, and hundreds and hundreds.)
- “How was it the same or different when finding the sum versus finding the difference?” (It worked either way. I liked Diego’s way of finding the difference because it was lined up by place, so the answer is across the bottom when you are done.)

Lesson Synthesis

🕒 10 min

“Today you shared different ways to represent adding and subtracting numbers. You also talked about how thinking about place value and expanded form can help you find the value of expressions.”

“What was most helpful to you when finding the difference?”

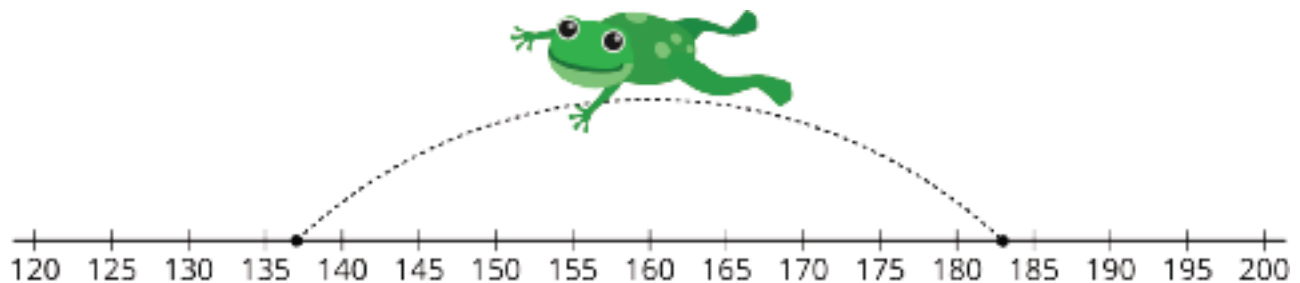
“What is something that you learned from comparing with a partner when adding or subtracting three-digit numbers by place value?”

Suggested Centers

- Five in a Row: Addition and Subtraction (1–2), Stage 6: Add within 100 with Composing (Supporting)
- How Close? (1–5), Stage 3: Add to 100 (Supporting)

Student Section Summary

In this section of the unit, we compared three-digit numbers and looked at how addition can be used to find the difference, especially when numbers are close together. We added and subtracted by counting on or back by place and used expanded form to think about adding or subtracting using place value based strategies.



----- Complete Cool-Down -----

Response to Student Thinking

Students find a sum other than 598 or a difference other than 272.

Next Day Support

- Before the warm-up, have students work in partners to discuss a correct response to this cool-down.

Lesson 5: Center Day 1 (Optional)

Standards Alignments

Addressing 2.NBT.A, 2.NBT.A.4, 2.NBT.B.7

Teacher-facing Learning Goals

- Add within 1,000.

Student-facing Learning Goals

- Let's add numbers within 1,000.

Lesson Purpose

The purpose of this lesson is for students to practice adding numbers within 1,000.

This lesson is optional because it is an opportunity for extra practice that not all classes may need. In Activity 1, students learn stage 7 of the Five in a Row: Addition and Subtraction center. In this new stage, students add within 1,000 without composing. In Activity 2, students choose to continue working on Five in a Row, or choose between two previously introduced centers focused on place value in three-digit numbers.

Instructional Routines

How Many Do You See? (Warm-up)

Materials to Gather

- Materials from previous centers: Activity 2
- Paper clips: Activity 1
- Two-color counters: Activity 1

Materials to Copy

- Five in a Row Addition and Subtraction Stage 7 Gameboard (groups of 2): Activity 1

Lesson Timeline

Warm-up	10 min
Activity 1	20 min
Activity 2	20 min
Lesson Synthesis	10 min

Teacher Reflection Question

Revisit the norms you established as a class about doing mathematics. Which norms are working and which might need revision? Are there any norms you or your students might want to add?

Begin Lesson

Warm-up

🕒 10 min

How Many Do You See: Hundreds, Tens, and Ones

Standards Alignments

Addressing 2.NBT.B.7

The purpose of this How Many Do You See is to allow students to use subitizing or grouping strategies to describe the images they see.

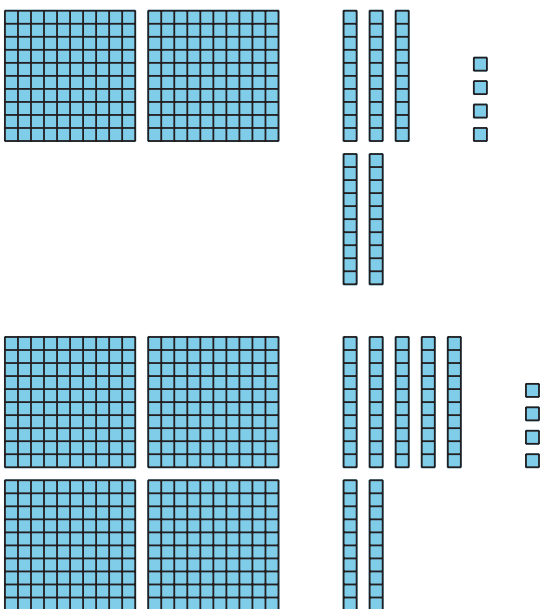
Record the ways students see the blocks using equations. For example, if a student said they saw the first image as 2 hundreds, then 5 tens, and then the 4 ones, record this as $200 + 50 + 4 = 254$. If a student said they saw the image as 2 hundreds, 3 tens and 2 tens, and then 4 ones, record this as $200 + 30 + 20 + 4 = 254$.

Instructional Routines

How Many Do You See?

Student-facing Task Statement

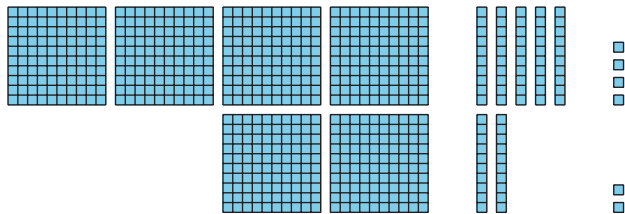
How many do you see? How do you see them?

**Launch**

- Groups of 2
- “How many do you see? How do you see them?”
- Flash the image.
- 30 seconds: quiet think time

Activity

- Display the image.
- “Discuss your thinking with your partner.”
- 1 minute: partner discussion
- Record responses using equations. (For example, I saw 234 and 2 more tens. $234 + 20 = 254$)
- Repeat for each image.



Student Responses

- 254: I saw 234 and 2 more tens.
- 474: I saw 4 hundreds and 7 tens and 4 ones.
- 676: I saw 4 hundreds and 2 hundreds, 5 tens and 2 tens, and 4 ones and 2 ones. I put them together for 6 hundreds, 7 tens, and 6 ones.

Synthesis

- “How did the groups help you to know the value of the blocks?” (We described seeing the same kinds of blocks together. People saw hundreds with hundreds, tens with tens, and ones with ones.)

Activity 1

🕒 20 min

Introduce Five in a Row, Add within 1,000 without Composing

Standards Alignments

Addressing 2.NBT.B.7

The purpose of this activity is for students to learn stage 7 of the Five in a Row: Addition and Subtraction center. Students add within 1,000, without composing tens or hundreds. Partner A chooses two numbers and places a paper clip on each number. They add the numbers and place a counter on the sum. Partner B moves one of the paper clips to a different number, adds the numbers, and places a counter on the sum. Students take turns moving one paper clip, finding the sum, and covering it with a counter. The winner is the first one to get five counters in a row.

Materials to Gather

Paper clips, Two-color counters

Materials to Copy

Five in a Row Addition and Subtraction Stage 7 Gameboard (groups of 2)

Required Preparation

Each group of 2 students needs 10 counters and 2 paper clips.

Launch

- Groups of 2
- Give each group two paper clips, counters, and a gameboard.
- “We are going to learn a new stage in the Five in a Row center.”
- “Let’s play one round together. You can all be my partner.”
- “I’ll put a paper clip on two numbers in the grey boxes that we will add and we’ll put a counter on the sum. What is the sum?”
- 1 minute: quiet think time
- Share responses and demonstrate covering the sum on the gameboard with a counter.
- “Then the next player moves one of the paper clips, adds the numbers, and puts a counter on the sum.”
- “Continue taking turns until someone gets 5 in a row.”

Activity

- 15 minutes: partner work time

Synthesis

- “What strategies did you use to add the numbers?”
- “What strategies did you come up with for picking your paper clip number?”

Activity 2

🕒 20 min

Centers: Choice Time

Standards Alignments

Addressing 2.NBT.A, 2.NBT.A.4, 2.NBT.B.7

The purpose of this activity is for students to choose from activities that focus on place value and addition with three-digit numbers.

Students choose from any stage of previously introduced centers.

- Five in a Row: Addition and Subtraction
- Get Your Numbers in Order
- Mystery Number
- The Greatest of them All

Materials to Gather

Materials from previous centers

Required Preparation

Gather materials from:

- Five in a Row: Addition and Subtraction, Stages 6–7
- Get Your Numbers in Order, Stage 2
- Mystery Number, Stage 2
- The Greatest of them All, Stage 2

Student-facing Task Statement

Choose a center.

Five in a Row: Addition and Subtraction



Mystery Number



Get Your Numbers in Order



The Greatest of them All

Launch

- “Now you will choose from centers we have already learned. One of the choices is to continue with Five in a Row.”
- Display the center choices in the student book.
- “Think about what you would like to do first.”
- 30 seconds: quiet think time

Activity

- Invite students to work at the center of their choice.
- 8 minutes: center work time
- “Choose what you would like to do next.”

- 8 minutes: center work time

Synthesis

- “What did you like about the activities you worked on today?”

Lesson Synthesis

🕒 10 min

“Today we added numbers within 1,000. Tell your partner one thing you know about adding numbers.”

Section B: Add within 1,000 using Place Value Strategies

Lesson 6: Use a Ten to Add Within 1,000

Standards Alignments

Addressing 2.NBT.B.5, 2.NBT.B.7

Teacher-facing Learning Goals

- Add numbers within 1,000 using place value strategies that include composing a ten.

Student-facing Learning Goals

- Let's add three-digit numbers by composing a ten.

Lesson Purpose

The purpose of this lesson is for students to add a two-digit number to a three-digit number that requires composing a ten when adding by place.

In previous grades, students developed fluency with sums of 10 and looked for ways to make a ten as a strategy for adding within 20. They used their understanding of these sums to make sense of composing a ten when adding by place and as a strategy for adding within 100.

In this lesson, students use what they know about making a ten to find the sum of a three-digit number and a two-digit number. Throughout the lesson, students may use the methods that make the most sense to them to add which may include counting or adding-on by place or adding tens and tens and ones and ones. They may also use whichever representations help them make sense of each sum, including number lines or base-ten blocks. The activity and lesson syntheses focus on using known sums of 10 to anticipate when a ten is composed when adding by place. This understanding will be used in upcoming lessons as students add two three-digit numbers by place and anticipate when units may need to be composed.

Access for:

Students with Disabilities

- Action and Expression (Activity 2)

English Learners

- MLR2 (Activity 2)

Instructional Routines

Card Sort (Activity 2), Number Talk (Warm-up)

Materials to Gather

- Base-ten blocks: Activity 1, Activity 2

Lesson Timeline

Warm-up	10 min
Activity 1	15 min
Activity 2	20 min
Lesson Synthesis	10 min
Cool-down	5 min

Materials to Copy

- Card Sort Perfect 10 (groups of 3): Activity 2

Teacher Reflection Question

In upcoming lessons, students will add using methods based on place value that involve composing both hundreds and tens. How does today's focus on using what students know about combinations of numbers that make a ten help prepare them for this work?

Cool-down (to be completed at the end of the lesson)

⌚ 5 min

Find the Sum

Standards Alignments

Addressing 2.NBT.B.7

Student-facing Task StatementFind the value of $157 + 33$.

Show your thinking. Use base-ten blocks if it helps.

Student Responses

190. Sample response:

- $150 + 30 = 180$
 $7 + 3 = 10$
 $180 + 10 = 190$

----- **Begin Lesson** -----

Warm-up

 10 min

Number Talk: Numbers that Make 10

Standards Alignments

Addressing 2.NBT.B.5

The purpose of this Number Talk is to elicit strategies and understandings students have for making a ten when adding a two-digit number to a two-digit number. In the synthesis, the focus is on how knowing number combinations to make ten can support finding the value of each sum. For example: $28 + 2$ can help students think about $28 + 12$ as $28 + 2 + 10$. These understandings help students develop fluency and will be helpful when students need to add 2 three-digit numbers that require composing units when adding by place. As students share their thinking, consider recording on an open number line.

Instructional Routines

Number Talk

Student-facing Task Statement

Find the value of each expression mentally.

- $28 + 2$
- $28 + 12$
- $67 + 3$
- $67 + 23$

Student Responses

- 30: I counted on, 28, 29, 30.
- 40: I knew $28 + 2 = 30$, so it was 10 more.
- 70: I knew $7 + 3 = 10$, so $60 + 10 = 70$.
- 90: I added 20 more because the last problem helped me.

Launch

- Display one expression.
- “Give me a signal when you have an answer and can explain how you got it.”
- 1 minute: quiet think time

Activity

- Record students’ thinking on an open number line and with equations.
- Keep expressions and work displayed.
- Repeat with each expression.

Synthesis

- “What’s the same about all of the expressions?” (I made a ten to find the value for each of them.)
- “Why are $28 + 2$ and $67 + 3$ helpful in finding the value of the other expressions?” (We made ten and then added 1 more ten.)
- “In the next activity, we are going to keep

thinking about how knowing sums of 10 can help us.”

Activity 1

🕒 15 min

Add Two-digit and Three-digit Numbers

Standards Alignments

Addressing 2.NBT.B.7

The purpose of this activity is for students to add two-digit numbers and three-digit numbers that require composing a ten when adding by place. In this activity, students work in groups of 3 and each find the value of a different set of sums. They may use any method that makes sense to them to add and the number choices in each set encourage them to apply methods they have used when adding within 100, including those based on making a ten, counting on by place, and adding tens to tens and ones to ones. In the synthesis, students share the patterns they notice in the sums and their values. Look for opportunities to highlight the ways students notice that the sum of the ones is 10 in each expression to prepare them for the next activity.

Materials to Gather

Base-ten blocks

Student-facing Task Statement

- Find the value of each sum.

Set 1	Set 2	Set 3
$245 + 15$	$134 + 26$	$351 + 19$
$247 + 23$	$133 + 37$	$356 + 24$
$249 + 31$	$138 + 42$	$355 + 35$

- What patterns did you notice?

Student Responses

- | Set 1 | Set 2 | Set 3 |
|-------|-------|-------|
| 260 | 160 | 370 |
| 270 | 170 | 380 |

Launch

- Groups of 3
- Give students access to base-ten blocks.

Activity

- “In your group, each of you will find the value of one set of expressions.”
- Make sure students know which set they will work with.
- “As you work, think about patterns you notice.”
- “If it helps, you may use base-ten blocks.”
- 6 minutes: independent work time

280 180 390

2. Sample responses:

- I noticed there's a 0 in the ones place for each sum. Each time there were enough ones to make a ten.
- I noticed the number of hundreds didn't change.
- I noticed the sums in each set went up by 10.

- "Compare with your group members and discuss any patterns you noticed."
- 4 minutes: partner discussion

Synthesis

- "What patterns did you notice in each set?" (Each time we could make a ten with the ones. The number of hundreds didn't change. The sums went up by 10.)
- Share and record responses.
- "How does knowing $6 + 4 = 10$ help you think about $536 + 34$?" (I can add $530 + 30 = 560$. Then add 10 because I know $6 + 4 = 10$.)

Advancing Student Thinking

If students find a sum other than the sum of the two numbers, consider asking:

- "Can you explain how you found the sum?"
- "How could you use a number line or base-ten blocks to show your thinking?"

Activity 2

🕒 20 min

Card Sort: Perfect Ten

Standards Alignments

Addressing 2.NBT.B.7

The purpose of this activity is for students use what they know about combinations of 10 to identify when a ten will be composed when adding a three-digit number and a two-digit number by place. Students are given a set of cards with three-digit numbers and two-digit numbers and work with their group to decide which numbers will make a ten with no extra ones when they are added together (a "perfect ten"). After finding all the matches, each group member chooses a pair and finds the value of the sum. In the synthesis, students discuss how they could tell a pair of

numbers would make a ten by looking at the digits in the ones place. In upcoming lessons, students will use this understanding to anticipate when they may need to compose units when they add 2 three-digit numbers.

When they match numbers whose ones combine to make ten students look for and identify structure which can be helpful when finding sums (MP7).

Access for English Learners

MLR2 Collect and Display. Circulate, listen for, and collect the place value language students use as they match cards to make a perfect ten. On a visible display, record words and phrases such as: compose, decompose, group ten ones, and make a new ten. Invite students to borrow language from the display as needed, and update it throughout the lesson.

Advances: Conversing, Reading

Access for Students with Disabilities

Action and Expression: Develop Expression and Communication. Synthesis. Identify connections between strategies that result in the same outcomes but use differing approaches.

Supports accessibility for: Conceptual Processing

Instructional Routines

Card Sort

Materials to Gather

Base-ten blocks

Materials to Copy

Card Sort Perfect 10 (groups of 3)

Required Preparation

- Create a set of cards from the Instructional master for each group of 3.

Student-facing Task Statement

1. Match each three-digit number to a two-digit number. When you add your numbers together they should make a ten with no extra ones.
2. Pick 1 pair of numbers and find the value of their sum. Show your thinking.

Launch

- Groups of 3–4
- Give each group a set of cards and access to base-ten blocks.

Activity

- “This set of cards includes three-digit numbers and two-digit numbers. Match each three-digit number to a two-digit

Student Responses

1. Card matches:

A-J

B-M

C-N

D-I

E-P

F-O

G-K

H-L

2. Sample response:

- $163 + 27 = 190$
- $7 + 3 = 10$
- $60 + 20 = 80$
- $100 + 80 + 10 = 190$

number, so that when you add them together they will make a ten with no extra ones. When this happens, we are going to say the two numbers make a 'perfect ten.'"

- "Work with your partner to justify your choices."
- As needed, provide an example of two numbers that make a "perfect ten" from the previous activities.
- "After finding all the matches, each group member should choose a different pair of numbers and find their sum."
- "If there is time, switch cards or pick another pair."
- 15 minutes: small-group work time
- Monitor for groups who focus on finding combinations of 10 in the ones place and explain their reasoning.
- Monitor for students to share how they add their pair of numbers to share in the lesson synthesis.

Synthesis

- Invite groups to share the matches they made and how they know those cards go together.
- Attend to the language that students use to describe their matches, giving them opportunities to describe how they knew adding the numbers would result in composing a ten with no extra ones more precisely.

Lesson Synthesis

🕒 10 min

"Today you learned that when you add a two-digit number to a three-digit number, knowing sums of 10 can help you tell if you will need to compose a ten."

Invite previously identified students to share how they found the value of their sums.

Share and record responses.

Suggested Centers

- Five in a Row: Addition and Subtraction (1–2), Stage 7: Add within 1,000 without Composing (Addressing)
- How Close? (1–5), Stage 3: Add to 100 (Supporting)

Complete Cool-Down

Response to Student Thinking

Students find a value other than 190 for the sum.

This lesson builds on the addition and place value concepts developed in an earlier unit.

Next Day Support

- Launch Activity 1 with a discussion about this cool-down.

Prior Unit Support

Grade 2, Unit 2, Section A: Add and Subtract

Lesson 7: Compose a Larger Unit

Standards Alignments

Addressing 2.NBT.B.5, 2.NBT.B.7, 2.NBT.B.8

Teacher-facing Learning Goals

- Add numbers within 1,000 using place value strategies that include composing a ten or hundred.

Student-facing Learning Goals

- Let's add three-digit numbers and compose tens or hundreds.

Lesson Purpose

The purpose of this lesson is for students to add two-digit numbers and three-digit numbers and compose a ten or a hundred. Students relate composing a hundred to composing a ten.

In previous lessons, students used their understanding of place value to add and subtract within 100 by composing and decomposing tens. Students learned that a hundred is a unit that is composed of 10 tens and composed and decomposed hundreds to name the values of base-ten blocks.

In this lesson, the number choices and the use of base-ten blocks encourage students to look for ways to add by place and to anticipate where composing a unit might be needed before adding (MP7).

Access for:

Students with Disabilities

- Representation (Activity 1)

Instructional Routines

How Many Do You See? (Warm-up), MLR8 Discussion Supports (Activity 2)

Materials to Gather

- Base-ten blocks: Activity 1, Activity 2

Materials to Copy

- Walk About and Add Cards (groups of 24): Activity 2

Lesson Timeline

Warm-up 10 min

Teacher Reflection Question

In previous lessons, students were encouraged to make sense of computation methods based

Activity 1	15 min
Activity 2	20 min
Lesson Synthesis	10 min
Cool-down	5 min

on counting on by place that did not explicitly compose a ten or hundred. How did students demonstrate their understanding of hundreds, tens, and ones as units in today's lesson? What evidence have you seen from students that demonstrates an understanding of composing a hundred when adding?

Cool-down (to be completed at the end of the lesson)

🕒 5 min

Make a Ten? Make a Hundred?

Standards Alignments

Addressing 2.NBT.B.7

Student-facing Task Statement

Find the value of $354 + 75$.

Show your thinking. Use base-ten blocks if it helps.

Student Responses

429. Sample responses:

- Students draw a base-ten diagram that shows 354 and 75 with hundreds, tens, and ones. Students group 10 tens and show composing a hundred. Diagram clearly shows 4 hundreds, 2 tens, and 9 ones as the total.
- Students draw a base-ten diagram that shows 354 and 75 with hundreds, tens, and ones. Students clearly group and label 10 tens as 1 hundred, but may not show drawing a new hundred. The diagram and student labeling clearly shows 429 as the sum.

----- Begin Lesson -----

Warm-up

🕒 10 min

How Many Do You See: Are They the Same?

Standards Alignments

Addressing 2.NBT.B.5

The purpose of this How Many Do You See is for students to use grouping strategies to describe the images they see. It gives the teacher an opportunity to hear how students use place value terminology to talk about how many they see and the value represented by a base-ten diagram.

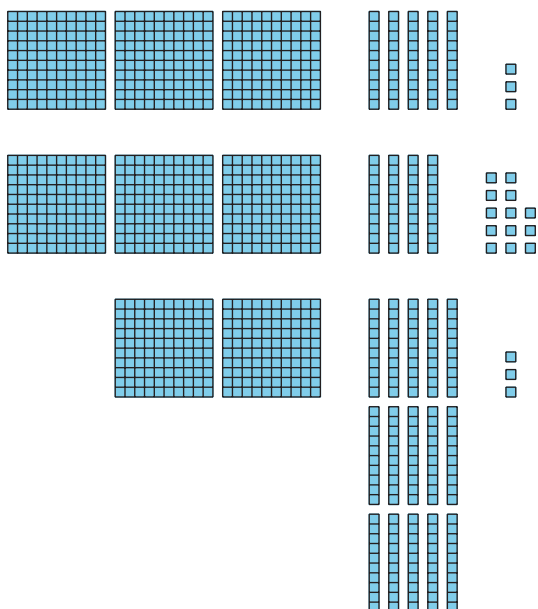
Students may describe how many of each unit they see or may describe the total value of the blocks. In the synthesis, students compare different ways each image represents the same number and describe the ways they could see when larger units could be composed. This understanding will be helpful in the lesson activities when students compose tens and hundreds and anticipate when they may need to compose units.

Instructional Routines

How Many Do You See?

Student-facing Task Statement

How many do you see? How do you see them?



Student Responses

Sample responses:

- 353: I just counted the hundreds, tens, and ones.

Launch

- Groups of 2
- “How many do you see? How do you see them?”
- Flash the image.
- 30 seconds: quiet think time

Activity

- Display the image.
- “Discuss your thinking with your partner.”
- 1 minute: partner discussion
- Record responses.
- Repeat for each image.

Synthesis

- “How are these images the same? How are they different?” (They each represent the same number. They have different amounts of hundreds, tens, and ones.)
- “How could you tell when you could compose a ten or a hundred?” (When there were ten of a unit. I saw two rows of 5 tens, so I knew I

- 353: I saw 340. Then I saw 10 ones and 3 more ones. $340 + 10 = 350$. $350 + 3 = 353$
- 353: I know 15 tens is 150.
 $150 + 200 + 3 = 353$

had enough to count it as 1 hundred.)

Activity 1

🕒 15 min

Compose a Ten or a Hundred

Standards Alignments

Addressing 2.NBT.B.7

The purpose of this activity is for students to find sums that require composing a ten or hundred when adding by place. The numbers in the expressions share the same digits, but one expression requires composing a ten and the other requires composing a hundred when adding by place. Students may use the methods that make sense to them when finding the value of each sum. Monitor for students who use base-ten blocks, base-ten diagrams, or equations to show adding by place and composing new units. The synthesis focuses on representations that show composing a ten and a new hundred.

♿ Access for Students with Disabilities

Representation: Develop Language and Symbols. Make connections between representations visible. Show a side by side representation of using the base-ten blocks and how to notate the mathematics. One partner can write the notation and the other partner can manipulate the base-ten blocks to show the concrete visual.

Supports accessibility for: Conceptual Processing, Language, Social-Emotional Functioning

Materials to Gather

Base-ten blocks

Student-facing Task Statement

1. Find the value of each expression. Show your thinking. Use base-ten blocks if it helps.
 - a. $364 + 28$
 - b. $364 + 82$

Launch

- Groups of 2
- Give students access to base-ten blocks.

2. Compare your thinking with your partner.

Student Responses

1.
 - a. 392. Sample responses:
 - I started with 3 hundreds, 6 tens, and 4 ones. Then I added 2 tens and 8 ones. I exchanged 10 ones for 1 ten. Last, I had 3 hundreds 9 tens and 2 ones or 392.
 - Students draw a base-ten diagram that shows 364 and 28 with hundreds, tens, and ones. They group 10 ones and show composing a ten or group 10 ones and label as 1 ten.
 - b. 446. Sample responses:
 - I started with 3 hundreds, 6 tens, and 4 ones. Then I added 8 tens and 2 ones. I exchanged 10 tens for 1 hundreds block. Last, I had 4 hundreds, 4 tens, and 6 ones.
 - Students draw a base-ten diagram that shows 364 and 82 with hundreds, tens, and ones. Students group 10 tens and show composing a hundred or group 10 tens and label as 1 hundred.
2. Sample responses:
 - We both made a ten when we found $364 + 28$. You used blocks, but I made a diagram.
 - You counted on 2 ones and 8 tens to find $364 + 82$. I used a diagram to show adding tens and ones and making a new hundred. We both said the difference was 446.

Activity

- “Find the value of each expression. Use the base-ten blocks or show your thinking using a diagram, symbols, or other representations.”
- “When you and your partner are finished, compare your thinking.”
- 5 minutes: independent work time
- 5 minutes: partner discussion
- Monitor for students who use base-ten blocks or diagrams to show adding by place and composing hundreds or tens.

Synthesis

- “How was finding the value of the expressions the same? How was it different?” (In both of them you have to make a unit. In the first one you made a ten with 10 ones and in the second one you made a hundred with 10 tens.)
- Invite previously identified students to share their methods.
- “How did ____ represent composing a ten to find the value of $364 + 28$?”
- “How did ____ represent composing a hundred to find the value of $364 + 82$?”
- Consider asking, “When did you notice that you would need to compose a unit?” (I could tell because I knew that there would be more than 10 ones once I started adding. I knew when I got the blocks that there were more than 10 tens.)

Advancing Student Thinking

If students represent the value of a sum with more than 10 of a unit, consider asking:

- “Will you explain your representation to me?”
- “What is the value of the sum? How could you write it as a three-digit number?”
- “Can you use base-ten blocks to show me the total using as few blocks as possible?”

Activity 2

🕒 20 min

Walk About and Add

👤 ↔ 👤 PLC Activity

Standards Alignments

Addressing 2.NBT.B.7, 2.NBT.B.8

The purpose of this activity is for students to practice adding a two-digit number and a three-digit number in sums that require composing a ten or hundred when adding by place. Students are given a card with a three-digit number or a two-digit number. Students with three-digit numbers find a partner with a two-digit number. When students first discuss whether they would need to compose a ten or a hundred when adding their numbers, they look for and make use of place value structure and construct viable arguments (MP3, MP7).

This activity uses *MLR8 Discussion Supports*. Advances: conversing

Instructional Routines

MLR8 Discussion Supports

Materials to Gather

Base-ten blocks

Materials to Copy

Walk About and Add Cards (groups of 24)

Required Preparation

- Create a set of cards from the Instructional master so that each student will receive 1 card.

Student-facing Task Statement

Directions:

- Find a partner and record your numbers to make an expression.
- Discuss if you think you would need to compose a ten or a hundred when adding your numbers.
- Find the value of the sum. Show your thinking.

- _____ + _____
 - Will you need to compose a ten?
Yes or No
 - Will you need to compose a hundred?
Yes or No
 - Find the value of the sum. Show your thinking.



- _____ + _____
 - Will you need to compose a ten?
Yes or No
 - Will you need to compose a hundred?
Yes or No
 - Find the value of the sum. Show your thinking.
- _____ + _____
 - Will you need to compose a ten?
Yes or No
 - Will you need to compose a hundred?
Yes or No
 - Find the value of the sum. Show your

Launch

- Groups of 2
- Give students access to base-ten blocks.
- Give half of the students three-digit cards (A) and the other half two-digit cards (B).

Activity

- “If you have a card with the letter A on it, find someone with a B. Write an expression to show the sum of the numbers on your cards.”
- “Then, before you find the value of the sum, decide whether you think you would compose a ten or a hundred if you added ones to ones and tens to tens. Explain your thinking. You can use base-ten blocks or diagrams to help explain.”

MLR8 Discussion Supports

- Display sentence frames to support students when they explain their strategy and listen to others:
 - “I noticed ____ so I think that ...”
 - “I heard you say ...”
 - “I agree because ...”
 - “I disagree because ...”
- “After you discuss, work together to find the sum. Then trade cards and find another partner.”
- As needed, demonstrate one round with a student.
- 15 minutes: partner work time
- Monitor for students who:
 - use base-ten blocks or diagrams to show that a new unit will be composed
 - use what they know about adding by place and sums of 10 to explain why they knew a new unit would

thinking.

Student Responses

1. Sample response:

- a. $245 + 44$
- b. No. Sample response: Look at the blocks—there are only 9 ones, so we'd need one more to make a ten.
- c. No. Sample response: We only have 8 tens blocks. We won't make a hundred.
- d. $245 + 44 = 289$ Sample response: Students draw a base-ten diagram that shows 245 and 44. Students label their diagram to show the sum.

2. Sample response:

- a. $47 + 634$
- b. Yes. Sample response: 7 ones and 4 ones will be more than 10 ones because $7 + 3 = 10$.
- c. No. Sample response: 4 tens and 3 tens is only 7 tens. We'd need 3 more tens to make a hundred.
- d. $47 + 634 = 681$ Sample response: Students draw a base-ten diagram to show 47 and 634 with hundreds, tens, and ones. Students show grouping 10 ones and composing a new ten. Students label the diagram or use equations to show the sum.

3. Sample response:

- a. $472 + 35$
- b. No. Sample response: $5 + 2 = 7$. There are not enough ones to make a ten.
- c. Yes. Sample response: We will need to add 7 tens and 3 tens. That's 10 tens. 10 tens is the same as a hundred.
- d. $472 + 35 = 507$ Sample response: $5 + 2 = 7$

be composed (I know $8 + 3$ is more than 10, so I know a hundred will be composed when we add 8 tens and 3 tens)

- add 10 or 100 more using a mental strategy

Synthesis

- Invite 2–3 previously identified groups to share how they decided if a ten or hundred would be composed.
- Invite 1–2 previously identified groups to share an expression that resulted in a hundred being composed. Have them share their method for finding the sum.

$$70 + 30 = 100$$
$$400 + 100 + 7 = 507$$

Advancing Student Thinking

If students recognize that they would need to compose a ten or a hundred when adding by place, but do not explain clearly why they know, consider asking:

- “What do you notice about the hundreds, tens, and ones?”
- “How could you represent your numbers with base-ten blocks and show where you would compose a unit?”

Lesson Synthesis

⌚ 10 min

“Today we learned that when you add numbers by place, sometimes you need to compose a larger unit. You found the value of sums and composed a ten or hundred.”

Display $428 + 42$.

“Clare is wondering if she will make a ten or hundred when finding the value of $428 + 42$. How can you tell without a diagram?” (I know there are 8 ones in 428 and 2 ones in 42. $8 + 2 = 10$, so I know when I add the ones it will make a ten.)

Suggested Centers

- Five in a Row: Addition and Subtraction (1–2), Stage 7: Add within 1,000 without Composing (Addressing)
- Number Puzzles: Addition and Subtraction (1–4), Stage 4: Within 100 with Composing (Supporting)

----- Complete Cool-Down -----

Response to Student Thinking

Students show a sum other than 429.

Next Day Support

- Before the warm-up review strategies and solution for the cool-down.

Lesson 8: Compose Tens and Hundreds to Add

Standards Alignments

Addressing 2.NBT.B.7, 2.NBT.B.9

Teacher-facing Learning Goals

- Add a two-digit number to a three-digit number using place value strategies that include composing units.

Student-facing Learning Goals

- Let's compose tens and hundreds to add.

Lesson Purpose

The purpose of this lesson is for students to add within 1,000 using place value-based strategies by composing both a ten and a hundred.

In previous lessons, students related composing a ten and a hundred when adding within 1,000. They found sums that required composing one larger unit when adding by place. Throughout this lesson, the addends in each expression encourage students to consider adding by place. Both activities invite students to make sense of methods based on adding by place and to use the method that makes the most sense to them. Monitor for the different methods students use and how they use their understanding of place value to add and make sense of others' work (MP3, MP7).

Access for:

Students with Disabilities

- Action and Expression (Activity 1)

Instructional Routines

How Many Do You See? (Warm-up), MLR8 Discussion Supports (Activity 1)

Materials to Gather

- Base-ten blocks: Activity 1, Activity 2

Lesson Timeline

Warm-up

10 min

Teacher Reflection Question

Today students composed a ten and a hundred when adding a two-digit number and a three-digit number for the first time. Where did you

Activity 1	20 min
Activity 2	15 min
Lesson Synthesis	10 min
Cool-down	5 min

observe students generalizing their understanding of place value and composing larger units as they found the sums? How will you support students who prefer other methods to make sense of composing units when adding by place as they continue this work in upcoming lessons?

Cool-down (to be completed at the end of the lesson)

🕒 5 min

Make Tens and Hundreds

Standards Alignments

Addressing 2.NBT.B.7

Student-facing Task Statement

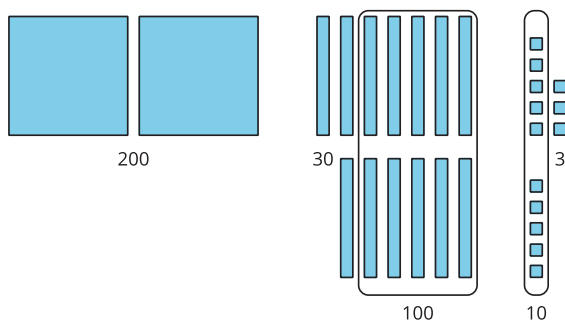
Find the value of $278 + 65$.

Show your thinking. Use base-ten blocks if it helps you.

Student Responses

343. Sample responses:

-



- $200 + 100 + 30 + 10 + 3$
 $300 + 40 + 3 = 343$

 Begin Lesson

Warm-up

🕒 10 min

How Many Do You See: Too Many Tens

Standards Alignments

Addressing 2.NBT.B.7

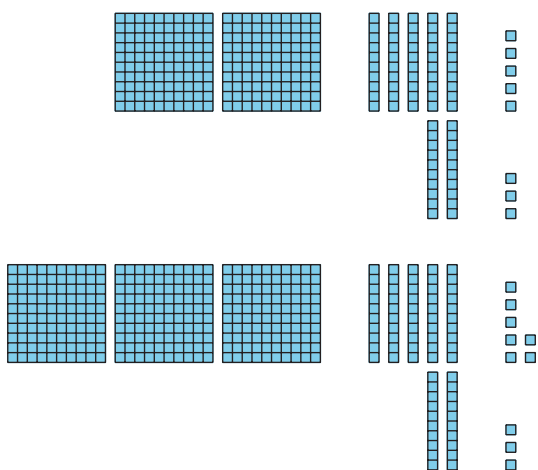
The purpose of this How Many Do You See is to allow students to use grouping strategies to describe amounts represented with base-ten diagrams. Students look for and make use of structure (MP7) when they describe how many they see in terms of place value and how they mentally compose new units to name how many they see.

Instructional Routines

How Many Do You See?

Student-facing Task Statement

How many do you see? How do you see them?



Launch

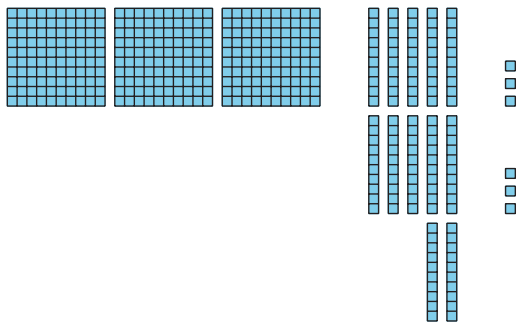
- Groups of 2
- “How many do you see? How do you see them?”
- Flash the image.
- 30 seconds: quiet think time

Activity

- Display the image.
- “Discuss your thinking with your partner.”
- 1 minute: partner discussion
- Record responses.
- Repeat for each image.

Synthesis

- “How were the images the same? How were they different?” (The first two had the same number of tens. I saw a group of three ones in each image. They each showed different values. The last image had more than 10



Student Responses

Sample responses:

- 278: I see 2 hundreds, 7 tens, and 8 ones
- 380: I see 3 hundreds, 7 tens, and 10 ones. 10 ones are the same as 1 ten.
- 426: I see 3 hundreds and 10 tens. It's the same as 4 hundreds. There are 2 other tens and 6 ones.

tens.)

- “What would you need to do to show the value of the third image with the least amount of blocks?” (If you were using blocks, you could exchange 10 tens for 1 hundred. Use one hundred instead of 10 tens.)

Activity 1

🕒 20 min

Compare the Sums

Standards Alignments

Addressing 2.NBT.B.7, 2.NBT.B.9

The purpose of this activity is for students to find the sum of a two-digit and a three-digit number when both a ten and a hundred are composed when adding by place. They find the value of each sum in a string of expressions, where the first addend remains the same, but the second addend changes. These variations result in composing a ten, composing a hundred, and composing both a ten and a hundred.

Although the number choices encourage students to consider adding by place, they may use any method that makes sense to them when finding the value of each sum. Students share their thinking with a partner and explain why their method works (MP3). The lesson synthesis focuses on students sharing and making sense of strategies based on place value and using place value language to describe what they noticed about the sums and composing larger units (MP7).

This activity uses *MLR8 Discussion Supports*. Advances: conversing

Access for Students with Disabilities

Action and Expression: Internalize Executive Functions. Invite students to plan a strategy by thinking aloud with their partner. Students should include whether the base-ten blocks will be used and what place value they will begin with in order to solve the problem.

Supports accessibility for: Language, Organization, Social-Emotional Functioning

Instructional Routines

MLR8 Discussion Supports

Materials to Gather

Base-ten blocks

Student-facing Task Statement

Find the value of each sum. Show your thinking. Use base-ten blocks if it helps.

1. $273 + 18$
2. $273 + 81$
3. $273 + 88$
4. What was the same and different about the sums?



Student Responses

1. 291. Sample responses:
 - Students draw a base-ten diagram that shows 273 and 18. Students show grouping 10 ones and composing a new ten or label the group as 1 ten.
 - $200 + 80 + 10 + 1 = 281$
2. 354. Sample responses:

Launch

- Groups of 2
- Give students access to base-ten blocks.

Activity

- “Find the value of each sum. Show your thinking using diagrams, symbols, or other representations. Use base-ten blocks if it helps. After you find each sum, compare your method to your partner’s.”

MLR8 Discussion Supports

- Display sentence frames to support students when they compare methods:
 - “We have the same sum, but ...”
 - “We have different sums because ...”
 - “Our thinking is the same because ...”
 - “Our thinking is different because ...”
- 12 minutes; partner work time
- Monitor for students who find the sum of $273 + 88$ by grouping by place value using base-ten blocks or a base-ten diagram.

- Students draw a base-ten diagram that shows 273 and 81. Students show grouping 10 tens and composing a new hundred or label the group as 1 hundred.
 - $200 + 100 + 50 + 4 = 354$
3. 361. Sample responses:
- Students draw a base-ten diagram that shows 273 and 88. Students show grouping 10 ones and composing a new ten and show grouping 10 tens and composing a new hundred. Students may also group and label 10 tens as 1 hundred and 10 ones as 1 ten.
 - $200 + 100 + 50 + 10 + 1 = 361$

Synthesis

- Invite previously identified students to share their work for $273 + 88$.
- “How did ____ find the sum?”
- “What was the same and different about what you did to find the value of each sum?” (We had to make a ten and a hundred for the last one. For the first 2, we just had to make a ten or a hundred.)

Activity 2

🕒 15 min

Different Ways to Show Your Thinking

Standards Alignments

Addressing 2.NBT.B.7

The purpose of this activity is for students to make sense of different representations of student thinking when adding at three-digit number and a two-digit number. First, students analyze base-ten diagrams and corresponding equations that represent the sum that requires composing a ten and a hundred when adding by place. They make connections between the methods and discuss how they are the same and different. In the synthesis, students compare and connect their own methods for adding within 1,000 using their understanding of place value.

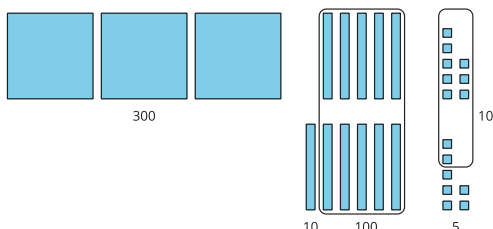
Materials to Gather

Base-ten blocks

Student-facing Task Statement

- Priya and Lin were asked to find the value of $358 + 67$.

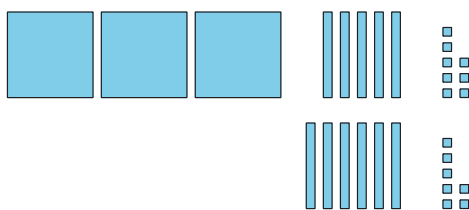
Priya's work



$$300 + 100 + 10 + 10 + 5$$

$$400 + 20 + 5 = 425$$

Lin's work



$$3 \text{ hundreds} + 11 \text{ tens} + 15 \text{ ones}$$

$$11 \text{ tens} = 110$$

$$15 \text{ ones} = 15$$

$$300 + 110 + 15 = 425$$

What do you notice about their work? What is the same and different about their representations? Be prepared to explain your thinking.

- Find the value of $546 + 86$. Show your thinking. Use base-ten blocks if it helps.

Student Responses

- Sample responses:
 - Priya used the diagrams and wrote

Launch

- Groups of 2
- Give students access to base-ten blocks.

Activity

- "Priya and Lin were asked to find the value of $358 + 67$. They represented their thinking in different ways. What is the same and different about their representations?" (Priya used the diagrams and wrote equations. Priya circled the new units she made in her diagram. Lin wrote the units and added them first. They found the same value.)
- 5 minutes: partner discussion
- "Where do you see each student composing new units?" (Priya circled 10 tens to show a new hundred and circled 10 ones to show a new ten. Lin added the units and has 11 tens and 11 ones. 11 tens is the same as 1 hundred and 1 ten and 11 ones is the same as 1 ten and 1 one.)
- 30 seconds: quiet think time
- 1 minute: partner discussion
- Share and record responses.
- "Now you are going to find the value of $546 + 86$ and represent your thinking."
- 5 minutes: independent work time
- Monitor for students who represent place value strategies using:
 - base-ten blocks or base-ten diagrams
 - equations in unit form
 - equations with only numbers

Synthesis

- Invite previously identified students to share their work.
- "What's the same across these

equations.

- Priya circled the units she made in her diagram.
- Lin counted the number of each unit. Then she showed their value.
- They found the same value.

2. Sample responses:

- Students draw a base-ten diagram to show 546 and 86 like Priya's diagram. Students circle 10 tens and label the group as 1 hundred and circle 10 ones and label as 1 ten. Student labeling clearly shows the sum as 632.
- $500 + 100 + 20 + 10 + 2$
 $600 + 30 + 2 = 632$
- 5 hundreds + 4 tens + 6 ones
8 tens + 6 ones

5 hundreds + 12 tens + 12 ones

12 tens = 120

12 ones = 12

 $500 + 120 + 12 = 632$

representations? What is different?" (They all got the same answer. They all made a ten and a hundred. Some used words, some used diagrams, and some used only numbers.)

Advancing Student Thinking

If students create diagrams or other representations to show how they added by place, but it is unclear how they composed hundreds or tens, ask students to explain their representation. Consider asking, "How can you show others that you composed a ten or hundred here?"

Lesson Synthesis

🕒 10 min

"Today you learned that sometimes you need to make a ten and a hundred when adding. We also saw that there are different ways to represent our thinking."

"Which representations do you find most helpful to show your thinking? Why?"

Suggested Centers

- Five in a Row: Addition and Subtraction (1–2), Stage 7: Add within 1,000 without Composing (Addressing)
- Number Puzzles: Addition and Subtraction (1–4), Stage 4: Within 100 with Composing (Supporting)

Complete Cool-Down

Response to Student Thinking

Students find a value other than 343.

Next Day Support

- Before the warm-up, have students work in partners to discuss a correct response to this cool-down.

Lesson 9: Add Three-digit Numbers

Standards Alignments

Addressing 2.NBT.B.7, 2.NBT.B.9

Teacher-facing Learning Goals

- Add 2 three-digit numbers using place value strategies that include composing 2 units.

Student-facing Learning Goals

- Let's practice adding within 1,000.

Lesson Purpose

The purpose of this lesson is for students to add 2 three-digit numbers.

In previous lessons, students added a two-digit number and a three-digit number. They shared and compared methods and representations that showed adding by place and composing units.

In this lesson, students practice adding within 1,000. They add two three-digit numbers using methods based on place value and the properties of operations. Students also compare diagrams and drawings to written methods that use equations and expressions. They analyze work to identify why a method worked and identify any errors if the method did not work (MP3).

Access for:

Students with Disabilities

- Engagement (Activity 1)

Instructional Routines

MLR8 Discussion Supports (Activity 1), Number Talk (Warm-up)

Materials to Gather

- Base-ten blocks: Activity 1, Activity 2

Lesson Timeline

Warm-up	10 min
Activity 1	20 min

Teacher Reflection Question

Reflect on who participated in math class today. What assumptions are you making about those who did not participate? How can you leverage

Activity 2	15 min
Lesson Synthesis	10 min
Cool-down	5 min

each of your students' ideas to support them in being seen and heard in tomorrow's math class?

Cool-down (to be completed at the end of the lesson)

🕒 5 min

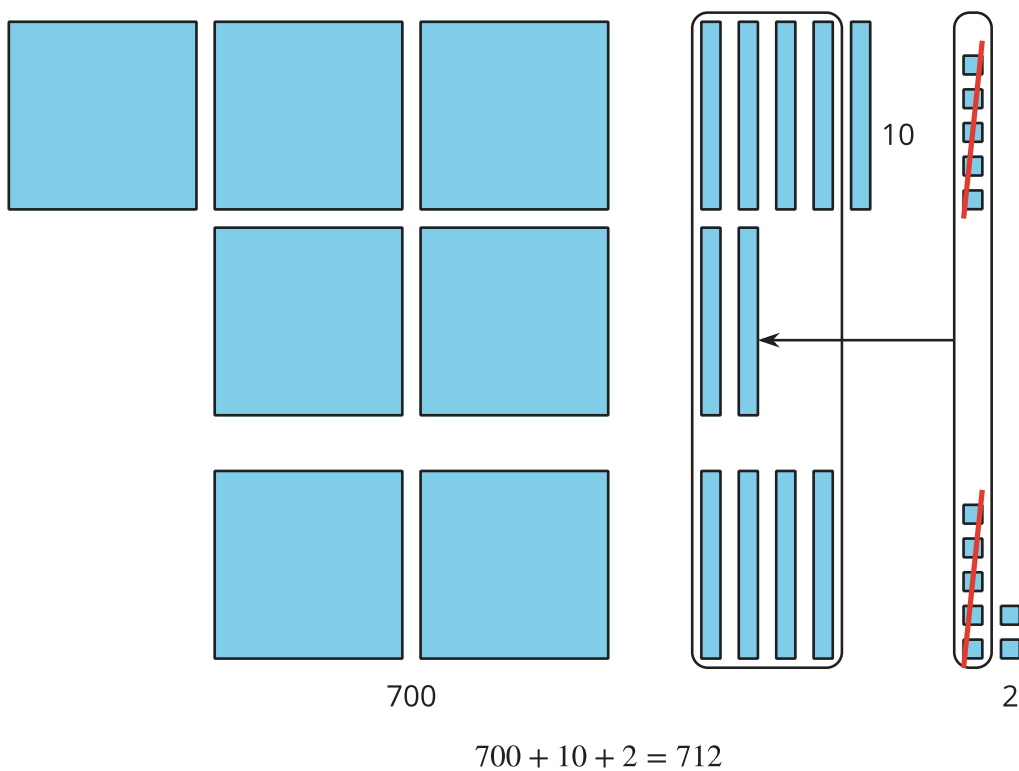
Find the Sum

Standards Alignments

Addressing 2.NBT.B.7

Student-facing Task Statement

Priya used a diagram to find the value of $565 + 247$.



Did she find the correct value? Explain or show your thinking.

Student Responses

No. Sample response: Priya showed 565 and 247 and grouped 10 tens by circling them. She did not add the hundred she composed into the sum, so her answer is 100 less than it should be.

Begin Lesson

Warm-up

🕒 10 min

Number Talk: Ten and Some More

Standards Alignments

Addressing 2.NBT.B.7

The purpose of this Number Talk is to elicit strategies and understandings students have for making a ten when adding a one-digit number to three-digit numbers. In the synthesis, the focus is on how students look for ways to make ten. These understandings help students develop fluency and will be helpful in the lesson as students add 2 three-digit numbers and consider composing units.

Instructional Routines

Number Talk

Student-facing Task Statement

Find the value of each expression mentally.

- $528 + 2$
- $528 + 7$
- $487 + 3$
- $487 + 8$

Student Responses

- 530: I counted on two more. 528, 529, 530.
- 535: I knew $528 + 2 = 530$. Since I'm adding 7, I needed to add 5 more to get 535.

Launch

- Display one expression.
- "Give me a signal when you have an answer and can explain how you got it."
- 1 minute: quiet think time

Activity

- Record answers and strategies.
- Keep expressions and work displayed.
- Repeat with each expression.

- 490: I knew $7 + 3 = 10$, so $480 + 10 = 490$.
- 495: I know $487 + 3 = 490$. $8 = 3 + 5$, so I needed to add 5 more. $490 + 5 = 495$.

Synthesis

- “What do you notice about the sums?” (I made a ten to find the sum. They all show adding some ones to three-digit numbers. There’s a pattern in the ones—0 ones, 5 ones, 0 ones, 5 ones.)
- “Why are $528 + 2$ and $487 + 3$ helpful in finding the value of the other expressions?” (We know they make a new ten, so it helped me think about how I could decompose a number to help make a ten.)

Activity 1

 20 min

How Did You Add Three-digit Numbers?

Standards Alignments

Addressing 2.NBT.B.7, 2.NBT.B.9

The purpose of this activity is for students to practice adding within 1,000 with an emphasis on adding by place. Throughout the activity, students have opportunities to explain their methods and representations to peers. In the synthesis, students have opportunities to question and critique the work of their peers as they compare different methods for adding three-digit numbers and different representations that show composing units when adding by place (MP3).

This activity uses *MLR8 Discussion Supports*. Advances: conversing

Access for Students with Disabilities

Engagement: Provide Access by Recruiting Interest. Provide choice. Invite students to decide which problem to start with and the strategy they feel most comfortable solving with.

Supports accessibility for: Social-Emotional Functioning, Organization, Attention

Instructional Routines

MLR8 Discussion Supports

Materials to Gather

Base-ten blocks

Student-facing Task Statement

Find the value of each expression. Show your thinking.

1. $384 + 409$
2. $757 + 152$
3. $262 + 438$
4. $575 + 166$

Student Responses

1. 793. Sample response:
 - $300 + 80 + 4 + 400 + 9$
 $700 + 80 + 13 = 793$
2. 909. Sample responses:
 - $7 + 2 = 9$
 $50 + 50 = 100$
 $700 + 100 = 800$
 $800 + 100 + 9 = 909$
 - Students create a base-ten diagram that shows 757 and 152. Students show grouping 10 tens and composing a hundred. Student labeling or equations clearly show the sum as 909.
3. 700. Sample response:
 - $200 + 400 = 600$
 $60 + 30 = 90$
 $8 + 2 = 10$
 $600 + 90 + 10 = 700$
4. 741. Sample response: Students create a base-ten diagram to show 575 and 166. Students show grouping 10 ones to compose a ten and 10 tens to compose a hundred. Student labeling clearly shows a sum of 741.

Launch

- Groups of 2
- Give students access to base-ten blocks.

Activity

- “We are going to practice adding 2 three-digit numbers. You can find the value of each sum in any way that makes sense to you. After some time working independently, you can continue working with a partner.”

MLR8 Discussion Supports

- Display sentence frames to support students when they explain their strategy:
 - “First, I ____ because . . .”
 - “I noticed ____ so I . . .”
- 5 minutes: independent work time
- 4 minutes: partner work time
- “Choose one expression and share how you found the value of the sum with a new partner.”
- 3 minutes: partner discussion
- Monitor for students who use base-ten blocks, base-ten diagrams, or other representations that clearly show adding by place.

Synthesis

- Invite 2–3 previously identified students to share their representations and how they found the value of the sums.
- “How are these methods the same? How are they different?”

Advancing Student Thinking

If students lose track of the tens or hundreds they compose (for example, $384 + 409 = 783$) or do not compose a ten or hundred, prompt students to explain their thinking and any representations they use. Consider asking:

- “How does your representation show that you composed a new unit?”
- “What could you add to your representation to help you keep track of any tens or hundreds you compose?”
- “How could you use base-ten blocks to show your thinking?”

Activity 2

 15 min

Analyze and Add

Standards Alignments

Addressing 2.NBT.B.7, 2.NBT.B.9

The purpose of this activity is for students to analyze two methods for finding a sum within 1,000. Students use what they know about adding by place and composing units to determine which method shows the correct value of the sum. Students discuss why one method did not work and ways the method could be adjusted to find the correct sum (MP3).

Materials to Gather

Base-ten blocks

Student-facing Task Statement

Noah and Kiran showed how they found the value of $267 + 338$.

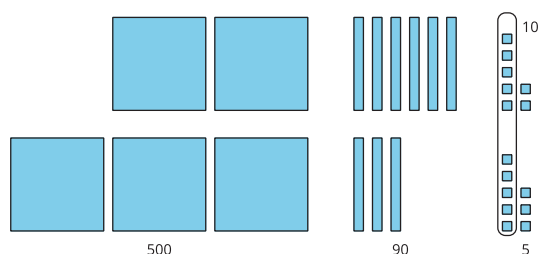
Noah's work

Launch

- Groups of 2
- Give students access to base-ten blocks.

Activity

- “Noah and Kiran were asked to find the value of $267 + 338$. Take a minute to look at each student's work.”



$$500 + 90 + 5 = 595$$

Kiran's work

$$\begin{aligned} 200 + 300 &= 500 \\ 60 + 30 &= 90 \\ 7 + 8 &= 15 \\ 500 + 90 + 15 & \\ 500 + 90 + 10 + 5 & \\ 500 + 100 + 5 &= 605 \end{aligned}$$

- How is Noah and Kiran's work the same? How is it different?
- Which student found the correct value? Explain or show your thinking.



Student Responses

- Sample responses:
 - They both show adding by place.
 - Noah used a base-ten diagram and Kiran used equations.
 - They found different values.
 - Noah forgot to add the ten he made from the ones, which made 10 tens or a hundred.

- 1–2 minutes: quiet think time
- "Discuss how Noah and Kiran's work is the same and how it is different. Then explain which student found the correct value of the sum. Show how you know."
- 10 minutes: partner work time
- Monitor for groups that match Kiran's equations to Noah's diagram to explain where Noah could improve his work.

Synthesis

- "How is Noah and Kiran's work the same? How is it different?" (They both show adding by place. Noah used a base-ten diagram and Kiran used equations. They found different values. Noah forgot to add the ten he made from the ones. He had enough tens to make a hundred.)
- "Which student found the correct value for $267 + 338$? How do you know?"
- Invite previously identified students to share.
- Consider asking:
 - "Where do you see the step Noah missed in Kiran's work?"

2. Sample responses:

- Noah’s way did not work. He added his tens but didn’t add the ten he made from the ones. He should have 10 tens or 1 hundred.
- Students draw a base-ten diagram that shows grouping 10 ones to make a ten. Students also show grouping 10 tens to make a new hundred.
- $500 + 90 + 10 + 5 = 500 + 100 + 5 = 605$

Lesson Synthesis

🕒 10 min

Display Kiran’s way and any work samples that show different methods from Activity 1.

“Today we added two three-digit numbers and looked at different methods and representations.”

“How are the methods and representations you saw today the same? How are they different?”

“Which method do you prefer? Which would you like to practice more?”

Suggested Centers

- Five in a Row: Addition and Subtraction (1–2), Stage 7: Add within 1,000 without Composing (Addressing)
- Number Puzzles: Addition and Subtraction (1–4), Stage 4: Within 100 with Composing (Supporting)

Complete Cool-Down

Response to Student Thinking

Students say Priya’s work is correct or disagree without an explanation.

Next Day Support

- Before the warm-up, have students work in partners to discuss a correct response to

this cool-down.

Lesson 10: Add within 1,000

Standards Alignments

Building On 2.NBT.A.2
Addressing 2.NBT.B.7, 2.NBT.B.9

Teacher-facing Learning Goals

- Add numbers within 1,000 using strategies based on place value and the properties of operations.

Student-facing Learning Goals

- Let's find sums within 1,000 and explain our strategies.

Lesson Purpose

The purpose of this lesson is for students to add three-digit numbers using strategies based on place value and the properties of operations.

In previous lessons, students used properties of operations, their understanding of the count sequence, and their understanding of place value to add within 1,000. They used different methods and representations to add by place and compose tens and hundreds.

In this lesson, students choose their own methods for adding within 1,000 and share their methods with their peers. They also have opportunities to explain why they chose their methods based on the numbers in an expression. They also analyze the relationship between two numbers in an equation to find an unknown value. Students use what they know about composing units to find unknown three-digit numbers when they are partially covered.

This lesson has a Student Section Summary.

Access for:

Students with Disabilities

- Action and Expression (Activity 1)

Instructional Routines

Card Sort (Activity 1), Number Talk (Warm-up)

Materials to Gather

- Base-ten blocks: Activity 1, Activity 2

Materials to Copy

- How Did You Do That? Addition Card Sort

(groups of 1): Activity 1

Lesson Timeline

Warm-up	10 min
Activity 1	20 min
Activity 2	15 min
Lesson Synthesis	10 min
Cool-down	5 min

Teacher Reflection Question

Unlike talking, listening is a difficult thing to observe. At what points in the lesson did you observe students listening to one another's ideas today in class? What indicators do you have that they were listening?

Cool-down (to be completed at the end of the lesson)

🕒 5 min

Different Methods for Adding within 1,000

Standards Alignments

Addressing 2.NBT.B.7, 2.NBT.B.9

Student-facing Task Statement

$495 + 305$

$287 + 438$

$599 + 112$

$232 + 648$

- Choose one expression and find the value by adding by place. Show your thinking.
 - Explain why you chose this sum.

$495 + 305$

$287 + 438$

$599 + 112$

$232 + 648$

- Choose a different expression and find the value using a different method. Show your thinking.
 - Explain why you chose this sum.

Student Responses

- Sample response:

- $287 + 438$
 $200 + 400 = 600$
 $80 + 30 = 110$
 $7 + 8 = 15$
 $600 + 110 + 15 = 725$
 - b. Sample response: I chose $287 + 438$ to add by place because I didn't see a way to count up to get to a ten or hundred quickly and I knew I needed to compose units.
2. a. Sample response:
- $495 + 305$
 $495 + 5 = 500$
 $500 + 300 = 800$
 - b. I chose $495 + 305$ to use a different method because I knew 495 was really close to the next hundred and I saw 305 had a 5 in the ones place. I added 5 to get to 500, then just added on 3 more hundreds.

Begin Lesson

Warm-up

🕒 10 min

Number Talk: Use Sums to Find Sums

Standards Alignments

Addressing 2.NBT.B.7

This Number Talk encourages students to think about the relationship between addends in an expression and to rely on what they know about making the next ten or next hundred to mentally solve problems. These understandings help students develop fluency and will be helpful later in this lesson when students are asked to choose methods that make sense to them and explain their choices. As students share their thinking, consider recording on an open number line.

Instructional Routines

Number Talk

Student-facing Task Statement

Find the value of each expression mentally.

- $199 + 23$
- $198 + 24$
- $297 + 25$
- $395 + 27$

Student Responses

- 222: $199 + 1 = 200$, $23 - 1 = 22$,
 $200 + 22 = 222$
- 222: $198 + 2 = 200$, $24 - 2 = 22$,
 $200 + 22 = 222$
- 322: $297 + 3 = 300$, $25 - 3 = 22$,
 $300 + 22 = 322$
- 422: $395 + 5 = 400$, $27 - 5 = 22$,
 $400 + 22 = 422$

Launch

- Display one expression.
- “Give me a signal when you have an answer and can explain how you got it.”
- 1 minute: quiet think time

Activity

- Record answers and strategies.
- Keep expressions and work displayed.
- Repeat with each expression.

Synthesis

- “When finding $199 + 23$, we could think about adding by place and composing a ten and a hundred.”
- “Some people thought about counting on to get to the next hundred and then added what was left. Why is that a useful method?” (199 is really close to a new hundred. It’s easier for me to add $200 + 22$ in my head than try to add by place in my head.)

Activity 1
 20 min

Card Sort: Three-digit Sums

Standards Alignments

Addressing 2.NBT.B.7, 2.NBT.B.9

The purpose of this activity is for students to sort addition expressions based on their perceived difficulty. They find the values of expressions they feel are less challenging and expressions they feel are more challenging. Then they compare the methods they use for the expressions they solve with their peers. When sharing, students have opportunities to ask questions about the methods and representations their peers use and suggest methods or representations for expressions that peers may feel are difficult to solve (MP3).

When students sort the expressions they look for place value structure to see how they would find the sums (MP7).

Access for Students with Disabilities

Action and Expression: Internalize Executive Functions. Check for understanding by inviting students to rephrase directions in their own words. Allow students to check off each task as it is completed.
Supports accessibility for: Memory, Organization

Instructional Routines

Card Sort

Materials to Gather

Base-ten blocks

Materials to Copy

How Did You Do That? Addition Card Sort
(groups of 1)

Required Preparation

- Create a set of cards from the Instructional master for each group of 2.

Student-facing Task Statement

- Sort the cards into 2 groups with your partner.
 - Make a group of expressions that you agree the value is less challenging to find.
 - Make another group of expressions that you agree the value is more challenging to find.
 - Keep any expressions together that you and your partner disagree on.
- Choose an expression that you feel is less challenging.
Find the value of the sum. Show your thinking.
- Choose an expression that you feel is more challenging.
Find the value of the sum. Show your thinking.

Launch

- Groups of 2
- Give each group a set of cards.
- Give students access to base-ten blocks.

Activity

- “This set of cards includes different expressions. Sort the cards by thinking about whether it would be less challenging or more challenging to find the value of the sum.”
- “Make 1 group of sums that you both agree would be less challenging. Make another group of sums that you agree would be more challenging.”
- “If you cannot agree on where to place a card, keep it separate from the other groups.”

4. Discuss one card you and your partner disagreed on. If you felt the expression was more challenging, explain why. If you felt the expression was less challenging, explain your method.



Student Responses

1. Answers vary.
2. Sample responses:
 - $762 + 125 = 887$. I thought it was less challenging because I didn't need to compose a ten or a hundred.
 - $399 + 224 = 623$. I thought it was less challenging because you can just add 1 to make 400 and then just add on the hundreds. $399 + 1 = 400$, $223 + 400 = 623$.
3. Sample response:
 - $429 + 378 = 807$. I thought it was more challenging because the numbers were not friendly. I drew a base-ten diagram and had to compose a ten and a hundred.
4. Sample responses:
 - I think $198 + 257$ is more challenging because I don't think the numbers are very friendly, and I'd have to add with larger digits like 7, 8, and 9.
 - I disagree. I think the numbers are friendly because 198 is close to 200. You can add on 2 from 257 to get 200. Then add 200 to 255. The sum is 455.

MLR8 Discussion Supports

- Display sentence frames to support students when they share their reasoning:
 - "I think this value is less difficult to find because ..."
 - "I think this value is more difficult to find because ..."
 - "I agree because ..."
 - "I disagree because ..."
- "Choose one expression from each category and find the value of the sum. Show your thinking using diagrams, symbols, or other representations."
- 6 minutes: partner work time
- "If you have not started finding the value of the sums, please do so."
- 5 minutes: independent work
- 4 minutes: partner discussion
- Monitor for students who choose sums that are:
 - less difficult because they do not involve making new units
 - less difficult because they can use the relationships between the numbers to find the sum mentally
 - more difficult based on the number of compositions required
 - more difficult based on the size of the numbers or digits

Synthesis

- Invite a previously identified student to share how they found the value they felt was less challenging to find.
- "What questions do you have for ____ about their method?"

MLR8 Discussion Supports

- Display question starters:

- “Why did you ...?”
- “Can you say more about ...?”
- “Did you think about trying ...?”
- 1 minute: quiet think time
- Invite 2–3 students to ask questions.
- Repeat with a previously identified student to share a value they felt was more challenging to find.
- If time, continue to select students to share strategies for expressions that they felt were less or more challenging.

Advancing Student Thinking

If students sort most or all of their cards into the “more challenging” group, consider asking:

- “How could using what you know about sums of 10 help you sort these expressions?”
- “How could you arrange your expressions in order of ‘least challenging’ to ‘most challenging’?”

Activity 2

🕒 15 min

Find the Unknown Value

Standards Alignments

Building On 2.NBT.A.2

Addressing 2.NBT.B.7

The purpose of this activity is for students find an unknown addend in sums that have a value of 1,000. They may use what they know about counting by 5, 10, and 100 or use what they know about composing larger units. Although students do not need to know that a thousand is a unit made up of 10 hundreds in grade 2, listen for students who generalize their understanding of place value to make this conjecture to share in the synthesis.

Materials to Gather

Base-ten blocks

Student-facing Task Statement

Oh no! Diego spilled paint on his paper and now he can't see all the digits in each of his equations.

$$900 + \text{[blacked out]} = 1,000$$

1. What three-digit number makes the equation true? Show your thinking.

$$5\text{[blacked out]} + 430 = 1,000$$

2. What three-digit number makes the equation true? Show your thinking.

$$\text{[blacked out]}85 + 615 = 1,000$$

Student Responses

1. 570. Sample response: $500 + 430 = 930$, I need 70 more to get to 1,000.
2. 385. Sample response: $615 + 85 = 700$. Then you need 3 more hundreds to get to 1,000.

Launch

- Groups of 2.
- Give students access to base-ten blocks.
- Display the image that shows $900 + \underline{\quad}0 = 1,000$.
- "Oh no! Diego spilled paint on his paper and now he can't see the whole number. What three-digit number do you think is covered up? How do you know?" (100. Because it's like counting to 1,000 by 100. It would be 900, 1,000.)
- 30 seconds: quiet think time
- 1 minute: partner discussion
- Share responses.

Activity

- "Now you are going to make sense of a couple more equations where Diego made a mess. Each equation has a part of the three-digit number that is covered up by paint. You'll work on your own at first, and then have time to share with a partner."
- 5 minutes: independent work time
- 5 minutes: partner work time
- Monitor for students who added $615 + 85$ to find the unknown value for $\underline{\quad}85 + 615 = 1,000$.

Synthesis

- Invite previously identified students to share their work.
- "How did find the unknown number?" (They started by adding the 85 to the 615 to get 700. Then they knew they needed 3 more hundreds to get to 1,000.)

- Share responses and record with equations and on an open number line.

Lesson Synthesis

🕒 10 min

“Today you added with three-digit numbers using methods that made sense to you. You shared ways to think about the addends in an expression to choose a method for finding the value of a sum.”

Display $429 + 387$ and $498 + 387$.

“Which of these expressions might be more challenging? Why?” (In both expressions, a ten and a hundred will be composed, but since 498 is very close to 500, it would be easier to me.)

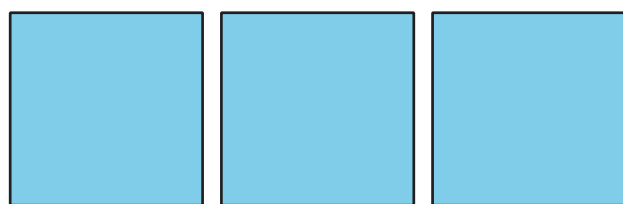
Suggested Centers

- Five in a Row: Addition and Subtraction (1–2), Stage 7: Add within 1,000 without Composing (Addressing)
- Number Puzzles: Addition and Subtraction (1–4), Stage 4: Within 100 with Composing (Supporting)

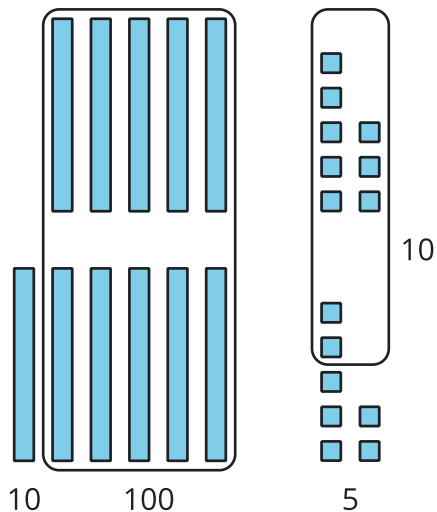
Student Section Summary

In this section of the unit, we learned many different ways to add three-digit numbers using what we know about place value. We used base-ten blocks, diagrams, and equations to show adding hundreds to hundreds, tens to tens, and ones to ones. We learned that when you add by place, you may need to compose a ten, a hundred, or both.

Base-ten Diagram
 $358 + 67$



300



Unit Form and Equations

$$358 + 67$$

3 hundreds + 11 tens + 15 ones

11 tens = 110

15 ones = 15

$$300 + 110 + 15 = 425$$

Adding by Place

$$267 + 338$$

$$200 + 300 = 500$$

$$60 + 30 = 90$$

$$7 + 8 = 15$$

$$500 + 90 + 15$$

$$500 + 90 + 10 + 5$$

$$500 + 100 + 5 = 605$$

----- Complete Cool-Down -----

Response to Student Thinking

Students use the same method for both sums.

Next Day Support

- After the warm-up in the next lesson, pair students up to discuss their responses.

Lesson 11: Center Day 2 (Optional)

Standards Alignments

Addressing 2.NBT.B.6, 2.NBT.B.7

Teacher-facing Learning Goals

- Add numbers within 1,000.

Student-facing Learning Goals

- Let's add numbers within 1,000.

Lesson Purpose

The purpose of this lesson is for students to practice adding numbers within 1,000.

This lesson is optional because it is an opportunity for extra practice that not all classes may need. In Activity 1, students learn stage 4 of the How Close center. In this new stage, called Add to 1,000, students pick 8 digit cards and then choose 6 of those to make an expression that yields a number as close as possible to the target number, 1,000. In Activity 2, students learn stage 8 of the Five in a Row center, Add within 1,000 with Composing, and then choose to continue working on Five in a Row, or choose between two previously introduced centers focused on addition with three-digit numbers.

Instructional Routines

Number Talk (Warm-up)

Materials to Gather

- Materials from previous centers: Activity 2
- Number cards 0–10: Activity 1
- Paper clips: Activity 2
- Two-color counters: Activity 2

Materials to Copy

- How Close? Stage 4 Recording Sheet (groups of 1): Activity 1
- Five in a Row Addition and Subtraction Stage 8 Gameboard (groups of 2): Activity 2

Lesson Timeline

Warm-up	10 min
Activity 1	15 min
Activity 2	25 min
Lesson Synthesis	10 min

Teacher Reflection Question

When do your students feel successful in math?
How do you know?

Begin Lesson

Warm-up

🕒 10 min

Number Talk: Make 100

Standards Alignments

Addressing 2.NBT.B.6

The purpose of this Number Talk is to elicit strategies and understandings students have for adding more than 2 two-digit numbers by making 100. The unit of cents also encourages students to consider how the value could be expressed using dollars, cents, or a combination of the two units. These understandings help students develop fluency.

Instructional Routines

Number Talk

Student-facing Task Statement

Find the value of each expression mentally.

- $80¢ + 20¢ + 37¢$
- $80¢ + 20¢ + 37¢ + 42¢$
- $75¢ + 37¢ + 25¢$
- $75¢ + 80¢ + 25¢ + 20¢$

Student Responses

- 137¢ or 1 dollar and 37¢: $80¢ + 20¢ = 100¢$, $100¢ + 37¢ = 137¢$
- 179¢ or 1 dollar and 79¢: $80¢ + 20¢ = 100¢$, $37¢ + 42¢ = 79¢$, $100¢ + 79¢ = 179¢$
- 137¢ or 1 dollar and 37¢: 75¢ and 25¢ make \$1. It's \$1 and 37¢
- 200¢ or 2 dollars: $75¢ + 25¢ = 100¢$, $80¢ + 20¢ = 100¢$, $100¢ + 100¢ = 200¢$

Launch

- Display one expression.
- “Give me a signal when you have an answer and can explain how you got it.”
- 1 minute: quiet think time

Activity

- Record answers and strategies.
- Keep expressions and work displayed.
- Repeat with each expression.

Synthesis

- Revisit a student strategy that shows looking for a way to make 100 first and expresses the total in cents.
- Consider asking:
 - “Who can restate ____'s reasoning in a different way?”
 - “Who can restate ____'s reasoning using dollars and cents?”

Activity 1

🕒 15 min

Introduce How Close?, Add to 1,000

Standards Alignments

Addressing 2.NBT.B.7

The purpose of this activity is for students to learn stage 4 of the How Close center. Students pick a given number of digit cards and then choose a subset of those to make an expression that yields a number as close as possible to the target number. Before playing, students remove the cards that show 10 and set them aside. Each student picks 8 cards and chooses 5 or 6 of them to create 2 three-digit numbers. Each student adds the numbers. The score for the round is the difference between each student's sum and 1,000. Students pick new cards so that they have 8 cards in their hands and then start the next round. The player with the lowest score after 10 rounds wins.

Materials to Gather

Number cards 0–10

Materials to Copy

How Close? Stage 4 Recording Sheet (groups of 1)

Launch

- Give each group a set of number cards and two copies of the Instructional master.
- “We are going to learn a new way to play the How Close center.”
- “Before you play, remove the cards that show 10 and set them aside.”
- “Each person picks 8 cards and chooses 6 of them to create 2 three-digit numbers. Then add your three-digit numbers.”
- “The score for the round is the difference between your sum and 1,000.”
- “Then pick new cards so that you have 8 cards in your hand and then start the next round.”
- “The player with the lowest score after 10 rounds wins.”

- Answer any questions or play a round with the class as needed.

Activity

- 10 minutes: partner work time

Synthesis

- “What strategies did you use to add the numbers?”

Activity 2

🕒 25 min

Introduce Five in a Row, Add Within 1,000 with Composing

Standards Alignments

Addressing 2.NBT.B.7

The purpose of this activity is for students to learn stage 8 of the Five in a Row: Addition and Subtraction center. Students add within 1,000 with sums that require composing units when adding by place.

Then, students choose from any stage of previously introduced centers.

- Five in a Row
- How Close?

Materials to Gather

Materials from previous centers, Paper clips, Two-color counters

Materials to Copy

Five in a Row Addition and Subtraction Stage 8 Gameboard (groups of 2)

Required Preparation

- Each group of 2 needs 10 counters and 2 paper clips.
- Gather materials from:
 - Five in a Row, Stages 7–8

○ How Close, Stage 4

Student-facing Task Statement

Choose a center.

Five a Row: Addition and Subtraction



How Close?

$$\begin{array}{|c|} \hline \square \\ \hline \end{array} + \begin{array}{|c|} \hline \square \\ \hline \end{array} = \underline{\quad}$$

Launch

- Groups of 2
- Give each group two paper clips, counters, and a gameboard.
- “We are going to learn a new way to play the Five in a Row center. The center is the same as previous versions, but now you might need to compose new units when you add.”
- “Take a minute to read the directions with your partner.”
- Answer any questions.
- “Play this new version of Five in a Row with your partner.”

Activity

- 10 minutes: partner work time
- “Now you can choose another center. You can also continue playing Five in a Row.”
- Display the center choices in the student book.
- Invite students to work at the center of their choice.
- 10 minutes: center work time
- If time, invite students to choose another center.

Synthesis

- “What did you like about the activities you worked on today?”

Lesson Synthesis

🕒 10 min

“When might you need to add numbers like the ones you worked with in these centers?”

Section C: Subtract within 1,000 using Place Value Strategies

Lesson 12: Decompose to Subtract

Standards Alignments

Addressing 2.NBT.A.1, 2.NBT.A.3, 2.NBT.B.7

Teacher-facing Learning Goals

- Subtract numbers within 1,000 using place value strategies that include decomposing a ten.

Student-facing Learning Goals

- Let's subtract within 1,000.

Lesson Purpose

The purpose of this lesson is for students to decompose a ten in order to subtract within 1,000.

In previous units, students used methods based on place value to decompose a ten when subtracting within 100. In this lesson, students extend their understanding of decomposing tens to subtract by place within 1,000. In the first activity, students are invited to use whatever method makes sense to them to subtract one- and two-digit numbers from a three-digit number. In the following activity, they use base-ten blocks to subtract from a three-digit number and reason about when a ten is decomposed when subtracting by place.

Access for:

Students with Disabilities

- Engagement (Activity 1)

Instructional Routines

MLR7 Compare and Connect (Activity 1), What Do You Know About ____? (Warm-up)

Materials to Gather

- Base-ten blocks: Activity 1, Activity 2

Lesson Timeline

Warm-up	10 min
Activity 1	15 min
Activity 2	20 min
Lesson Synthesis	10 min
Cool-down	5 min

Teacher Reflection Question

In previous units, students decomposed a ten when subtracting two-digit numbers. How did you see students use this understanding as they subtracted from three-digit numbers in this lesson?

Cool-down (to be completed at the end of the lesson)

🕒 5 min

Subtract

Standards Alignments

Addressing 2.NBT.B.7

Student-facing Task StatementFind the value of $652 - 24$. Show your thinking.**Student Responses**

628. Sample responses:

- Students draw a base-ten diagram that shows 652 as 6 hundreds, 5 tens, and 2 ones. Students show decomposing 1 ten to make 10 ones. Students cross out 2 tens and 4 ones.
- $652 - 20 = 632$
 $632 - 2 = 630$
 $630 - 2 = 628$

----- **Begin Lesson** -----**Warm-up**

🕒 10 min

What Do You Know About 354?

Standards Alignments

Addressing 2.NBT.A.1, 2.NBT.A.3

The purpose of this What Do You Know About ____ is to invite students to share what they know and how they can represent the number 354. It gives the teacher an opportunity to hear how students think about representing a three-digit number by decomposing or renaming units. This will be helpful as students decompose units to subtract within 1,000 in future activities.

Instructional Routines

What Do You Know About ____?

Student-facing Task Statement

What do you know about 354?

How could we represent the number 354?

Student Responses

Sample responses:

- It's a three-digit number.
- It has the digits 3, 5, and 4.
- You can show it as 3 hundreds, 5 tens, and 4 ones.
- It's close to 350. It's 4 more than 350.
- You could represent it as 2 hundreds 15 tens and 4 ones.
- You could represent it as 354 ones.
- You could represent it as 3 hundreds 4 tens and 14 ones.

Launch

- Display the number.
- "What do you know about 354?"
- 1 minute: quiet think time

Activity

- Record responses.
- "How could we represent the number 354?"

Synthesis

- "Why might you need to represent 354 in different ways?" (You might want to show the value of each digit to compare numbers. You might want to decompose to subtract.)

Activity 1

🕒 15 min

Subtract from 354

Standards Alignments

Addressing 2.NBT.B.7

The purpose of this activity is for students to subtract one-digit and two-digit numbers from a three-digit number using the methods that make sense to them. Each difference would require students to decompose a ten to subtract by place. They may count back or count on by place to find the difference. They may also use their understanding of place value and their experiences decomposing a ten when they subtracted within 100. In the synthesis, focus on connecting and comparing these different methods and making sense of representations that show decomposing a unit when subtracting by place.

When students use base-ten blocks, number lines, or equations to find the value of each difference they use appropriate tools strategically (MP5).

This activity uses *MLR7 Compare and Connect*. Advances: representing, conversing.

Access for Students with Disabilities

Engagement: Provide Access by Recruiting Interest. Optimize meaning and value. Invite students to share ideas of items to sell (cupcakes, sports cards, video games, etc.) and use that as the context around the problems to solve. Discuss the action of selling to represent subtraction.

Supports accessibility for: Attention, Conceptual Processing

Instructional Routines

MLR7 Compare and Connect

Materials to Gather

Base-ten blocks

Student-facing Task Statement

Find the value of each expression in any way that makes sense to you. Explain or show your reasoning.

1. $354 - 7$
2. $354 - 36$
3. $354 - 48$

Launch

- Groups of 2
- Give students access to base-ten blocks.

Activity

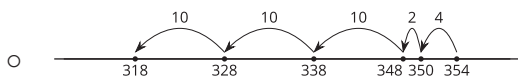
- “Find the value of each expression in any way that makes sense to you. Explain or show your reasoning.”
- 3–4 minutes: independent work time

Student Responses

1. 347. Sample response:

- $354 - 4 = 350$, $350 - 3 = 347$

2. 318. Sample responses:



3. 306. Sample responses:

- I know 48 is close to 50, so I took away 50 first. $354 - 50 = 304$. I added 2 back on since I took away too many. $304 + 2 = 306$.



- 3–4 minutes: partner discussion
- Monitor for an expression that generates a variety of student methods or representations to share in the synthesis, such as:
 - using base-ten blocks
 - drawing a number line
 - writing their reasoning in words
 - writing equations

Synthesis

MLR7 Compare and Connect

- Invite one previously identified student who used a method that did not explicitly show decomposing a ten to share.
- Invite one previously identified student to show how they decomposed a ten to subtract with base-ten blocks or a base-ten diagram.
- “What is the same and what is different about the ways ___ and ___ represented the problem?” (___ used base-ten blocks and showed decomposing a ten. ___ showed a number line and counting back 36. They used the same numbers. They found the same difference.)

Activity 2

🕒 20 min

Decompose with Base-ten Blocks

Standards Alignments

Addressing 2.NBT.B.7

The purpose of this activity is for students to practice decomposing a unit to subtract by place. In

this activity, all students use base-ten blocks to find the value of each difference. Some students may be able to find the difference without blocks, but since this is the first time they decompose a unit when subtracting beyond 100, the blocks allow all students to see the work of decomposing a unit. This concrete experience will help students interpret other representations and anticipate when they may need to decompose units in future lessons. The blocks also provide a support for students as they create arguments for why they think they will decompose a unit and explain how they find the difference (MP3).

As needed, ask students to decompose a tower of ten connecting cubes into ones. Ask students how they would show the same decomposition with base-ten blocks.

Materials to Gather

Base-ten blocks

Student-facing Task Statement

Work with your partner to find the value of each expression.

- Partner A: Read the expression and represent the larger number using blocks.
- Partner B: Decide if you will decompose a ten and explain. Then subtract.
- Discuss and write the difference.
- Switch roles.

1. $264 - 38$
2. $274 - 41$



3. $336 - 115$
4. $343 - 127$
5. $485 - 266$
6. $451 - 315$

Launch

- Groups of 2
- Give students base-ten blocks.

Activity

- “Now we are all going to use base-ten blocks to subtract.”
- “Work with your partner to find the value of each expression. One partner will start by reading the expression and representing the larger number using blocks.”
- “The next partner will decide if they think they will decompose any units to subtract. Then they will take away blocks to show the difference.”
- “Discuss the difference and record it.”
- As needed, demonstrate with $142 - 25$.
- 10 minutes: partner work time

Synthesis

- Invite a group to share how to use blocks to find the value of $336 - 115$.
- “What did ____ do to find the value of the difference?”

Student Responses

1. 226.
 - Sample response: Yes. We will decompose a ten for 10 ones.
 - Sample response: Students build 264 with 2 hundreds, 6 tens, and 4 ones. Students take away 3 tens. Students exchange 1 ten for 10 ones and take away 8 ones. Remaining is 2 hundreds, 2 tens, and 6 ones.
 2. 233.
 - Sample response: No. We will not decompose a ten. We have enough tens and ones to take away 1.
 - Sample response: Students build 274 with 2 hundreds, 7 tens, and 4 ones. Students take away 4 tens and 1 one. Remaining is 2 hundreds, 3 tens, and 3 ones.
 3. 221.
 - Sample response: No. We will not decompose a ten because we have enough hundreds, tens, and ones to take away 115.
 - Sample response: Students build 336 with 3 hundreds, 3 tens, and 6 ones and take away 1 hundred, 1 ten, and 5 ones. Remaining is 2 hundreds, 2 tens, and 1 one.
 4. 216.
 - Sample response: Yes. We will decompose a ten because we need more ones. We do not have enough ones to take away 7.
 - Sample response: Students build 343 with 3 hundreds, 4 tens, and 3 ones and exchange 1 ten for 10 ones to show decomposing a ten. From 3 hundreds, 3 tens and 13 ones, they take away 1 hundred, 2 tens, and 7 ones. Remaining is 2 hundreds, 1 ten,
- Invite a group to share how to use blocks to find the value of $343 - 127$.
 - "What did ____ do to find the value of the difference?"

and 6 ones.

5. 219.

- Sample response: Yes. We will decompose a ten because we need more ones to take away 6 ones.
- Sample response: Students build 485 with 4 hundreds, 8 tens, and 5 ones and exchange 1 ten for 10 ones to show decomposing a ten. From 4 hundreds, 7 tens, and 15 ones, they take away 2 hundreds, 6 tens, and 6 ones. Remaining is 2 hundreds, 1 ten, and 9 ones.

6. 136.

- Sample response: Yes. We will decompose a ten because we need to take away 5 ones and we only have 1 one.
- Sample response: Students build 451 using 4 hundreds, 5 tens, and 1 one and exchange 1 ten for 10 ones to show decomposing a ten. From 4 hundreds, 4 tens, and 11 ones, they take away 3 hundreds, 1 ten, and 5 ones. Remaining is 1 hundred, 3 tens, and 6 ones

Advancing Student Thinking

If students add ones to their representation without taking away a ten when they show a decomposition, ask the group to explain their steps. Consider asking:

- “Did you decompose a ten to subtract?”
- “How could you use the blocks to show that you decomposed a ten?”

Lesson Synthesis

🕒 10 min

“Today we saw that we can subtract by place with larger numbers, and sometimes a ten is

decomposed.”

“How did you know when a ten would be decomposed when you subtracted three-digit numbers?” (I could tell when I looked at the ones place and saw I didn't have enough ones to subtract ones from ones.)

“How was this the same as when you subtracted two-digit numbers? How was it different?” (It was just like when we subtracted two-digit numbers. It's different because one of the numbers has hundreds.)

Suggested Centers

- How Close? (1–5), Stage 4: Add to 1,000 (Addressing)
- Five in a Row: Addition and Subtraction (1–2), Stage 8: Add within 1,000 with Composing (Addressing)

Complete Cool-Down

Response to Student Thinking

Students find a solution other than 628.

The work in this lesson builds from the subtraction concepts developed in a prior unit.

Next Day Support

- Before the warm-up, pass back the cool down and work in small groups to make corrections.

Prior Unit Support

Grade 2, Unit 2, Section B: Decompose to Subtract

Lesson 13: Decompose Tens or Hundreds

Standards Alignments

Addressing 2.NBT.B.7, 2.NBT.B.9

Building Towards 2.NBT.B.7

Teacher-facing Learning Goals

- Subtract numbers within 1,000 using place value strategies that include decomposing a ten or hundred.

Student-facing Learning Goals

- Let's decompose a ten or hundred to subtract.

Lesson Purpose

The purpose of this lesson is for students to subtract from three-digit numbers using place value strategies that include decomposing a ten or hundred.

In a previous lesson, students subtracted from a three-digit number using place value strategies that included decomposing a ten.

In this lesson, students interpret representations of subtraction that show decomposing a ten and hundred. They use base-ten blocks and their understanding of place value to explain why the method works (MP7). Students may continue to use the base-ten blocks or any representation that makes sense to them to subtract within 1,000.

Access for:

Students with Disabilities

- Action and Expression (Activity 2)

English Learners

- MLR5 (Activity 1)

Instructional Routines

Which One Doesn't Belong? (Warm-up)

Materials to Gather

- Base-ten blocks: Activity 1, Activity 2

Lesson Timeline

Warm-up	10 min
Activity 1	15 min
Activity 2	20 min
Lesson Synthesis	10 min
Cool-down	5 min

Teacher Reflection Question

Which students came up with an unexpected strategy in today's lesson? What are some ways you can be more open to the ideas of each and every student?

Cool-down (to be completed at the end of the lesson)

🕒 5 min

More Subtraction

Standards Alignments

Addressing 2.NBT.B.7, 2.NBT.B.9

Student-facing Task Statement

Find the value of $519 - 236$. Show your thinking.

Student Responses

283. Sample responses:

- Students draw a base-ten diagram that shows 519 as 5 hundreds, 1 ten, and 9 ones. Students show decomposing a hundred to make 10 tens. Students cross out 2 hundreds, 3 tens, and 6 ones. Labels or equations clearly show the difference as 283.
- $519 - 200 = 319$
 $319 - 10 = 309$
 $309 - 10 = 299$
 $299 - 16 = 283$

----- **Begin Lesson** -----

Warm-up

 10 min

Which One Doesn't Belong: Blocks and Blocks

Standards Alignments

Building Towards 2.NBT.B.7

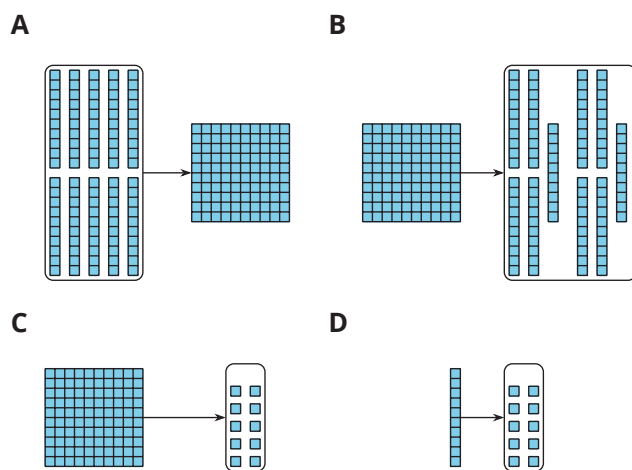
This warm-up prompts students to compare four images of base-ten blocks. This gives the teacher an opportunity to hear how students describe the blocks and how they use “compose” or “decompose” to describe their understanding of equivalent forms of a hundred and a ten. This will be helpful as students decompose hundreds and tens to subtract and interpret base-ten representations in the lesson activities.

Instructional Routines

Which One Doesn't Belong?

Student-facing Task Statement

Which one doesn't belong?



Student Responses

Sample responses:

- A doesn't belong because it's the only one that doesn't show decomposing a larger unit. It's the only one that doesn't show the larger unit on the left.
- B doesn't belong because it's the only one

Launch

- Groups of 2
- Display the image.
- “Pick one that doesn't belong. Be ready to share why it doesn't belong.”
- 1 minute: quiet think time

Activity

- “Discuss your thinking with your partner.”
- 2-3 minutes: partner discussion
- Share and record responses.

Synthesis

- “Which images could show a way to decompose a hundred? Explain.” (B because 10 tens is the same as a hundred. A is close, but I think it shows composing a hundred.)
- “Which images do not show a way to decompose a hundred?” (C because 10 ones are not the same as a hundred. D because it could show a ten as 10 ones.)

that doesn't show the smaller unit in rows and columns.

- C doesn't belong because it's the only that doesn't show any tens. It's the only one that doesn't show a way to decompose a hundred or a ten.
- D doesn't belong because it's the only one that doesn't show a hundred block.

Activity 1

🕒 15 min

Subtract with Base-ten Diagrams

Standards Alignments

Addressing 2.NBT.B.7

The purpose of this activity is for students to interpret base-ten diagrams that represent decomposing a unit when subtracting by place (MP2). Students analyze a base-ten diagrams that show decomposing a hundred into 10 tens. They make connections between representing with base-ten blocks and base-ten diagrams and between decomposing a hundred and decomposing a ten.

🌐 Access for English Learners

MLR5 Co-Craft Questions. Keep books or devices closed. Display only the images, without revealing the question, and ask students to write down possible mathematical questions that could be asked about the situation. Invite students to compare their questions before revealing the task. Ask, "What do these questions have in common? How are they different?" Reveal the intended questions for this task and invite additional connections.

Advances: Reading, Writing

Materials to Gather

Base-ten blocks

Student-facing Task Statement

Mai used base-ten blocks to find the value of $336 - 52$. Then, she started making a diagram

Launch

- Groups of 2

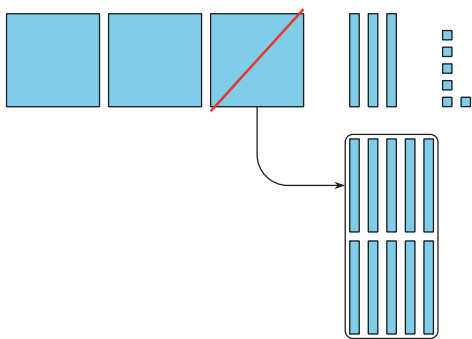
to show her work.

Explain what Mai did in Step 2. Show what Mai should do next to find the difference.

Step 1



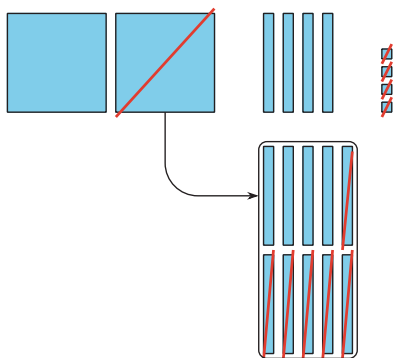
Step 2



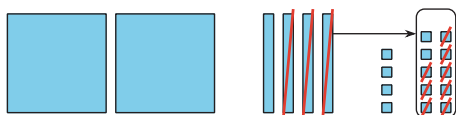
1. Write each expression next to the matching diagram. Then find the value of each difference.

$244 - 28$ $256 - 64$ $244 - 64$

a.



b.



c.

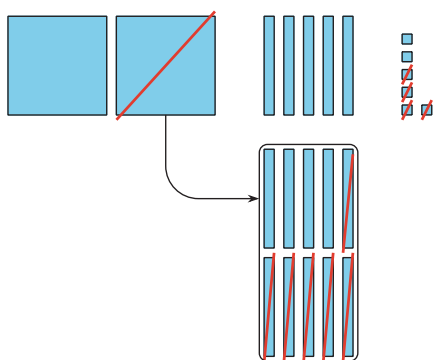
- Give students access to base-ten blocks.
- “Mai found the value of $336 - 52$ using base-ten blocks. She started recording her thinking with a base-ten diagram.”
- “Take a minute to look at Mai’s diagram. What did she do in Step 2?”
- 1 minute: quiet think time
- “Talk to your partner about Mai’s representation. Explain what she is doing in each step.”
- 1–2 minutes: partner work time
- “What does Mai do in her first step?” (First, she draws 336 with 3 hundreds, 3 tens, and 6 ones.)
- “What does Mai do next?” (Next, she breaks apart a hundred into 10 tens.)
- “What should Mai do next to find the difference? Show your work on Mai’s diagram.”
- 1–2 minutes: independent work time
- “Share your thinking with your partner.”
- Display sentence frames:
 - “First, I . . .”
 - “Then, I . . .”
 - “The difference is . . .”
- Invite a student who describes crossing out tens first then ones and a student who describes crossing out ones first then tens to share their steps and the difference.

Activity

- “Work with your partner to match each expression to one of the diagrams. Then find the value of each difference.”
- 3–5 minutes: partner work time

Synthesis

- Invite students to share the expression that matches each diagram.



- “What did you have to pay attention to as you matched each diagram to an expression?” (I had to look at the numbers that were being subtracted. I looked for where there were more tens or more ones drawn when there weren’t enough tens or ones.)

Student Responses

- $244 - 64 = 180$
 - $244 - 28 = 216$
 - $256 - 64 = 192$

Advancing Student Thinking

If students match an expression to a diagram that doesn't show the same value, consider asking:

- “How does the diagram show each number in the expression?”

Activity 2

🕒 20 min

Decompose a Ten or Hundred

Standards Alignments

Addressing 2.NBT.B.7, 2.NBT.B.9

The purpose of this activity is for students to subtract by place and record their thinking. Students decompose either a ten or a hundred as they subtract. They should have access to base-ten blocks, but can represent their thinking in any way that makes sense to them. Throughout the activity, as students share their thinking with their peers, listen for the way they use place value vocabulary and provide them with opportunities to revise their language for precision and clarity.

Access for Students with Disabilities

Action and Expression: Develop Expression and Communication. Provide students with alternatives to writing on paper. Students can share their learning by creating a video using the base-ten blocks, or writing out their steps and explaining on video.

Supports accessibility for: Language, Attention, Social-Emotional Functioning

Materials to Gather

Base-ten blocks

Student-facing Task Statement

Find the value of each difference. Show your thinking. Try Mai's way for one expression.

1. $245 - 28$
2. $352 - 71$
3. $364 - 182$
4. $293 - 147$
5. Share how you found the value of one of the expressions to your partner. Use the sentence frames to help explain:
 - "First, I . . ."
 - "Next, I . . ."
 - "Then, I . . ."
 - "Last, I . . ."



Student Responses

1. 217. Sample response:
 - Students draw a base-ten diagram that shows 245 as 2 hundreds, 4 tens, and 5 ones. Students show decomposing 1 ten to make 10 ones. Students cross out 2 tens and 8 ones.

Launch

- Groups of 2
- Give students access to base-ten blocks.

Activity

- "We are going to practice subtracting by place. Show your thinking in a way that will make sense to others."
- 5 minutes: independent work time
- 4 minutes: partner work time
- Monitor for students who use base-ten diagrams and explain their steps clearly.

Synthesis

- Invite previously identified students to share how they found the value of each difference.
- After each student shares, consider asking:
 - "Did ____ decompose to subtract? Why? How can you use their diagram to tell?"
 - "How is ____'s method the same as how you found this difference? How is it different?"
 - "What questions do you have for ____ about their steps or their representation?"

Students clearly label to show the difference as 217.

2. 281. Sample response:

- $352 - 71$

$$352 - 1 = 351$$

$$351 - 50 = 301$$

$$301 - 20 = 281$$

3. 182. Sample response:

- Students draw a base-ten diagram that shows 364 as 3 hundreds, 6 tens, and 4 ones. Students show decomposing 1 hundred to make 10 tens. They cross out 1 hundred, 8 tens, and 2 ones and clearly label to show the difference as 182.

4. 146. Sample response:

- Students draw a base-ten diagram that shows 293 as 2 hundreds, 9 tens, and 3 ones. Students show decomposing 1 ten to make 10 ones. They cross out 1 hundred, 4 tens, and 7 ones and clearly label to show the difference as 146.

5. Sample response:

- First, I took out 2 hundreds, 9 tens, and 3 ones to show 293. Then I exchanged 1 ten for 10 ones to show decomposing a ten so I could have enough ones to subtract. Then, I took away 7 ones. Last, I took away 4 tens and 1 hundred. I had 1 hundred, 4 tens, and 6 ones. So the difference is 146.

Advancing Student Thinking

If students only use base-ten blocks to solve and do not show their thinking with a diagram, equations, or words, consider asking:

- “How could you record how you used the blocks with a diagram or with equations?”

Lesson Synthesis

🕒 10 min

“Today we decomposed tens or hundreds to subtract by place.”

Display $534 - 41$ and draw a base-ten diagram to represent 534.

“Kiran wanted to take away by place and use a base-ten diagram to keep track of his thinking. First, Kiran drew 534 as 5 hundreds, 3 tens, and 4 ones. What could Kiran do next? Explain.” (He could take away 1 one because he has enough to subtract. He could cross out 1 hundred and draw 10 tens, because he needs more tens to subtract.)

Suggested Centers

- How Close? (1–5), Stage 4: Add to 1,000 (Addressing)
- Five in a Row: Addition and Subtraction (1–2), Stage 8: Add within 1,000 with Composing (Addressing)

Complete Cool-Down

Response to Student Thinking

Students find a difference other than 283.

Next Day Support

- Before the warm-up, select a student's cool-down from the previous lesson. Ask students to identify what the student did well and what the student needs to do to improve the cool-down.

Lesson 14: Think Before You Subtract

Standards Alignments

Addressing 2.NBT.A.1, 2.NBT.B.7, 2.NBT.B.9

Teacher-facing Learning Goals

- Subtract a two-digit number from a three-digit number using place value strategies that include decomposing 2 units.

Student-facing Learning Goals

- Let's think about decomposing before we subtract.

Lesson Purpose

The purpose of this lesson is for students to analyze expressions to determine if a unit will be decomposed before subtracting.

In a previous lesson, students subtracted from a three-digit number and decomposed a ten or a hundred to subtract by place. Students represented their thinking with base-ten blocks, drawings, words, or numbers and explained the steps of their method.

In this lesson, students subtract two-digit numbers from three-digit numbers when 2 units are decomposed. Students are encouraged to attend to the details of the numbers in each expression to decide whether or not any units will need to be decomposed before subtracting (MP7). Throughout the lesson, students explain their reasoning and critique their peers' reasoning as they use their understanding of place value to analyze expressions and plan their methods (MP3).

Access for:

Students with Disabilities

- Action and Expression (Activity 2)

Instructional Routines

Which One Doesn't Belong? (Warm-up)

Materials to Gather

- Base-ten blocks: Activity 1, Activity 2

Lesson Timeline

Warm-up	10 min
Activity 1	15 min
Activity 2	20 min
Lesson Synthesis	10 min
Cool-down	5 min

Teacher Reflection Question

What connections did students make between the different methods and reasoning shared in today's lesson? What evidence are you seeing that students' are using their understanding of place value to make sense of expressions and other's methods for subtraction?

Cool-down (to be completed at the end of the lesson)

🕒 5 min

Decompose? Maybe.

Standards Alignments

Addressing 2.NBT.B.7

Student-facing Task Statement

Han wants to subtract by place to find the value of these expressions.

$$463 - 38$$

$$463 - 52$$

$$463 - 75$$

- Han wants to start by subtracting without decomposing any units.
 - Which expression should he choose?
 - Find the value of the expression. Show your thinking.
- Choose an expression that Han will need to decompose a unit if he subtracts by place.

$$463 - 38$$

$$463 - 52$$

$$463 - 75$$

- Write the expression and explain your choice.
- Find the value of the expression. Show your thinking.

Student Responses

- $463 - 52$
 411. Sample response:
 - $3 - 2 = 1$

$$60 - 50 = 10$$

$$400 + 10 + 1 = 411$$

2.
 - a. Sample response: $463 - 75$ because there aren't enough tens or ones for Han to subtract by place without decomposing any units.
 - b. Sample response: Students draw a base-ten diagram that shows 463 as 4 hundreds, 5 tens, and 13 ones. Students show decomposing 1 hundred, to make 10 tens. They cross out 7 tens and 5 ones and clearly label to show the difference as 388.

Begin Lesson

Warm-up

🕒 10 min

Which One Doesn't Belong: Blocks and Blocks and Blocks

Standards Alignments

Addressing 2.NBT.A.1

This warm-up prompts students to carefully analyze and compare base-ten diagrams. The activity also enables the teacher to hear the terminologies students know and how they talk about composing and decomposing numbers with hundreds, tens, and ones.

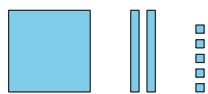
Instructional Routines

Which One Doesn't Belong?

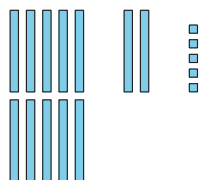
Student-facing Task Statement

Which one doesn't belong?

A

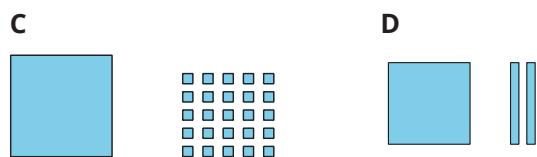


B



Launch

- Groups of 2
- Display the image.
- "Pick one that doesn't belong. Be ready to share why it doesn't belong."
- 1 minute: quiet think time



Student Responses

Sample responses:

- A doesn't belong because it doesn't use 2 different units (it has 3 different units).
- B doesn't belong because it doesn't have any hundreds.
- C doesn't belong because it doesn't have any tens.
- D doesn't belong because it doesn't show 125. It doesn't have any ones.

Activity

- "Discuss your thinking with your partner."
- 2-3 minutes: partner discussion
- Share and record responses.

Synthesis

- "What do A, B, and C have in common?" (They all show 125.)
- "Why would you want to represent 125 with 12 tens instead of 1 hundred and 2 tens?" (If you are going to subtract more than 2 tens.)

Activity 1

Agree to Disagree

🕒 15 min

👤 ↔ 👤 PLC Activity

Standards Alignments

Addressing 2.NBT.B.7, 2.NBT.B.9

The purpose of this activity is for students to use their understanding that numbers can be decomposed in different ways to subtract within 1,000. They use what they know about place value to make sense of two different ways for finding the same difference (MP7). They describe how it is helpful to represent the number with enough tens and ones to subtract, rather than needing to redraw or exchange blocks to represent decomposing a unit. They also learn that sometimes it may be necessary to decompose a hundred and a ten to subtract within 1,000.

Materials to Gather

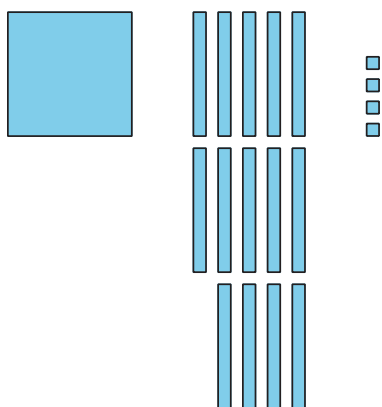
Base-ten blocks

Student-facing Task Statement

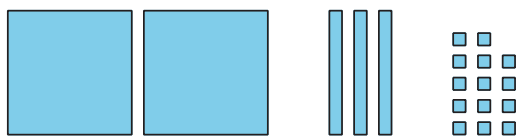
Tyler and Clare are subtracting by place to find the value of $244 - 67$. Tyler says he will decompose before he starts. Clare says she agrees.

The diagrams show each student's first step.

Tyler:



Clare:



1. What is the same about Tyler and Clare's diagrams? What is different?
2. Work together to complete Tyler's way and Clare's way to find the value of $244 - 67$.
3. What do Tyler and Clare's diagrams look like after the last step? What is the same about these diagrams? What is different?

Student Responses

1. Sample response:
 - They both show 244.
 - They both started their drawing with a unit already decomposed.
 - Tyler decomposed a hundred so he had enough tens to take away 6 tens.

Launch

- Groups of 2
- Give students access to base-ten blocks.
- "Tyler and Clare each used base-ten diagrams to find the value of $244 - 67$. Tyler and Clare both agreed that they should decompose units before they subtract."
- "Look at Tyler and Clare's first steps. What did they do? What do you believe they were they thinking?"
- 1-2 minutes: quiet think time
- 2 minutes: partner discussion
- Share responses.

Activity

- "Work with your partner to complete Tyler's way and Clare's way. When you finish, compare the diagrams."
- 4 minutes: partner work time

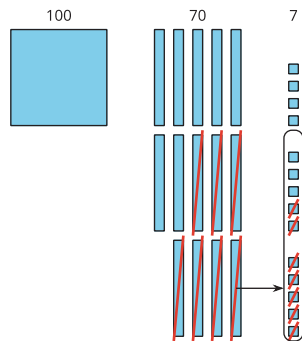
Synthesis

- Display student work that shows using Tyler's way and Clare's way to find the difference.
- "How were Tyler's way and Clare's way the same? How were their methods different?" (They both show decomposing a ten and a hundred to subtract. They both show the same difference. Tyler decomposed a hundred first, then a ten. Clare decomposed a ten first, then a hundred.)

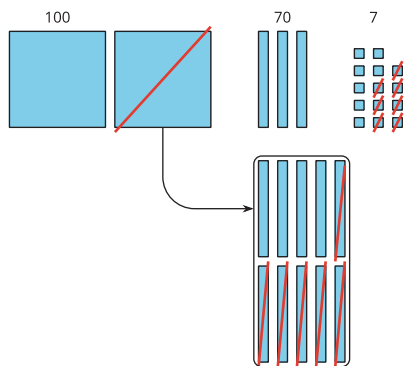
- Clare decomposed a ten so she had enough ones to take away 7 ones.

2. Sample response:

- Tyler's way:



- Clare's way:



3. Sample response:

- They both show subtracting 6 tens and 7 ones.
- They both show the same difference.
- The number of ones are the same in each diagram.
- Tyler's way only shows one hundred because he decomposed in his first step.
- Clare's way only shows 13 total tens because she decomposed 1 ten in her first step.

Advancing Student Thinking

If students do not see that Tyler's first step and Clare's first step show the same number, prompt

students to use base-ten blocks or a base-ten diagram to show 244. Consider asking:

- “If your representation shows 244, what unit did Tyler decompose?”
- “If your representation shows 244, what unit did Clare decompose?”

Activity 2

🕒 20 min

Sort and Subtract

Standards Alignments

Addressing 2.NBT.B.7

The purpose of this activity is for students to think about the numbers and attend to the value of the digits in subtraction expressions before beginning to subtract (MP7). Students determine whether or not they will decompose to subtract by place. They also determine whether they will decompose more than one unit. Students find the value of different expressions by using any method that makes sense to them.

♿ Access for Students with Disabilities

Action and Expression: Internalize Executive Functions. Check for understanding by inviting students to rephrase directions in their own words. Be sure students can explain when it is necessary to decompose.

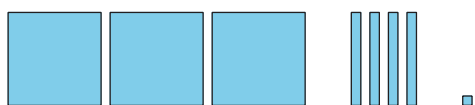
Supports accessibility for: Memory, Organization

Materials to Gather

Base-ten blocks

Student-facing Task Statement

Here is a base-ten diagram for 341.



Andre wants to use diagrams and subtract by

Launch

- Groups of 2
- Give students access to base-ten blocks.
- Draw or display the base-ten diagram for 341.
- “Andre wants to use a diagram to find the

place to find the value of $341 - 68$. He says he will decompose a ten and a hundred to subtract. Why do you think he said that?

- Andre only wants to use a diagram to subtract by place if he will decompose a unit. Help Andre sort the expressions into groups. If you are not sure, use base-ten blocks or a diagram to help.

$599 - 66$	$449 - 88$	$346 - 78$
$633 - 55$	$237 - 29$	$321 - 34$
$457 - 45$	$735 - 72$	$645 - 87$
$905 - 42$	$693 - 63$	$866 - 58$
$514 - 26$	$387 - 44$	$277 - 65$

decompose 2 units	decompose 1 unit	do not decompose

- Find the value of 1 expression from each group. Show your thinking.

Student Responses

1.	decompose 2 units	decompose 1 unit	do not decompose
	$346 - 78$	$449 - 88$	$599 - 66$
	$633 - 55$	$237 - 29$	$457 - 45$
	$321 - 34$	$735 - 72$	$693 - 63$
	$645 - 87$	$905 - 42$	$387 - 44$
	$514 - 26$	$866 - 58$	$277 - 65$

- Sample responses:
 - Students draw a base-ten diagram to show $346 - 78$. Students draw 346 as 3 hundreds, 3 tens, and 16 ones. Students decompose 1 hundred to make 10 tens. Students cross out 7 tens and 8 ones and label to show the difference as 268.
 - Students draw a base-ten diagram to

value of $341 - 68$. He says he will decompose a ten and a hundred to subtract. Why do you think he said that?" (If you take tens from tens, there's not enough to take 6 tens from 4 tens. If you take ones from ones, there are not enough ones to take 8 ones from 1 one.)

- 1 minute: quiet think time
- 1 minute: partner discussion
- "If Andre knows he will decompose a hundred and a ten, what's another way he could have started his diagram?" (He could have started with 3 hundreds, 3 tens, and 11 ones. He could have started with 2 hundreds, 14 tens, and 1 one. He could have started with 2 hundreds, 13 tens, and 11 ones.)
- 1 minute: quiet think time
- 1 minute: partner discussion
- Share and record responses.

Activity

- "Andre only wants to use a diagram to subtract by place if he will decompose a unit."
- "Work with your partner to sort Andre's expressions into 3 groups. Look at the numbers in each expression and determine if you would decompose 2 units, 1 unit, or 0 units to subtract by place. Explain to your partner how you know. Use base-ten blocks or create your own diagrams to help. Then, write the expression in the appropriate column."

MLR8 Discussion Supports

- Display sentence frames to support students when they explain their strategy and listen to others:
 - "I noticed ___ so I think that . . ."
 - "I heard you say . . ."

show $449 - 88$. Students draw 449 as 3 hundreds, 14 tens, and 9 ones.

Students cross out 8 tens and 8 ones and label to show the difference as 361.

- $599 - 66$

$$90 - 60 = 30$$

$$9 - 6 = 3$$

$$500 + 30 + 3 = 533$$

- "I agree because . . ."

- "I disagree because . . ."

- 8 minutes: partner work time

Synthesis

- Display a completed chart from student responses.
- Ask students to choose an expression and explain how they know it belongs in that column.
- "When you were finding the difference, did you use the same method for all 3 expressions? How did you choose your method?" (I used the blocks when I needed to decompose, but I didn't need to when I didn't decompose so I just wrote equations. Since I knew before starting when I was going to decompose, I knew I didn't need the blocks for one of them,)

Lesson Synthesis

🕒 10 min

"Today we looked at expressions and thought about how we could decompose units to subtract by place. When you subtract by place, why is it helpful to think about where you may need to decompose a unit before beginning to find the difference?" (It might help you make sense of the expression before you subtract. It can help you draw a diagram with fewer steps, you can start with some of the units already decomposed.)

Suggested Centers

- How Close? (1–5), Stage 4: Add to 1,000 (Addressing)
- Five in a Row: Addition and Subtraction (1–2), Stage 8: Add within 1,000 with Composing (Addressing)

----- Complete Cool-Down -----

Response to Student Thinking

Students choose expressions that match what Han is looking for, but they do not find an accurate value for the difference(s).

Next Day Support

- Before the warm-up, pass back the cool-down and work in small groups to make corrections.

Lesson 15: Decompose a Ten and a Hundred to Subtract

Standards Alignments

Addressing 2.NBT.A.2, 2.NBT.B.7, 2.NBT.B.9

Teacher-facing Learning Goals

- Subtract 2 three-digit numbers using place value strategies that include decomposing 2 units.

Student-facing Learning Goals

- Let's subtract within 1,000.

Lesson Purpose

The purpose of this lesson is for students to subtract 2 three-digit numbers using strategies based on place value.

In previous lessons, students subtracted 2 three-digit numbers and decomposed a ten or a hundred in order to subtract by place. Students analyzed problems to anticipate when one or more units may be decomposed and used their analysis to choose their method and their steps.

In this lesson, students subtract 2 three-digit numbers that require decomposing a hundred and a ten when subtracting by place. They connect the use of base-ten blocks or diagrams to written methods that use numbers and equations. Throughout the lesson, students interpret and share methods that use words and equations to show subtracting by place (MP2, MP7). However, students should be encouraged to attend to the numbers in expressions and may use base-ten blocks, base-ten diagrams, and any other representations that make sense to them.

Access for:

Students with Disabilities

- Engagement (Activity 2)

English Learners

- MLR8 (Activity 2)

Instructional Routines

Choral Count (Warm-up)

Materials to Gather

- Base-ten blocks: Activity 1, Activity 2

Materials to Copy

- Walk About and Subtract Cards (groups of 24): Activity 2

Lesson Timeline

Warm-up	10 min
Activity 1	15 min
Activity 2	20 min
Lesson Synthesis	10 min
Cool-down	5 min

Teacher Reflection Question

What part of the lesson went really well today in terms of students learning? What did you do that made that part go well?

Cool-down (to be completed at the end of the lesson)

🕒 5 min

Find the Error

Standards Alignments

Addressing 2.NBT.B.7

Student-facing Task Statement

Noah found the value of $532 - 358$. Here is his work.

$$500 - 300 = 200$$

$$50 - 30 = 20$$

$$8 - 2 = 6$$

$$200 + 20 + 6 = 226$$

1. Explain Noah's error.
2. Show Noah a way to find the value of $532 - 358$.

Student Responses

1. Noah found the value of $558 - 332$ not $532 - 358$. If he wants to subtract by place, he would have to decompose. You can't just switch the digits around.
2. 174. Sample responses:
 -

$$\begin{array}{r}
 \begin{array}{r}
 4 \\
 \cancel{3} \text{ hundreds} \\
 - \quad 3 \text{ hundreds} \\
 \hline
 1 \text{ hundreds}
 \end{array}
 \quad
 \begin{array}{r}
 12 \\
 \cancel{5} \text{ tens} \\
 5 \text{ tens} \\
 \hline
 7 \text{ tens}
 \end{array}
 \quad
 \begin{array}{r}
 12 \\
 \cancel{8} \text{ ones} \\
 8 \text{ ones} \\
 \hline
 4 \text{ ones}
 \end{array}
 \end{array}
 \quad
 \begin{array}{r}
 \\
 \\
 \\
 \hline
 174
 \end{array}$$

- Students draw a base-ten diagram that shows $432 - 358$. Students show decomposing a hundred and a ten. They show subtracting 358 and clearly label to show the difference as 174.

----- Begin Lesson -----

Warm-up

🕒 10 min

Choral Count: Hundreds and Tens

Standards Alignments

Addressing 2.NBT.A.2

The purpose of this Choral Count is for students to practice counting back by 10 and notice patterns in the count. These understandings help students develop fluency and will be helpful later in this lesson when students will need to be able to decompose hundreds.

Instructional Routines

Choral Count

Student Responses

Record count:

590	490	390
580	480	
570	470	
560	460	
550	450	

Launch

- "Count back by 10, starting at 590."
- Record as students count.
- Stop counting and recording at 390.

Activity

- "What patterns do you see?"

540	440
530	430
520	420
510	410
500	400

Sample response:

- In each column, the digits in the tens count down from 9 to 0.
- After you count 500 or 400, the next number starts a new hundred and a new ten.

- 1-2 minutes: quiet think time
- Record responses.

Synthesis

- “What comes after 390 if we keep counting back by 10? What comes after 300?”

Activity 1

🕒 15 min

Elena’s Thinking

Standards Alignments

Addressing 2.NBT.B.7, 2.NBT.B.9

The purpose of this activity is for students to use their knowledge of base-ten diagrams and place value to make sense of a written method. They describe how numbers, words, and equations can be used to represent the steps they have used with other representations (MP2). Students will explore other ways to use equations, including the standard algorithm, in future grades. Although some grade 2 students may begin to use recording methods like the standard algorithm, it is important to encourage students use the methods that make the most sense to them.

Materials to Gather

Base-ten blocks

Student-facing Task Statement

Elena’s thinking:

Step 1:

$$\begin{array}{r}
 7 \text{ hundreds} \quad 2 \text{ tens} \quad 6 \text{ ones} \\
 - 5 \text{ hundreds} \quad 5 \text{ tens} \quad 8 \text{ ones}
 \end{array}$$

Launch

- Groups of 2
- Give students access to base-ten blocks.
- Display Elena’s work.
- “Take a minute to make sense of Elena’s subtraction.”

Step 2:

$$\begin{array}{r}
 \text{ hundreds} \text{ tens} \text{ ones} \\
 - \text{ hundreds} \text{ tens} \text{ ones} \\
 \hline
 \end{array}$$

Step 3:

$$\begin{array}{r}
 \text{ hundreds} \text{ tens} \text{ ones} \\
 - \text{ hundreds} \text{ tens} \text{ ones} \\
 \hline
 \end{array}$$

1. Use base-ten blocks or a base-ten diagram to show Elena's steps.
2. Finish Elena's work to find the value of $726 - 558$.
3. What is another way you could use numbers or equations to show subtracting by place to find the value of $726 - 558$?

Student Responses

1. Students use base-ten blocks or base-ten diagrams to show starting with 7 hundreds, 2 tens, and 6 ones blocks, decomposing a ten to make 10 ones, and decomposing a hundred to make 10 tens.
- 2.

$$\begin{array}{r}
 \text{ hundreds} \text{ tens} \text{ ones} \\
 - \text{ hundreds} \text{ tens} \text{ ones} \\
 \hline
 \text{ hundreds} \text{ tens} \text{ ones} \quad \mathbf{168}
 \end{array}$$

3. Sample response:
 - $6 \text{ hundreds} - 5 \text{ hundreds} = 1 \text{ hundred}$
 - $11 \text{ tens} - 5 \text{ tens} = 6 \text{ tens}$
 - $16 \text{ ones} - 8 \text{ ones} = 8 \text{ ones}$
 -

- 1–2 minutes: quiet think time
- "Discuss Elena's work with your partner."
- 1–2 minutes: partner discussion
- Share and record responses. Highlight responses that describe the numbers Elena is subtracting and how Elena shows decomposing units.

Activity

- "Elena is finding the value of $726 - 558$. Use base-ten blocks or a base-ten diagram to show Elena's steps. Then finish Elena's work. If you have time, work together to show a different way Elena could use numbers or equations to show her steps."
- 7 minutes: partner work time
- Monitor for student examples that record in a way similar to Elena, but use numbers to show the value of each place.

Synthesis

- Display a student representation of Elena's steps with a base-ten diagram and 1–2 other representations that use numbers and equations.
- "How are these representations the same? How are they different?" (They all show decomposing a hundred and a ten before you subtract. They all show subtracting hundreds from hundreds, tens from tens, and ones from ones. They use different ways to represent each unit. One uses base-ten diagrams, one uses numbers and words, and one just represents the value of each place.)

$$600 - 500 = 100$$

~~700~~

$$110 - 50 = 60$$

~~20~~

$$16 - 8 = 8$$

~~6~~

$$100 + 60 + 8 = 168$$

o

	600	110		16	
	700	20	+	6	
-	500	+ 50	+	8	
	100	+ 60	+	8	168

Advancing Student Thinking

If students rely on one way to show subtracting by place with numbers or equations, consider asking:

- “How did Elena represent the value of each digit in 726 and 558?”
- “What is another way you could represent the value of the digits and show subtracting by place?”

Activity 2

 20 min

Walk About and Subtract

Standards Alignments

Addressing 2.NBT.B.7, 2.NBT.B.9

The purpose of this activity is for students to practice subtracting within 1,000. Each student starts with a card with a three-digit number on it. Students walk around the room and find a student

with a different number. They find the difference between their numbers and write an equation to represent the difference. As time allows, students find a new partners. The numbers on the cards were chosen so any pair of numbers would require decomposing a hundred and a ten when subtracting by place. However, in addition to monitoring for ways students try written methods for subtracting by place, monitor for the ways students use what they know about the relationship between the numbers to choose a method. For example, if students are finding the value of $733 - 198$, they may choose to add on 2 to 198 and count on by place instead of decomposing a hundred and a ten.

Access for English Learners

MLR8 Discussion Supports. Invite students to take turns sharing how they subtracted and how they showed their thinking. Ask students to restate what they heard using precise mathematical language and their own words. Display the sentence frame: “I heard you say . . .” Original speakers can agree or clarify for their partner.

Advances: Listening, Speaking

Access for Students with Disabilities

Engagement: Provide Access by Recruiting Interest. Invite students to generate a list of contexts that represent subtraction. Choose one of the contexts that connect to their personal backgrounds and interests to use when subtracting. Refer back to the context while students work.

Supports accessibility for: Attention, Conceptual Processing

Materials to Gather

Base-ten blocks

Materials to Copy

Walk About and Subtract Cards (groups of 24)

Required Preparation

- Create a set of cards from the Instructional master so that each student will receive 1 card.

Student-facing Task Statement

- Find someone with a different number than you.
- Find the difference between your numbers.

Show your thinking.

- Trade cards and find a new partner.

1. Partner 1:
2. Partner 2:

Launch

- Groups of 2
- Give each student a card.
- Give students access to base-ten blocks.

Activity

- “We are going to create our own subtraction expressions and find their values. You will walk around and find

3. Partner 3:



Student Responses

1. Sample response:

- $456 - 377$
- Students draw a base-ten diagram that shows 456 as 4 hundreds, 5 tens, and 6 ones. Students show decomposing a hundred and a ten. They show subtracting 3 hundreds, 7 tens, and 7 ones and clearly label to show the difference as 79.

2. Sample response:

- $733 - 456$

⁶	¹²	¹³	
7 hundreds	7 tens	7 ones	
-	4 hundreds	5 tens	6 ones
○	2 hundreds	7 tens	7 ones 277

3. Sample response:

- $733 - 198$
- $733 - 200 = 533$

$$533 + 2 = 535$$

$$733 - 198 = 535$$

someone who has a different number than you. Create an expression and find the difference between your numbers. Show your thinking."

- "Trade cards and find a new partner."
- 12 minutes: partner work time
- Monitor for students who represent subtracting by place with:
 - a base-ten diagram
 - numbers, words, or equations

Synthesis

- Invite previously identified students to describe the steps they used to find the difference for one of their expressions.
- Consider asking:
 - "What questions do you have for ____ about their steps or their representation?"
 - "How did you use a similar representation? How were your steps the same? How were they different?"

Lesson Synthesis

🕒 10 min

Keep student work samples that were shared in Activity 2 synthesis displayed.

"How are these representations the same? How are they different?" (They show different expressions. Some use base-ten diagrams and some only use numbers and equations. They each show subtracting hundreds from hundreds, tens from tens, and ones from ones. They each show decomposing units.)

“Which methods did you try today? Which methods do you prefer?”

Suggested Centers

- Target Numbers (1–5), Stage 5: Subtract Two-digit Numbers (Supporting)
- Number Puzzles: Addition and Subtraction (1–4), Stage 4: Within 100 with Composing (Supporting)

Complete Cool-Down

Response to Student Thinking

Students find the mistake, but create a diagram or equations that show an incorrect response.

Next Day Support

- Before the warm-up, have students work in partners to discuss a correct response to this cool-down.

Lesson 16: Subtract Within 1,000

Standards Alignments

Addressing 2.NBT.A.1, 2.NBT.B.7, 2.NBT.B.9

Teacher-facing Learning Goals

- Subtract numbers within 1,000 using strategies based on place value and the properties of operations.

Student-facing Learning Goals

- Let's subtract in a way that makes sense.

Lesson Purpose

The purpose of this lesson is for students to choose methods for finding the value of differences based on the numbers being subtracted.

In previous lessons, students found subtracted using various methods and representations with an emphasis on strategies based on place value. They analyzed numbers to anticipate whether they may need to decompose one or more units to subtract.

In this lesson, students attend to the relationship between numbers in expressions to flexibly subtract. Although the focus of this section has been on interpreting and using methods based on place value, the number choices in this lesson are intended to also encourage the strategies students used in prior sections. Throughout this lesson, students explain their thinking and listen to and critique the reasoning of others (MP3).

This lesson has a Student Section Summary.

Access for:

Students with Disabilities

- Engagement (Activity 2)

Instructional Routines

MLR8 Discussion Supports (Activity 1), True or False (Warm-up)

Materials to Gather

- Base-ten blocks: Activity 1, Activity 2

Lesson Timeline

Warm-up	10 min
Activity 1	15 min
Activity 2	20 min
Lesson Synthesis	10 min
Cool-down	5 min

Teacher Reflection Question

How are students using their understanding of number relationships and place value to choose their methods for subtracting? What more can be done to help students recognize and plan for the units they need to decompose when subtracting by place?

Cool-down (to be completed at the end of the lesson)

🕒 5 min

Find the Difference Your Way

Standards Alignments

Addressing 2.NBT.B.7, 2.NBT.B.9

Student-facing Task Statement

$324 - 157$

$500 - 185$

$712 - 299$

$822 - 365$

- Choose one expression and find the value by subtracting by place. Show your thinking.
 - Explain why you chose that expression.

$324 - 157$

$500 - 185$

$712 - 299$

$822 - 365$

- Choose a different expression and find the value using a different method. Show your thinking.
 - Explain why you chose that expression.

Student Responses

- Sample response: $324 - 157$
Students use a base-ten diagram to show 324 as 3 hundreds, 2 tens, and 4 ones. Students show decomposing 1 hundred and 1 ten. Students show subtracting 1 hundred, 5 tens, and 7 ones and label to show the difference as 167.
 - Sample response: I chose $324 - 157$ to subtract by place because I knew I would decompose and didn't see a way to make friendly numbers.

2. a. Sample response: $712 - 299$
 $712 - 300 = 412$
 $412 + 1 = 413$
- b. Sample response: I chose $712 - 299$ to use a different method because I know 299 is really close to 300 and I can take away hundreds in my head. I added 1 more because I took away 1 too many.

----- **Begin Lesson** -----

Warm-up

🕒 10 min

True or False: Equations Based on Place Value

Standards Alignments

Addressing 2.NBT.A.1

The purpose of this True or False is to elicit strategies and understandings students have for composing or decomposing numbers in different ways. These understandings will be helpful later when students decompose tens and hundreds when they subtract. In this activity, students look for and make use of structure of base-ten units (MP7) when they explain why statements are true or false.

Instructional Routines

True or False

Student-facing Task Statement

Decide if each statement is true or false. Be prepared to explain your reasoning.

- 2 hundreds + 3 tens + 4 ones = 2 hundreds + 3 tens + 14 ones
- 2 hundreds + 3 tens + 4 ones = 1 hundred + 13 tens + 4 ones
- 1 hundred + 13 tens + 4 ones = 1 hundred + 12 tens + 14 ones

Launch

- Display one statement.
- “Give me a signal when you know whether the statement is true and can explain how you know.”
- 1 minute: quiet think time

Activity

- Share and record answers and strategies.

Student Responses

- False: Both sides have the same number of hundreds and tens, but they have a different number of ones. They can't be the same.
- True: The right side has 1 less hundred, but it has 10 more tens. 10 tens are the same as 1 hundred so they are the same. It's like decomposing a hundred to make 10 tens.
- True: It's like the last equation. There are fewer tens on the right side, but there are 10 more ones. It's like decomposing 1 ten to make 10 ones.

- Repeat with each statement.

Synthesis

- "How could we change the first statement to make it true?" (You could change 3 tens to 2 tens on the right side. You change the left side so it has 14 ones too. You could change the left side so it has 4 tens.)

Activity 1

🕒 15 min

Jada's Thinking

Standards Alignments

Addressing 2.NBT.B.7, 2.NBT.B.9

The purpose of this activity is for students to interpret and connect different representations for methods that decompose to subtract by place. They also make sense of Jada's choice to use a number line to find the value of $402 - 298$ and critique her reasoning. Students then find the value of the difference in any way that makes sense to them to explain why they agree or disagree with Jada's reasoning (MP3).

This activity uses *MLR8 Discussion Supports*. Advances: listening, conversing

Instructional Routines

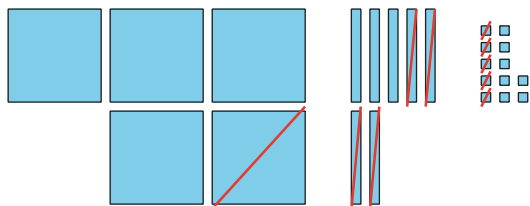
MLR8 Discussion Supports

Materials to Gather

Base-ten blocks

Student-facing Task Statement

Lin's diagram:



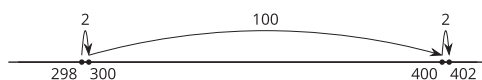
Jada's equations:

$$500 - 100 =$$

$$\begin{array}{r} 70 \\ \cancel{80} - 40 = \end{array}$$

$$\begin{array}{r} 12 \\ \cancel{1} - 5 = \end{array}$$

1.
 - a. Discuss how Jada's equations match Lin's diagram.
 - b. Finish Jada's work to find the value of $582 - 145$.
2. Jada is thinking about how to find the value of $402 - 298$.
 - a. Jada says she knows a way to count on to find the difference. She showed her thinking using a number line.



Explain Jada's thinking.

- b. Jada says you can't decompose to find the value of $402 - 298$ because there aren't any tens. Do you agree with Jada? Use base-ten blocks, diagrams, or other representations to show your thinking.

Student Responses

1.
 - a. Sample response: The numbers Jada

Launch

- Groups of 2
- Give students access to base-ten blocks.
- Display Lin's diagram.
- "Take a minute to make sense of Lin's subtraction."
- 1-2 minutes: quiet think time
- "Discuss Lin's work with your partner."
- 1-2 minutes: partner discussion
- Share and record responses.
- Highlight that a ten was decomposed and discuss student ideas about the numbers being subtracted.

Activity

- "Jada and Lin both found the value of $582 - 145$. Work with your partner to compare Lin and Jada's work. Then complete Jada's work to find the value of $582 - 145$."
- 3-5 minutes: partner work time
- "Jada found the value of $402 - 298$ with a different method. Work with your partner to make sense of Jada's thinking. Discuss if you agree or disagree with Jada's reason for why she chose this method."

MLR8 Discussion Supports

- Display sentence frames to support partner discussion:
 - "I agree because . . ."
 - "I disagree because . . ."
- 7-8 minutes: partner work time
- Monitor for students who share why they agree with some (or all) of what Jada says and those that disagree and use a diagram to show decomposing to subtract by place.

wrote first match Lin's blocks. The number she writes on top shows how she decomposed. Her equations match how Lin crossed out blocks in each place.

b. Sample response:

$$500 - 100 = 400$$

$$70 - 40 = 30$$

$$12 - 5 = 7$$

$$400 + 30 + 7 = 437$$

2. a. Jada counted up to get to a hundred. Then she counted on another 100 and 2 more. She noticed 298 is close to 100 and it's easy to add on more.
- b. Sample response: I agree there aren't any tens in 402, but you can decompose a hundred to get tens. Then decompose a ten to get ones to subtract.

Synthesis

- "How does Jada's method for finding the value of $402 - 298$ work?"
- Record student explanation using a series of equations. ($298 + 2 = 300$, $300 + 100 = 400$, $400 + 2 = 402$, $2 + 100 + 2 = 104$)
- "Why do you think Jada used this strategy?" (She thought you couldn't decompose. She noticed 298 is close to 300 and 402 is close to 400.)
- "Do you agree with Jada that you can't decompose 402?" (I agree that there are no tens so it's hard to subtract ones right away. I disagree that you can't decompose. You can decompose a hundred first to get tens, then decompose tens to get ones.)
- Display the sentence frames to support the whole-group discussion.
- If time, select previously identified students to share how they decomposed to find $402 - 298$.

Advancing Student Thinking

If students say they agree with Jada's thinking about decomposing to find the value of $402 - 298$, consider asking:

- "What parts of Jada's reasoning do you agree with and why?"
- "Can you use base-ten blocks to show how she could subtract by place?"

Activity 2

🕒 20 min

Find It Your Way

Standards Alignments

Addressing 2.NBT.B.7

The purpose of this activity is for students to choose methods flexibly for finding the value of differences. Students might subtract by place, count on, or make an easier problem. There is no right answer to which method should be used for each problem. Students should choose a method that makes sense to them and justify their choice (MP3).

Access for Students with Disabilities

Engagement: Provide Access by Recruiting Interest. Provide choice. Invite students to decide the order of the problems to complete the task. They can choose to work through in any order.
Supports accessibility for: Social-Emotional Functioning, Organization

Materials to Gather

Base-ten blocks

Student-facing Task Statement

Find the value of each expression in a way that makes sense to you. Show your thinking. Organize it so it can be followed by others.

1. $535 - 214$
2. $700 - 589$
3. $683 - 398$
4. $918 - 608$
5. $735 - 457$
6. $602 - 487$

Student Responses

1. 321. Sample response:
 - $500 - 200 = 300$
 - $30 - 10 = 20$
 - $5 - 4 = 1$

Launch

- Groups of 2
- Give students access to base-ten blocks.
- “We’ve learned how to decompose units to subtract by place and different ways to represent that. We’ve also learned other methods for subtracting. We use them when they make sense to us or when they make sense for the numbers in an expression.”

Activity

- “Find the value of each expression using a method that makes sense to you. You’ll have a chance to share your work with others.”
- 6 minutes: independent work time
- Monitor for expressions that most students find the same way and expressions that many students find in different ways.

$$300 + 20 + 1 = 321$$

2. 111. Sample response:

$$\circ 589 + 1 = 590$$

$$590 + 10 = 600$$

$$600 + 100 = 700$$

$$100 + 10 + 1 = 111$$

3. 285. Sample responses:

$$\circ 398 + 2 = 400$$

$$400 + 200 = 600$$

$$600 + 83 = 683$$

$$200 + 83 + 2 = 285$$

4. 310. Sample response:

$$\circ 608 + 300 = 908$$

$$908 + 10 = 918$$

$$300 + 10 = 310$$

5. 278. Sample response:

- Students draw a base-ten diagram that shows 735 as 7 hundreds, 3 tens, and 5 ones. Students show decomposing a hundred and a ten. They show subtracting 4 hundreds, 3 tens, and 7 ones and label to show the difference as 278.

6. 115. Sample response:

$$\circ 487 + 3 = 490$$

$$490 + 10 = 500$$

$$500 + 102 = 602$$

$$102 + 13 = 115$$

- “Find a partner who found the value of ____ the same way as you.”
- 1–2 minutes: partner discussion
- “Now find a partner that found the value of ____ in a different way than you. Share your thinking.”
- 2–3 minutes: partner discussion
- Repeat for additional expressions as desired.

Synthesis

- Have 3–4 students share a method or representation that someone they talked to shared.
- “What methods or representations do you want to try more?”

Advancing Student Thinking

If students use the same method for each problem, ask students to think about how they could use Jada’s way to find the value of $701 - 599$. Consider asking:

- “What do you notice about the numbers in this expression that makes it easier to use Jada’s way?”
- “What other expressions do you see where you might try Jada’s way?”

Lesson Synthesis

🕒 10 min

“In this unit, you added and subtracted within 1,000, composing and decomposing units when necessary. What are you most proud of learning? What do you still need to work on?”

Suggested Centers

- Target Numbers (1–5), Stage 5: Subtract Two-digit Numbers (Supporting)
- Number Puzzles: Addition and Subtraction (1–4), Stage 4: Within 100 with Composing (Supporting)

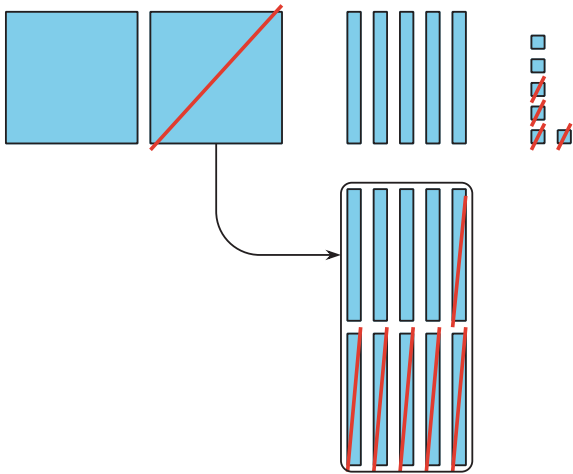
Student Section Summary

In this section of the unit, we learned many different ways to subtract three-digit numbers using what we know about place value. We used base-ten blocks, diagrams, and equations to show subtracting hundreds from hundreds, tens from tens, and ones from ones. We learned that when you subtract by place, you may decompose a hundred, a ten, or both. We learned that it is helpful to look closely at the numbers in an expression to plan how to decompose or to choose a method that helps us use friendly numbers or the relationship between addition and subtraction.

Base-ten Diagram for $256 - 64$

Unit Form for $726 - 558$

	6		7	16
	7	hundreds	7	tens
			8	ones
-	5	hundreds	5	tens
			8	ones
	1	hundreds	6	tens
			8	ones
				168



----- Complete Cool-Down -----

Response to Student Thinking

Students use the same method for both expressions.

Next Day Support

- After the warm-up in the next lesson, pair students up to discuss their responses.

Lesson 17: Center Day 3 (Optional)

Standards Alignments

Addressing 2.NBT.B.7, 2.NBT.B.8

Teacher-facing Learning Goals

- Add within 1,000.
- Subtract within 1,000.

Student-facing Learning Goals

- Let's add and subtract 3-digit numbers.

Lesson Purpose

The purpose of this lesson is for students to practice adding and subtracting within 1,000.

This lesson is optional because it is an opportunity for extra practice that not all classes may need. In Activity 1, students learn stage 6 of the Target Numbers center. In this new stage, called Add Hundreds, Tens, or Ones, students add hundreds, tens, and ones to get as close to 1,000 as possible. In Activity 2, students learn Stage 7 of the Target Numbers center, called Subtract Hundreds, Tens, or Ones. Then, they choose to continue working on Target Numbers, or choose between two previously introduced centers focused on addition and subtraction within 1,000.

Instructional Routines

Number Talk (Warm-up)

Materials to Gather

- Materials from previous centers: Activity 2
- Number cubes: Activity 1, Activity 2

Materials to Copy

- Target Numbers Stage 6 Recording Sheet (groups of 1): Activity 1

Lesson Timeline

Warm-up	10 min
Activity 1	15 min
Activity 2	25 min
Lesson Synthesis	10 min

Teacher Reflection Question

Reflect on whose thinking was heard today. Reflect on whose thinking was not heard but could have enriched the conversations. What prompts or structures might better enable the latter to share their voices and reasoning?

Begin Lesson

Warm-up

🕒 10 min

Number Talk: Simplify It

Standards Alignments

Addressing 2.NBT.B.7

The purpose of this Number Talk is to elicit strategies and understandings students have for adjusting the numbers in an expression to make it easier to find the value. These understandings help students develop fluency.

Instructional Routines

Number Talk

Student-facing Task Statement

Find the value of each expression mentally.

- $34 - 9$
- $434 - 99$
- $367 - 98$
- $635 - 298$

Student Responses

- 25: $34 - 10 = 24, 24 + 1 = 25$
- 335: $434 - 100 = 334, 334 + 1 = 335$
- 269: $367 - 100 = 267, 267 + 2 = 269$
- 337: $635 - 300 = 335, 335 + 2 = 337$

Launch

- Display one expression.
- “Give me a signal when you have an answer and can explain how you got it.”
- 1 minute: quiet think time

Activity

- Record answers and strategy.
- Keep expressions and work displayed.
- Repeat with each expression.

Synthesis

- “When you change one number in an expression to make it easier, how do you remember how to adjust any other numbers in the expression?”

Activity 1

🕒 15 min

Introduce Target Numbers, Add Hundreds, Tens, or Ones

Standards Alignments

Addressing 2.NBT.B.7, 2.NBT.B.8

The purpose of this activity is for students to learn stage 6 of the Target Numbers center. Students add hundreds, tens, and ones to get as close to 1,000 as possible.

Materials to Gather

Number cubes

Materials to Copy

Target Numbers Stage 6 Recording Sheet
(groups of 1)

Required Preparation

Each group of 2 needs 3 number cubes.

Launch

- Groups of 2
- Give each group number cubes and two recording sheets.
- “We are going to learn a new way to play the Target Numbers center.”
- “In this version, you add hundreds, tens, and ones to get as close to 1,000 as possible.”
- “Take a minute to read the directions with your partner.”
- Answer any questions or play a round with the class as needed.
- “Play this new version of Target Numbers with your partner.”

Activity

- 10 minutes: partner work time

Synthesis

- “How did you decide which numbers you rolled would be hundreds, tens, or ones?”

Activity 2

🕒 25 min

More Target Numbers and Choice Time

Standards Alignments

Addressing 2.NBT.B.7, 2.NBT.B.8

The purpose of this activity is for students to learn stage 7 of the Target Numbers center. Students subtract hundreds, tens, and ones to get as close to 0 as possible. Then, students choose from any stage of previously introduced centers.

- Target Numbers
- Five in a Row
- How Close?

Materials to Gather

Materials from previous centers, Number cubes

Required Preparation

- Each group of 2 students needs 3 number cubes.
- Gather materials from:
 - Target Numbers, Stage 6
 - Five in a Row, Stages 7 and 8
 - How Close, Stage 4

Student-facing Task Statement

Choose a center.

Launch

- Groups of 2

Target Numbers



Five in a Row: Addition and Subtraction



How Close?

$$\begin{array}{|c|c|} \hline \square & \square \\ \hline \end{array} + \begin{array}{|c|c|} \hline \square & \square \\ \hline \end{array} = \underline{\quad}$$

- Give each group number cubes and two recording sheets.
- “We are going to learn another new way to play the Target Numbers center. In this version, you subtract hundreds, tens, and ones to get as close to 0 as possible.”
- “Take a minute to read the directions with your partner.”
- Answer any questions.
- “Play this new version of Target Numbers with your partner.”

Activity

- 10 minutes: partner work time
- “Now you can choose another center. You can also continue playing Target Numbers.”
- Display the center choices in the student book.
- Invite students to work at the center of their choice.
- 10 minutes: center work time
- If time, invite students to choose another center.

Synthesis

- “What did you like about the activities you worked on today?”

Lesson Synthesis

⌚ 10 min

“How did you and your partner work together during centers? What went well? What can we continue to work on?”

Lesson 18: Paint Splattered Bar Graph (Optional)

Standards Alignments

Addressing 2.MD.D.10, 2.NBT.B.7, 2.NBT.B.8, 2.NBT.B.9

Teacher-facing Learning Goals

- Add or subtract 2 three-digit numbers using place value strategies that include composing or decomposing 2 units.
- Determine questions that can be answered by a given bar graph.
- Interpret data represented in a bar graph.

Student-facing Learning Goals

- Let's solve problems involving a bar graph and addition and subtraction.

Lesson Purpose

The purpose of this lesson is for students to apply their understanding of bar graphs and addition and subtraction within 1,000 to write and solve questions that can be solved from information on a given bar graph.

This lesson is optional because it does not address any new mathematical content standards. This lesson does provide students with an opportunity to apply precursor skills of mathematical modeling.

In this lesson, students analyze a bar graph that has some information obscured due to a paint splatter. Students determine if a question can be answered with the given bar graph. They use their understanding of addition and subtraction within 1,000 to answer the questions and generate their own mathematical question. They engage in a question exchange with their peers in the second activity to ask and answer the questions they write.

Access for:

Students with Disabilities

- Action and Expression (Activity 2)

English Learners

- MLR8 (Activity 2)

Instructional Routines

Number Talk (Warm-up)

Lesson Timeline

Warm-up	10 min
Activity 1	15 min
Activity 2	25 min
Lesson Synthesis	10 min

Teacher Reflection Question

Reflect on times you observed students listening to one another's ideas today in class. What norms would help each student better attend to their classmates' ideas in future lessons?

----- **Begin Lesson** -----**Warm-up**

🕒 10 min

Number Talk: Subtract within 1,000

Standards Alignments

Addressing 2.NBT.B.8, 2.NBT.B.9

The purpose of this Number Talk is to elicit strategies and understandings students have for subtracting with 2 three-digit numbers. These understandings help students develop fluency and will be helpful later in this lesson when students will need to be able to solve problems involving addition and subtraction on a bar graph.

Instructional Routines

Number Talk

Student-facing Task Statement

Find the value of each expression mentally.

- $530 - 420$
- $530 - 426$
- $535 - 420$
- $535 - 426$

Launch

- Display one expression.
- "Give me a signal when you have an answer and can explain how you got it."
- 1 minute: quiet think time

Activity

- Record answers and strategies.

Student Responses

- 110: $500 - 400 = 100$, $30 - 20 = 10$
- 104: 6 less than 110
- 115: $500 - 400 = 100$, $35 - 20 = 15$
- 109: I counted back 5 and got 110, and then 1 more is 109.

- Keep expressions and work displayed.
- Repeat with each expression.

Synthesis

- Consider asking:
 - “Who can restate ____’s reasoning in a different way?”
 - “Did anyone have the same method but would explain it differently?”
 - “Did anyone approach the problem in a different way?”
 - “Does anyone want to add on to ____’s method?”

Activity 1

🕒 15 min

Student Population

Standards Alignments

Addressing 2.MD.D.10, 2.NBT.B.7, 2.NBT.B.8, 2.NBT.B.9

The purpose of this activity is for students to analyze a given bar graph and answer questions involving addition and subtraction within 1,000 (MP2). Students may notice that some of the information for the grade 1 population on the bar graph has been hidden by a paint splatter.

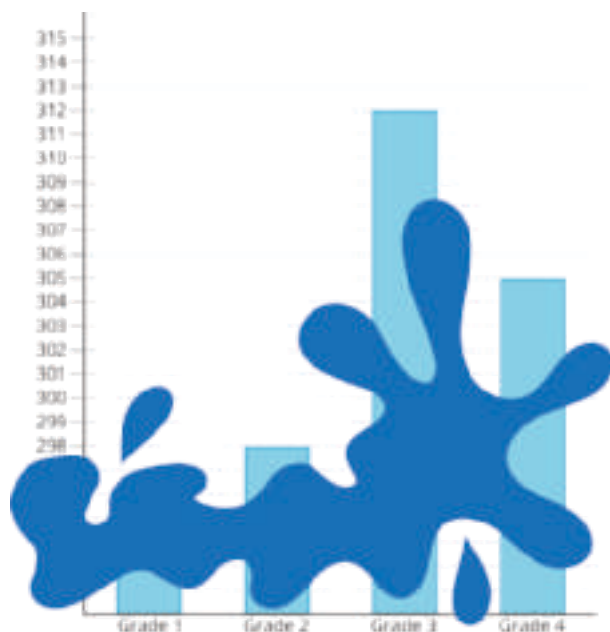
In the last part of activity, students come up with their own mathematical question that can be answered using the graph. It is okay if some students come up with questions that require more than the given information. This is addressed in the next activity.

Student-facing Task Statement

Oh no! Paint fell on the poster of the bar graph Clare and Priya created.

Launch

- Groups of 2



Answer the questions that you can with the graph. If a question cannot be answered, explain how you know.

1. What is the total number of students in grades 3 and 4?
2. How many more students are in grade 2 than in grade 1?
3. How many more students are in grade 3 than grade 2?
4. Write at least 2 mathematical questions that can be answered using the bar graph.

Student Responses

1. $312 + 305 = 617$
2. Sample responses:
 - I cannot answer this question with the information on the graph.
 - I don't know for sure, but I can tell it's either 2 more, 3 more, or 4 more. It can't be 1 more because I'd see some of the bar.
3. $312 - 298 = 14$
4. How many students are in grade 2 and 3?

Activity

- "Oh no! Paint fell on the poster of the bar graph Clare and Priya created. Take a minute to look at their graph."
- 1 minute: quiet think time
- "Work with your partner on the questions about the bar graph."
- 7 minutes: partner work time
- Monitor for students who:
 - write addition and subtraction equations.
 - are able to reason why there is not sufficient information to compare the number of grade 1 students to grade 2 students.
 - are able to use the features they can see in the graph to make assumptions about how many more students are in grade 2 than grade 1.
 - ask questions that can be answered by adding and subtracting.

Synthesis

- Invite previously identified students to share how they compared the number of students in each grade and what they noticed when comparing grade 2 and grade 1.
- Invite a few students to share one of their mathematical questions and give students a chance to discuss them with their partner.
- "You'll each get a chance to ask your classmates one of your questions in the next activity."

How many students are there altogether?
How many more students are there in grade 3 than in grade 4?

Activity 2

🕒 25 min

Asked and Answered

Standards Alignments

Addressing 2.MD.D.10, 2.NBT.B.7, 2.NBT.B.8, 2.NBT.B.9

The purpose of this activity is for students to use information in a bar graph to answer their peers' mathematical questions.

In this activity, students exchange the questions they wrote in the previous activity and go through 3 rounds of answering new questions. Students may notice some questions require more than the given information and cannot be answered or cannot be answered precisely. For example, if students create a question that requires the grade 1 data, some students may argue that the question cannot be answered. However, others may decide to estimate based on the given information. Encourage students to justify their reasoning to convince others (MP3).

Access for English Learners

MLR8 Discussion Supports. Invite students to begin partner interactions by repeating the question their partner created. This gives both students an opportunity to produce language.

Advances: Conversing

Access for Students with Disabilities

Action and Expression: Internalize Executive Functions. Synthesis. To support working memory, provide students with access to sticky notes or mini whiteboards.

Supports accessibility for: Memory, Organization

Student-facing Task Statement

For each round:

Launch

- Groups of 4

1. Trade one question you came up with in the last activity with a partner.
2. Answer the question. Show or explain your reasoning.
3. If you have time, trade another question with a different partner.

Round 1:

Round 2:

Round 3:

Student Responses

Sample responses:

- What is the total number of students in grades 2 or grade 3? ($298 + 312 = 610$)
- How many students are there altogether? (It's not possible to answer this because we don't have information about grade 1.)

Activity

- "Trade a question that you came up with in the last activity with another partner. Answer each others' question."
- "If you cannot answer a question, be prepared to explain why you cannot answer the question based on the given information."
- "If you have time, trade another question with a different partner."
- Give students 3–4 minutes with each partner.
- 9–12 minutes: partner work time
- Monitor for students who are able to reason why a question cannot be answered.
- Monitor for addition and subtraction expressions students write during the rounds and record a few on the board.

Synthesis

- Invite previously selected students to share their questions.
- "How did you decide if you had enough information to answer a question?"
- Point to the expressions recorded earlier.
- Consider asking:
 - "What does this expression represent?"
 - "How might you solve it?"

Lesson Synthesis

 10 min

"Today, we analyzed a bar graph and answered questions using the information from the graph."

"How did you know when you could answer a question by adding or subtracting?"

Suggested Centers

- Target Numbers (1–5), Stage 6: Add Hundreds, Tens, or Ones (Addressing)
- Target Numbers (1–5), Stage 7: Subtract Hundreds, Tens, or Ones (Addressing)
- Five in a Row: Addition and Subtraction (1–2), Stage 8: Add within 1,000 with Composing (Addressing)
- How Close? (1–5), Stage 4: Add to 1,000 (Addressing)

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Family Support
Materials

Family Support Materials

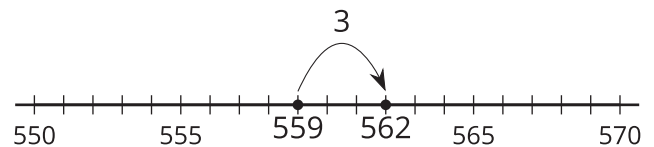
Adding and Subtracting within 1,000

In this unit, students use place value understanding, the relationship between addition and subtraction, and properties of operations to add and subtract within 1,000.

Section A: Add and Subtract within 1,000 without Composition or Decomposition

In this section, students add and subtract within 1,000 using strategies where they do not make or break apart a ten or a hundred. The number line diagram is used to help students recognize that when numbers are relatively close, they can count on or count back to calculate the difference.

For example, students notice that $562 - 559$ is easier to solve by counting on from 559 to 562 than using a formal procedure to subtract.



Students then engage in problems that encourage them to use the relationship between addition and subtraction to reason about sums and differences. They analyze and connect methods that use number lines, base-ten diagrams, and equations. They calculate sums and differences using methods that make sense to them.

Section B: Add within 1,000 using Place Value Strategies

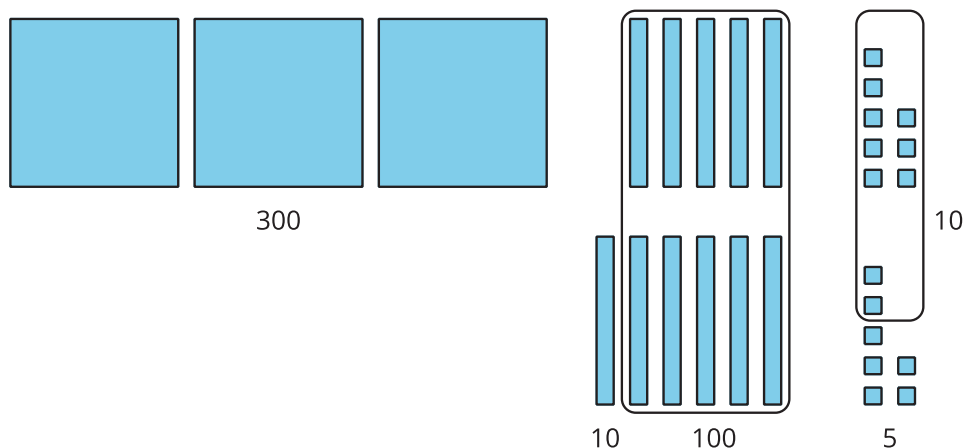
This section introduces the idea that when adding three-digit numbers, it is sometimes necessary to compose (make) a hundred from 10 tens.

Students begin the section with sums that allow them to decide when to

make a new ten (for example $414 + 28$). They then work with larger values in the tens place and determine whether to compose a hundred (for example, $736 + 91$). As the section progresses, students compose 2 units to find sums using place value strategies, and experience adding two- and three-digit numbers to three-digit numbers (for example, $149 + 282$). Throughout the section students use base-ten blocks, base-ten diagrams, expanded form, and other equations to build conceptual understanding and show place value reasoning.

*Priya and Lin were asked to find the value of $358 + 67$.
What do you notice about their work?*

Priya's Work



$$300 + 100 + 10 + 10 + 5$$

$$400 + 20 + 5 = 425$$

Lin's Work

$$3 \text{ hundreds} + 11 \text{ tens} + 15 \text{ ones}$$

$$11 \text{ tens} = 110$$

$$15 \text{ ones} = 15$$

$$300 + 110 + 15 = 425$$

Section C: Subtract within 1,000 using Place Value Strategies

Similar to their work in the previous section, students subtract numbers within 1,000 using place value strategies that involve decomposing (taking apart) a ten, a hundred, or both. As they subtract by place, hundreds from hundreds, tens from tens, and ones from ones, they experience exchanging a ten for 10 ones or a hundred for 10 tens when needed.

For example, this is a helpful way to represent 244 if you need to subtract a number with more than 4 ones:



Throughout the section, students compare the steps they use when they decompose and the different ways they can represent and record the units they decompose.

Try it at home!

Near the end of the unit, ask your student to do the following problems:

- $361 + 294$
- $421 - 203$

Questions that may be helpful as they work:

- Do you need to compose (put together) or decompose (take apart) any tens or hundreds?
- Can you show your thinking with a diagram?
- Is there another way to solve this problem?

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Unit Assessments

Check Your Readiness A, B and C
End-of-Unit Assessment

Adding and Subtracting within 1,000: Section A Checkpoint

1. Find the value of $600 - 476$. Use the number line if it is helpful.



2. Find the value of each expression. Show your thinking.

a. $273 + 122$

b. $798 - 238$

Adding and Subtracting within 1,000: Section B Checkpoint

1. Find the value of $228 + 91$. Show your thinking. Use base-ten blocks if it helps you.

2. Find the value of each expression. Show your thinking.

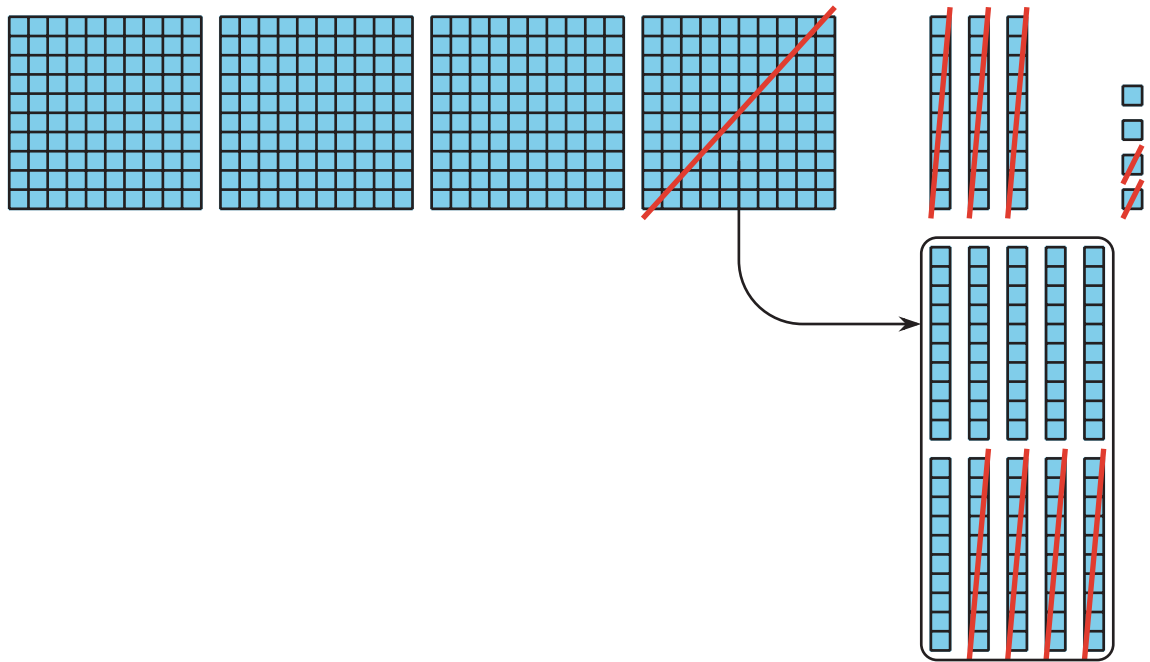
a. $203 + 213$

b. $419 + 372$

c. $639 + 177$

Adding and Subtracting within 1,000: Section C Checkpoint

1. Which expression matches the diagram? Explain or show your reasoning.



- A. $434 - 72$
- B. $72 + 434$
- C. $434 - 172$

2. Find the value of $421 - 139$. Show your thinking.

Adding and Subtracting within 1,000: End-of-Unit Assessment

1. Select 2 expressions with the same value as $135 + 200$.

- A. $305 - 30$
- B. $235 + 100$
- C. $295 + 40$
- D. $385 - 60$
- E. $935 - 700$

2. Select the value of $93 + 48 + 7 + 32$.

- A. 160
- B. 170
- C. 180
- D. 190

3. Find the number that makes each equation true.

A. $800 + \underline{\hspace{2cm}} = 1,000$

B. $\underline{\hspace{2cm}} + 750 = 1,000$

C. $748 + \underline{\hspace{2cm}} = 1,000$

4. To find the value of $500 - 389$, Kiran writes these three equations.

$$389 + 1 = 390$$

$$390 + 10 = 400$$

$$400 + 100 = 500$$

Kiran says this shows $500 - 389 = 111$. Do you agree with Kiran?
Explain or show your reasoning.

5. Find the value of each sum. Show your thinking. Use base-ten blocks if it helps.

a. $537 + 312$

b. $428 + 175$

c. $566 + 273$

6. Find the value of each difference. Show your thinking. Use base-ten blocks if it helps.

a. $528 - 315$

b. $471 - 124$

c. $600 - 594$

7. Clare says that to find the value of $863 - 286$ she can subtract 300 and then add 14.

a. Explain why Clare's method works.

b. What is the value of $863 - 286$?

c. Find the value of $253 - 75$. Show your thinking.

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Assessment Answer Keys

Check Your Readiness A, B and C
End-of-Unit Assessment

Assessment Answer Keys

Assessment: Section A Checkpoint

Teacher Instructions

Give students access to base-ten blocks.

Problem 1

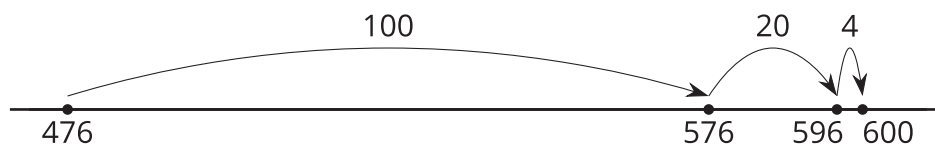
Goals Assessed

- Add and subtract numbers within 1,000 without composition or decomposition, and use strategies based on the relationship between addition and subtraction and the properties of operations.

Find the value of $600 - 476$. Use the number line if it is helpful.

Solution

124. Sample response



Problem 2

Goals Assessed

- Add and subtract numbers within 1,000 without composition or decomposition, and use strategies based on the relationship between addition and subtraction and the properties of operations.

Find the value of each expression. Show your thinking.

- $273 + 122$
- $798 - 238$

Solution

a. 395. Sample response: $200 + 100 = 300$, $70 + 20 = 90$, $3 + 2 = 5$, $300 + 90 + 5 = 395$

b. 560. Sample response: $700 - 200 = 500$, $90 - 30 = 60$, $8 - 8 = 0$, $500 + 60 = 560$

Assessment: Section B Checkpoint

Teacher Instructions

Give students access to base-ten blocks.

Problem 1

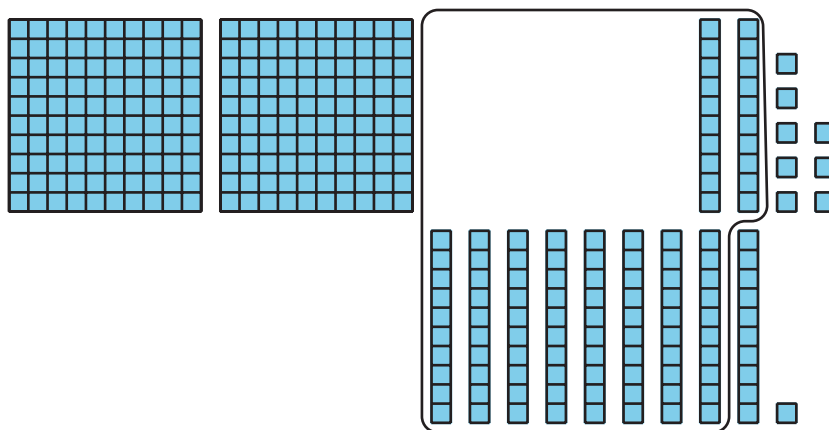
Goals Assessed

- Add numbers within 1,000 using strategies based on place value understanding, including composing a ten or hundred.

Find the value of $228 + 91$. Show your thinking. Use base-ten blocks if it helps you.

Solution

319. Sample response: I put together 10 tens to make a hundred and then had 3 hundreds, 1 ten, and 9 ones.



Problem 2

Goals Assessed

- Add numbers within 1,000 using strategies based on place value understanding, including composing a ten or hundred.

Find the value of each expression. Show your thinking.

a. $203 + 213$

b. $419 + 372$

c. $639 + 177$

Solution

a. 416. Sample response: $200 + 200 = 400$, $3 + 3 = 6$, $400 + 10 + 6 = 416$

b. 791. Sample response: $400 + 300 = 700$, $10 + 70 = 80$, $9 + 2 = 11$, $700 + 80 + 11 = 791$

c. 816. Sample response: $600 + 100 = 700$, $30 + 70 = 100$, $9 + 7 = 16$, $700 + 100 + 16 = 816$

Assessment: Section C Checkpoint

Teacher Instructions

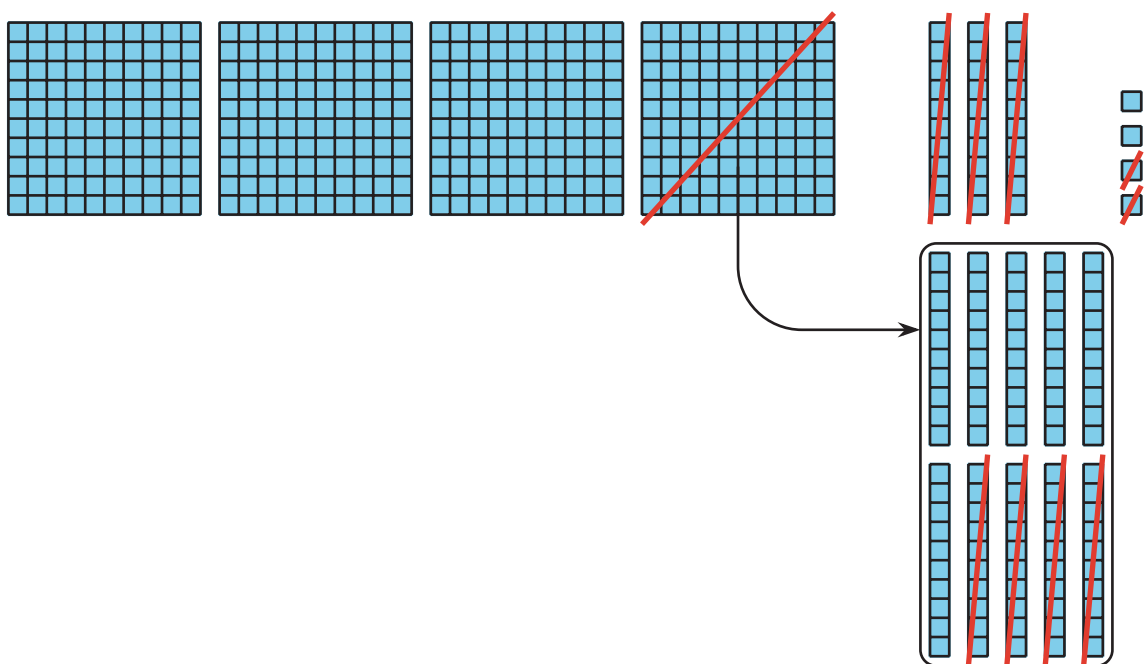
Give students access to base-ten blocks.

Problem 1

Goals Assessed

- Subtract numbers within 1,000 using strategies based on place value understanding, including decomposing a ten or hundred.

Which expression matches the diagram? Explain or show your reasoning.



- A. $434 - 72$
 B. $72 + 434$
 C. $434 - 172$

Solution

$434 - 72$. Sample response: The blocks on the top represent 434 and then there are 2 ones crossed out and 3 tens and then 4 more tens from a hundred so that is 72 total that is taken away.

Problem 2

Goals Assessed

- Subtract numbers within 1,000 using strategies based on place value understanding, including decomposing a ten or hundred.

Find the value of $421 - 139$. Show your thinking.

Solution

282. Sample reasoning: I could not take 9 from 1 one so I had to break up one of the tens. That left me with 1 ten and 11 ones. But I could not take 3 tens from 1 ten so I had to break up one of the hundreds. That left me with 3 hundreds and 11 tens. Now I can take away 9 ones, 3 tens and 1 hundred.

	3	1		
	4 hundreds	2 tens	1 ones	
-	1 hundreds	3 tens	9 ones	
	2 hundreds	8 tens	2 ones	282

Assessment: End-of-Unit Assessment

Teacher Instructions

Give students access to base-ten blocks.

Problem 1

Standards Alignments

Addressing 2.NBT.B.8

Narrative

Students add and subtract multiples of 10 and 100 from three-digit numbers. Students may select A if they mistakenly add 30 instead of subtracting 30. Students may not select C if they have difficulty with adding the first 10 which makes a new hundred. Students who select D or E have likely made an arithmetic error in subtracting or adding. The standard calls for doing these calculations mentally. Students may make drawings or other calculations but if they do not perform well on this item they may profit from more practice adding and subtracting multiples of 10 and 100 mentally.

Select **2** expressions with the same value as $135 + 200$.

- A. $305 - 30$
- B. $235 + 100$
- C. $295 + 40$
- D. $385 - 60$
- E. $935 - 700$

Solution

["B", "C"]

Problem 2

Standards Alignments

Addressing 2.NBT.B.6

Narrative

Students find a sum of 4 two-digit numbers. Adding the tens will show that A is not correct and looking at the ones shows that B is not correct. The numbers are chosen to fit into two friendly pairs, $93 + 7$ and $48 + 32$. Students who select an incorrect answer have either made a calculation error or possibly estimated inaccurately. For example, a student might reason that 93 is close to 100 and then looking at the other numbers could lead to an estimate of 190.

Select the value of $93 + 48 + 7 + 32$.

- A. 160
- B. 170
- C. 180
- D. 190

Solution

C

Problem 3

Standards Alignments

Addressing 2.NBT.B.7

Narrative

Students find how much needs to be added to a number to reach 1,000. The problems are scaffolded so that each problem can be used to help find the answer to the next problem. Students may find the answers in a variety of ways including mental math, drawing a picture, or using properties of addition and subtraction.

Find the number that makes each equation true.

- A. $800 + \underline{\hspace{2cm}} = 1,000$
B. $\underline{\hspace{2cm}} + 750 = 1,000$
C. $748 + \underline{\hspace{2cm}} = 1,000$

Solution

- A. 200
B. 250
C. 252

Problem 4

Standards Alignments

Addressing 2.NBT.B.9

Narrative

Students explain why an adding on strategy works to calculate a difference. In this particular case, the adding on method works well because each sum is friendly, first making a ten and then a hundred. Subtracting, on the other hand, would require decomposing both a hundred and a ten.

To find the value of $500 - 389$, Kiran writes these three equations.

$$389 + 1 = 390$$

$$390 + 10 = 400$$

$$400 + 100 = 500$$

Kiran says this shows $500 - 389 = 111$. Do you agree with Kiran? Explain or show your reasoning.

Solution

Kiran's equations show that $389 + 111 = 500$ so $500 - 389 = 111$. Kiran adds on to 389 to get 500 rather than taking away 389 from 500.

Problem 5

Standards Alignments

Addressing 2.NBT.B.7

Narrative

Students find sums of three-digit numbers. The first sum can be found adding by place value with no regrouping. The third sum introduces a new hundred while the second sum has a new ten and a new hundred. Students who are only able to find the first sum correctly probably need more practice with regrouping.

Find the value of each sum. Show your thinking. Use base-ten blocks if it helps.

- a. $537 + 312$
- b. $428 + 175$
- c. $566 + 273$

Solution

- A. 849. I added by place value, ones, tens, and hundreds.
- B. 603. I made a new ten from 8 and 5 and there were 3 ones. Then I made a new hundred from all of the tens. That gave me 6 hundreds and 3 ones.
- C. 839. I made a hundred from the 6 tens and 7 tens and had 3 more tens. I added that 100 to the 500 and 200 to get 800 and then I also had 9 ones.

Problem 6

Standards Alignments

Addressing 2.NBT.B.7

Narrative

Students find differences of three-digit numbers. The first difference can be found with no regrouping. The second problem requires regrouping a ten, if students subtract by place value. The third problem requires regrouping twice unless students see a different way to solve the problem, such as adding on.

Find the value of each difference. Show your thinking. Use base-ten blocks if it helps.

- a. $528 - 315$
- b. $471 - 124$
- c. $600 - 594$

Solution

- A. 213. I subtracted by place value, hundreds from hundreds, tens from tens, ones from ones.
- B. 347. I broke one of the tens in 471 into ten ones and then subtracted by place value.
- C. 6. I added on to 594 to get 600.

Problem 7

Standards Alignments

Addressing 2.NBT.B.7, 2.NBT.B.9

Narrative

Students explain why a compensation strategy for subtraction works in a situation where subtracting by place value would require decomposing both a ten and a hundred. They then find the value of the difference and another difference with the same decomposition structure. Students can find the difference any way they choose and do not need to use Clare's strategy. Thinking strategically about which strategy to use is a sign of fluency. This is not an expectation for these problems in grade 2 but some students may be using different strategies appropriate to the numbers in a given problem.

Clare says that to find the value of $863 - 286$ she can subtract 300 and then add 14.

- a. Explain why Clare's method works.
- b. What is the value of $863 - 286$?
- c. Find the value of $253 - 75$. Show your thinking.

Solution

- a. Subtracting 300 and then adding back 14 is the same as subtracting 14 fewer and 14 fewer than 300 is 286.
- b. Sample response:

577

$$863 - 300 = 563$$

$$563 + 14 = 577$$

c. 178

$$253 - 100 = 153$$

$$153 + 25 = 178$$

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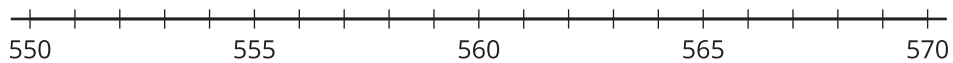
Lesson
Cool Downs

Lesson 1: Compare, Count on, and Count Back

Cool Down: Subtract and Count

1. Locate and label 562 and 559 on the number line.

Find the value of $562 - 559$. Show your thinking.



2. Complete the list of numbers to show counting on by 100.

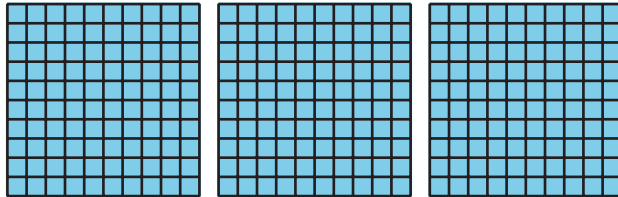
552, _____, _____, 852, 952

Explain how you know your list shows counting on by 100 and not counting on by 10.

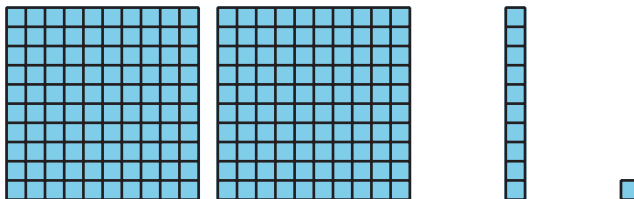
Lesson 2: Add and Subtract with Tens and Hundreds

Cool Down: How Many Blocks?

Tyler's blocks



Jada's blocks



1. What is the value of their blocks altogether?

2. Write an equation to show your thinking.

Lesson 3: Count on or Count Back to Subtract

Cool Down: Mystery Number

Find the number that makes the equation true.

Show your thinking.

$$600 - \text{☀} = 360$$

Lesson 4: Add and Subtract Three-digit Numbers in Different Ways

Cool Down: Find the Sum, Find the Difference

Find the value of each expression. Show your thinking.

1. $382 + 216$

2. $700 - 428$

Lesson 6: Use a Ten to Add Within 1,000

Cool Down: Find the Sum

Find the value of $157 + 33$.

Show your thinking. Use base-ten blocks if it helps.

Lesson 7: Compose a Larger Unit

Cool Down: Make a Ten? Make a Hundred?

Find the value of $354 + 75$.

Show your thinking. Use base-ten blocks if it helps.

Lesson 8: Compose Tens and Hundreds to Add

Cool Down: Make Tens and Hundreds

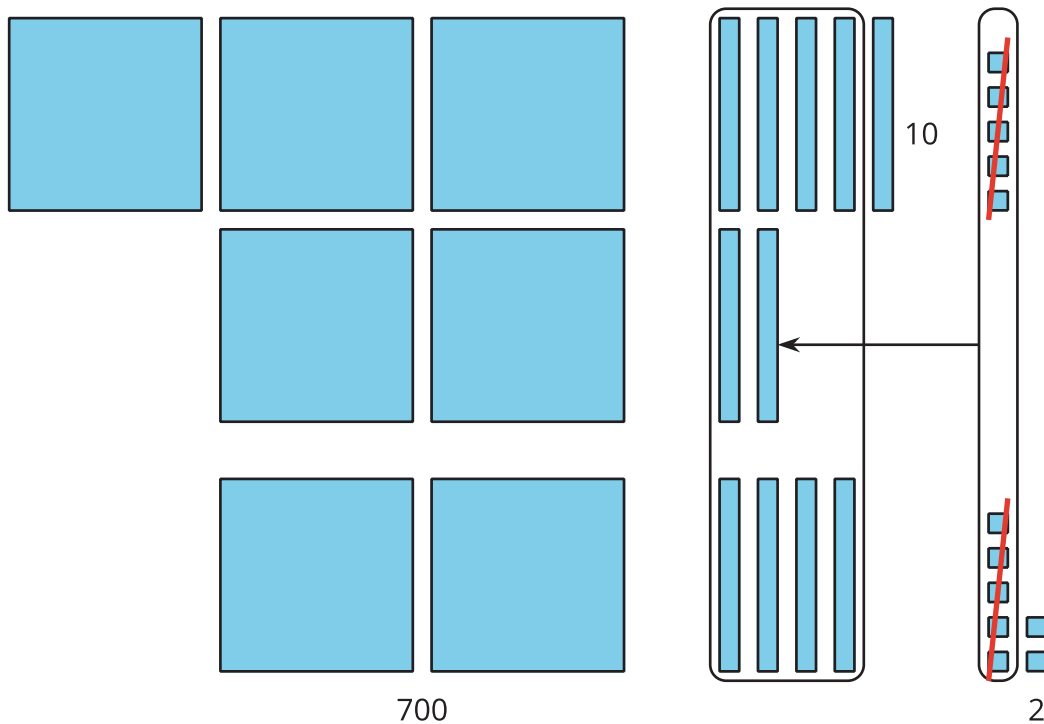
Find the value of $278 + 65$.

Show your thinking. Use base-ten blocks if it helps you.

Lesson 9: Add Three-digit Numbers

Cool Down: Find the Sum

Priya used a diagram to find the value of $565 + 247$.



$$700 + 10 + 2 = 712$$

Did she find the correct value? Explain or show your thinking.

Lesson 10: Add within 1,000

Cool Down: Different Methods for Adding within 1,000

$495 + 305$

$287 + 438$

$599 + 112$

$232 + 648$

1. a. Choose one expression and find the value by adding by place.
Show your thinking.

-
- b. Explain why you chose this sum.

$495 + 305$

$287 + 438$

$599 + 112$

$232 + 648$

2. a. Choose a different expression and find the value using a different method. Show your thinking.

- b. Explain why you chose this sum.

Lesson 12: Decompose to Subtract

Cool Down: Subtract

Find the value of $652 - 24$. Show your thinking.

Lesson 13: Decompose Tens or Hundreds

Cool Down: More Subtraction

Find the value of $519 - 236$. Show your thinking.

Lesson 14: Think Before You Subtract

Cool Down: Decompose? Maybe.

Han wants to subtract by place to find the value of these expressions.

$463 - 38$

$463 - 52$

$463 - 75$

1. Han wants to start by subtracting without decomposing any units.

a. Which expression should he choose?

b. Find the value of the expression. Show your thinking.

2. Choose an expression that Han will need to decompose a unit if he subtracts by place.

$463 - 38$

$463 - 52$

$463 - 75$

a. Write the expression and explain your choice.

b. Find the value of the expression. Show your thinking.

Lesson 15: Decompose a Ten and a Hundred to Subtract

Cool Down: Find the Error

Noah found the value of $532 - 358$. Here is his work.

$$500 - 300 = 200$$

$$50 - 30 = 20$$

$$8 - 2 = 6$$

$$200 + 20 + 6 = 226$$

1. Explain Noah's error.

2. Show Noah a way to find the value of $532 - 358$.

Lesson 16: Subtract Within 1,000

Cool Down: Find the Difference Your Way

$324 - 157$

$500 - 185$

$712 - 299$

$822 - 365$

1. a. Choose one expression and find the value by subtracting by place.
Show your thinking.

-
- b. Explain why you chose that expression.

$324 - 157$

$500 - 185$

$712 - 299$

$822 - 365$

2. a. Choose a different expression and find the value using a different method. Show your thinking.

- b. Explain why you chose that expression.

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Instructional
Masters

Instructional Masters for Adding and Subtracting within 1,000

address	title	students written on?	requires cutting?	card stock recommended?	color paper recommended?
Activity Grade2.7.17.1	Target Numbers Stage 6 Recording Sheet	1	yes	no	no
Center	Target Numbers Stage 6 Recording Sheet	1	yes	no	no
Activity Grade2.7.7.2	Walk About and Add Cards	24	no	yes	no
Activity Grade2.7.11.1	How Close? Stage 4 Recording Sheet	1	yes	no	no
Center	How Close? Stage 4 Recording Sheet	1	yes	no	no
Activity Grade2.7.10.1	How Did You Do That? Addition Card Sort	1	no	yes	no
Activity Grade2.7.15.2	Walk About and Subtract Cards	24	no	yes	no
Activity Grade2.7.6.2	Card Sort Perfect 10	3	no	yes	no
Activity Grade2.7.5.1	Five in a Row Addition and Subtraction Stage 7 Gameboard	2	no	no	no
Center	Five in a Row Addition and Subtraction Stage 7 Gameboard	2	no	no	no
Activity Grade2.7.11.2	Five in a Row Addition and Subtraction Stage 8 Gameboard	2	no	no	no
Center	Five in a Row Addition and Subtraction Stage 8 Gameboard	2	no	no	no

Center	Jump the Line Stage 1 Gameboard	2	no	no	no	no	no
Center	Jump the Line Stage 1 Spinners	2	no	no	no	no	no
Center	Number Line Scoot Stage 1 Gameboard	2	no	no	no	no	no
Center	Number Line Scoot Stage 1 Spinner	2	no	no	no	no	no
Center	Number Line Scoot Stage 1 Directions	2	no	yes	no	no	no
Center	Five in a Row Addition and Subtraction Stage 6 Gameboard	2	no	no	no	no	no
Center	How Close? Stage 3 Recording Sheet	1	yes	no	no	no	no
Center	Get Your Numbers in Order Stage 2 Gameboard	2	yes	no	no	no	no
Center	Mystery Number Stage 2 Directions	2	no	no	no	no	no
Center	Greatest of Them All Stage 2 Recording Sheet	1	yes	no	no	no	no
Center	Number Puzzles Digit Cards	2	no	yes	no	no	no
Center	Number Puzzles Addition Stage 4 Gameboard	2	no	no	no	no	no
Center	Number Cards (0-10)	2	no	yes	yes	no	no
Center	Target Numbers Stage 5 Recording Sheet	1	yes	no	no	no	no
Center	Target Numbers Stage 7 Recording Sheet	1	yes	no	no	no	no

Target Numbers Stage 6 Recording Sheet

Directions:

- Roll 3 number cubes to get a starting number for both partners.
- On your turn:
 - Roll 3 number cubes. For each cube, decide whether it represents hundreds, tens or ones that you will add to your starting number.
 - Write an equation to represent the sum.
- Take turns until you've played 6 rounds.
- Each round, the sum from the previous equation is the starting number in the new equation.
- The partner to get a sum closest to 1,000 without going over wins.

roll and choose	equation
____ hundreds ____ tens ____ ones	$\begin{array}{ccc} & + & = \\ \text{_____} & & \text{_____} \end{array}$
____ hundreds ____ tens ____ ones	$\begin{array}{ccc} & + & = \\ \text{_____} & & \text{_____} \end{array}$
____ hundreds ____ tens ____ ones	$\begin{array}{ccc} & + & = \\ \text{_____} & & \text{_____} \end{array}$
____ hundreds ____ tens ____ ones	$\begin{array}{ccc} & + & = \\ \text{_____} & & \text{_____} \end{array}$
____ hundreds ____ tens ____ ones	$\begin{array}{ccc} & + & = \\ \text{_____} & & \text{_____} \end{array}$
____ hundreds ____ tens ____ ones	$\begin{array}{ccc} & + & = \\ \text{_____} & & \text{_____} \end{array}$

Target Numbers Stage 6 Recording Sheet

Directions:

- Roll 3 number cubes to get a starting number for both partners.
- On your turn:
 - Roll 3 number cubes. For each cube, decide whether it represents hundreds, tens or ones that you will add to your starting number.
 - Write an equation to represent the sum.
- Take turns until you've played 6 rounds.
- Each round, the sum from the previous equation is the starting number in the new equation.
- The partner to get a sum closest to 1,000 without going over wins.

roll and choose	equation
____ hundreds ____ tens ____ ones	$\begin{array}{ccc} & + & = \\ \text{---} & & \text{---} \end{array}$
____ hundreds ____ tens ____ ones	$\begin{array}{ccc} & + & = \\ \text{---} & & \text{---} \end{array}$
____ hundreds ____ tens ____ ones	$\begin{array}{ccc} & + & = \\ \text{---} & & \text{---} \end{array}$
____ hundreds ____ tens ____ ones	$\begin{array}{ccc} & + & = \\ \text{---} & & \text{---} \end{array}$
____ hundreds ____ tens ____ ones	$\begin{array}{ccc} & + & = \\ \text{---} & & \text{---} \end{array}$
____ hundreds ____ tens ____ ones	$\begin{array}{ccc} & + & = \\ \text{---} & & \text{---} \end{array}$

Walk About and Add Cards

Walk About and Add
A

360

Walk About and Add
A

245

Walk About and Add
A

431

Walk About and Add
A

543

Walk About and Add
A

163

Walk About and Add
A

124

Walk About and Add
A

205

Walk About and Add
A

634

Walk About and Add Cards

Walk About and Add

A

346

Walk About and Add

A

452

Walk About and Add

A

561

Walk About and Add

A

472

Walk About and Add

B

10

Walk About and Add

B

91

Walk About and Add

B

72

Walk About and Add

B

100

Walk About and Add Cards

Walk About and Add
B

35

Walk About and Add
B

47

Walk About and Add
B

18

Walk About and Add
B

63

Walk About and Add
B

83

Walk About and Add
B

44

Walk About and Add
B

37

Walk About and Add
B

26

How Close? Stage 4 Recording Sheet

+

Your score this round: _____

+

Your score this round: _____

+

Your score this round: _____

How Close? Stage 4 Recording Sheet

+

Your score this round: _____

+

Your score this round: _____

+

Your score this round: _____

How Did You Do That? Addition Card Sort

How Did You Do That? Addition Card Sort

$$399 + 224$$

How Did You Do That? Addition Card Sort

$$419 + 501$$

How Did You Do That? Addition Card Sort

$$238 + 599$$

How Did You Do That? Addition Card Sort

$$308 + 512$$

How Did You Do That? Addition Card Sort

$$602 + 233$$

How Did You Do That? Addition Card Sort

$$198 + 257$$

How Did You Do That? Addition Card Sort

$$367 + 486$$

How Did You Do That? Addition Card Sort

$$429 + 378$$

How Did You Do That? Addition Card Sort

$$164 + 299$$

How Did You Do That? Addition Card Sort

$$762 + 125$$

Walk About and Subtract Cards

Walk About and Subtract

921

Walk About and Subtract

733

Walk About and Subtract

645

Walk About and Subtract

456

Walk About and Subtract

377

Walk About and Subtract

198

Walk About and Subtract

921

Walk About and Subtract

733

Walk About and Subtract Cards

Walk About and Subtract

645

Walk About and Subtract

456

Walk About and Subtract

377

Walk About and Subtract

198

Walk About and Subtract

921

Walk About and Subtract

733

Walk About and Subtract

645

Walk About and Subtract

456

Walk About and Subtract Cards

Walk About and Subtract

377

Walk About and Subtract

198

Walk About and Subtract

921

Walk About and Subtract

733

Walk About and Subtract

645

Walk About and Subtract

456

Walk About and Subtract

377

Walk About and Subtract

198

Card Sort Perfect 10

Perfect 10
A

163

Perfect 10
B

255

Perfect 10
C

341

Perfect 10
D

432

Perfect 10
E

524

Perfect 10
F

236

Perfect 10
G

187

Perfect 10
H

319

Card Sort Perfect 10

Perfect 10
I

48

Perfect 10
J

27

Perfect 10
K

13

Perfect 10
L

51

Perfect 10
M

35

Perfect 10
N

29

Perfect 10
O

14

Perfect 10
P

56

Five in a Row Addition and Subtraction Stage 7 Gameboard

Directions:

- Partner A: Put a paper clip on 2 numbers in the grey rows. Cover the sum of the 2 numbers with a counter.
- Partner B: Move 1 of the paper clips, add the numbers, and cover the sum with a counter.
- Take turns. The first partner to cover 5 squares in a row wins.



704	669	621	442	784
497	695	323	956	44
586	413	784	576	614
297	386	378	867	532
873	99	134	531	665

263	100	352	65	10
-----	-----	-----	----	----

34	432	604	313	521
----	-----	-----	-----	-----

Five in a Row Addition and Subtraction Stage 7 Gameboard

Directions:

- Partner A: Put a paper clip on 2 numbers in the grey rows. Cover the sum of the 2 numbers with a counter.
- Partner B: Move 1 of the paper clips, add the numbers, and cover the sum with a counter.
- Take turns. The first partner to cover 5 squares in a row wins.



704	669	621	442	784
497	695	323	956	44
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873	99	134	531	665

263	100	352	65	10
-----	-----	-----	----	----

34	432	604	313	521
----	-----	-----	-----	-----

Five in a Row Addition and Subtraction Stage 8 Gameboard

Directions:

- Partner A: Put a paper clip on 2 numbers in the grey rows. Cover the sum of the 2 numbers with a counter.
- Partner B: Move 1 of the paper clips, add the numbers, and cover the sum with a counter.
- Take turns. The first partner to cover 5 squares in a row wins.



918	935	335	401	313
446	407	585	929	709
352	613	440	591	754
715	748	630	896	429
346	890	737	307	624

45	67	78	84	39
----	----	----	----	----

670	362	851	546	268
-----	-----	-----	-----	-----

Five in a Row Addition and Subtraction Stage 8 Gameboard

Directions:

- Partner A: Put a paper clip on 2 numbers in the grey rows. Cover the sum of the 2 numbers with a counter.
- Partner B: Move 1 of the paper clips, add the numbers, and cover the sum with a counter.
- Take turns. The first partner to cover 5 squares in a row wins.



918	935	335	401	313
446	407	585	929	709
352	613	440	591	754
715	748	630	896	429
346	890	737	307	624

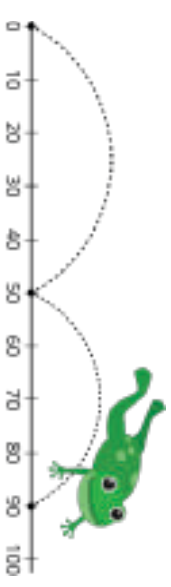
45	67	78	84	39
----	----	----	----	----

670	362	851	546	268
-----	-----	-----	-----	-----

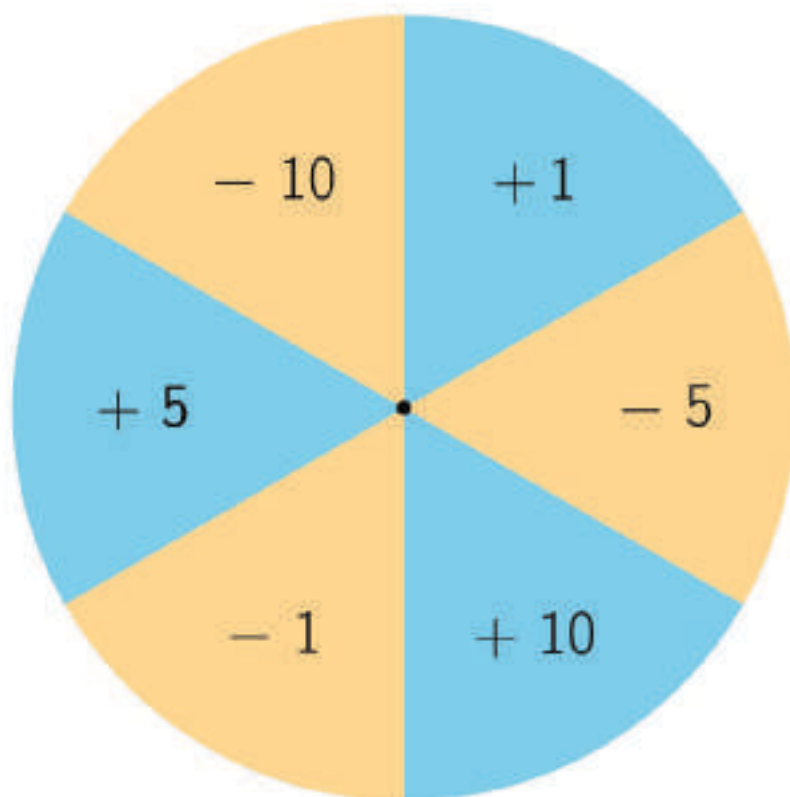
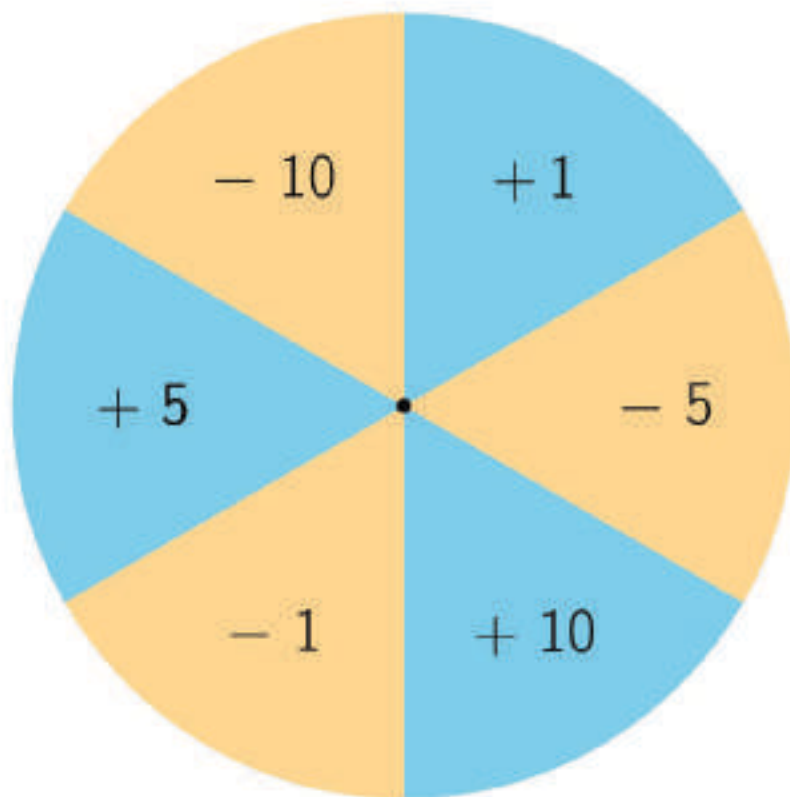
Jump the Line Stage 1 Gameboard

Directions:

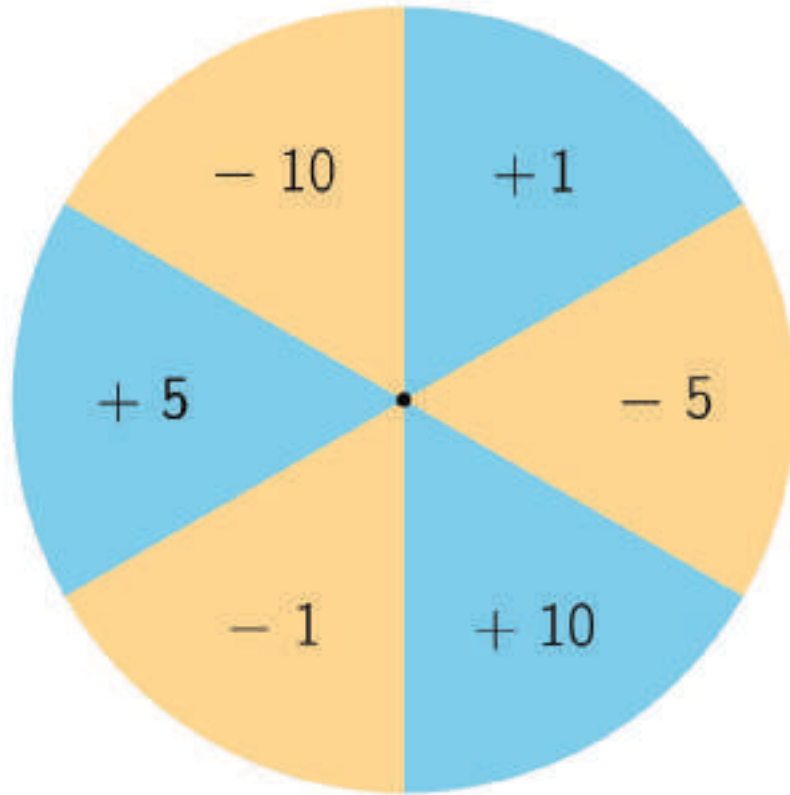
- Together with your partner, decide on 3 target numbers and mark them on your number line.
- On your turn:
 - Spin all 3 spinners. Decide which moves you want to use on your turn.
 - Mark where you ended up on the number line.
- Take turns spinning and moving on the number line. The first partner to land on 2 of the target numbers wins.



Jump the Line Stage 1 Spinners



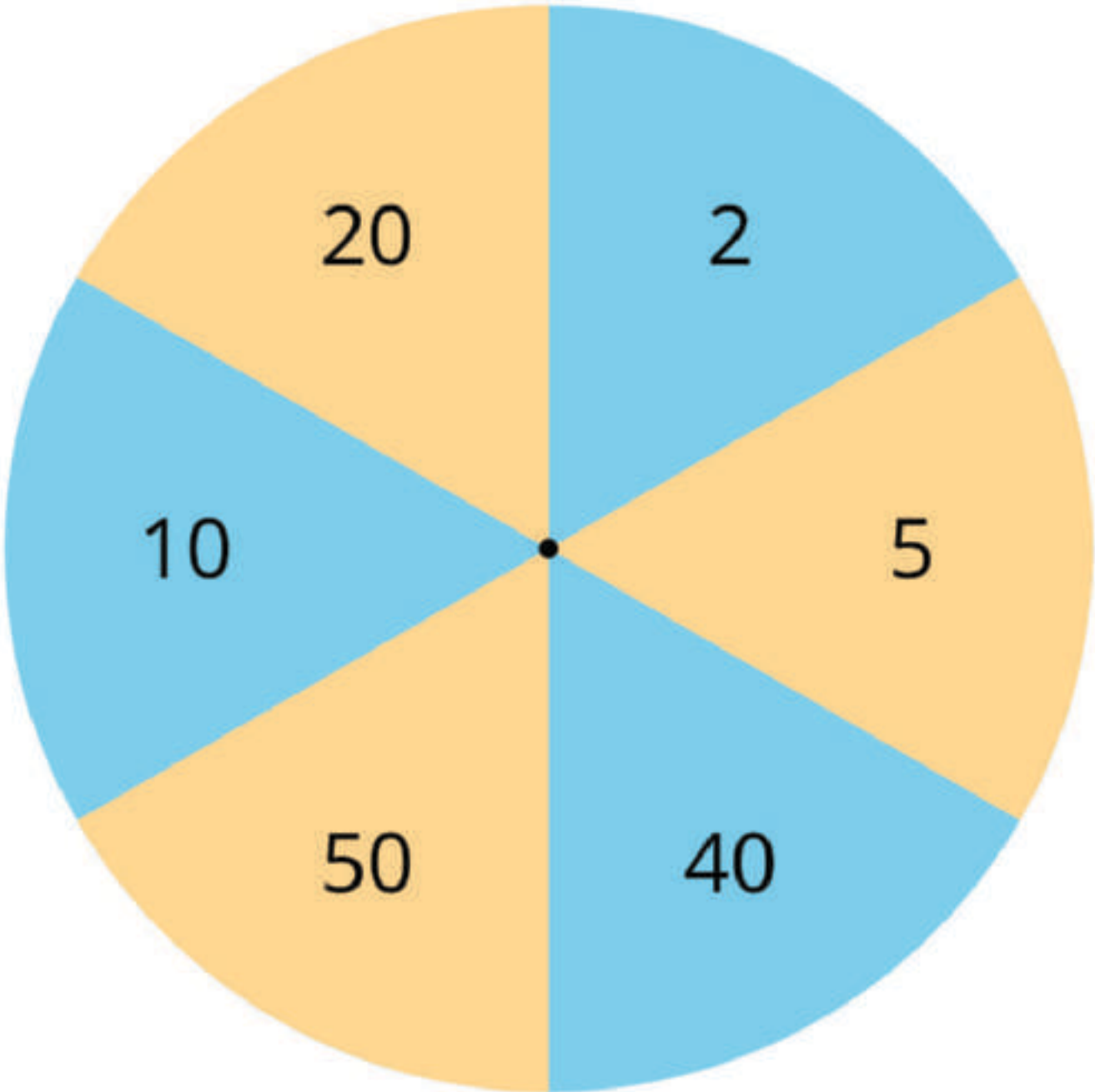
Jump the Line Stage 1 Spinners



Number Line Scoot Stage 1 Gameboard



Number Line Scoot Stage 1 Spinner



Number Line Scoot Stage 1 Directions

Directions:

- Place a small cube on zero on each number line.
 - On your turn:
 - Spin the spinner.
 - Count aloud as you move that distance on one or more number lines.
 - You can use your whole spin on one number line or split it between multiple number lines.
 - Take turns spinning and moving.
 - If a cube lands *exactly* on the last tick mark of a number line, that player keeps the cube and puts a new one at 0.
 - The first player to collect 5 cubes wins.
-

Directions:

- Place a small cube on zero on each number line.
- On your turn:
 - Spin the spinner.
 - Count aloud as you move that distance on one or more number lines.
 - You can use your whole spin on one number line or split it between multiple number lines.
- Take turns spinning and moving.
- If a cube lands *exactly* on the last tick mark of a number line, that player keeps the cube and puts a new one at 0.
- The first player to collect 5 cubes wins.

Five in a Row Addition and Subtraction Stage 6 Gameboard

Directions: (two-digit plus two-digit)

- Partner A: Put a paper clip on 2 numbers in the grey rows. Cover the sum of the 2 numbers with a counter.
- Partner B: Move 1 of the paper clips, add the numbers, and cover the sum with a counter.
- Take turns. The first partner to cover 5 squares in a row wins.



81	91	54	46	90
84	83	35	82	53
60	92	99	73	51
73	42	44	53	92
100	75	82	61	64

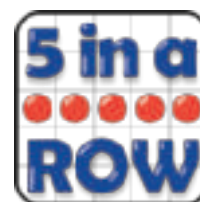
16	27	25	34	35
----	----	----	----	----

65	19	57	26	48
----	----	----	----	----

Five in a Row Addition and Subtraction Stage 6 Gameboard

Directions: (one-digit plus two-digit)

- Partner A: Put a paper clip on 2 numbers in the grey rows. Cover the sum of the 2 numbers with a counter.
- Partner B: Move 1 of the paper clips, add the numbers, and cover the sum with a counter.
- Take turns. The first partner to cover 5 squares in a row wins.



75	64	24	26	63
65	25	22	31	55
58	30	67	32	66
72	56	54	34	71
74	23	33	73	57

5	6	7	8	9
---	---	---	---	---

17	25	49	58	66
----	----	----	----	----

How Close? Stage 3 Recording Sheet

Directions:

- Each partner:
 - Take 7 cards.
 - Choose 4 cards to make 2 two-digit numbers.
 - Write an equation to show the sum of the numbers you made.
 - Compare sums with your partner, whoever is closer to 100 wins a point.
- Take 4 new cards and start the next round.

$$\begin{array}{|c|c|} \hline & \\ \hline \end{array} + \begin{array}{|c|c|} \hline & \\ \hline \end{array} = \underline{\hspace{2cm}}$$

$$\begin{array}{|c|c|} \hline & \\ \hline \end{array} + \begin{array}{|c|c|} \hline & \\ \hline \end{array} = \underline{\hspace{2cm}}$$

$$\begin{array}{|c|c|} \hline & \\ \hline \end{array} + \begin{array}{|c|c|} \hline & \\ \hline \end{array} = \underline{\hspace{2cm}}$$

$$\begin{array}{|c|c|} \hline & \\ \hline \end{array} + \begin{array}{|c|c|} \hline & \\ \hline \end{array} = \underline{\hspace{2cm}}$$

How Close? Stage 3 Recording Sheet

 +  = _____

 +  = _____

 +  = _____

 +  = _____

 +  = _____

Mystery Number Stage 2 Directions

Directions:

- Partner A:
 - Pick 3 cards and make a mystery three-digit number. Don't show your partner!
 - Give your partner a clue about your mystery number. You can use the sentences below to help you give clues, or make up your own.
- Partner B:
 - Guess your partner's mystery number.
- If Partner B guesses the mystery number, switch roles.
- If Partner B does not guess the mystery number, Partner A gives another clue. Go back and forth guessing the number and giving clues until Partner B guesses the mystery number.



Example clues:



- The mystery number has more than ____ hundreds.
- The mystery number has less than ____ ones.
- The mystery number is greater than ____.
- The mystery number is less than ____.
- The mystery number has more hundreds than ones.
- The mystery number has more ones than tens.

Greatest of Them All Stage 2 Recording Sheet



Directions:

- Partner A chooses a number card and writes the number in one of the blanks for Round 1.
- Partner B does the same.
- Repeat until each partner has a three-digit number.
- Write a comparison using $<$, $>$, or $=$.
- The partner with the greater number wins the round.

Round 1:



My Number	My Partner's Number
	
Compare using $<$, $>$, or $=$.	

Round 2:



My Number	My Partner's Number
	
Compare using $<$, $>$, or $=$.	

Greatest of Them All Stage 2 Recording Sheet

Round 3:



My Number	My Partner's Number
	
Compare using $<$, $>$, or $=$.	

Round 4:



My Number	My Partner's Number
	
Compare using $<$, $>$, or $=$.	

Greatest of Them All Stage 2 Recording Sheet

Round 5:

My Number	My Partner's Number
	
Compare using $<$, $>$, or $=$.	

Round 6:

My Number	My Partner's Number
	
Compare using $<$, $>$, or $=$.	

Puzzle 1

Make each equation true. Use number cards 0-9.

$63 = 5 \square + 8$	$63 = 5 \square + \square$
$63 = 1 \square + 52$	$63 = 3 \square + \square 9$
$63 = \square + 24$	$63 = 3 \square + 25$

Puzzle 2

Make each equation true. Use number cards 0-9.

$80 = 3 \square + \square + 41$	$80 = \square + 3 + 7$
$80 = 27 + \square + \square$	$80 = 1 \square + 6 \square$
$80 = \square + \square + 16$	$80 = 5 \square + 29$

Puzzle 3

Make each equation true. Use number cards 0-9.

$27 = 1 \square + 14$	$27 = 1 \square + 1 \square$
$27 = 9 + \square \square$	$27 = 2 \square + 3$
$2 \square = 1 \square + 11$	$27 = 1 \square + 8$

Puzzle 4

Make each equation true. Use number cards 0-9.

$92 = \square\square + 6$	$92 = \square + 83$
$92 = 7\square + 1\square$	$92 = 9\square + \square$
$92 = 39 + 5\square$	$92 = 78 + \square\square$

Puzzle 5

Make each equation true. Use number cards 0-9.

$46 = \square + 23$	$46 = 1 \square + 31$
$46 = 4 \square + 5$	$46 = 3 \square + 7$
$46 = 3 \square + 10$	$46 = 3 \square + 8$

Number Cards (0-10)

1

2

3

4

5

6

Number Cards (0-10)

7

8

9

1

2

3

Number Cards (0-10)

4

5

6

7

8

9

Number Cards (0-10)

0

0

10

10

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