Teacher Edition Sampler Grade 3

Reveal MATH®

Reveal the Full Potential in Every Student

Grade 3

Unit 2: Use Place Value to Fluently Add and Subtract within 1,000

UNIT 2 PLANNER Use Place Value to Fluently Add and Subtract within 1,000

PACING: 12 days

LESSC	DN .	MATH OBJECTIVE	LANGUAGE OBJECTIVE	SOCIAL AND EMOTIONAL LEARNING OBJECTIVE
Unit C	Dpener IgNite! Penny Estima	tion Students use strategies to estima	te the number of pennies that will fit in	a region.
2-1	Represent 4-Digit Numbers	Students represent 4-digit numbers in expanded form, word form, and standard form using an understanding of place value.	Students describe 4-digit numbers using place value.	Students identify and discuss the emotions experienced during math learning.
2-2	Round Multi-Digit Numbers	Students round numbers to the nearest 10 or nearest 100.	Students will use the superlative <i>nearest</i> to explain rounding numbers.	Students collaborate with peers to complete a mathematical task.
Math	Probe Rounding Numbers	Gather data on students' understanding	s of rounding to the nearest 10 and nea	irest 100.
2-3	Estimate Sums and Differences	Students use compatible numbers to estimate a sum or difference.	Students make numerical estimations using <i>about</i> .	Students observe the emotions of others and practice empathetic responses when appropriate.
2-4	Use Addition Properties to Add	Students apply the properties of addition when adding two or more addends.	Students justify multiple ways to solve an addition problem using <i>and the sum</i> <i>will be the same</i> .	Students explain their thinking for how they completed a mathematical task.
2-5	Addition Patterns	Students identify addition patterns and use the patterns to help determine sums of 3-digit numbers and check their accuracy.	Students read conditional sentences with <i>when</i> that express patterns.	Students discuss how a mathematical rule or routine can help develop mathematical skills and knowledge.
2-6	Use Partial Sums to Add	Students use partial sums to add 3-digit numbers.	Students use <i>can</i> to explain the steps of an addition strategy.	Students recognize personal strengths and areas for growth through thoughtful self-reflection.
2-7	Decompose to Subtract	Students decompose one number in different ways to subtract.	Students compare ways to decompose a number using terms such as <i>one way</i> and <i>another</i> .	Students discuss alternative strategies and the value of flexible mathematical thinking.
2-8	Adjust Numbers to Add or Subtract	Students adjust numbers to help them add or subtract.	Students express an opinion with support using language such as <i>I think</i> and <i>because</i> .	Students exchange ideas with a peer and reflect on the value of their similarities and differences.
2-9	Use Addition to Subtract	Students use related addition equations to find the difference.	Students describe a bar diagram using precise measurements for distance.	Students engage in respectful discourse for approaching a task.
2-10	Fluently Add within 1,000	Students explain different strategies to add 3-digit numbers.	Students use the transitional word <i>then</i> to articulate a strategy with more than one step.	Students discuss personal interests related to mathematics and share these interests with peers.
2-11	Fluently Subtract within 1,000	Students explain different strategies to subtract 3-digit numbers.	Students use command verbs to explain the steps of a strategy.	Students set a focused mathematical goal and make a plan for achieving that goal.
2-12	Solve Two-Step Problems Involving Addition and Subtraction	Students write and solve equations to represent a two-step problem. Students use letters for the unknowns.	Students describe the amount they need to find in a word problem using the verb <i>need</i> .	Students determine strategies for making informed decisions.
Unit F Fluen	Review cy Practice			
Perfo	rmance Task Assessment			

FOCUS QUESTION: How can I use strategies to add and subtract fluently?

LESSON	KEY VOCABULARY		MATERIALS TO GATHER		RIGOR FOCUS
2-1	Math Terms expanded form standard form word form	Academic Terms determine represent	base-ten blocksblank number cubes	 deck of playing cards <i>Place-Value Chart</i> Teaching Resource 	Conceptual Understanding
2-2	round	identify discuss	base-ten blockscounters	 index cards <i>Number Chart 401–500</i> Teaching Resource 	Conceptual Understanding
2-3	estimate compatible number	reason comparison	• blank number cubes	Number Cards 0–10 Teaching Resource	Procedural Skill & Fluency
2-4	addend	strategy justify	base-ten blocksblank number cubes	numbered spinner	Procedural Skill & Fluency
2-5	<mark>even number</mark> odd number	analyze identify	base-ten blocksblank number cubes		Conceptual Understanding
2-6	<mark>decompose</mark> partial sum	strategy support	base-ten blocksgrid paper	 paper money (\$1 bills, \$10 bills, and \$100 bills) 	Procedural Skill & Fluency
2-7	decompose	strategy defend	• base-ten blocks	• <i>Number Cards 0–10</i> Teaching Resource	Procedural Skill & Fluency
2-8	difference sum	adjust process	• <i>Number Cards 0–10</i> Teaching Resource		Procedural Skill & Fluency
2-9	bar diagram	comparison conclude	base-ten blocksblank number cubes	• <i>Number Cards 0–10</i> Teaching Resource	Procedural Skill & Fluency
2-10	partial sum	justify process	• blank number cubes		Procedural Skill & Fluency
2-11	decompose	justify response	blank number cubestransparent spinner		Procedural Skill & Fluency
2-12	bar diagram unknown	identify process	• Problem-Solving Tool Teaching Resource		Conceptual Understanding, Application

Focus

Use Place Value to Fluently Add and Subtract within 1,000

In this unit, students extend their knowledge of place value to 3- and 4-digit numbers and apply this knowledge to adding and subtracting 3-digit numbers. Student use place value to form estimates of sums and differences by rounding and using compatible numbers. They will extend their understanding of addition properties by discovering the order or grouping of three addends does not change the sum. Students also identify even and odd addition patterns to help check whether a sum is accurate.

Students use their understanding of place value to learn strategies, such as decomposing and adjusting, and then apply these strategies to help add and subtract more fluently. They also use their understanding of addition and subtraction to solve the two-step word problems. Students will extend their understanding of place value, addition, and subtraction learned in previous grades. These include:

- **Place value:** Students represent 3- and 4-digit number using standard form, expanded form, and word from.
- **Round multi-digit numbers:** Students round multi-digit numbers to the nearest 10 and nearest 100.
- Addition: Students use an understanding of addition properties and strategies to add 3-digit numbers.
- Subtraction: Students use strategies to subtract 3-digit numbers.

Coherence

What Students Have Learned

- **Place-Value Structure** Students learned that digits in each place represent amounts of hundreds, tens, and ones. (Grade 2)
- Addition Students added within 100 using properties of addition and addition strategies. (Grade 2)
- **Subtraction** Students used strategies to subtract within 100. (Grade 2)

What Students Are Learning

- **Place-Value Structure** Students extend their understanding of place value through thousands.
- Addition Students add within 1,000 using properties of addition and addition strategies.
- **Subtraction** Students used strategies to subtract within 1,000.

What Students Will Learn

- **Place-Value Structure** Students will use place value to compare multi-digit numbers. (Grade 4)
- Addition Students will use the standard algorithm to add multi-digit numbers. (Grade 4)
- **Subtraction** Students will use the standard algorithm to subtract multi-digit numbers. (Grade 4)

Rigor

Conceptual Understanding

Students develop understanding of

- place-value to thousands;
- rounding to the nearest ten and hundred;
- identifying even and odd addition patterns;
- using letters to solve for the unknown.

Procedural Skill and Fluency

Student build proficiency with:

- using compatible numbers to estimate a sum or difference;
- using properties of addition when adding two or more numbers;
- using strategies to add two 3-digit numbers;
- using strategies to subtract two 3-digit numbers.

Application

Students apply their knowledge of

 addition and subtraction to solve two-step word problems.

Effective Teaching Practices

Support Productive Struggle in Learning Mathematics

Productive struggle is an effective way for students to build understanding of new mathematical ideas and relationships. Students may struggle individually or in a group while learning a new concept on their own or participating in a higher-level thinking problem. Regardless of what they are struggling with, students need to know they will understand the new concept or discover the answer eventually. Therefore, sometimes small victories, such as discovering a new strategy or understanding one step of a large problem, will encourage students to continue learning and show them they are on the right path. If the struggle becomes unproductive, students may need appropriate scaffolding such as hands-on materials and visual representations to aid in their thought process. If students become too frustrated with their struggles, they may stop trying to understand. There is a fine line between struggling productively and unproductively.

- Students may struggle while solving addition and subtraction word problems. It is important to have students be fully engaged in making sense of the problem. Have them identify what they know about the problem and what they don't know. Have them think of tools and representations they could use to aid their thinking.
- Students may struggle with how another student estimated an answer. Encourage the student to explain and justify his or her estimation strategy. For example, the student may explain that he or she chose to estimate by rounding the addends to the nearest 10. The explanation may be supported by a number line showing the halfway point and the nearest 10s.

🕮 Math Practices and Processes

Model with Mathematics

At the elementary level, students are introduced to what it means to model with mathematics. Modeling a problem situation enables students to find ways to solve the problem. Have students explain how their model represents the problem. When students model the mathematics, they use different representations to help them solve problems. Encourage students to compare their models to others, and to connect the different models. For example, have them connect their base-ten block representations to addition equations while solving an addition word problem. Remind students that they can always improve or revise their models if their solution doesn't make sense. To help students build proficiency with modeling, students need opportunities to interact with different representations Some suggestions for building proficiency include:

- Have students use representations, such as base-ten blocks or a graphic organizer like a place-value chart, to provide students with a concrete understanding of the value of the digits in a multi-digit number. Ask them to think about how patterns they see in the representation or organizer can help them understand the place value of digits in greater numbers.
- Have students use base-ten blocks to model adding and subtracting 3-digit numbers. This helps them understand the value of the digits in the numbers.

🕮 Social and Emotional Learning

What Skills Will We Develop?

- Self-Awareness Identify Feelings and Emotions (Lesson 2-1): Students who can identify and understand their own feelings and emotions can better manage the reactions to those emotions.
- Self-Awareness Recognize Strengths (Lesson 2-6): When students recognize their own strengths, they may be more willing problem solve.
- **Self-Awareness Identity and Belonging** (Lesson 2-10): A strong sense of identity and belonging can help students feel confident.
- Self-Regulation Metacognition (Lesson 2-4): Students who think about their own thinking can develop deeper understanding of themselves as math learners.
- Self-Regulation Rules and Routines (Lesson 2-5): Understanding rules and routines can help students feel more confident.

- **Self-Regulation Goal-Setting** (Lesson 2-11): Setting goals can help motivate students to take initiative and stay focused.
- **Responsible Decision-Making Flexible Thinking** (Lesson 2-7): Flexible thinkers can reevaluate a problem and adjust their thinking.
- Responsible Decision-Making Analysis (Lesson 2-12): Students make sense through analysis, which helps make informed decisions.
- **Social Awareness Empathy** (Lesson 2-3): Students who can empathize with others are more able to build positive relationships.
- **Social Awareness Develop Perspective** (Lesson 2-9): Developing perspective can help students understand different ways of thinking.
- **Relationship Skills Engage with Others** (Lesson 2-2): Engaging with establish a sense of belonging in the classroom community.
- **Relationship Skills Value Ideas of Others** (Lesson 2-8): When students value others' ideas, they can build healthy, rewarding relationships.

📟 Language of Math

Vocabulary

Students will be using these key terms in this unit:

- Compatible numbers* (Lesson 2-3) These are numbers that are easier to work and can help estimate a sum or difference.
- **Decompose*** (Lessons 2-6, 2-7, 2-11) Students were introduced to this term in the context of composing and decomposing words in Grade 2. In Grade 3 students decompose, or break apart, numbers to make them easier to work with.
- **Difference** (Lesson 2-8) Students were introduced to this term in the context of subtraction in Grade 2, but may need a reminder that a difference is the answer to a subtraction problem.
- **Estimate**^{*} (Lesson 2-3) Students were introduced to this term in Grade 2 in the context of estimating length. In Grade 3 they estimate sums and differences when an exact answer is not needed.
- **Round**^{*} (Lesson 2–2) Students use the halfway point on number lines to round numbers to the nearest 10 or nearest 100.
- **Sum** (Lesson 2-8) Students were introduced to this term in the context of addition in Grade 2, but may have forgotten that the answer to an addition problem is the sum.

🕮 Math Language Development

A Focus on Listening

Active listening is a tool students must deliberately use to participate in meaningful math talk. They must listen to others carefully to have math discussions that enhance comprehension of concepts. By actively listening, students can combine ideas and strategies from teachers and classmates with their own. When students are actively listening, they should focus on the vocabulary words and strategies used. Therefore, make sure to demonstrate proper vocabulary usage and encourage students to use new and review vocabulary terms in their explanations.

When students can paraphrase what someone said, can ask clarifying questions, or can respond to questions, then they are participatory listeners. When students share their thinking about a topic, it helps students to process what they heard and demonstrates to teachers what they understand.

- Encourage students to actively listen to strategies used to add and subtract 3-digit numbers. Make it clear that you expect them to comment and to agree or disagree with the rationale behind the strategies. This will ensure that they are participatory listeners.
- Encourage students to rephrase concepts about how to solve two-step word problems with addition and subtraction and how to find estimates in their own words to clarify their understanding.

💷 English Language Learner

In this unit, students are provided with a number of scaffolds to support their comprehension of the language used to present and explain using place value to fluently add and subtract within 1,000. Because many of the words and phrases used are likely unfamiliar to ELs, students are supported in understanding and using these words. Lesson 2-1 – place value Lesson 2-2 – *close to, nearest* Lesson 2-3 – *about* Lesson 2-4 – *switch the order* Lesson 2-5 – *even, odd* Lesson 2-6 – *horizontal, vertical* Lesson 2-7 – *difference, different* Lesson 2-8 – *adjust* Lesson 2-9 – *rewrite* Lesson 2-10 – *partial* Lesson 2-11 – *unknown* Lesson 2-12 – *need*

Unit Routines

Number Routines

Build Fluency The number routines found at the beginning of each lesson help students build number sense and operational fluency. They also help students develop the thinking habits of mind that are important for proficient doers of math.

Find a Pattern, Make a Pattern

Purpose: Build efficiency with recognizing and building patterns. **Overview:** Students determine the rule(s) for a given pattern, then use the rule(s) to create a new pattern. The teacher records students' new patterns and facilitates a discussion to validate the pattern and its rules.

Mystery Number

Purpose: Builds mathematical reasoning and thinking. **Overview:** Based on clues that are revealed one at a time, students determine the mystery number. With each clue, students propose possible solutions and eliminate proposed solutions that are no longer viable. The teacher records students' possible solutions and eliminations.

Decompose It

Purpose: Build flexibility with numbers.

Overview: Students generate multiple ways to decompose numbers and share their thinking for each decomposition. The teacher records decompositions and facilitates a discussion of patterns they show.

Where Does It Go?

Purpose: Build estimating skills using benchmarks. **Overview:** Students place a target number on number lines with different endpoints and justify their placement.

Would You Rather?

Purpose: Build flexibility with number sense; enhance decision-making. **Overview:** Students choose between two options, both of which require mental computation. Students explain their choice and their rationale.

Sense-Making Routines

- Notice & Wonder[™] (Lessons 2-1, 2-2, 2-3, 2-9) In Lesson 2-1, students recognize they can use multi-digit numbers to represent large quantities. In Lesson 2-2, students explore strategies for determining the number of blocks in a sphere. In Lesson 2-3, students think about estimating to compare and understand that they do not always need to find an exact answer. In Lesson 2-9, students identify that part of an entire distance has been traveled.
- Numberless Word Problem (Lessons 2-4, 2-10, 2-12) In Lesson 2-4, students understand that amounts can be added in any order to find a sum. In Lesson 2-10, students think about the relationship of among the numbers in a word problem. In Lesson 2-12, students recognize that it may require two or more steps and different operations to solve a problem.
- Is It Always True? (Lessons 2-5, 2-11) In Lesson 2-5, students recognize the addition pattern that when an even amount is added to an odd amount, the total amount is always odd. In Lesson 2-11, students consider whether decomposing a number is the only strategy to solve a subtraction problem.
- Notice & Wonder[™]: How are they the same? How are they different? (Lessons 2-6, 2-7) In Lesson 2-6, students think about how the items are the same despite being shown in a different orientation. In Lesson 2-7, students think about how the same whole can be decomposed into parts of different sizes.
- Which Doesn't Belong? (Lesson 2-8) Students think about how the digits in the ones place can make it easier of more difficult to find the sum.

📟 Math Language Routines

Mathematical Language Routines used in this unit give teachers a structured, yet adaptable format for amplifying and developing students' social and academic language. For more information on the Math Language Routines, see the Appendix.

- Lessons 2-1, 2-11: In order to maximize linguistic and cognitive metaawareness and cultivate conversation, students participate in MLR8: Discussion Supports.
- Lessons 2-2, 2-6: In order to optimize output, students participate in MLR7: Compare and Connect.
- Lesson 2-3: In order to cultivate conversation, students participate in MLR3: Correct, Critique, and Clarify.

- Lesson 2-4: In order to optimize output, students participate in MLR1: Stronger and Clearer Each Time.
- Lessons 2-5, 2-12: In order to maximize linguistic and cognitive metaawareness, students participate in MLR2: Collect and Display.
- Lessons 2-7, 2-10: In order to cultivate conversation, students participate in MLR7: Co-Craft Problems.
- Lesson 2-8: In order to optimize output and cultivate conversation, students participate in MLR4: Information Gap.
- Lesson 2-9: In order to support sense-making, students participate in MLR6: Three Reads.

Readiness Diagnostic



Administer the Readiness Diagnostic to determine your students' readiness for this unit.

Targeted Intervention

Use Guided Support Intervention lessons available in the Digital Teacher Center to provide targeted intervention.

Item Analysis

ltem	DOK	Skill	Guided Support Intervention Lesson	Standard
1	2	Adjust numbers to add	Mental Math with Sums to 20	2.0A.B.2
2	3	Decompose numbers to add	Take Apart Tens and Ones to Add	2.NBT.B.5
3	1	Write numbers in expanded form	Expanded Form (101-999)	2.NBT.A.3
4	1	Relate addition to subtraction to subtract	Use Related Addition Facts to Subtract	2.NBT.B.5
5	2	Use addition and subtraction to solve one-step problems	Total Unknown to 50 (Join/Take Apart)	2.0A.A.1
6	3	Fluently add and subtract using strategies	Subtract-Take Apart Tens and Ones	2.NBT.B.5
7	1	Relating addition and subtraction	Use Related Addition Facts to Subtract	2.NBT.B.5
8	2	Use addition and subtraction to solve one-step problems	Result Unknown within 50 (Take From)	2.0A.A.1
9	2	Compare numbers	Compare Whole Numbers <1,000	2.NBT.B.4
10	2	Relating addition and subtraction equations	Use Related Addition Facts to Subtract	2.NBT.B.5



Unit Opener

Focus Question

Introduce the Focus Question: *How can I use strategies to add and subtract fluently?* Ask students to think about what they know about addition and subtraction.

- How does place value affect addition and subtraction?
- What addition and subtraction strategies do you already know?
- What do you think you will be doing in the unit?

Remind students that at the end of the unit, they will reflect on what they learned.

🔁 Family Letter

Each letter presents an overview of the math in the unit and home activities to support student learning.

STEM in Action

Videos

Students can watch the two STEM videos. **STEM Career: Pastry Chef** Saffron talks about the work of a pastry chef. **Saffron Measures Fruit** Saffron needs to add up the mass of fruit.

STEM Project Card

Students can complete the STEM Project Card during their workstation time.

Websketch Exploration

Students can complete the Websketch Exploration during their workstation time.







Unit Opener

<form><form><form><form><section-header><image><image><section-header><section-header><section-header><section-header><form>

Ignite!

Penny Estimation

Students estimate the number of pennies that will fit in various regions. Their strategies may include repeated addition and rounding.

Materials: 15–20 pennies for each small group

- 1. Have students refer to Rectangle A.
 - How many pennies do you think will fit within Rectangle A without gaps or overlaps? Explain.
- 2. Place students into small groups and give each group 15-20 pennies. Have them try to fit as many pennies as they can within Rectangle A without gaps or overlaps.
 - How many pennies were you able to fit within Rectangle A? Explain.

Allow students time to share their results so they can see how they may best fit the pennies within Rectangle A.

- 3. Now have students consider Rectangles A and B.
 - How many pennies could fit within Rectangles A and B all together? Explain.
- 4. Now have students consider Rectangle C.
 - How many pennies would fit within Rectangle C? Explain.
- 5. Now have students consider the entire Student Edition page, from border to border.
 - How many pennies do you think would fit onto this entire page? Explain.

As the various strategies are discussed, write the estimates on the board. Then have the class choose the estimates they think are best. Finally, combine pennies from the groups to have students find out how many pennies actually fit on the page.

Extensions

- 6. Have students use similar strategies to determine the total value of coins that fit on the page.
 - What is the total value of the pennies that fit on this page? Explain.
 - Do you think the page would be worth more if it were covered with nickels rather than with pennies? Explain.

Workstations

Reveal Math offers rich and varied resources that teachers can use to differentiate and enrich students' instructional experiences with the unit content. The table presents an overview of the resources available for the unit with recommendations for when to use.

	Activity	Description	Use After Lesson
Game Station	Game Station	Students build proficiency with using place value to fluently add and subtract within 1,000. • Represent It! • Estimate Four in a Row • Estimation Bump • Property Concentration • Addition Pattern Bump • Partial Sums Showdown • My Subtraction Strategies • Subtracting with Compatible Numbers Tic Tac Toe • Addition and Subtraction Concentration • Multi-Digit Addition Tic Tac Toe • Subtract Across Zeros Bump • Multi-Step Addition or Subtraction Race	2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9 2-10 2-11 2-12
Digital Station	Digital Game	Asteroid Blast Students practice adding multiples of 10.	2-1
	Have students complete	at least one of the Use It! activities for this unit.	
ion	STEM Project Card	Build a Fire Tower Students use measurements to plan and build a fire tower model.	2-12
plication Stat	Connection Card	History of the Railroad Students plan and diagram a railway system. They draw railway stations and label the distances between them.	2-12
Applica	Real World Card	Buy New Playground Equipment Students create lists of playground equipment purchases that would stay within a school's budget.	2-11

Additional Resources

Use the resources below to provide additional support for this unit.



Vocabulary

Use the vocabulary cards to help students learn the vocabulary in this unit. Encourage students to write their own definitions of the key terms on the front side of the card.



Foldables

Use the unit foldables with Lessons 2-2 and 2-6.



Spiral Review

Students can complete the Spiral Review at any point during the unit as either a paper-and-pencil or digital activity.

Lesson	Standard
2-1	2.0A.A
2-2	2.0A.B
2-3	2.NBT.A
2-4	2.NBT.B
2-5	2.MD.A
2-6	2.MD.B
2-7	2.0A.A
2-8	2.0A.B
2-9	2.NBT.A
2-10	2.NBT.B
2-11	2.MD.A
2-12	2.MD.B

LESSON 2-1 **Represent 4-Digit Numbers**

Learning Targets

- I can represent 4-digit numbers in different ways.
- I can explain how to represent 4-digit numbers in different ways.

Content

♦ **3.NBT.A.1** Use place value understanding to round whole numbers to the nearest 10 or 100.

Math Practices and Processes

- MPP Look for and make use of structure.
- MPP Look for and express regularity in repeated reasoning.

Vocabulary

Math Terms expanded form standard form word form

Academic Terms determine represent

Materials

The materials may be for any part of the lesson.

- base-ten blocks
- blank number cubes
- deck of playing cards
- Place-Value Chart Teaching Resource

Focus

rocus	Number Poutine			
 Content Objective Students represent 4-digit numbers in expanded form, word form, and standard form using an 	 Language Objectives Students describe 4-digit numbers using place value. 	 SEL Objective Students identify and discuss the emotions experienced during math learning 	Find a Pattern, Make a Pattern © 5-7 min Build Fluency Students build fluency with patterns as they determine a pattern rule and apply the rule to a new pattern.	
understanding of place value.	• To maximize inguistic and cognitive meta-awareness, use MLR8: Discussion Supports.			
Coherence			These prompts encourage students to	
Previous	Now	Next	talk about their reasoning:	
• Students learned that digits in each place represent amounts of hundreds, tens, and ones (Grade 2).	• Students extend their understanding of place value through thousands.	 Students use their understanding of place value to round numbers (Unit 2). Students use place value to compare multi-digit numbers (Grade 4). 	 How did you determine the missing numbers? How did you find the pattern rule? How is your new number sequence similar to the first one? 	
Rigor			How is it different?	
Conceptual Understanding	Procedural Skill & Fluency	Application		
 Students understand that numbers have a predictable and generalizable structure, which 	 Students build proficiency with place value through different representations. 	 Students apply their understanding of place value to solve problems. 		
extends their understanding of place value to 4-digit numbers.	Procedural skill and fluency is not a targeted element of rigor for this standard.	Application is not a targeted element of rigor for this standard.		

Launch @ 5-7 min



Purpose Students recognize they can use 4-digit numbers to represent large quantities.

Notice & Wonder[™]

- What do you notice?
- What do you wonder?

Teaching Tip Have students work in pairs to discuss what they notice and wonder about the fish. This can help build a collaborative classroom culture. It also allows for greater participation among students as they share their thinking with their partners.

Pose Purposeful Questions

The questions that follow may be asked in any order. They are meant to help advance students' understanding of 4-digit numbers and are based on possible comments and questions that students may make during the share out.

- How many digits do you think there will be in the number that represents the total amount of fish? Explain.
- How can you represent the total number of fish in different ways?
- How could you use an understanding of place value to help determine the total number of fish?

Math is... Mindset

• How does identifying your feelings and emotions help you?

Self-Awareness: Identify Feelings and Emotions

After students participate in the Notice and Wonder[™] routine, invite them to share the emotions they were experiencing. Encourage students to focus on the feelings they experience when they were successful as well as when they were not. Their work throughout the lesson with representing 4-digit numbers may be challenging, and they may feel upset or frustrated. Remind students that these feelings are neither right nor wrong, but how we deal with our feelings can affect success with math work. Sharing and listening can help students build understanding of their own emotions as well as the emotions of others.

Transition to Explore & Develop

Ask questions that encourage students to think about how they can represent quantities greater than 3-digit numbers. Encourage students to discuss different ways they can represent numbers.

Establish Goals to Focus Learning

• How can you represent numbers that are greater than 999?





Explore & Develop (© 20 min



O Pose the Problem

MLR Discussion Supports

Ask the class, *What does it mean to represent a number*? Lead students in a brief discussion about the meaning of *represent*. Encourage students to offer synonyms. Guide them in activating any background knowledge they have about representing numbers.

Pose Purposeful Questions

- How can you use base-ten blocks to represent 138 in the number?
- **Think About It:** How do you think the base-ten blocks would change if you needed to represent all four digits in the number?
- Other than base-ten blocks, what are some different ways you learned to represent numbers in previous grades?

O Develop the Math

Choose the option that best meets your instructional goals.



O Bring It Together

Elicit and Use Evidence of Student Thinking

- Which place values are used to compose 4-digit numbers?
- How can you represent a 4-digit number in standard form, expanded form, and word form?

Key Takeaway

• 4-digit numbers are composed of thousands, hundreds, tens, and ones.

Work Together

Students think about the meaning of each form of the number. Have students discuss how they represented 3-digit numbers in these forms before asking them to represent the number in expanded form and word form.

Common Misconception: Students may think that *zero* needs to be written for expanded form and word form. Remind them that the zero is place holder and the value of the digit is zero.

Language of Math

Students should be comfortable using place-value terms (ones, tens, hundreds, thousands) to describe 4-digit numbers. Students should describe various number representations with these terms.

CHOOSE YOUR OPTION

Activity-Based Exploration

Students explore ways to represent 4-digit numbers.

Materials: blank number cubes, base-ten blocks, *Place-Value Chart* Teaching Resource

Directions: Write a 4-digit number on the board. Have students work in pairs to discuss the place value of each digit. Guide students to understand that 4-digit numbers are composed of thousands, hundreds, tens, and ones. Note the use of the comma. Discuss the meaning of *thousands*. Then discuss how students might represent 4-digit numbers. Guide students to draw on their previous knowledge of representing 3-digit numbers using base-ten blocks, place-value charts, *standard form, expanded form,* and *word form.* Provide pairs with a number cube labled 1–6 and the *Place-Value Chart* Teaching Resource. One partner will roll a number cube four times and record the digits in the place-value chart. Have students work together to represent the number in as many ways as possible. Have base-ten blocks available. Students should repeat the activity as time allows.

Support Productive Struggle

- How can you write your number to show each place value?
- How can you represent your number using base-ten blocks?
- How can you use what you know to read your number to your partner?

Math is... Generalizations

• How is representing 4-digit numbers the same as representing 3-digit numbers?

Activity Debrief: Have students share examples of the different ways students represented their 4-digit numbers. Discuss which

base-ten block represents thousands. Review standard, expanded, and word form with students and how it applies to 4-digit numbers.

Have students revisit the Pose the Problem question and discuss answers.

• What are some ways to represent this number?

A PDF of the Teaching Resource is available in the Digital Teacher Center.

Kate estimates how much money	Ross estimates the number of tickets
she needs to save to buy a car.	he has for prizes at the arcade.
A manager estimates the amount of	An interior designer estimates the
flooring a new store needs.	amount of fabric for a project.
An engineer estimates the weight	Juni estimates the disk space she
limit of an elevator.	will use before buying a computer.
e i Mine Milante	enverter weigt i oppy
and account of the second s	אנו מוקדאינה ביוווומיבי היה אפולעו וווער כל או פוראקוטי.
, uni estimates the disk space she	λήρίον στί zatantiza confine rA
will use before buying a computer.	notevalo πο σίατα σίαναιος.
An interior designer estimates the anount of fabric for a project the will be according to the project.	To finuome and astemites regenum A sbaser ander wen is gonicoff frigtew and restantize searchers nA solewale na to amit

Guided Exploration

Students explore representations of 4-digit numbers. Remind students that place value identifies the value of a digit, and verify they understand that a 3-digit number has digits in the hundreds, tens, and ones places. Then explain that a *cube* is base-ten block that has a value of 1,000.

Facilitate Meaningful Discourse

- If you know that the value of each cube is 1,000, how can you determine the amount represented by all the base-ten blocks?
- Think About It: What is the place value of each digit in 2,138?

Discuss the value of each digit in the place-value chart, and identify that a comma is used between the values of the thousands place and the hundreds place.

• Suppose there was a zero in the hundreds place. How would describe its value?

Have students discuss which of the different forms is most and least efficient to use.

Math is... Ceneralizations

• How is representing 4-digit numbers the same as representing 3-digit numbers?

Students consider the similarities between representing 3- and 4-digit numbers.



English Learner Scaffolds

Entering/Emerging Support students in verbalizing each place value in a 4-digit number. Write the number 2,138 on the board. Point to the 8 and say, *This is the ones place*. Repeat for each digit. Check understanding by asking yes/no questions such as, *Is this the thousands place*?

Developing/Expanding Support students in verbalizing each place value in a 4-digit number. Write the number 2,138 on the board. Point to the 8 and say, *This is the ones place*. Repeat for each digit in the number. Check understanding by asking questions such as, *What place is this?*

Bridging/Reaching Support students in expressing the place value of a 4-digit number. Write various 4-digit numbers on the board. Have volunteers verbalize each place value and read each number in expanded form.

Practice & Reflect © 10 min



Practice

Build Fluency from Understanding

Common Error: Exercises 5–10 Students may forget to insert a comma when writing 4-digt numbers. Remind them that a comma should be inserted between the values of the thousands place and the hundreds place.

Practice Item Analysis

ltem	DOK	Rigor
1–4	1	Conceptual Understanding
5–10	2	Procedural Skill and Fluency
11–12	3	Application

Reflect

Students complete the Reflect question.

• How does place value help you write a number in word form? Ask students to share their reflections with their classmates.

Math is... Mindset

• What feelings did you experience today and how did you know? Students reflect on how they practiced self-awareness.

Learning Targets

Ask students to reflect on the Learning Targets of the lesson.

- I can represent 4-digit numbers in different ways.
- I can explain how to represent 4-digit numbers in different ways.

To review today's lesson, have students watch the Math Replay video in their Digital Student Center.

Assign the On My Own practice to students from the Digital Teacher Center.



Exit Ticket Formative Assessment

The Exit Ticket assesses students' understanding of lesson concepts.

Metacognitive Check *Reflect on Your Learning* allows students to think about their level of understanding of the lesson content on a scale of 1 to 4 with 4 being the highest confidence.

Exit Ticket Skill Tracker

Item	DOK	Skill	Standard
1	1	Represent 4-digit numbers	3.NBT.A.1
2	1	Represent 4-digit numbers	3.NBT.A.1
3	3	Understand place value	3.NBT.A.1

Data Use students' scores on the *Exit Ticket* to assign the differentiated resources available. When students complete the *Exit Ticket* in the digital workspace, their responses are auto-scored.

Exit Ticket Recommendations

If students score	Then have students do
3 of 3	Additional Practice or any of the $f B$ or $f G$ activities
2 of 3	<i>Take Another Look</i> or any of the 🕒 activities
1 or fewer of 3	Small Group Intervention or any of the 😱 activities

Key for Differentiation

- **R**einforce Understanding
- Build Proficiency
- Extend Thinking



Lesson 2-1 **Exit Ticket** Name 1. What is the place-value position of each digit of 7,104? Match drawing a line. 4 thousands 0 hundreds 7 tens ones 2. How would you represent five thousand, thirty-two in standard form and expanded form? 5,032 5000 + 30 + 23. Jesi has \$2,495 in her bank account. Fernando has \$2,645 in his bank account. Which statements are true? Choose all that apply. A. Jesi has more money in her account than Fernando. B. The value of the tens place in Jesi's amount is less than the value of the tens place in Fernando's amount. C. The value of the ones place is the same for both Jesi's and Fernando's amounts. D. The value of the hundreds place in Fernando's amount is greater than the value of the hundreds place in Jesi's amount. **Reflect On Your Learning** ľm l can teach I'm still learning. l understand. confused. someone else. Assessment Resource Book 15

GO ONLINE

Reinforce Understanding

Place-Value Pictures

Take Another Look Lessons

Assign the interactive lessons

• Standard Form through 9,999 • Word Form through 9,999

• Expanded Form through 9,999

to reinforce targeted skills.

Remove face cards from a deck of playing cards. Each student chooses 4 cards to make a 4-digit number, which they represent using base-ten blocks, a place-value chart, and a number line. Discuss with students the similaries and differences in each representation. Make sure students are correctly dealing with 0s in a place value position.

Build Proficiency B

Practice It! Game Station

Represent It!

WORKSTATIONS

ONLINE

00

Students practice representing multi-digit numbers in different forms.



Interactive Additional Practice

Assign the digital version of the Student Practice Book.



Student Practice Book, pp. 1–2

hundreds

2

0

tens

4

tens

7

Student Practice Book

1.246

1.000 + 200 + 40 + 6

one thousand, two hundred forty-six

ones

2

ones

6





Own It! Digital Station Build Fluency Games

Assign the digital game to develop fluency with adding multiples of 10.



Extend Thinking

WORKSTATIONS

GO ONLINE

INDEPENDENT WORK

Use It! Application Station

Buy New Playground Equipment Students create lists of playground equipment purchases that would stay within a school's budget. *The content* of this card has concepts covered later in Lesson 2-11. You may want to assign this card to students ready to explore content covered later in this unit.



Spiral Review

Assign the digital Spiral Review Practice to students or download and print PDFs of the Spiral Review from the Digital Teacher Center.



Student Practice Book, pp. 1–2



Student Practice Book

Websketch Exploration

Assign a websketch exploration to apply skills and extend thinking.



Differentiation Resource Book, p. 2

Lesson 2-1 · Extend Thinking Represent 4-Digit Numbers

Name

Use the digits to write a number with the greatest possible value. Then write a number with the least possible value. Write each number in standard form, expanded form, and word form.

Least: <u>5,689</u>
Expanded form: <u>5,000 + 600 + 80 + 9</u>
Word form: <u>five thousand, six hundred eighty-nine</u>

1

8

Greatest: <u>8,751</u>
Expanded form: <u>8,000 + 700 + 50 + 1</u>
Word form: <u>eight thousand, seven hundred fifty-one</u>

5

7

Least: <u>1,578</u>
Expanded form: <u>1,000 + 500 + 70 + 8</u>
Word form: one thousand, five hundred seventy-eight

Differentiation Resource Book

LESSON 2-2 Round Multi-Digit Numbers

Learning Targets

- I can round numbers to the nearest 10 and 100.
- I can explain how to round numbers to the nearest 10 and 100.

Content

3.NBT.A.1 Use place value understanding to round whole numbers to the nearest 10 or 100.

Math Practices and Processes

MPP Model with mathematics.

MPP Look for and express regularity in repeated reasoning.

Focus

Content Objective	Language Objectives	SEL Objective
• Students round numbers to the nearest 10 or nearest 100.	 Students use the superlative <i>nearest</i> to explain rounding numbers. To optimize output, use MLR7: Compare and Connect. 	 Students collaborate with peers to complete a mathematical task.
Coherence		
Previous	Now	Next
 Students gained an understanding of place value of 3-digit numbers (Grade 2). 	• Students use their understanding of place value to round 3-digit numbers to the nearest 10 or 100.	 Students use rounded numbers to estimate sums and differences (Unit 2). Students round multi-digit numbers to any place (Grade 4).
Rigor		
Conceptual Understanding	Procedural Skill & Fluency	Application
 Students develop an understanding of rounding using a number line and place value. 	Students develop proficiency with rounding 3-digit numbers to the nearest 10 or 100.	 Students apply their understanding of rounding numbers to solve real-world problems.

Procedural skill and fluency is not a targeted element of rigor for this standard.

Application is not a targeted

element of rigor for this standard.

Vocabulary

Math Term Academic Terms round identify discuss

Materials

The materials may be for any part of the lesson.

- base-ten blocks
- counters
- index cards
- Number Chart 401–500 Teaching Resource

Number Routine Find a Pattern, Make a Pattern 💽 5-7 min

Build Fluency Students build fluency with patterns as they determine a pattern rule and use the rule to create a new pattern.

These prompts encourage students to talk about their reasoning:

- How did you determine the missing numbers?
- How did you find the pattern rule?
- How is your new number sequence similar to the first one? How is it different?

Launch @ 5-7 min

Sense-Making Routine



Purpose Students explore strategies for determining an estimate for the number of blocks.

Notice & Wonder[™]

- What do you notice?
- What do you wonder?

Teaching Tip Have students discuss the image, encouraging all to participate. After writing student responses on the board, work with them to identify the questions and statements with a mathematical focus. Circle these statements to focus the discussion.

Pose Purposeful Questions

The questions that follow may be asked in any order. They are meant to help advance students' understanding of numbers that are close to the actual amount, and are based on possible comments and questions that students may make during the share out.

- What math do you see in the image?
- What can you do when you cannot determine an exact amount or an exact number?
- If you do not need an exact amount or number, can there be more than one answer? Explain.

Math is... Mindset

• What can you do to work together with your classmates?

SEL Relationship Skills: Engage with Others

As students engage in collaborative discourse around the Notice and Wonder[™] routine, invite them to give constructive or helpful feedback to their peers. As students engage and discuss what they noticed and wondered, they are strengthening their relationship skills. Remind students that active listening and building on the ideas of others can help them connect with one another and work toward achieving shared goals.

Transition to Explore & Develop

Students should begin to think about how they can replace the value of a number with a number that is close to the exact number. Ask questions to help encourage students to discuss strategies for determining a number that might be close to the actual amount.

Establish Goals to Focus Learning

• When might it be helpful to use a number that is close to the exact number?





Explore & Develop © 20 min



O Pose the Problem

Pose Purposeful Questions

- Is an exact number needed to answer the question? Explain.
- How can you use the exact number of blocks to determine about how many there are?
- Think About It: How can you use place value to describe about how blocks are in the sphere?

O Develop the Math

Choose the option that best meets your instructional goals.

Compare and Connect

Pair students and assign each partner one of the approaches for solving the problem. Have partners explain and compare the steps for the approach they used. Circulate and listen as pairs discuss. Review each approach by restating or repeating steps that you hear students explain.

Bring It Together

Elicit and Use Evidence of Student Thinking

- How can you use the halfway point on a number line to round a number to the nearest 10 or nearest 100?
- How can you use place value to round a 3-digit number to the nearest 100?

Key Takeaway

• Rounding a number to the nearest 10 or 100 makes the number easier to work with when an exact number is not needed.

Work Together

Students consider how and why a number can be rounded to different numbers. Have students discuss the question in pairs before discussing the different strategies the students might have used to round to arrive at different numbers.

Common Misconception: Students may think that when the digit in the ones place is 5, they should round down. Have students show the number on a number line. Note that each ten number should have 10 numbers that round to it so numbers that have a 5 in the ones place must round up.

Language of Math

Students should understand the word *round* in math means something different than everyday usage. Explain that in math, *round* is a verb that means to alter a number to the ten or hundred it is closest to, while as a verb in everyday language it means to go around something.

CHOOSE YOUR OPTION

Activity-Based Exploration

Students explore rounding 3-digit numbers to the nearest 10 and the nearest 100.

Materials: counters, Number Chart 401–500 Teaching Resource

Directions: Provide the *Number Chart 401–500*. Have students work in pairs to identify numbers on the chart that might be the easiest to work with in an equation. Have students share and provide a rationale for their choices. Guide students to see that 10 numbers such as 410 and 420 would be easier to work with than numbers such as 407 or 418. Have one student toss a counter onto the chart. The student chooses any number the counter touches. Partners work together to choose and record the closest ten number to the chosen number. Have students repeat as time allows.

Support Productive Struggle

- · How did you determine which ten number was closest?
- What rule would you propose to determine the closest ten number?

Activity Debrief: Have students share their exact numbers and the nearest 10. Explain to students that when they find the nearest 10, they *round* the number. Have students discuss a rule for rounding based on the strategies they used. Discuss how this might be useful when a number chart is not available. Present a 3-digit number and discuss how a number line might be used as a tool. Model the use of the number line including the halfway point. Ensure students understand that numbers with a 5 in the ones place round to the greater 10. Extend the discussion to rounding to the nearest 100. Students should consider if or how their rounding rule would change. Have them use a number line for support and to test their strategy.

Math is... Generalizations

• When is rounding a useful strategy?

Have students revisit the Pose the Problem question and discuss answers.

About how many blocks are there?

A PDF of the Teaching Resource is available in the Digital Teacher Center.

Lesson 2-4 Activity Cards		
Kate estimates how much money she needs to save to buy a car.	Ross estimates the number of tickets he has for prizes at the arcade.	
A manager estimates the amount of flooring a new store needs.	An interior designer estimates the amount of fabric for a project.	*
An engineer estimates the weight limit of an elevator.	Juni estimates the disk space she will use before buying a computer.	
forget i Mala Milanov	analogo and a state	
Juni estimates the disk space she will use before buying a computer.	traine art satemits and angle of A and a set of the set	
aft setsmitte rengiset to internates the moment of tablic for a project.	to truome att satemites regenem A .sbean arotz wan e gninoolt	Activity Cards
Ross estimates the number of tickets he has for prizes at the arcade.	stie needs to save to buy a car. Kate estimates how much money	-
	Activity Cards	

Guided Exploration

Students explore strategies and tools to round 3-digit numbers to the nearest 10 or nearest 100.

Facilitate Meaningful Discourse

- Why might it be helpful to work with numbers that are close to exact numbers?
- What does it mean to find the halfway point? How can you find the halfway point between two numbers?
- Why is a number line a useful tool for rounding numbers?
- What rule can you tell your friend about rounding numbers to the nearest 10? Does the same rule apply when rounding to the nearest 100? Explain.
- **Think About It:** Why do you use the tens place to find the nearest 100?

Ensure students understand to round to the greater 10 or 100 when the digit in the ones place or tens place is 5 by having them discuss how to round 150 to nearest hundred.

• How would you explain how to round 150 to the nearest hundred?

Math is... Generalizations

When is rounding a useful strategy?

Students consider situations when rounding is appropriate.



English Learner Scaffolds

Entering/Emerging Guide understanding of the difference between *close to* and *nearest*. Point out a group of objects near you. *These books are close to me*. Then describe the closest one: *This book is the nearest. I can touch it*. Point to another book. Ask, *Is this book nearest?* (no)

Developing/Expanding Guide understanding of the difference between *close to* and *nearest*. Point out a group of objects near you. *These books are close to me. That blue book is the nearest*. Then rearrange the books, point to the nearest one, and say, *Tell me about this book*.

Bridging/Reaching Ask students to explain the difference between *close to* and *nearest.* Encourage them to use objects in the classroom to demonstrate as they explain the difference.

Practice & Reflect © 10 min



Practice

Build Fluency from Understanding

Common Error: Exercises 1–6 Students may round to the wrong place value. Remind students to be aware of the place-values in 2- and 3-digit numbers. For some students, a quick use of base-ten blocks to represent the number may be helpful.

Practice Item Analysis

ltem	DOK	Rigor
1–6	1	Procedural Skill and Fluency
7–10	2	Conceptual Understanding
11–12	2	Application

Reflect

Students complete the Reflect question.

- When might you want to round to the nearest 10 instead of the nearest 100?
- Ask students to share their reflections with their classmates.

Math is... Mindset

• How did you work together with your classmates?

Students reflect on how they developed stronger relationship skills.

Learning Targets

Ask students to reflect on the Learning Targets of the lesson.

- I can round numbers to the nearest 10 and 100.
- I can explain how to round numbers to the nearest 10 and 100.

To review today's lesson, have students watch the Math Replay video in their Digital Student Center.

Assign the On My Own practice to students from the Digital Teacher Center.



Exit Ticket Formative Assessment

The Exit Ticket assesses students' understanding of lesson concepts.

Metacognitive Check *Reflect On Your Understanding* allows students to think about their level of understanding of the lesson content on a scale of 1 to 4 with 4 being the highest confidence.

Exit Ticket Skill Tracker

Item	DOK	Skill	Standard
1	1	Round multi-digit numbers	3.NBT.A.1
2	1	Round multi-digit numbers	3.NBT.A.1
3	3	Round multi-digit numbers	3.NBT.A.1
4	2	Round multi-digit numbers	3.NBT.A.1

Data Use students' scores on the *Exit Ticket* to assign the differentiated resources available. When students complete the *Exit Ticket* in the digital workspace, their responses are auto-scored.

Exit Ticket Recommendations

If students score	Then have students do
4 of 4	Additional Practice or any of the $f B$ or $f B$ activities
3 of 4	<i>Take Another Look</i> or any of the 🕒 activities
2 or fewer of 4	Small Group Intervention or any of the 🕞 activities

Key for Differentiation

- Reinforce Understanding
- Build Proficiency
- Extend Thinking



Lesson 2-2 **Exit Ticket** Name 1. What is 115 rounded to the nearest 10? **A**. 100 **B**. 110 (C.) 120 **D.** 200 2. What is 463 rounded to the nearest 100? **A.** 400 **B.** 460 **C.** 470 D. 500 3. Which number rounded to the nearest 10 rounds to 560? Choose all that apply. **A.** 552 **B.** 555 C.) 562 **D**. 565 4. Adam says that 52 can round to 50 and to 100. Is he correct? Explain. Sample answer: 52 rounded to the nearest 10 is closer to 50. 52 is closer to 100 than to 0, so it rounds to 100 when rounding to the nearest hundred. **Reflect On Your Learning** ľm l can teach I'm still learning. I understand. confused. someone else. 16 Assessment Resource Book

GO ONLINE

INDEPENDENT WORK

Reinforce Understanding

Rounding Fun

Distribute 3 index cards to each student. Have each student write a rounding statement (to the nearest 10) on each card. Shuffle the cards and pass each card around the group. Have students discuss whether the statement is correct. If students have difficulty, show the number, the rounded number, and the nearest multiple of 10 on the other side of the number on a number line or number chart and help students count the number of spaces between the number and each multiple of 10.

Build Proficiency

B

WORKSTATIONS

ONLINE

00

NDEPENDENT WORK

Practice It! Game Station

Estimate Four in a Row Students practice rounding numbers.



Take Another Look Lessons

Assign the interactive lessons to reinforce targeted skills.

- Round 3-Digit Numbers (Nearest 10)
- Round 3-Digit Numbers
 (Nearest 100)



Interactive Additional Practice

Assign the digital version of the Student Practice Book.



Student Practice Book, pp. 3–4





B Unit 2 • Use Place Value to Fluently Add and Subtract within 1,000

Own It! Digital Station Build Fluency Games

Assign the digital game to develop fluency with adding multiples of 10.



Extend Thinking

WORKSTATIONS

GO ONLINE

INDEPENDENT WORK

Use It! Application Station

History of the Railroad Students plan



Spiral Review

Assign the digital Spiral Review Practice to students or download and print PDFs of the Spiral Review from the Digital Teacher Center.



Student Practice Book, pp. 3–4

How can you use place value to round?

- 3. Round 525 to the nearest ten. 530
- 4. Round 415 to the nearest hundred. 400
- 5. How can you use a number line to round 137 to the nearest ten? Show your work. 140; Sample answer: Draw a number line from 130 to 140 with 137 placed on the number line closer to 140.
- 6. Archie says that the number 654 can round to 660 and 600. Is his statement correct? Explain your reasoning. No; Sample answer: Archie's statement is not correct because 654 rounded to the nearest ten is 650, 654 rounded to the nearest hundred in 700 because 654 is closer to 700 than 600.
- 7. A number rounded to the nearest ten is 820. Which numbers could it be? Choose all that apply.

Find different 2- and 3-digit numbers around your home by randomly flipping open to find a page in a book. Have your child practice rounding that page number to the nearest 10 and 100.

Student Practice Book

Α.	813	B. 815	C. 818
D,	824	E. 826	F. 827

Math @ Home Activity

and diagram a railway system. They draw railway stations and label the distances between them. The content of this card has concepts covered later in Lesson 2-12. You may want to assign this card to students ready to explore content covered later in this unit.



Assign a websketch exploration to apply skills and extend thinking.



Differentiation Resource Book, p. 4

sol	ve.
1.	Keisha is shopping. She has \$100. She wants to buy colored pencils for \$16, 3 sketchpads for \$12 each, a set of paints for \$15, and a set of paintbrushes for \$19. Show how Keisha can use rounding to make sure that she has enough money.
	Sample answer: Round \$16 to \$20, round \$12 to \$10, round \$15 to \$20, and round \$19 to \$20. Add. \$20 + \$10 + \$10 + \$10 + \$20 + \$20 = \$90 Keisha has enough money.
Vr	ite three numbers possible for each.
2.	A number rounded up to the nearest ten is 20. Sample answer: 15, 16, 17, 18, 19.
١.	A number rounded down to the nearest ten is 10. Sample answer: 11, 12, 13, 14.
ł.	A number rounded up to the nearest hundred is 100. Sample answer: all the numbers between 50 and 99 including 50 and 99.

Math Probe



Analyze The Probe **Formative Assessment**

Students are given a number that has been rounded to the nearest 10 or to the nearest 100. Students must then select all numbers from a list of numbers that would produce the given number when rounded to the nearest 10 or to the nearest 100. Students circle their choices and justify their reasoning.

Targeted Concept Understand rounding concepts and conventions to identify numbers that would round to a given number when those numbers are rounded to the nearest 10 or to the nearest 100.

Targeted Misconceptions Students may not understand that rounding relates to location relative to halfway points on a number line. They may not understand that multiple numbers can round to the same number when rounding to a given place.

Authentic Student Work

Below are examples of correct student work and explanations.

Sample A



Sample B



Collect and Assess Student Work

Collect and review student responses to determine possible misconceptions. See examples in If-Then chart.

IF incorrect	THEN the student likely	Sample Misconceptions
1. b, f 2. a, f	thinks about rounding as rounding off at the given place rather than rounding to the nearest given place. The student may not apply the convention that when the digit to the right of the place being rounded to is 5 or greater, you round up.	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$
1. e 2. d	rounds up or down rather than to the nearest place.	1Suppose you rounded to the means ter Which numbers below would round to 6007 crite of of them.Explain your choices1 $6 \cdot 632$ $h \in \Gamma \cup l \in$ $0 \cdot f \cap ounding1 \cdot 5 \cdot 5 \circ nh \in \Gamma \cup l \in0 \cdot f \cap ounding1 \cdot 5 \cdot 5 \circ nprove the source of them.a \cdot 96 \cdot 97prove the source of them.a \cdot 96 \cdot 97a \cdot 92 - 62prove the source of them.a \cdot 92 - 91prove the source of them.a \cdot 92 - 91a \cdot 92 - 92prove the source of them.a \cdot 92 - 91prove the source of them.a \cdot 92 - 91prove the source of them.a \cdot 92 - 91prove $
1.g,h	Ignores the digit in the hundreds place, and considers only whether 34 (Item 1, choice g) or 29 (Item 2, choice h) rounds to 30;	2 Suppose you munched to the numbers below would round to soon? below would round to soon? Circle all of them. a Skef (S) $\overline{D1}$ B So B & C a use if is a solution of the soon? a Skef (S) $\overline{D1}$ B So B & C a use if is a solution of the soon? a Skef a Skef b The is so. 3 UH is not if is a solution of the soon? a $\overline{B0}$ a $\overline{B0}$ b 70 000.
2. e, g	rounds down based on the digit in the ones place rather than on the digit in the tens place.	
Other incorrect choices	Has difficulty interpreting place value or applies flawed rounding procedures other than those describe above.	

Many of the above difficulties result in a combination of correct and incorrect responses. For correct responses, be sure to check for sound reasoning.

Take Action

Choose from the following resources or suggestions:

- Have students make and walk on a physical number line to build understanding that rounding is related to proximity to a value shown on the number line.
- Use base-ten blocks to build numbers and discuss rounding to the nearest 10 and nearest 100. Have students use base-ten blocks to build a number that when rounded would be the number you have represented with the blocks.
- Move away from concrete materials and a number line to support students in reasoning about rounding by visualizing numbers without physically representing them.

Revisit the Probe After additional instruction, have students review their initial answers to the probe. Use these questions for discussion:

- Are there any answers you would like to change? Explain.
- Are there any questions that you still have about any of the items on this probe?

Metacognitive Check *Reflect on Your Learning* allows students to think about their level of understanding of the lesson content on a scale of 1 to 4 with 4 being the highest confidence.

LESSON 2-3 Estimate Sums and Differences

Learning Targets

- I can use compatible numbers to estimate sums and differences.
- I can explain how to use compatible numbers to estimate sums and differences.

Content

3.NBT.A.1 Use place value understanding to round whole numbers to the nearest 10 or 100.
 3.NBT.A.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Language Objectives

and Clarify.

• Students make numerical

estimations using about.

• To cultivate conversation,

use MLR3: Critique, Correct,

Math Practices and Processes

MPP Use appropriate tools strategically.

MPP Look for and make use of structure.

Focus

Content Objective

Coherence

 Students use compatible numbers to estimate a sum or difference.

Conceptual understanding is

for this standard.

not a targeted element of rigor

- SEL Objective
- Students observe the emotions of others when working on collaborative math work, and practice empathetic responses when appropriate.

•••••••		
Previous	Now	Next
 Students learned how to make a good estimate (Grade 2). Students rounded numbers to 	• Students use their knowledge of rounding to the nearest 10 and 100 to estimate sums and	• Students break apart numbers to add and subtract 3-digit numbers (Unit 2).
the nearest 10 and 100 (Unit 2).	differences.	Students use the standard algorithm to add and subtract multi-digit numbers (Grade 4).
Rigor		
Conceptual Understanding	Procedural Skill & Fluency	Application
Students develop an understanding of compatible numbers to estimate sums	 Students build proficiency with estimating sums and differences. 	 Students apply an understanding of estimation to solve real-world problems.
and differences.		Application is not a taxastad

Application is not a targeted element of rigor for this standard.

Vocabulary

Math Terms	Academic Terms
<mark>estimate</mark>	reason
compatible	comparison
number	

Materials

The materials may be for any part of the lesson.

- blank number cubes
- Number Cards 0-10 Teaching Resource

Number Routine Mystery Number

() 5–7 min

Build Fluency Students build understanding of place value as they use clues to determine the value of a number.

These prompts encourage students to talk about their reasoning:

- How did you use the clue to revise your guess?
- Is it possible to determine the value of the mystery number without using all the clues? Explain.
- Do some clues give more information about the mystery number than others?

Launch @ 5-7 min

e **?**

Purpose Students think about estimating to compare and understand that they do not always need to find an exact answer.

Notice & Wonder[™]

- What could you ask?
- What math do you see in the image?

Teaching Tip Have students work with a partner to create a list of questions. This can help students see many questions are possible about the same scenario. Partners should discuss what information is needed to answer each question and if an exact answer is needed.

Pose Purposeful Questions

The questions that follow may be asked in any order. They are meant to help advance students' understanding of estimation, and are based on possible comments and questions that students may make during the share out.

- How might you compare the boy and the giraffe?
- What measurements might you ask about?
- What operations might you use to answer the question?
- What questions can you answer with an exact number? Which ones can you answer with an answer that is close? Explain.

Math is... Mindset

• How can you recognize and understand how others are feeling?

Sell Social Awareness: Empathy

Establish a classroom culture that welcomes openness and empathy by encouraging students to share and discuss their emotions. After students participate in the Notice and Wonder[™] routine, invite them to share the emotions they were experiencing. Encourage students to think about their own experiences with the emotions being shared. Their work throughout the lesson with estimating sums and differences may be challenging, and they may feel emotions such as happy, excited, or frustrated. Sharing and listening can help students build understanding of their own emotions as well as empathy for others.

Transition to Explore & Develop

Encourage students to think about whether an exact answer is needed. Ask students to consider whether they have enough information to provide an exact answer or an answer that is close. Have students think about what operations they might use to answer the questions.

Establish Goals to Focus Learning

• How can you determine an answer that is close when an exact answer is not needed?





Explore & Develop (© 20 min



O Pose the Problem

Pose Purposeful Questions

- Think About It: Is an exact answer needed to solve the problem? How do you know?
- How can you change the numbers in the problem to make them easier to work with?
- Which operation can be used to solve the problem? Explain.

O Develop the Math

Choose the option that best meets your instructional goals.

Critique, Correct, and Clarify

Write on the board, *The number 576 is a compatible number*. Pair students to discuss whether the statement is accurate. Have students clarify that a compatible number is a number that is easier to work with. So, 576 is an *exact number* while 575 is a *compatible number*.

Bring It Together

Elicit and Use Evidence of Student Thinking

- How can you use rounding to the nearest 10 or 100 to estimate a sum?
- How can using compatible numbers help estimate a difference?

Key Takeaway

• Compatible numbers can be used to estimate a sum or difference when an exact answer is not needed.

Work Together

As students share out their responses, ask them to explain what strategies they used to estimate how many pounds of food the elephant eats over two days. Have them explain which strategy provided an estimate closest to the exact answer.

Common Misconception: Students may think they need to identify an exact amount to answer the problem. Explain that the question uses the word *about*, which signals an exact amount is not needed and they should estimate to find their answer.

Language of Math

Students need multiple opportunities to use math vocabulary so that they become part of their active vocabulary. Ask students questions that require the use of *round, estimate, equation, compatible numbers, sum,* and *difference* in their responses.

CHOOSE YOUR OPTION

Activity-Based Exploration

Students explore estimating using rounding and compatible numbers.

Materials: blank number cubes

Directions: Have students work in pairs to explore estimating using different strategies. Explain that when an exact answer is not needed students can *estimate* an answer that is close to the exact answer using numbers that are easier to work with. Provide each pair a number cube labeled 0–5. Have each student roll the cube and create two 3-digit numbers less than 500 using the digits rolled. Have the pair create an addition and subtraction equation using the numbers. Then the partners work together to rewrite the addition and subtraction equations in as many different ways as they can with numbers that are easier to work with to estimate the sum and difference. Students should note which equations they found easiest to calculate. Have students compare their estimate to the exact answer and note which numbers produced an estimate closest to the exact answer. Students repeat the activity as time allows.

Support Productive Struggle

- What numbers are close to the numbers but are easier to work with?
- What strategies can use to choose easier numbers to work with?

Activity Debrief: Have pairs share an equation and how they rewrote the equation to make it easier to solve. Students should explain their strategy and how close their estimate was to the exact answer. Discuss with students why it might be important to create an estimate that is close to the exact answer. As students share, note strategies that include rounding to the nearest 10 and 100. Also note when students used numbers that were easier to work with that did not follow the rounding rules. Explain that rounding is only one way to estimate. Explain that numbers that are easier to work with can be called *compatible numbers*.

Math is... Strategy

• How can estimating a sum or difference help to detect possible errors?

Have students revisit the Pose the Problem question and discuss answers.

• About how much taller is the giraffe?

Guided Exploration

Students explore using compatible numbers to estimate sums and differences.

Facilitate Meaningful Discourse

- How would you decide whether to round the numbers in an equation to the nearest 10 or nearest 100?
- Think About It: Why is rounding to the nearest 10 closer to the exact answer than rounding to the nearest 100?
- What is another way you can change the numbers in the equation using compatible numbers to make the problem easier to solve?

Have students discuss whether they think the differences found by rounding are more exact than the difference found using compatible numbers. They should be able to defend their reasoning.

Math is... Strategy

• How can estimating a sum or difference help to detect possible errors?

Students consider how estimating sums or differences can help them check their work.



English Learner Scaffolds

Entering/Emerging Support understanding of the meaning of *about*. Hold up 6 pencils in your hand. Say, *I think I have about 5 pencils*. Demonstrate counting all 6 pencils and say, *Yes, I have about 5 pencils*. Then present a group of 4 objects and ask, *Do I have about 4 objects*? (yes)

Developing/Expanding Support understanding of the meaning of *about*. Hold up 6 pencils in your hand and say, *I have 6 pencils*. *That's about 5 pencils*. Then present a group of 4 objects and ask students about how many objects you have. Stress the word *about* each time you use it.

Bridging/Reaching Have students create a list of words and phrases that indicate estimation, such as *about*, *close to*, and *approximately*. Encourage stuents to explain how the words or phrases relate to esimtation.

Practice & Reflect © 10 min



Practice

Build Fluency from Understanding

Common Error: Exercise 10 Some students may have difficulty understanding what to do next after determining the compatible or rounded numbers for the given quantities. Watch for those who add the quantities instead of using subtraction. To solve this problem, students should identify the part-whole relationship of the quantities.

Practice Item Analysis

tem	DOK	Rigor
1–6	2	Procedural Skill and Fluency
7–9	2	Conceptual Understanding
10	2	Application
11–12	3	Application

🥘 Reflect

Students complete the Reflect question.

• When might you need to estimate a sum or difference in your life? Ask students to share their reflections with their classmates.

Math is... Mindset

• How have you worked to understand how others are feeling? Students reflect on how they practiced social awareness.

Learning Targets

Ask students to reflect on the Learning Targets of the lesson.

- I can use compatible numbers to estimate sums and differences.
- I can explain how to use compatible numbers to estimate sums and differences.

To review today's lesson, have students watch the Math Replay video in their Digital Student Center.

Assign the On My Own practice to students from the Digital Teacher Center.



Exit Ticket

The Exit Ticket assesses students' understanding of lesson concepts.

Metacognitive Check *Reflect On Your Understanding* allows students to think about their level of understanding of the lesson content on a scale of 1 to 4 with 4 being the highest confidence.

Exit Ticket Skill Tracker

Item	DOK	Skill	Standard
1	1	Use compatible numbers to estimate sums	3.NBT.A.1
2	1	Use compatible numbers to estimate differences	3.NBT.A.1
3	2	Round to estimate sums	3.NBT.A.1
4	3	Use compatible numbers to estimate differences	3.NBT.A.1

Data Use students' scores on the *Exit Ticket* to assign the differentiated resources available. When students complete the *Exit Ticket* in the digital workspace, their responses are auto-scored.

Exit Ticket Recommendations

If students score	Then have students do
4 of 4	Additional Practice or any of the $f B$ or $f B$ activities
3 of 4	<i>Take Another Look</i> or any of the 🕒 activities
2 or fewer of 4	Small Group Intervention or any of the 🕞 activities

Key for Differentiation

- Reinforce Understanding
- Build Proficiency
- Extend Thinking



Lesson 2-3 **Exit Ticket** Name **1.** Which can be used to estimate the sum of $832 + 19 = \square$? **A**. 900 + 0 = □ **B**. 800 + 0 = □ **(D)** 830 + 20 = □ **C**. 875 + 20 = □ 2. Which can be used to estimate the difference of 378 - 265 = ? **A.** 475 − 250 = **B.** 300 − 260 = □ (C) 400 − 300 = □ **D.** 350 − 200 = □ 3. It will cost Amanda \$356 to go to summer camp and \$167 for camp supplies. To the nearest ten, about how much will Amanda spend for summer camp and camp supplies? **B** \$530 **A.** \$600 **C**. \$510 **D**. \$400 4. On Friday and Saturday, the librarian estimates 750 books were checked out. On Friday 236 books were checked out. How many could have been checked out on Saturday? Choose all that apply. A. 510 books B 525 books **C.** 470 books **D.** 400 books **Reflect On Your Learning** ľm I can teach I'm still learning. l understand. confused. someone else. Assessment Resource Book 17
Assian

Reinforce Understanding

Take Another Look Lessons

Differentiation Resource Book, p. 5

Lesson 2-3 · Reinforce Understanding

Assign the interactive lessons to

• Round 3-Digit Numbers

• Round 3-Digit Numbers

(Nearest 10)

(Nearest 100)

Star It Reasonable!

Work with students in groups of 3. Give students 3 sets of number cards from 0–9. One student creates two 3-digit numbers. The other students use either compatible or rounded numbers to estimate the sum or difference of the two numbers. Have students discuss whether the estimates are greater than or less than the actual sum or difference. Encourage students using compatible numbers to think about how to get sums or differences ending in 5 or 0. Repeat with new numbers as time allows.

Build Proficiency B

WORKSTATIONS

ONLINE

00

NDEPENDENT WORK

Practice It! Game Station

Estimation Bump Students practice estimating sums.



Interactive Additional Practice

Assign the digital version of the Student Practice Book.



Student Practice Book, pp. 5–6

Review	
You can estimate a sum or numbers. You can find con by using other numbers cle	difference by using compatible npatible numbers by rounding c ose to the exact number.
Estimate the sum of 156 ar	nd 228.
One Way	Another Way
156 rounds to 160.	156 is close to 150.
228 rounds to 230.	228 is close to 225.
160 + 230 = 390	150 + 225 = 375
Write or draw to show your681 + 189 = ?	thinking. 2. 248 + 354 = ?
Write or draw to show your 1. 681 + 189 = ? Sample answer:	thinking. 2. 248 + 354 = ? Sample answer:
Write or draw to show your 1. 681 + 189 = ? Sample answer: 681 → 700;	thinking. 2. 248 + 354 = ? Sample answer: 248 → 250;
Write or draw to show your 1. 681 + 189 = ? Sample answer: 681 → 700; 189 → 200; 700 + 200 = 200	thinking. 2. 248 + 354 = ? Sample answer: 248 → 250; 354 → 350; 250 + 350;
Write or draw to show your 1. $681 + 189 = ?$ Sample answer: $681 \rightarrow 700;$ $189 \rightarrow 200;$ 700 + 200 = 900	thinking. 2. 248 + 354 = ? Sample answer: 248 → 250; 354 → 350; 250 + 350 = 600
Write or draw to show your 1. $681 + 189 = ?$ Sample answer: $681 \rightarrow 700;$ $189 \rightarrow 200;$ 700 + 200 = 900 3. $? = 555 - 317$ Sample answer:	thinking. 2. 248 + 354 = ? Sample answer: 248 → 250; 354 → 350; 250 + 350 = 600 4. ? = 713 - 294 Sample answer:
Write or draw to show your 1. 681 + 189 = ? Sample answer: 681 → 700; 189 → 200; 700 + 200 = 900 3. ? = 555 - 317 Sample answer: 555 → 560:	thinking. 2. $248 + 354 = ?$ Sample answer: $248 \rightarrow 250;$ $354 \rightarrow 350;$ 250 + 350 = 600 4. $? = 713 - 294$ Sample answer: $713 \rightarrow 700;$
Write or draw to show your 1. 681 + 189 = ? Sample answer: 681 → 700; 189 → 200; 700 + 200 = 900 3. ? = 555 - 317 Sample answer: 555 → 560; 317 → 320;	thinking. 2. $248 + 354 = ?$ Sample answer: $248 \rightarrow 250;$ $354 \rightarrow 350;$ 250 + 350 = 600 4. $? = 713 - 294$ Sample answer: $713 \rightarrow 700;$ $294 \rightarrow 300;$
Write or draw to show your 1. $681 + 189 = ?$ Sample answer: $681 \rightarrow 700;$ $189 \rightarrow 200;$ 700 + 200 = 900 3. $? = 555 - 317$ Sample answer: $555 \rightarrow 560;$ $317 \rightarrow 320;$ 560 - 320 = 240	thinking. 2. $248 + 354 = ?$ Sample answer: $248 \rightarrow 250;$ $354 \rightarrow 350;$ 250 + 350 = 600 4. $? = 713 - 294$ Sample answer: $713 \rightarrow 700;$ $294 \rightarrow 300;$ 700 - 300 = 400
Write or draw to show your 1. 681 + 189 = ? Sample answer: 681 → 700; 189 → 200; 700 + 200 = 900 3. ? = 555 - 317 Sample answer: 555 → 560; 317 → 320; 560 - 320 = 240 5. How can you use compa 346 + 472?	thinking. 2. $248 + 354 = ?$ Sample answer: $248 \rightarrow 250;$ $354 \rightarrow 350;$ 250 + 350 = 600 4. $? = 713 - 294$ Sample answer: $713 \rightarrow 700;$ $294 \rightarrow 300;$ 700 - 300 = 400 atible numbers to find the sum of
Write or draw to show your 1. 681 + 189 = ? Sample answer: 681 → 700; 189 → 200; 700 + 200 = 900 3. ? = 555 - 317 Sample answer: 555 → 560; 317 → 320; 560 - 320 = 240 5. How can you use compa 346 + 472? Sample answer: Bed	thinking. 2. $248 + 354 = ?$ Sample answer: $248 \rightarrow 250;$ $354 \rightarrow 350;$ 250 + 350 = 600 4. $? = 713 - 294$ Sample answer: $713 \rightarrow 700;$ $294 \rightarrow 300;$ 700 - 300 = 400 At the sum of the su
Write or draw to show your 1. 681 + 189 = ? Sample answer: 681 → 700; 189 → 200; 700 + 200 = 900 3. ? = 555 - 317 Sample answer: 555 → 560; 317 → 320; 560 - 320 = 240 5. How can you use compa 346 + 472? Sample answer: Bec 472 is close to 475, 472 is close to 475,	thinking. 2. $248 + 354 = ?$ Sample answer: $248 \rightarrow 250;$ $354 \rightarrow 350;$ 250 + 350 = 600 4. $? = 713 - 294$ Sample answer: $713 \rightarrow 700;$ $294 \rightarrow 300;$ 700 - 300 = 400 At the sum of the su

Name Review You can use compatible numbers to estimate when an exact sum or difference is not needed. Mr. Conner spent \$122 at the hardware store. Mrs. Basminji spent \$276. About how much more did Mrs. Basminji spend? \$276 - \$122 = ? \$275 - \$125 = \$150 Mrs. Basminji spent about \$150 more

Estimate Sums and Differences

Estimate the difference. Show your work.

1. 298 – 207 = ? **2.** ? = 496 - 104 Sample answer: Sample answer: **298** → **300**; **207** → **200**; 496 → 500; 104 → 100; 300 - 200 = 100500 - 100 = 400

Estimate the sum. Show your work.



Differentiation Resource Book

Own It! Digital Station Build Fluency Games

Assign the digital game to develop fluency with adding multiples of 10.



Extend Thinking

WORKSTATIONS

GO ONLINE

INDEPENDENT WORK

Use It! Application Station

Build a Fire Tower Students design and build a model of a tower that could be used by a park ranger to spot fires. *The content of this card has concepts covered later in Lesson 2–12. You may want to assign this card to students ready to explore content covered later in this unit.*



Spiral Review

Assign the digital Spiral Review Practice to students or download and print PDFs of the Spiral Review from the Digital Teacher Center.



Student Practice Book, pp. 5–6

6. Quinn is reading a book with 788 pages. She is on page 329. About how many more pages does Quinn have left to read? Explain your reasoning I will use rounding. The numbers 788 and 329 are both close to the next ten. So 788 rounds to 790 and 329 rounds to 330. My estimate is 790 - 330 = 4607. The three books in a series have 234 pages, 301 pages, and 293 pages. About how many pages are in the series? Explain your work. Sample answer: I chose compatible numbers that are easy to add. 225 + 300 + 300 = 825. There are about 825 pages. 8. Arica estimates she planted 400 seeds in her garden on Wednesday and Thursday. On Thursday, she planted 152 seeds. How many seeds could she have planted on Wednesday? Choose all the correct answers. A. She could have planted 100 seeds on Wednesday. B. She could have planted 150 seeds on Wednesday. C.) She could have planted 200 seeds on Wednesday. (D.) She could have planted 250 seeds on Wednesday. While planning a trip, have your child estimate the difference, in miles Math between two cities. Your child can also estimate differences during visits to the grocery store by comparing prices between two different brands or estimating how much change should be received from the cashier. @ Home Activity

Student Practice Book

Websketch Exploration

Assign a websketch exploration to apply skills and extend thinking.



Differentiation Resource Book, p. 6

Lesson 2-3 • Extend Thinking Estimate Sums and Differences

Name

Estimate or use compatible numbers to solve. Show your work.

1. Nilda has 536 packages to ship. If she has shipped 94 packages in each of the last 2 hours, about how many packages does she have left to ship?

Sample answer: $94 \rightarrow 90$; $536 \rightarrow 500$; 90 + 90 = 180; $180 \rightarrow 200$; 500 - 200 = 300

about 300 packages

Show another way to adjust numbers to solve the problem. Sample answer: $94 \rightarrow 90$; $536 \rightarrow 540$; 90 + 90 = 180; $180 \rightarrow 200$; 540 - 200 = 340

about 340 packages

 Marcella owns a pack and ship store. Her goal is to move 275 packages a day. If, she has shipped 61 packages in each of the last 3 hours, about how many more packages does she have to move to meet her goal?

Sample answer: $61 \rightarrow 60$; $275 \rightarrow 300$; 60 + 60 + 60 = 180; $180 \rightarrow 200$; 300 - 200 = 100

about 100 packages

Show another way to adjust numbers to solve the problem.' Sample answer: $61 \rightarrow 60$; $275 \rightarrow 280$; 60 + 60 + 60 = 180; $180 \rightarrow 200$; 280 - 200 = 80

about 80 packages

Differentiation Resource Book

LESSON 2-4 Use Addition Properties to Add

Learning Targets

- I can apply addition properties as strategies to help add more efficiently.
- I can explain how to apply addition properties as strategies to help add more efficiently.

Content

3.NBT.A.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Math Practices and Processes

MPP Look for and make use of structure.

MPP Look for and express regularity in repeated reasoning.

Focus

Content Objective	Language Objectives	SEL Objective
 Students apply the properties of addition when adding two or more addends. 	 Students justify multiple ways to solve an addition problem using and the sum will be the same. 	 Students explain their thinking for how they completed a mathematical task.
	• To optimize output, use in MLR1: Stronger and Clearer Each Time.	

Coherence

Previous	Now	Next	1
 Students used place-value understanding and properties of operations to add and subtract (Grade 2). 	• Students explore addition properties by grouping addends or changing the order of addends to add more efficiently.	 Students add and subtract 3-digit numbers using strategies based on place value and properties of operations (Unit 2). Students fluently add multi-digit whole numbers using properties of addition (Grade 4). 	
Rigor			

Conceptual Understanding Students build their understanding of addition properties to add multi-digit numbers.

Conceptual understanding is not a targeted element of rigor for this standard.

Procedural Skill & Fluency

 Students develop proficiency with addition strategies by using addition properties to add multi-digit numbers.

Application

- Students apply their understanding of addition properties to solve real-world problems.
 - Application is not a targeted element of rigor for this standard.

Vocabulary

Math Term addend Academic Terms strategy justify

Materials

The materials may be for any part of the lesson.

- base-ten blocks
- blank number cubes
- numbered spinner

Number Routine Mystery Number

() 5–7 min

Build Fluency Students build understanding of place value as they use clues to determine the value of a number.

These prompts encourage students to talk about their reasoning:

- What are the greatest and least 2-digt numbers?
- What makes a number odd or even?
- What numbers can you rule out?



?

Purpose Students interpret a word problem and consider the numbers and operation that might be a part of the word problem.

Numberless Word Problem

- What math do you see in the problem?
- What question could you ask?

Teaching Tip Encourage students to come up with as many possible questions to match the numberless word problem. This can help students see many questions are possible about the same scenario.

Pose Purposeful Questions

The questions that follow may be asked in any order. They are meant to help advance students' understanding of word problems, and are based on possible comments and questions that students may make during the share out.

- What are you picturing in your mind when you read this scenario?
- What operation might you use to answer your question?
- What do you think "some" means in this situation?
- What information do you need to answer your question?

Math Is... Mindset

• How can you explain your thinking?

Self-Regulation: Metacognition

After students work through the Numberless Word Problem routine, have them share their reasoning process with a partner. Encourage students to think about how they made sense of the problem or what caused confusion. As students move on to work with using addition properties to add, encourage them to reflect on their work by asking themselves what was challenging and why.

Transition to Explore & Develop

Students have previously learned about the Commutative Property of Addition, which states that when two or more numbers are being added, their order can be changed without affecting the sum. Ask questions to encourage students to think about how they might add the amounts.

Establish Goals to Focus Learning

• How might we add 3 or more addends?

Lesson 2-4 Use Addition Properties to Add

Be Curious

What question could you ask?

At the school carnival, Billy won some tickets at balloon darts, more tickets at ring toss, and the most tickets at basketball toss.





Explore & Develop (© 20 min



How can Josh complete the equation more efficiently? Sample answer: The order of the addends does not change the sum. The addends will be the same on both sides of the equation. So, 797 + 111 is equal to 111 + 797.

48 Lesson 4 • Use Addition Properties to Add

O Pose the Problem

Pose Purposeful Questions

- How can you represent the problem to help find how many tickets Billy won?
- What are different ways you can add three 2-digt numbers?
- **Think About It:** How can changing the order of the addends sometimes make it easier to find a solution?

O Develop the Math

Choose the option that best meets your instructional goals.

Stronger and Clearer Each Time

Have students explain in writing one strategy that can be used to solve the problem. Have students work individually to write their explanations, and then have them get in pairs to read and refine. Encourage partners to question each other, clarify, and revise as needed.

O Bring It Together

Elicit and Use Evidence of Student Thinking

- How can changing the grouping of addends help you add more efficiently?
- Suppose you needed to solve an addition equation with five addends. How could you use properties of addition to help you find the sum?

Key Takeaway

• The Commutative and Associative Properties of Addition can make adding numbers more efficient.

Work Together

Encourage students think about how the properties could simplify Josh's strategy for completing the equation. Have students share their ideas in partners and justify their thinking.

Common Misconception: Students may think that Josh needs to add the addends to answer the problem. Explain that the equation shows the Commutative Property of Addition. The addends should be the same on either side of the equal sign.

Language of Math

Use the terms *Commutative Property of Addition* and *Associative Property of Addition* so students begin to recognize and understand the meanings of the properties. Students, however, are not expected to know or define these terms.

CHOOSE YOUR OPTION

Activity-Based Exploration

Students explore adding three addends by grouping them or changing the order.

Materials: base-ten blocks, blank number cubes

Directions: Place students in pairs. Provide a number cube labeled 0–5. Students write an addition equation with three 2-digit addends by rolling the number cube six times. Have students use their 3 addends to identify the following statements as always, never, or sometimes true:

Grouping the addends in a different order does not change the sum. Changing the order of the addends does not change the sum.

Students record their work and their reasoning. Challenge students to test their ideas by creating an addition equation with three 3-digit addends less than 200. Provide base-ten blocks for support as needed.

Implement Tasks That Promote Reasoning and Problem Solving

- How many ways are there to group your addends without changing the order? Explain.
- What are the different ways you can order the addends?
- Did grouping the addends in a different way change the sum? Explain.
- How do you know your conclusions apply to greater addends?

Activity Debrief: Students share their conclusions about the statements and justify their thinkning with examples. Discuss whether their ideas apply to greater numbers. Guide students to understand that these statements are always true and describe the Associative and Commutative Properties of Addition. Have students discuss with their partner how grouping or ordering the addends in different ways might be helpful when adding.

Math is... Structure

How can grouping the addends help you add more efficiently?

Have students revisit the Pose the Problem question and discuss answers.

• How can you find the total number of tickets he won?

Guided Exploration

Students explore using properties of addition, such as the Commutative Property of Addition and the Associative Property of Addition, to add two or more addends. Students are expected to understand and apply the properties, however, they are not expected to know their formal names.

Use and Connect Mathematical Representations

- What do you notice about the addends in the equation?
- When grouping the addends, why might it be easier to add 27 and 53 first?
- Think About It: Why does the sum remain the same no matter how you group the addends?
- How can you use the addends in an equation to determine whether you should change the grouping or switch the order?

Geta To help students understand the Commutative Property of Addition, have students think about the order of the addends in terms of place value.

- Why do you think the order of the addends doesn't matter?
- How could you use base-ten blocks and place value to justify your reasoning?

Math is... Structure

• How can grouping the addends help you add more efficiently? Students consider how the grouping of the addends can help them add more efficiently.



English Learner Scaffolds

Entering/Emerging Support understanding of the meaning of *switch the order*. Line up 3 items and display them to students. Say, *Now watch me switch the order*. Then move the items to show a change in order. Ask, *Did I switch the order*? Have students respond with a thumbs up or down.

Developing/Expanding Support understanding of the meaning of *switch the order*. Line up and display 3 items. Say, *Watch me switch the order*. Then turn to a student and say, *Can you switch the order*? Have that student change the order, and then ask other students to change the order.

Bridging/Reaching Help convey the difference between *order* and *grouping*. Ask, *What is the difference between switching the order and grouping*? Encourage them to use classroom objects to help explain the difference.

Practice & Reflect © 10 min

	On My Own	REPLAY ONLINE		
	Name			
	How can you make the equation true?			
	1. 218 + 325 = 325 + 218	3 2. 465 + 78 = 78 + 465		
	3. 529 + 407 = 407 +	529 4 . 505 + 93 = 93 + 505		
	 5. Mauricio had a sale. The ta sold each day. Which exprendent of items Mauricio s (A) 42 + 67 + 58 (B) 67 - 58 + 42 (C) 58 + 42 + 67 (D) 58 + 67 + 24 	ble shows the number of items he essions show how to find the total cold? Choose all that apply. Items Sold Monday 58 Tuesday 67 Wednesday 42		
Copyright © McGrave-Hill Education	 How can you group the ad you chose to group them in 372 Sample answer: I can because I can make a hundred makes the pin Then I would add 600 	dends to find the sum? Explain why n that way. + 264 + 228 group 372 + 228 = 600 hundred. Adding to a roblem easier to solve.		
	Then I would add 600	7 + 204.		
	Unit 2 •	Use Place Value to Fluently Add and Subtract within 1,000 49		
	Unit 2 ·	Use Place Value to Fluently Add and Subtract within 1,000 49		
	Unit 2 ·	Use Place Value to Fluently Add and Subtract within 1,000 49		
How o	Unit 2 . can you show one way to group 77 + 17 + 783	Use Place Value to Fluently Add and Subtract within 1,000 49 these addends and solve? 8 198 + 502 + 155		
How (7. 15	Unit 2 - can you show one way to group 57 + 17 + 783 ample answer:	Use Place Value to Fluently Add and Subtract within 1,000 49 these addends and solve? 8. 198 + 502 + 155 Sample answer:		
How 6 7. 15 S 7	Unit 2 - can you show one way to group 7 57 + 17 + 783 ample answer: 83 + 17 = 800,	Use Place Value to Fluently Add and Subtract within 1,000 49 these addends and solve? 8. 198 + 502 + 155 Sample answer: 198 + 502 = 700,		
How 6 7. 15 7 8	Unit 2 . can you show one way to group ($37 + 17 + 783$) ample answer: 83 + 17 = 800, 00 + 157 = 957	Use Place Value to Fluently Add and Subtract within 1,000 49 these addends and solve? 8. 198 + 502 + 155 Sample answer: 198 + 502 = 700, 700 + 155 = 855		
How 6 7. 15 7 8 9. 13	Unit 2 - can you show one way to group 1 57 + 17 + 783 ample answer: 83 + 17 = 800, 00 + 157 = 957 45 + 458 + 42	Use Place Value to Fluently Add and Subtract within 1,000 49 these addends and solve? 8. 198 + 502 + 155 Sample answer: 198 + 502 = 700, 700 + 155 = 855 10. 235 + 105 + 317		
How of 7, 15 S 7 8 9, 13 S	Unit 2 . can you show one way to group $57 + 17 + 783$ ample answer: 83 + 17 = 800, 00 + 157 = 957 25 + 458 + 42 ample answer: 25 + 458 + 42	Use Place Value to Fluently Add and Subtract within 1,000 49 these addends and solve? 8. 198 + 502 + 155 Sample answer: 198 + 502 = 700, 700 + 155 = 855 10. 235 + 105 + 317 Sample answer: 200		
How 6 7. 15 7 8 9. 13 5	Unit 2 - can you show one way to group $77 + 17 + 783$ ample answer: 83 + 17 = 800, 00 + 157 = 957 85 + 458 + 42 ample answer: 58 + 42 = 500, 00 + 135 = 635	Use Place Value to Fluently Add and Subtract within 1,000 49 these addends and solve? 8. $198 + 502 + 155$ Sample answer: 198 + 502 = 700, 700 + 155 = 855 10. $235 + 105 + 317$ Sample answer: 235 + 105 = 340, 340 + 317 = 657		
How of 7. 19 8 7 8 9. 13 5 4 5	Unit 2 . can you show one way to group $17 + 17 + 783$ ample answer: 83 + 17 = 800, 00 + 157 = 957 85 + 458 + 42 ample answer: 58 + 42 = 500, 00 + 135 = 635 TEM Connection Saffron needs	Use Place Value to Fluently Add and Subtract within 1,000 49 these addends and solve? 8. $198 + 502 + 155$ Sample answer: 198 + 502 = 700, 700 + 155 = 855 10. $235 + 105 + 317$ Sample answer: 235 + 105 = 340, 340 + 317 = 657 to order the items listed.		
How of 7, 19 S 7 8 9, 13 S 4 5 11. S H	Unit 2 - can you show one way to group to 57 + 17 + 783 ample answer: 83 + 17 = 800, 00 + 157 = 957 85 + 458 + 42 ample answer: 58 + 42 = 500, 00 + 135 = 635 TEM Connection Saffron needs ow can she group these numbers	Use Place Value to Fluently Add and Subtract within 1,000 49 these addends and solve? 8. $198 + 502 + 155$ Sample answer: 198 + 502 = 700, 700 + 155 = 855 10. $235 + 105 + 317$ Sample answer: 235 + 105 = 340, 340 + 317 = 657 to order the items listed. s to find her total cost?		
How of 7, 15 S 7 8 9, 13 S 4 5 11, S H S	Unit 2 - can you show one way to group to 7 + 17 + 783 ample answer: 83 + 17 = 800, 00 + 157 = 957 85 + 458 + 42 ample answer: 58 + 42 = 500, 00 + 135 = 635 TEM Connection Saffron needs ow can she group these numbers ample answer:	Use Place Value to Fluently Add and Subtract within 1,000 49 these addends and solve? 8. $198 + 502 + 155$ Sample answer: 198 + 502 = 700, 700 + 155 = 855 10. $235 + 105 + 317$ Sample answer: 235 + 105 = 340, 340 + 317 = 657 to order the items listed. s to find her total cost?		
How of 7. 15 5 7 8 9. 13 5 4 5 11. 5 H S 3 7	Unit 2 - can you show one way to group $17 + 17 + 783$ ample answer: 83 + 17 = 800, 00 + 157 = 957 85 + 458 + 42 ample answer: 58 + 42 = 500, 00 + 135 = 635 TEM Connection Saffron needs ow can she group these numbers ample answer: 58 + 142 = 500, 00 + 367 = 967, for 7	Use Place Value to Fluently Add and Subtract within 1,000 49 these addends and solve? 8. $198 + 502 + 155$ Sample answer: 198 + 502 = 700, 700 + 155 = 855 10. $235 + 105 + 317$ Sample answer: 235 + 105 = 340, 340 + 317 = 657 to order the items listed. is to find her total cost? flour \$367 boxes \$358		
How of 7. 19 8 7 8 9. 13 5 9. 13 5 4 5 11. 5 H S 3 5	Unit 2 - can you show one way to group $57 + 17 + 783$ ample answer: 83 + 17 = 800, 00 + 157 = 957 85 + 458 + 42 ample answer: 58 + 42 = 500, 00 + 135 = 635 TEM Connection Saffron needs ow can she group these numbers ample answer: 58 + 142 = 500, 00 + 367 = 867; \$867	Use Place Value to Fluently Add and Subtract within 1,000 49 these addends and solve? 8. $198 + 502 + 155$ Sample answer: 198 + 502 = 700, 700 + 155 = 855 10. $235 + 105 + 317$ Sample answer: 235 + 105 = 340, 340 + 317 = 657 to order the items listed. s to find her total cost? flour \$367 boxes \$358 cupcake liners \$142		
How of 7. 15 57 8 9. 13 5 9. 13 5 5 11. 5 H S 3 5 5 12. E TII	Unit 2 - Can you show one way to group is 37 + 17 + 783 ample answer: 83 + 17 = 800, 00 + 157 = 957 45 + 458 + 42 ample answer: 58 + 42 = 500, 00 + 135 = 635 TEM Connection Saffron needs ow can she group these numbers ample answer: 58 + 142 = 500, 00 + 367 = 867; \$867 xtend Your Thinking Mrs. Ruiz is the three items cost \$305, \$350, a se both properties of addition to a	Use Place Value to Fluently Add and Subtract within 1,000 49 these addends and solve? 8. $198 + 502 + 155$ Sample answer: 198 + 502 = 700, 700 + 155 = 855 10. $235 + 105 + 317$ Sample answer: 235 + 105 = 340, 340 + 317 = 657 to order the items listed. s to find her total cost? to order the items listed. s to find her total cost? 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10		
How of 7. 15 S 7 8 9. 13 5 9. 13 5 5 11. S [°] H S 3 5 12. E 11 11 S [°] H S 3 5 12. E 11 S [°] H S 3 5 5 12. E 11 S [°] H S 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	Unit 2 - Can you show one way to group is 37 + 17 + 783 ample answer: 83 + 17 = 800, 00 + 157 = 957 85 + 458 + 42 ample answer: 58 + 42 = 500, 00 + 135 = 635 TEM Connection Saffron needs ow can she group these numbers ample answer: 58 + 142 = 500, 00 + 367 = 867; \$867 Stend Your Thinking Mrs. Ruiz is the three items cost \$305, \$350, a ample answer: She can first the addends to add 305 + 1 an group 305 and 195 to m 05 + 195 = 500; $500 + 35$	Use Place Value to Fluently Add and Subtract within 1,000 49 these addends and solve? 8. 198 + 502 + 155 Sample answer: 198 + 502 = 700, 700 + 155 = 855 10. 235 + 105 + 317 Sample answer: 235 + 105 = 340, 340 + 317 = 657 to order the items listed. to order the items listed. to find her total cost? to find her total cost? flour \$367 boxes \$358 cupcake liners \$142 as checking her receipt. and \$195. How can she add more efficiently? tt change the order of 95 + 350. Then she make a hundred. 50 = 850		
How of 7. 15 7. 15 7. 7 8 9. 13 5 9. 13 5 11. 5 H S 3 5 12. E TI US 5 7 8 8 8 8 7 8 8 9 13 5 13 13 5 13 13 13 13 13 13 13 13 13 13	Unit 2 - Can you show one way to group to 57 + 17 + 783 ample answer: 83 + 17 = 800, 00 + 157 = 957 45 + 458 + 42 ample answer: 58 + 42 = 500, 00 + 135 = 635 TEM Connection Saffron needs ow can she group these numbers ample answer: 58 + 142 = 500, 00 + 367 = 867; \$867 Attend Your Thinking Mrs. Ruiz is the three items cost \$305, \$350, a se both properties of addition to a ample answer: She can first the addends to add 305 + 11 an group 305 and 195 to mo 05 + 195 = 500; $500 + 35effect$	these addends and solve? 8. $198 + 502 + 155$ Sample answer: 198 + 502 = 700, 700 + 155 = 855 10. $235 + 105 + 317$ Sample answer: 235 + 105 = 340, 340 + 317 = 657 to order the items listed. a to find her total cost? flour \$367 boxes \$358 cupcake liners \$142 as checking her receipt. and \$195. How can she add more efficiently? t change the order of 95 + 350. Then she nake a hundred. 50 = 850		
How of 7. 15 5 7 8 9. 13 5 9. 13 5 9. 13 5 11. \$ 8 4 5 11. \$ 5 12. E: 11. \$ 8 13. \$ 13. \$ 5 13. \$ 14. \$ 5 13. \$ 14. \$ 5 13. \$ 14. \$ 5 14. \$ 5 15. \$ 14. \$ 5 14. \$ 5 15. \$ 14. \$ 5 14. \$ 5 14. \$ 5 15. \$ 15. \$ 16. \$ 17. \$ 18. \$ 19. \$ 19. \$ 19. \$ 19. \$ 19. \$ 19. \$ 10. \$	Unit 2 - Can you show one way to group is 37 + 17 + 783 ample answer: 83 + 17 = 800, 00 + 157 = 957 45 + 458 + 42 ample answer: 58 + 42 = 500, 00 + 135 = 635 TEM Connection Saffron needs ow can she group these numbers ample answer: 58 + 142 = 500, 00 + 367 = 867; \$867 Attend Your Thinking Mrs. Ruiz is the three items cost \$305, \$350, a see both properties of addition to a ample answer: She can first the addends to add $305 + 11$ an group 305 and 195 to m 05 + 195 = 500; $500 + 352effectw can changing the order of threeto efficiently?$	these addends and solve? 8. $198 + 502 + 155$ Sample answer: 198 + 502 = 700, 700 + 155 = 855 10. $235 + 105 + 317$ Sample answer: 235 + 105 = 340, 340 + 317 = 657 to order the items listed. to find her total cost? flour + 3267 boxes + 3258 cupcake liners $\neq 142$ as checking her receipt. and \$195. How can she add more efficiently? to change the order of 95 + 350. Then she hake a hundred. 50 = 850		
How of 7. 15 57 8 9. 13 5 9. 13 5 11. 5 H 5 12. E 11. 5 12. E 11. 5 12. E 11. 5 12. E 11. 5 13. 5 12. E 11. 5 13. 5 13. 5 14. 5 14. 5 15. 5 16. 5 17. 15 17. 15 1	Unit 2 - Can you show one way to group to 57 + 17 + 783 ample answer: 83 + 17 = 800, 00 + 157 = 957 45 + 458 + 42 ample answer: 58 + 42 = 500, 00 + 135 = 635 TEM Connection Saffron needs ow can she group these numbers ample answer: 58 + 142 = 500, 00 + 367 = 867; \$867 Attend Your Thinking Mrs. Ruiz is the three items cost \$305, \$350, a se both properties of addition to a ample answer: She can first the addends to add 305 + 11 an group 305 and 195 to ma 05 + 195 = 500; $500 + 35effectw can changing the order of threee efficiently?Swers may vary.$	Use Place Value to Fluently Add and Subtract within 1,000 these addends and solve? 8. $198 + 502 + 155$ Sample answer: 198 + 502 = 700, 700 + 155 = 855 10. $235 + 105 + 317$ Sample answer: 235 + 105 = 340, 340 + 317 = 657 to order the items listed. a to find her total cost? $flour = \frac{4367}{5028}$ to conclust the items listed. a to find her receipt. and \$195. How can she add more efficiently? th change the order of 95 + 350. Then she hake a hundred. 50 = 850 $t^{addends}$ help you add		

Practice

Build Fluency from Understanding

Common Error: Exercise 10 Students may know the Associative Property of Addition but fail to apply it to simplify the addition. Students may labor to find the sum of the three numbers because they fail to recognize that it is much easier to add 372 + 228 to make a ten.

Practice Item Analysis

ltem	DOK	Rigor
1–4	1	Procedural Skill and Fluency
5–6	2	Conceptual Understanding
7–10	2	Procedural Skill and Fluency
11	2	Application
12	3	Application

Reflect

Students complete the Reflect question.

- How can changing the order of three addends help you add more efficiently?
- Ask students to share their reflections with their classmates.

Math is... Mindset

• How has explaining your thinking helped you learn? Students reflect on how they practiced self-regulation.

Learning Targets

Ask students to reflect on the Learning Targets of the lesson.

- I can apply addition properties as strategies to help add more efficiently.
- I can explain how to apply addition properties as strategies to help add more efficiently.

To review today's lesson, have students watch the Math Replay video in their Digital Student Center.

Assign the On My Own practice to students from the Digital Teacher Center.



Exit Ticket Formative Assessment

The Exit Ticket assesses students' understanding of lesson concepts.

Metacognitive Check *Reflect on Your Learning* allows students to think about their level of understanding of the lesson content on a scale of 1 to 4 with 4 being the highest confidence.

Exit Ticket Skill Tracker

Item	DOK	Skill	Standard
1	1	Use Commutative Property of Addition to add	3.NBT.A.2
2	2	Use Associative Property of Addition to add	3.NBT.A.2
3	3	Use Commutative Property of Addition to add	3.NBT.A.2

Data Use students' scores on the *Exit Ticket* to assign the differentiated resources available. When students complete the *Exit Ticket* in the digital workspace, their responses are auto-scored.

Exit Ticket Recommendations

If students score	Then have students do
3 of 3	Additional Practice or any of the $f ig B$ or $f ig B$ activities
2 of 3	<i>Take Another Look</i> or any of the 🕒 activities
1 or fewer of 3	Small Group Intervention or any of the 🕞 activities

Key for Differentiation

- Reinforce Understanding
- Build Proficiency
- Extend Thinking



Lesson 2-4 Exit Ticket

Name____

Which number completes this ac	addition equation?	
35 + 165 + 203 -	+ 165 + 35	
a 200 b 203 b 203	+ 103 + 33	
A. 200 (B.) 203	C. 236 D. 308	
 Mia practices dance three days practices 73 minutes, Wednesda 138 minutes. Which expressions Choose all that apply. 	a week. Tuesday, she ay 162 minutes, and Thursday s show how to find the total?	
(A) 162 + 73 + 138	B. 37 + 162 - 138	
C , 138 + 162 + 73	D. 138 + 37 - 162	
 Which statement best describes complete the equation. A. He should write 213 in the b B. He should write 645 in the b C. He should write the sum of 6 D. He should write the different 	s what Lucas should do to blank. 645 + 213 in the blank. nce of 645 – 213 in the blank.	
Reflect On Your Learnin I'm I'm still learning.	ng g. Lunderstand. L can teach someone else.	

Assian

GO ONLINE

INDEPENDENT WORK

Reinforce Understanding

Spinning Addition

Work with students in pairs as they take turns spinning a spinner with 1-digit numbers on it. Together, they should spin a total of six times to create three 2-digit numbers. The students find the sum of the numbers and present the order of the addition problem two different ways using base-ten blocks. Make sure students recognize that the total number of blocks stays the same. Have students continue spinning and adding new sets of numbers.

Build Proficiency

Practice It! Game Station

Property Concentration Students practice adding numbers in different orders.

WORKSTATIONS

ONLINE

00

NDEPENDENT WORK



Interactive Additional Practice

Assign the digital version of the Student Practice Book.



Student Practice Book, pp. 7–8

Name
Review
You can add two or more numbers in any order and get the same result.
You can find 112 + 218 + 132 by adding 112 + 218 first,
112 + 132 first, or 218 + 132 first.
112 + 218 + 132 = 112 + 218 + 132 = 330 + 132 = 462
112 + 218 + 132 = 112 + 132 + 218 = 244 + 218 = 462
112 + 218 + 132 = 218 + 132 + 112 = 350 + 112 = 462
How can you make the equation true?
1. 111 + 222 = 222 + 111 2. 108 + 423 = 423 + 7
3. 289 + = 71 + 289 4. 912 + 378 = 378 +
5. $465 + 512 + 306 = 512 + 306 + 465$
6. 96 + 213 + = 213 + 55 + 96
 Mitchell collects post cards. He has 169 post cards from California, 273 post cards from New York, and 47 post card from Iowa. Which expressions show how to find the total number of postcards? Choose all that apply.
(A) 169 + 273 + 47 B. 273 + 47 − 169 C. 169 + 273 −

Take Another Look Lesson

Assign the interactive lesson to

• Add 3- and 2-Digit Numbers

reinforce targeted skills.

(Properties)



B Unit 2 • Use Place Value to Fluently Add and Subtract within 1,000

Own It! Digital Station Build Fluency Games

Assign the digital game to develop fluency with adding multiples of 10.



Extend Thinking

WORKSTATIONS

GO ONLINE

INDEPENDENT WORK

Use It! Application Station

Buy New Playground Equipment Students create lists of playground equipment purchases that would stay within a school's budget. *The content* of this card has concepts covered later in Lesson 2-11. You may want to assign this card to students ready to explore content covered later in this unit.



Spiral Review

Assign the digital Spiral Review Practice to students or download and print PDFs of the Spiral Review from the Digital Teacher Center.



Student Practice Book, pp. 7–8

8.	487 + 104 + 13
	Sample answer: 487 + 13 = 500, 500 + 104 = 604
9.	178 + 234 + 522
	Sample answer: 178 + 522 = 700, 700 + 234 = 934
10.	239 + 124 + 346
	Sample answer: 124 + 346 = 470, 470 + 239 = 709
11.	Rod adds the prices of three grocery bills to get a total of $\$38 + \$44 + \$52 = \$82 + \$52 = \134 . What is another way that Rod can add the bills and get the same total?
12.	Sample answer: Rod can add \$38 and \$52 first to get \$90, and then add \$44 to get \$134. Two ropes have lengths of 34 feet and 52 feet. Jimmy uses 34 + 52 to find the total length of the ropes, and Camille uses 52 + 34 to find the total length of the ropes. Will Jimmy and Camille both find the correct total length? Explain.
13.	Yes; Sample answer: The order of the addends does not matter, so $34 + 52 = 52 + 34$. Tina is adding $205 + 413 + 147$ to find the total cost of three flights for her vacation. How could you arrange the addends differently? Explain your reasoning.
	Sample answer: $147 + 413 + 205$; I would arrange the addends like this because now the first two addends equal 560. Then it is easier to add 560 + 205, which equals 765.
~	Have your child write 2- and 3-digit numbers on index cards. Then have him

Student Practice Book

Websketch Exploration

Assign a websketch exploration to apply skills and extend thinking.



Differentiation Resource Book, p. 8

Lesson 2-4 • Extend Thinking Use Addition Properties to Add

Name_____

Solve. Show your work.

 Mr. Reneke is a manager at the Holiday Hotel and is checking his bank deposit. He is adding \$205, \$450, and \$295. How can he use both properties of addition to add more efficiently?

Sample answer: He can first change the order of the addends to add 205 + 295 + 450. Then he can group 205 and 295 to make a hundred. 205 + 195 = 500; 500 + 450 = 950

2. Kiara is checking hotel laundry receipts for one of her customers. His laundry charges for the past three months were \$150, \$175, and \$125. How can she use both properties of addition to add more efficiently?

Sample answer: She can first change the order of the addends to add 175 + 125 + 150. Then she can group 175 and 125 to make a hundred. 175 + 125 = 300; 300 + 150 = 450

3. Nestor works at the Holiday House restaurant. He is checking the total cost of the tableware he ordered. He ordered dinner plates for \$415, bread plates for \$185, and bowls for \$160. How can he use both properties of addition to add more efficiently?

Sample answer: He can first change the order of the addends to add 415 + 185 + 160. Then he can group 415 and 185 to make a hundred. 415 + 185 = 600; 600 + 160 = 760

Differentiation Resource Book

LESSON 2-5 **Addition Patterns**

Learning Targets

- · I can use addition patterns to help find a sum.
- I can explain how to use addition patterns to help find a sum.

O Additional

Content

3.0A.D.9 Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.

Math Practices and Processes

MPP Look for and express regularity in repeated reasoning.

Focus

Content Objective

Coherence

• Students identify addition patterns and use the patterns to help determine sums of 3-digit numbers and check their accuracy.

Language Objectives · Students read conditional

sentences with when that

SEL Objective

- Students discuss how a mathematical rule or routine can help develop mathematical skills and knowledge.

• To maximize linguistic and cognitive meta-awareness, use MLR2: Collect and Display.

express patterns.

Previous	Now	Next
 Students identified numbers (1–20) as even or odd and learned the sum of two even addends is always even (Grade 2). 	• Students build an understanding of addition patterns and use the patterns to help determine whether a sum is accurate.	 Students add and subtract 3-digit numbers using strategies based on place value and properties of operations (Unit 2). Students fluently add multi-digit whole numbers using properties of addition (Grade 4).
Rigor		
Conceptual Understanding	Procedural Skill & Fluency	Application
 Students strengthen their understanding of addition patterns to solve addition problems efficiently. 	Students build proficiency solving problems by identifying and using addition patterns. Procedural skill and fluency is not a	 Students apply their understanding of addition patterns to solve real-world problems.

targeted element of rigor for this

Application is not a targeted element of rigor for this standard.

Vocabulary

Math Terms	Academic Terms	
<mark>even number</mark>	analyze	
<mark>odd number</mark>	identify	

Materials

The materials may be for any part of the lesson.

- base-ten blocks
- blank number cubes

Number Routine Mystery Number

() 5–7 min

Build Fluency Students build number sense as they use clues to find a mystery number.

These prompts encourage students to talk about their reasoning:

- · How did you use each clue to exclude certain numbers?
- Which clue helped you find a digit in the ones place? How did it help?
- How did you determine the digit in the tens place?

standard.

Sense-Making Routine

?

Lesson 2-5

Addition Patterns

Purpose Students explore addition patterns related to even and odd addends.

Is It Always True?

• Is Mena's statement always true?

Teaching Tip Have students use a Think-Pair-Share before inviting volunteers to share their thinking about what Mena notices. Encourage pairs to think of ways they might prove or disprove this statement.

Pose Purposeful Questions

The questions that follow may be asked in any order. They are meant to help advance students' understanding of addition patterns, and are based on possible comments and questions that students may make during the share out.

- What is the relationship among the three sets of blocks?
- How can you use the sets of blocks to justify your thinking?
- What do you know about even and odd numbers that can help you support your thinking?
- How might Mena's statement apply to other numbers?

Math is... Mindset

• What rules or routines do you follow in math?

Self-Regulation: Rules and Routines

Invite students to discuss the rules or routines they will follow while working through the Is It Always True? routine. Have students consider why these rules or routines are useful and how they can help determine whether what Mena notices is always true. Invite students to think about other rules and routines that they follow while learning math. As students work through the lesson, have them consider how following a pattern is similar to following a rule.

Transition to Explore & Develop

Ask questions that encourage students to notice patterns among even and odd numbers. Encourage students to represent the model with math and think about what they already know about even and odd numbers.

Establish Goals to Focus Learning

• Let's explore addition patterns with even and odd numbers.

?

Be Curious Is it always true?

Mena states that the total will always be odd if she continues to add 4 blocks to the set.





Explore & Develop (© 20 min

L	e	a	r	n
	-	<u> </u>		

Mena notices that when she adds an even	0	
number and an odd number, the sum is odd.		72 +
How can she determine if the sum of an even number and an odd number is always odd?		18 +
		30+
When you add even numbers and edd numbers		

13 = 85

41 = 59

there are patterns in the sums.

When you add two even numbers, the sum is even. 246 + 100 = 346 432 + 224 = 656 318 + 480 = 798	When you add two odd numbers, the sum is even. 547 + 155 = 702 325 + 631 = 956 421 + 273 = 694	
When you add an even number and an odd number, the sum is odd. 272 + 723 = 995 546 + 231 = 777 647 + 244 = 891	Math is Generalizations Why is it true that the sum of two odd numbers is always even?	

You can use addition patterns to help you determine a sum, or to check your work, when you add 3-digit numbers.

Work Together

Nisha writes 135 + 232 = 167. She says her sum is correct because an odd number added to an even number equals an odd sum. Do you agree with her reasoning? Explain.

No; Sample answer: For this equation, Nisha's reasoning is not correct because the sum is less than one of the addends.

52 Lesson 5 • Addition Patterns

Pose the Problem

Pose Purposeful Questions

- What do you know about a sum that is odd?
- Think About It: What can Mena do to test whether the sum of an even number and an odd number is always odd?
- What representations could you use to analyze the pattern even + odd = odd?

O Develop the Math

Choose the option that best meets your instructional goals.

Collect and Display

As you discuss the questions, listen and write on the board any key words that students use such as *add, sum, even,* and *odd.* Display the words for student reference. Add any information to the display as the lesson progresses and have students clarify the meaning of each term.

Bring It Together

Elicit and Use Evidence of Student Thinking

- How can you use addition patterns to check whether a sum is reasonable?
- How can you use an understanding of odd numbers to generalize about the sum of two odd numbers?

Key Takeaways

- Addition patterns can be helpful when determining a sum or checking the reasonableness of a sum.
- The sum of two even addends is always even, the sum of two odd addends is always even, and the sum one even and one odd addend is always odd.

Work Together

Encourage students to complete the calculation to justify their thinking. It is important for students to understand that while patterns can help them justify their answer, they do not necessarily prove their answer is correct.

Common Misconception: Students may think that if their answer follows the addition patterns, their sum is correct. Explain to students that although using addition patterns can help, students may need to use other strategies to ensure their answer is correct.

Language of Math

Students may need multiple opportunities to understand and remember the meaning of *even number, odd number, equation,* and *addition patterns.* Ask students questions that require them to use these words in their responses.

CHOOSE YOUR OPTION

Activity-Based Exploration

Students explore addition patterns of even or odd sums.

Materials: base-ten blocks

Directions: Students will work in pairs to identify the following statements as always, never, or sometimes true: *When you add two even numbers, the sum is even. When you add two odd numbers, the sum is even. When you add an even number and an odd number, the sum is even.*

Students can draw or use tools to create examples or counterexamples that help them label each statement. Provide base-ten blocks as an option. Students should record their work and be prepared to justify their reasoning.

Support Productive Struggle

- What representations can you use to explore each statement?
- How can you use patterns in 1-digit numbers to determine patterns with 2- and 3- digit numbers?
- What makes sums even?
- What makes a number odd?

Activity Debrief: Pairs should share how they labeled each statement and explain their reasoning. Encourage students to provide examples that support their thinking. After pairs have shared with the group, they should revise the statements to make them true. Review the statements as a class.

Math is... Generalizations

• Why is it true that the sum of two odd numbers is always even?

Students consider why the sum of two odd addends is always even.

Have students revisit the Pose the Problem question and discuss answers.

• How can she determine whether the sum of an even number and an odd number is always odd?

Guided Exploration

Students explore addition patterns and understand that when adding two 3-digt addends, they can use even and odd patterns to determine the reasonableness of their sums.

Facilitate Meaningful Discourse

- How can knowing that the sum of two even numbers is always even help you check your answer?
- **Think About It:** What statement can be made about adding an even number and an odd number?
- How can you use the ones digit in your sum to help identify whether you added correctly?
- Suppose you are adding two 5-digt addends. Do you think you can apply what you know about the sums of even and odd addends to greater numbers? Explain.

E To help students relate the sum of an even addend and an odd addend to the Commutative Property of Addition, have them think about the order of the addends.

• If you know that the sum of an even number and an odd number is even, what does that tell you about the sum of an odd number and an even number?

Math is... Generalizations

• Why is it true that the sum of two odd numbers is always even?

Students consider why the sum of two odd addends is always even.

To help students prove why the sum of two odd addends is always even, provide students with an opportunity to explore the concept with manipulatives or other addends.



English Learner Scaffolds

Entering/Emerging To review *even* and *odd*, arrange blocks into even and odd groups. Put the evens together and the odds together. Point to the groups of odd blocks and say, *Each group has an odd number of blocks*. Count each group and write the number. Repeat for the even groups.

Developing/Expanding To review *even* and *odd*, arrange blocks into even and odd groups. Chorally count each group and write the number. Check comprehension by asking, for example, *What can you tell me about the number 7?* (It is odd.) Continue with other even and odd numbers. **Bridging/Reaching** Have students show and explain why the sum of two odd addends is always even. Pay attention to the language in their explanations, and encourage them to use as many details as possible.

Practice & Reflect © 10 min



Practice

Build Fluency from Understanding

Common Error: Exercise 12 Students may think they need to add all 3 addends if they do not read the directions carefully. When focusing on this problem, remind students about the addition patterns they learned in the lesson, and explain they can use generalizations about the patterns to support their response.

Practice Item Analysis

ltem	DOK	Rigor
1–6	1	Conceptual Understanding
7–8	2	Procedural Skill and Fluency
9–10	2	Conceptual Understanding
11	2	Application
12	3	Application

ව Reflect

Students complete the Reflect question.

• How can addition patterns help you justify that a sum is correct? Ask students to share their reflections with their classmates.

Math is... Mindset

What rules or routines did you follow today?

Students reflect on how they practiced self-regulation.

Learning Targets

Ask students to reflect on the Learning Targets of the lesson.

- I can use addition patterns to help find a sum.
- I can explain how to use addition patterns to help find a sum.

To review today's lesson, have students watch the Math Replay video in their Digital Student Center.

Assign the On My Own practice to students from the Digital Teacher Center.



Exit Ticket

The Exit Ticket assesses students' understanding of lesson concepts.

Metacognitive Check *Reflect on Your Learning* allows students to think about their level of understanding of the lesson content on a scale of 1 to 4 with 4 being the highest confidence.

Exit Ticket Skill Tracker

ltem	DOK	Skill	Standard
1a	2	Use addition patterns to add 3-digit numbers	3.0A.D.9
1b	3	Use addition patterns to add 3-digit numbers	3.0A.D.9
2	1	Use addition patterns to add 3-digit numbers	3.0A.D.9
3	3	Use addition patterns to add 3-digit numbers	3.0A.D.9

Data Use students' scores on the *Exit Ticket* to assign the differentiated resources available. When students complete the *Exit Ticket* in the digital workspace, their responses are auto-scored.

Exit Ticket Recommendations

If students score	Then have students do
4 of 4	Additional Practice or any of the $f B$ or $f G$ activities
3 of 4	<i>Take Another Look</i> or any of the 🕒 activities
2 or fewer of 4	Small Group Intervention or any of the 🕞 activities

Key for Differentiation

Reinforce Understanding

- Build Proficiency
- Extend Thinking



Lesson 2-5 **Exit Ticket** Name 1a. What is the sum? 342 + 571 = **913** 1b. Which is a correct statement about the sum? A. The sum is even because 342 is even. B. The sum is odd because 571 is odd. C. The sum is even because both addends are even. (D.) The sum is odd because one addend is even and the other is odd. 2. Which equations will result in an even answer? Choose all that apply. (A.) 213 + 457 = ? **B.** 594 + 361 = ? **(C.)** 376 + 152 = ? (D) 429 + 265 = ? 3. Mr. Henn's third and fourth grade classes completed an odd number of science fair projects. Which expressions could show the number of projects they completed? Choose all that apply. **B.** 115 + 253 **A.** 103 + 261 D. 246 + 157 C.) 202 + 189 **Reflect On Your Learning** ľm l can teach I'm still learning. l understand. confused. someone else. Assessment Resource Book 19

GO ONLINE

INDEPENDENT WORK

Reinforce Understanding

Odd or Even? Name It!

Work with students in pairs. The first student rolls a number cube (1-6) to create two 2-digit addends. Without adding, the other student announces the sum as odd or even. If students have difficult, go through the steps of identifying each addend as odd or even, then looking at whether the number types are the same (even sum) or different (odd sum). Repeats the steps with new rolls.

Build Proficiency

WORKSTATIONS

GO ONLINE

NDEPENDENT WORK

Practice It! Game Station

Addition Pattern Bump Students identify addition patterns that describe equations.



Take Another Look Lessons

Assign the interactive lessons to reinforce targeted skills.

- Addition Table Patterns
- Even and Odd Addition Patterns



Differentiation Resource Book, p. 9



Interactive Additional Practice

Assign the digital version of the Student Practice Book



Student Practice Book, pp. 9–10

There are patterns in sums when the odd numbers. When you add two even numbers, 348 + 204 = 552 $124 + 236 =When you add two odd numbers, the function of the second seco$	he addends are even and the sum is even. = 360 572 + 420 = 992 he sum is even. = 802 259 + 301 = 560 d an odd number, the sum
When you add two even numbers, $348 + 204 = 552$ $124 + 236 =$ When you add two odd numbers, t $421 + 123 = 544$ $615 + 187 =$ When you add an even number an is odd. $602 + 157 = 759$ $517 + 322 =$	the sum is even. = 360 572 + 420 = 992 he sum is even. = 802 259 + 301 = 560 d an odd number, the sum
348 + 204 = 552 $124 + 236 =When you add two odd numbers, t421 + 123 = 544$ $615 + 187 =When you add an even number anis odd.602 + 157 = 759$ $517 + 322 =$	= 360 572 + 420 = 992 he sum is even. 802 259 + 301 = 560 d an odd number, the sum
When you add two odd numbers, t $421 + 123 = 544$ $615 + 187 =$ When you add an even number an is odd. $602 + 157 = 759$ $517 + 322 =$	he sum is even. 802 259 + 301 = 560 d an odd number, the sum
421 + 123 = 544 615 + 187 = When you add an even number an is odd. 602 + 157 = 759 517 + 322 =	259 + 301 = 560 d an odd number, the sum
When you add an even number an is odd. 602 + 157 = 759 517 + 322 =	d an odd number, the sum
602 + 157 = 759 517 + 322 =	
	839 243 + 406 = 649
 + odd = even Sample answer: 503 + 24' 105 + 319 = 424 odd = odd + Sample answer: 423 + 23: 751 + 174 = 925 even + = even 	1 = 744; 2 = 655;
Sample answer: 654 + 274 316 + 452 = 768	4 = 928;

Own It! Digital Station Build Fluency Games

Assign the digital game to develop fluency with adding multiples of 10.



Extend Thinking

WORKSTATIONS

GO ONLINE

INDEPENDENT WORK

Use It! Application Station

History of the Railroad Students plan and diagram a railway system. They draw railway stations and label the distances between them. *The content* of this card has concepts covered later in Lesson 2-12. You may want to assign this card to students ready to explore content covered later in this unit.



Spiral Review

Assign the digital Spiral Review Practice to students or download and print PDFs of the Spiral Review from the Digital Teacher Center.



Student Practice Book, pp. 9–10

What is the sum? Use patterns to help justify your answer. **4.** 312 + 287 = **599** Sample answer: My sum is odd. When the two addends are even and odd, the sum is odd. **5.** 135 + 453 = **588** Sample answer: My sum is even. When the two addends are odd, the sum is even. 6. A piece of David's homework accidentally tore off. As his teacher was grading his work, she could see only that David wrote 43 as the last two digits of the sum 532 + 100. How can the teacher know that David's work is incorrect without looking at the hundreds place? Sample answer: When the two addends are even the sum is even. 532 and 100 are even numbers. David's answer is odd. So, it is incorrect. 7. A screen on Evelyn's cell phone can hold an odd or an even number of apps. If she has an odd number of apps, how can she arrange them on 2 screens? Sample answer: She could put an odd number of apps on one screen and an even number of apps on the other screen.

Roll three dice (or one die three times) and record the die values as a 3-digit mumber. For example, if 4, 6, and 2 are rolled, record 462. Do this twice. Have your child determine if the sum of the two numbers is even or odd.

Student Practice Book

Websketch Exploration

Assign a websketch exploration to apply skills and extend thinking.



Differentiation Resource Book, p. 10

Lesson 2-5 • Extend Thinking Use Addition Properties to Add Name

What Addition Equations Can I Be? My addends are numbers from 24 through 29. My sum is odd. What are the possible equations?

<u>24</u> + <u>25</u> = <u>49</u>	<u>24</u> + <u>27</u> = <u>51</u>
<u>24</u> + <u>29</u> = <u>53</u>	<u>25</u> + <u>24</u> = <u>49</u>
<u>25</u> + <u>26</u> = <u>51</u>	<u>25</u> + <u>28</u> = <u>53</u>
<u>26</u> + <u>25</u> = <u>51</u>	<u>26</u> + <u>27</u> = <u>53</u>
<u>26 + 29 = 55</u>	<u>27</u> + <u>24</u> = <u>51</u>
<u>27</u> + <u>28</u> = <u>55</u>	<u>28</u> + <u>25</u> = <u>53</u>
<u>28</u> + <u>27</u> = <u>55</u>	<u>28</u> + <u>29</u> = <u>57</u>
<u>29</u> + <u>24</u> = <u>53</u>	<u>29</u> + <u>26</u> = <u>55</u>
<u>29</u> + <u>28</u> = <u>57</u>	

Differentiation Resource Book

LESSON 2-6 **Use Partial Sums to Add**

Learning Targets

- · I can use horizontal and vertical formats to add partial sums.
- I can explain how to use horizontal and vertical formats to add partial sums.

O Additional

Content

O 3.NBT.A.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Math Practices and Processes

MPP Reason abstractly and quantitatively.

Focus

Content Objective	Language Objectives	SEL Objective
 Students use partial sums to add 3-digit numbers. 	 Students use <i>can</i> to explain the steps of an addition strategy. To cultivate conversation, use MLR7: Compare and Connect. 	 Students recognize personal strengths and areas for growth through thoughtful self-reflection.
Coherence		
Previous	Now	Next
• Students used partial sums to find the sum of two 2-digit numbers (Grade 2).	 Students use partial sums to determine the sum of two 3-digit numbers. 	 Students add two 3-digit numbers by adjusting numbers (Unit 2). Students use the standard algorithm to add multi-digit numbers (Grade 4).
Rigor		
Conceptual Understanding	Procedural Skill & Fluency	Application
 Students deepen their understanding of addition as they use partial sums to add 	 Students gain fluency with addition as they use partial sums to add two 3-digit numbers. 	 Students apply their understanding of partial sums to solve real-world problems.

Conceptual understanding is not a targeted element of rigor for this standard.

3-digit numbers.

to add two 3-digit numbers.

to solve real-world problems.

Application is not a targeted element of rigor for this standard.

Vocabulary

Math Terms	Academic Terms
<mark>decompose</mark>	strategy
<mark>partial sum</mark>	support

Materials

The materials may be for any part of the lesson.

- base-ten blocks
- grid paper
- paper money (\$1 bills, \$10 bills, and \$100 bills)

Number Routine Decompose It

() 5–7 min

Build Fluency Students build number sense as they determine different ways a number can be written as the sum of two or more addends.

These prompts encourage students to talk about their reasoning:

- What could you add to 50 to get 63?
- Are any "break aparts" related? Do you see any patterns?
- How can a pattern help you find new "break aparts"?
- What other number could you start with? How could you check your answer?

Launch © 5-7 min

Sense-Making Routine



Purpose Students explore similarities and differences between the displays of two phones.

Notice & Wonder[™]

- How are they the same?
- How are they different?

Teaching Tip Have students discuss the phone images in pairs, and then have them share their findings with the class. After writing student responses on the board, work with them to identify the questions and statements with a mathematical focus.

Pose Purposeful Questions

The questions that follow may be asked in any order. They are meant to help advance students' understanding that different formats can represent the same thing, and are based on possible comments and questions that students may make during the share out.

- What math do you see in the images?
- What do notice about the applications that are shown on the two phones?
- How does the arrangement of the applications change the total? Explain.

Math is... Mindset

• What are your strengths in math?

Self-Awareness: Recognize Strengths

Before students begin the Notice & Wonder[™] routine, invite them to think about their personal areas of strength in math. In addition to specific math skills, students may also acknowledge personal strengths that can help them with their math learning, such as listening, staying focused, or explaining. As students work with adding with partial sums throughout the lesson, model giving positive feedback to help them acknowledge their personal strengths. Encourage students to recognize and acknowledge the strengths of their peers.

Transition to Explore & Develop

Encourage students to recognize the vertical and horizontal arrangement of the applications and the total number. Ask students questions to encourage them to relate the image to showing work in different ways to add and arriving at the same sum.

Establish Goals to Focus Learning

• How can you solve an addition equation in different ways?





Explore & Develop (© 20 min



O Pose the Problem

Pose Purposeful Questions

- What value does each digit in a 3-digt number represent?
- How can you use place value to break apart each 3-digit addend?
- Think About It: How can breaking apart each addend using place value make it easier to find the sum?

O Develop the Math

Choose the option that best meets your instructional goals.

Compare and Connect

Pair students and assign each partner one strategy for solving the problem. Have them look over the details and explain them to their partner. Ask partners to discuss which strategy they prefer and why.

O Bring It Together

Elicit and Use Evidence of Student Thinking

- How does an understanding of place value relate to solving an addition equation using partial sums?
- Why do both formats for adding partial sums have the same final sum?

Key Takeaways

- Finding partial sums and then adding the partial sums to determine the total is an addition strategy.
- Equations used in the partial-sums strategy can be written in different ways.

Work Together

Students consider the steps needed to find partial sums and the final sum. Encourage students to work through the equation using partial sums first before answering.

Common Misconception: Students may think that the zero in 309 has a value of 10. Remind them the zero in the tens place is a place holder and the zero in 309 represent zero tens.

Lom Language of Math

Students need multiple opportunities to use key math terms so they become part of their active vocabulary. Ask students questions that require the use of *place value, addends, decompose, partials sums,* and *sum* in their responses.

CHOOSE YOUR OPTION

Activity-Based Exploration

Students explore partial-sums addition with 3-digit addends in horizontal or vertical formats.

Materials: base-ten blocks, grid paper

Directions: Present the equation $378 + 546 = \Box$. Ask student pairs to share strategies they can use to find the sum. Discuss as a group. If not mentioned by students, integrate the partial sums strategy into the discussion. Ask for a volunteer to describe the method. Discuss what it means to decompose each addend by place value. Have students decompose each addends and share. Then have student pairs use the partial sums strategy to solve. Provide base-ten blocks for support as needed.

Support Productive Struggle

- What do you notice when you decompose the addends by place value?
- How could you use base-ten blocks to show how you added the parts?

After students have shared, present the addition equation vertically. Compare the two ways to present the addends as a group. Then ask students to find different ways to show their work when the addends are stacked. Encourage students to find more efficient ways to use the strategy. Provide base-ten blocks and grid paper for support as needed.

Support Productive Struggle

- How might stacking the addend help you add?
- How might you organize your work differently so there are less steps?

Activity Debrief: Pair students with different partners so they have an opportunity to share their work and discuss. Review students' work as a group. Work through an example of finding a sum using partial sums vertically. Ensure students understand the importance of aligning place values. Have students compare and state which way they prefer. Then as a group discuss how they can estimate the sum to check the reasonableness of their answer.

Math is... Explaining

 Why is the sum the same when the addends are in a row or stacked?

Students consider why the sum is the same despite the different formats of the equation.

Guided Exploration

Students explore adding two 3-digit addends using the partial-sums strategy in both horizontal and vertical formats. Student will also estimate the sum and check the accuracy of their estimate.

A Have student do a pair-share to determine a reasonable estimate for the sum of the addends.

• What estimation strategy did you use?

Use and Connect Mathematical Representations

- How can an understanding of place value and expanded form help you decompose a 3-digit addend?
- Think About It: What do you notice when you decompose the addends by place value?
- When adding partial sums in a vertical format, why is it important to align the partial sums by place value?
- Would it change the sum if you decompose just one addend instead of both addends? Explain.
- How reasonable is the calculated sum based on your estimated sum?

Math is... Explaining

• Why is the sum the same when the addends are in a row or stacked?

Students consider why the sum is the same despite the different formats of the equation.



English Learner Scaffolds

Entering/Emerging To clarify the difference between *horizontal* and *vertical*, display a straight item and hold it out flat. Say, *This is horizontal*. Then turn the item upright and say, *This is vertical*. Change the direction of the item multiple times and ask, *Is this horizontal? Is this vertical*? **Developing/Expanding** To clarify the difference between *horizontal* and *vertical*, display a straight item and hold it out flat. Say, *This is horizontal*. Then turn the item upright and say, *This is vertical*. Point to different surfaces and say, *Tell me about this surface*. (It is horizontal/vertical.) **Bridging/Reaching** Have students offer opinions about whether they prefer to use horizontal or vertical addition. Display the following for students offering a differing opinion. *I do not agree with you because*...

Practice & Reflect © 10 min

	Nama	
	Name	
	How can you decompose each a	ddend? What is the sum?
	1. 247 + 564 = 811	2. 815
	200 + 500 = 700	900
	40 + 60 = 100	50
	700 + 100 + 11 = 811	<u>+ 13</u> 963
	2 720	1 227 176 - 503
	3. 729	327 + 176 = -500
	800	20 + 70 = 90
	60	7 + 6 = 13
	<u>+ 17</u> 977	400 + 90 + 13 = 503
	877	
	5. Whitney uses partial sums	216 + 382 = 598
	to add. Look at her work to	200 + 300 = 500
	numbers were in her	10 + 80 = 90
	original equation.	6 + 2 = 8
		500 + 90 + 8 = 598
Copyright © McGrew-Hill Education	 How can you determine which equation by looking at the par Sample answer: The nun equations represent the 	a addends are in the original tial products? nbers in the partial sum parts of the original addends.
	 Tyrone spent 172 days in scho the same number of days next spend in school in two years? 	ol last year. If he attends school : year, how many days will he 344 days
	Unit 2 • Use	Place Value to Fluently Add and Subtract within 1,000 57
low (8.	can you find the sums in a different 475 + 325 = 800 400 + 300 = 700 70 + 20 = 90	way? 475 <u>+ 325</u> 700
How c 8. 70 9. ± 10. El to 9 111. El ec 33 S	can you find the sums in a different $475 + 325 = 800$ $400 + 300 = 700$ $70 + 20 = 90$ $5 + 5 = 10$ $00 + 90 + 10 = 800$ 238 $238 + 271 = ?$ 271 $200 + 200 = 400$ 100 $30 + 70 = 100$ 9 $400 + 100 + 9 = 509$ leanor's watch shows her steps befor book 486 more steps. How many total 253 steps rror Analysis Amal adds $378 + 141$ ach number and adds $300 + 100 = 78 + 141 = 400$. How can you explain the steps bein to book adds and the steps bein to book adds $300 + 100 = 778 + 141 = 400$. How can you explain the steps bein to book adds and the steps bein to book adds adds $300 + 100 = 778 + 141 = 400$. How can you explain the steps bein to book adds adds adds adds adds adds adds add	way? 475 + 325 700 90 + 10 800 re lunch. Then she steps did she take? 10. She decomposes 400. She writes n her mistake? find the other
10w c 8. 7(9. ± 10. El to 9 11. El ec 33 35 S 12. El Si 12. El Si Si Vhy	can you find the sums in a different 475 + 325 = 800 400 + 300 = 700 70 + 20 = 90 5 + 5 = 10 200 + 90 + 10 = 800 238 238 238 + 271 = ? 271 200 + 200 = 400 100 30 + 70 = 100 8 + 1 = 9 400 + 100 + 9 = 509 leanor's watch shows her steps befor book 486 more steps. How many total 253 steps rror Analysis Amal adds $378 + 141$ acch number and adds $300 + 100 = -100$ 78 + 141 = 400. How can you explain ample answer: She needs to ums to find the sum. xtend Your Thinking How can you sing partial sums? Show your work. ample answer: $200 + 400 + 10$	way? 475 $+ 325$ 700 90 $+ 10$ 800 The lunch. Then she steps did she take? 800 She decomposes 400. She writes in her mistake? find the other to add the partial solve 249 + 401 + 276 200 = 800; 40 + 0 $0 + 110 + 16 = 926$
-low c 8. 7(9. ± 10. El to 9 11. El ecc 33. S 9 12. E us S 12. E us S 12. E Why Sum An:	can you find the sums in a different 475 + 325 = 800 400 + 300 = 700 70 + 20 = 90 5 + 5 = 10 200 + 90 + 10 = 800 238 238 + 271 = ? 271 200 + 200 = 400 400 30 + 70 = 100 9 400 + 100 + 9 = 509 leanor's watch shows her steps befor book 486 more steps. How many total 253 steps rror Analysis Amal adds $378 + 141$ ach number and adds $300 + 100 = 400$ 78 + 141 = 400. How can you explain the sums to find the sum. Attend Your Thinking How can you sing partial sums? Show your work. ample answer: $200 + 400 + 100 +$	way? 475 + 325 700 90 + 10 800 re lunch. Then she steps did she take? 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 10000

Practice

Build Fluency from Understanding

Common Error: Exercises 2–3 When adding the partials sums in a vertical format, students may calculate incorrectly due to a misalignment of the partial sums. Ensure students understand that vertically aligning the partial sums by place value can help them avoid errors.

Practice Item Analysis

ltem	DOK	Rigor
1–4	2	Procedural Skill and Fluency
5–6	2	Conceptual Understanding
7	2	Application
8–9	2	Procedural Skill and Fluency
10	2	Application
11–12	3	Conceptual Understanding

Reflect

Students complete the Reflect question.

• Why is understanding place value important when using the partial-sums strategy to add?

Ask students to share their reflections with their classmates.

Math is... Mindset

• What strengths did you use today? What can you work on? Students reflect on how they practiced self-awareness.

Learning Targets

Ask students to reflect on the Learning Targets of the lesson.

- I can use horizontal and vertical formats to add partial sums.
- I can explain how to use horizontal and vertical formats to add partial sums.

To review today's lesson, have students watch the Math Replay video in their Digital Student Center.

Assign the On My Own practice to students from the Digital Teacher Center.



Exit Ticket

The Exit Ticket assesses students' understanding of lesson concepts.

Metacognitive Check *Reflect on Your Learning* allows students to think about their level of understanding of the lesson content on a scale of 1 to 4 with 4 being the highest confidence.

Exit Ticket Skill Tracker

Item	DOK	Skill	Standard
1	1	Use partial sums to add	3.NBT.A.2
2	3	Use partial sums to add	3.NBT.A.2
3	2	Use partial sums to add	3.NBT.A.2

Data Use students' scores on the *Exit Ticket* to assign the differentiated resources available. When students complete the *Exit Ticket* in the digital workspace, their responses are auto-scored.

Exit Ticket Recommendations

If students score	Then have students do
3 of 3	Additional Practice or any of the 🕒 or 🕒 activities
2 of 3	<i>Take Another Look</i> or any of the 🕒 activities
1 or fewer of 3	Small Group Intervention or any of the 🕞 activities

Key for Differentiation

- Reinforce Understanding
- Build Proficiency
- **G** Extend Thinking



Lesson **2-6**

Exit Ticket

Name



Assian

ONLINE

00

INDEPENDENT WORK

Reinforce Understanding

Take Another Look Lesson

Assign the interactive lesson to

reinforce targeted skills.Addition (Partial Sums)

Pay Up!

Prepare in advance several "bills" showing two 3-digit numbers. Provide student with five \$100 bills, ten \$10 bills, and ten \$1 bills. Students use paper money to decompose the numbers, add to find each "billed amount," and record their work. Make sure students understand that if they have more than 10 \$1 or \$10 bills they should trade for a \$10 or \$100 bill. Continue with new "bills."

Build Proficiency

Practice It! Game Station

Partial Sums Showdown Students practice using partial sums to add.

WORKSTATIONS

ONLINE

00

NDEPENDENT WORK



Interactive Additional Practice

Assign the digital version of the Student Practice Book.



Student Practice Book, pp. 11–12





Student Practice Book

Own It! Digital Station Build Fluency Games

Assign the digital game to develop fluency with adding multiples of 10.



Extend Thinking

WORKSTATIONS

GO ONLINE

INDEPENDENT WORK

Use It! Application Station

Build a Fire Tower Students design and build a model of a tower that could be used by a park ranger to spot fires. *The content of this card has concepts covered later in Lesson 2–12. You may want to assign this card to students ready to explore content covered later in this unit.*



Spiral Review

Assign the digital Spiral Review Practice to students or download and print PDFs of the Spiral Review from the Digital Teacher Center.



Student Practice Book, pp. 11–12



Websketch Exploration

Assign a websketch exploration to apply skills and extend thinking.



Differentiation Resource Book, p. 12



LESSON 2-7 Decompose to Subtract

Learning Targets

- I can decompose a number in different ways to help subtract.
- I can explain how to decompose a number in different ways to help subtract.

Content

3.NBT.A.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Math Practices and Processes

MPP Construct viable arguments and critique the reasoning of others.MPP Reason abstractly and quantitatively.

Focus

Content Objective	Language Objectives	SEL Objective
 Students decompose one number in different ways to subtract. 	Students compare ways to decompose a number using terms such as <i>one way, another.</i>	 Students discuss alternative strategies for solving a mathematical problem and the value of flexible mathematical
	IO CUITIVATE CONVERSATION, USE MLR5: Co-Craft Problems.	thinking.

Coherence

Previous	Now	Next
 Students used strategies to subtract 2-digit numbers (Grade 2). Students used rounding to estimate differences (Unit 2). 	• Students learn how decomposing a number can help find the difference of two 3-digit numbers.	 Students subtract 3-digit numbers by adjusting numbers (Unit 2). Students use the standard algorithm to subtract multi-digit numbers (Grade 4).
Rigor		
Conceptual Understanding	Procedural Skill & Fluency	Application
 Students deepen their understanding of subtraction by decomposing a number to find 	 Students gain fluency with subtraction as they decompose a number to subtract two 3-digit 	Students apply their understanding of decomposing to solve real-world subtraction

Conceptual understanding is not a targeted element of rigor for this standard.

the difference.

problems. Application is not a targeted element of rigor for this standard.

Vocabulary

Math Term decompose Academic Terms defend strategy

Materials

The materials may be for any part of the lesson.

- base-ten blocks
- Number Cards 0-10 Teaching Resource

Number Routine Decompose It © 5-7 min

Build Fluency Students build number sense as they determine different ways a number can be written as the sum or difference of two or more numbers.

These prompts encourage students to talk about their reasoning:

- Are any of the "break aparts" related? If so, how are they related?
- Which "break apart" do you think would be easiest to work with? Why?
- What patterns do you notice in your list of "break aparts"?

numbers.

Launch © 5-7 min



Purpose Students think about how the same whole can be decomposed into parts of different sizes.

Notice & Wonder[™]

- How are they the same?
- How are they different?

Teaching Tip You may want to have students work in pairs as they discuss the hexagons. This can help build a collaborative classroom culture. It also allows for greater participation among students as they share their thinking with their partners.

Pose Purposeful Questions

The questions that follow may be asked in any order. They are meant to help advance students' understanding that a whole can be decomposed in different ways and are based on possible comments and questions that students may make during the share out.

- Even though the hexagons are decomposed in different ways, what do all the hexagons have in common?
- How can you relate the way the hexagons are broken apart to how you can decompose a number?
- How can you use an understanding of place value to decompose a number?

Math is... Mindset

• How can flexible thinking help you understand mathematical rules or patterns?

Responsible Decision-Making: Flexible Thinking

As students work through the Notice & Wonder[™] routine, have them think about alternative ways to determine how the shapes are alike and different. Encourage students to use a different strategy to check their answer. Remind them that thinking flexibly can help them work through challenging mathematical tasks.

Transition to Explore & Develop

Ask students questions to get them thinking about how they can decompose a number into smaller parts. Encrouage students to consider whether there are multiple ways to decompose a number.

Establish Goals to Focus Learning

• How can you decompse one number to make it easier to find the difference?





Explore & Develop (© 20 min



60 Lesson 7 • Decompose to Subtract

O Pose the Problem

Pose Purposeful Questions

- How are place value and expanded form related?
- How can decomposing a 3-digit number into hundreds, tens, and ones make it easier to subtract?
- **Think About It:** Why do you think it's possible to decompose a number in different ways to find the difference? Explain.

O Develop the Math

Choose the option that best meets your instructional goals.

Co-Craft Problems

After students have worked through the problem and grasp the math, have pairs create a new subtraction problem with 3-digit numbers. Ask pairs to trade problems with another pair to solve the problem using horizontal or vertical methods.

O Bring It Together

Elicit and Use Evidence of Student Thinking

• How can being able to decompose a number in different ways make it easier to subtract?

Key Takeaways

- One subtraction strategy is to decompose one number and then subtract the decomposed parts from the total.
- Numbers can be decomposed in different ways to subtract.

Work Together

Encourage students to use their previous knowledge of decomposing numbers to find several ways to decompose the number. Have students discuss with a partner which way they found most efficient.

Common Misconception: Students may think they can only decompose each place-value amount into a single decomposition. Explain that they can decompose each place-value amount into smaller parts to make it easier to subtract, however, each smaller part must be subtracted.

Language of Math

Students need multiple opportunities to practice the language of mathematics. Integrate terms such as *decompose, difference*, and *equation* into classroom discussion and routines.

CHOOSE YOUR OPTION

Activity-Based Exploration

Students explore decomposing to help build fluency in subtraction. **Materials:** base-ten blocks, *Number Cards 0–10* Teaching Resource

Directions: Present students with the expression 457 - 337. Ask students to make a list of strategies they can use to find the difference. Have students share their strategies. Note when a student mentions decomposing. Explain that students can decompose one number to make finding the difference easier. Discuss with students which number they should choose to decompose and why. Guide students to understand that subtracting 337 makes finding the difference easier. Work with students to decompose 337 and subtract the parts.

Place students in pairs and provide only number cards 0-9. Have students draw cards to create a subtraction equation with two 3-digit numbers. Have one partner decompose one number by place value. The other partner should be challenged to decompose the number in a different way and subtract the parts. Students compare their work and decide which way they prefer and why. Have students repeat the activity and switch roles as time allows. Encourage students to use a number line or base-ten blocks for support.

Support Productive Struggle

- Whch number did you decompose? Why?
- How can you use what you know about compatible numbers to help you decide how to decompose?
- How could you use a number line or base-ten blocks to show how to subtract the parts?

Activity Debrief: Have pairs share how they decomposed to subtract. Students should note which ways were most efficient and why. Have students show how to check the reasonableness of one

Activity Cards

Kate estimates how much mone

An engineer estimates the limit of an elevator

ctivity Cards

difference using estimation strategies. Discuss whether the way they decompose the numbers affects the difference. Students should note that it does not.

Math is... Explaining

• Why is the difference the same when the number is decomposed differently?

A PDF of the Teaching Resource is available in the Digital Teacher Center.

English Learner Scaffolds

Entering/Emerging Ensure students' comprehension of the term *difference* as it is used in subtraction (versus *different* as it is used to compare). Use gestures and restatements followed by questions such as, *Is the difference Jen found the same as Samir's difference?* **Developing/Expanding** Ensure students' comprehension of the term *difference* as it is used in subtraction (versus *different* as it is used to compare). Use restatements followed by questions such as, *What is the same about what Jen and Samir did? What is different?*

Guided Exploration

3-digit numbers. Student will also estimate the difference and check the accuracy of their estimate.

Have student do a pair-share to determine a reasonable difference for the two numbers.

• What estimation strategy did you use to determine your estimate?

Use and Connect Mathematical Representations

- Think About It: Why might you decompose 184 instead of 353?
- How does decomposing 184 into 100, 80, and 4 make it easier to find the difference?
- How is 184 decomposed differently in the two examples?
- Think About It: In the second decomposition of 184, why do you think 153 was subtracted from 353 first?

Math is... Explaining

• Why is the difference the same when the number is decomposed differently?

Students consider why the difference is the same when the number is decomposed in different ways, and should be able to defend their explanation.

• How does the calculated difference compare to the estimated difference you made earlier?



Bridging/Reaching Encourage

students to discuss *difference* versus *different*. Pair students and ask them to explain the meanings of each with examples.

Practice & Reflect © 10 min



D. Error Analysis Juan subtracts 345 – 101. He decomposes 101 into 100 and 10 and subtracts the parts from 345. How can you help him understand his mistake?

Sample answer: He decomposed 101 incorrectly. 100 + 10 = 110 not 101. He can decompose 101 into 100 + 1 and subtract the parts from 345.

10. The table shows the number of people who attended the school fun fair each day. Show a strategy to find the difference between the greatest and least number of people.
257 - 100 = 157, 157 - 3 = 154; 154 people

Fun Fair Visitors		
Day	Number of People	
Thursday	103	
Friday	168	
Saturday	257	
Sunday	224	

- A baker bakes 268 bread rolls. 155 are cinnamon rolls. The rest are plain rolls. How many plain rolls does she bake?
 113 plain rolls
- Extend Your Thinking Ana subtracts 438 342 by decomposing 342. She subtracts 2, then 300, and finally 40. Can she subtract the parts in any order? Explain your reasoning.

Yes. Sample answer: The order does not matter if all parts of 342 are subtracted from 438.

Reflect



Practice

Build Fluency from Understanding

Common Error: Exercises 1–8 Students may get the wrong solution because they decompose the number incorrectly. For some students, it may be necessary to provide base-ten blocks to help visualize and check their decompositions.

Practice Item Analysis

Item	DOK	Rigor
1–2	1	Conceptual Understanding
3–4	2	Conceptual Understanding
5–9	2	Procedural Skill and Fluency
10–11	2	Application
12	3	Conceptual Understanding

Reflect

Students complete the Reflect question.

• How do you decide how to decompose one number to subtract? Ask students to share their reflections with their classmates.

Math is... Mindset

• How did flexible thinking help you understand mathematical rules or patterns?

Students reflect on how they practiced responsible decision-making.

Learning Targets

Ask students to reflect on the Learning Targets of the lesson.

- I can decompose a number in different ways to help subtract.
- I can explain how to decompose a number in different ways to help subtract.

To review today's lesson, have students watch the Math Replay video in their Digital Student Center.

Assign the On My Own practice to students from the Digital Teacher Center.



Exit Ticket / Formative Assessment

The Exit Ticket assesses students' understanding of lesson concepts.

Metacognitive Check Reflect on Your Learning allows students to think about their level of understanding of the lesson content on a scale of 1 to 4 with 4 being the highest confidence.

Exit Ticket Skill Tracker

Item	DOK	Skill	Standard
1	2	Decompose one number to subtract	3.NBT.A.2
2	1	Decompose one number to subtract	3.NBT.A.2
3	2	Decompose one number to subtract	3.NBT.A.2

Data Use students' scores on the *Exit Ticket* to assign the differentiated resources available. When students complete the Exit Ticket in the digital workspace, their responses are auto-scored.

Exit Ticket Recommendations

If students score	Then have students do
3 of 3	Additional Practice or any of the $f ig B$ or $f ig B$ activities
2 of 3	<i>Take Another Look</i> or any of the 🕒 activities
1 or fewer of 3	Small Group Intervention or any of the 🕞 activities

Key for Differentiation

- Reinforce Understanding
- Build Proficiency
- **E** Extend Thinking



Lesson 2-7 **Exit Ticket**

Name

- 1. Which ways show how to decompose 487? Choose all that apply. (A) 400 + 80 + 7 **B.** 400 + 50 + 30 + 7 **C.** 400 + 70 + 27 **D.** 50 + 7 + 20 + 400
- 2. Ralph solves 689 354 using the following method. How can you complete each part of the problem? 689 - **300** = 389

	500	_ 000
389 —	50	_ = 339
339 —	4	_ = 335

3. Ally decomposes to solve 574 - 369. V use? Choose all that apply.

he use? Choose all that app
(B.) 574 – 300 = 274
274 - 60 = 214
214 - 9 = ?
D. $574 - 70 = 504$
504 - 4 = 500
500 - 300 = 200
200 - 5 = ?
1

	214 - 9 = ?
D.	574 - 70 = 504
	504 - 4 = 500
	500 - 300 = 200
	200 - 5 = ?



GO ONLINE

INDEPENDENT WORK

Reinforce Understanding

Find the Difference

Work with students to subtract two 3-digit numbers. Have them work in pairs to decompose the numbers to find the solution. Watch for students who incorrectly subtract a digit in the greater number from a digit in the lesser number. Help these these students to write out the numbers they are subtracting and subtracting from before they make each calculation. After students find a difference, have them look for another way to decompose to solve the problem.

Build Proficiency

B

WORKSTATIONS

ONLINE

00

NDEPENDENT WORK

Practice It! Game Station

My Subtraction Strategies Students use a variety of strategies to subtract numbers.



Take Another Look Lesson

Assign the interactive lesson to reinforce targeted skills.

• Subtract-Take Apart Tens and Ones



Differentiation Resource Book, p. 13



Interactive Additional Practice

Assign the digital version of the Student Practice Book.



Student Practice Book, pp. 13–14

Review			
You can decompose one num find the difference.	nber ir	a subtraction problem to	
Decompose using place value.	Dec way	compose another 7.	
417 - 266 = ? 417 - 200 = 217 217 - 60 = 157 157 - 6 = 151	417 - 266 = ? 417 - 217 = 200 200 - 40 = 160 160 - 9 = 151		
low can you decompose the	numb	er in 2 ways?	
1. 629	2.	583	
Sample answer:		Sample answer:	
600 + 20 + 9;		500 + 80 + 3;	
600 + 25 + 4		500 + 50 + 30 + 3	
low can you decompose one hoose that way?	numb	er to subtract? Why did you	
3. 696 – 275	4.	726 - 340	
Sample answer: 200	+	Sample answer: 300 +	
70 + 5; I can subtract	t	20 + 20; I can subtract	
the hundreds, tens,		2 tens from 2 tens,	
and ones quickly.		then subtract 20 from	

Own It! Digital Station Build Fluency Games

Assign the digital game to develop fluency with adding multiples of 10.



Extend Thinking

WORKSTATIONS

GO ONLINE

INDEPENDENT WORK

Use It! Application Station

Buy New Playground Equipment Students create lists of playground equipment purchases that would stay within a school's budget. *The content* of this card has concepts covered later in Lesson 2-11. You may want to assign this card to students ready to explore content covered later in this unit.



Spiral Review

Assign the digital Spiral Review Practice to students or download and print PDFs of the Spiral Review from the Digital Teacher Center.



Student Practice Book, pp. 13–14



Websketch Exploration

Assign a websketch exploration to apply skills and extend thinking.



Differentiation Resource Book, p. 14



LESSON 2-8 **Adjust Numbers to Add or Subtract**

Learning Targets

- I can adjust numbers to make it easier to add or subtract two 3-digit numbers.
- I can explain how to adjust numbers to make it easier to add or subtract two 3-digit numbers.

• Additional

Content

3.NBT.A.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Math Practices and Processes

MPP Use appropriate tools strategically.

MPP Look for and make use of structure.

Focus

Content Objective	Language Objectives	SEL Objective			
 Students adjust numbers to help them add or subtract. 	 Students express an opinion with support using language such as <i>I think</i> and <i>because</i>. To optimize output and cultivate conversation, ELs will participate in MLR4: Information Gap. 	 Students exchange ideas for completing a mathematical task with a peer and reflect on the value of their similarities and differences. 			

Coherence

Previous	Now	Next	\	• Which "break apar
 Students added and subtracted using strategies based on place value (Grade 2). Students decomposed numbers to help add and subtract (Unit 2). 	• Students add or subtract two 3-digit numbers by adjusting the numbers.	 Students fluently add and subtract within 1,000 (Unit 2). Students add and subtract multi-digit numbers using the standard algorithm (Grade 4). 		How are they relatWhat patterns do yHow can a pattern new "break apart"
Rigor				

Conceptual Understanding

· Students understand that adjusting numbers can make it easier to add or subtract.

Conceptual understanding is not a targeted element of rigor for this standard.

Procedural Skill & Fluency

 Students build proficiency with addition and subtraction by using the strategy of adjusting numbers.

Application

· Students apply their understanding of adjusting numbers to solve real-world problems.

Application is not a targeted element of rigor for this standard.

Vocabulary

Math Terms difference adjust identify sum

Academic Terms

Materials

The materials may be for any part of the lesson.

• Number Cards 0–10 **Teaching Resource**

Number Routine Decompose It (5-7 min

Build Fluency Students build number sense as they determine different ways a number can be written as the sum or difference of two or more numbers.

These prompts encourage students to talk about their reasoning:

- rts" are related? ed?
- you notice?
- help you find a to write?

e **?**

Purpose Students think about how some equations are easier to solve than others due to the digits in the ones place.

Which Doesn't Belong?

• Which doesn't belong?

Teaching Tip Allow students to work in pairs to identify which expression they think doesn't belong. Tell each pair to be prepared to explain their choice before the group discussion begins.

Pose Purposeful Questions

The questions that follow may be asked in any order. They are meant to help advance students' understanding that the digits in the ones place can impact on how they add, and are based on possible comments and questions that students may make during the share out.

- Which pair of addends do you think are easiest to add? Explain.
- Which pair of addends do you think are most difficult to add? Explain.
- How can you find the sum of each?

Math is... Mindset

• How can you show others that you value their ideas?

Relationship Skills: Value Ideas of Others

As students engage in collaborative discourse around the Which Doesn't Belong? routine, remind them that valuing the ideas of others is an important part of being an effective and respectful communicator. Explain that one way to do this is by listening attentively when others are sharing their ideas about which expression they think doesn't belong.

Transition to Explore & Develop

Ask questions to encourage students to think about which digits in addition and subtraction equations make the equations easier to solve.

Establish Goals to Focus Learning

• Let's explore how to use strategies to make equations easier to solve.




Explore & Develop (© 20 min

Learn



No. Sample answer: Marco added 3 to both addends. When you adjust addends, you need to subtract from one and add that amount to the other. He should add 3 to 457 and subtract 3 from 208 to add 460 + 205 = 665.

64 Lesson 8 • Adjust Numbers to Add or Subtract

Pose the Problem

Pose Purposeful Questions

- How can you decide if more than one step is needed to solve the problem?
- Which operations might you use to sovle the problem?
- **Think About It:** Do you think you can change a number in an addition or subtraction equation to make it easier to solve? Explain.

O Develop the Math

Choose the option that best meets your instructional goals.

Information Gap

While discussing the questions, prompt students to offer explanations with support. Ask, *Why do you think that?* Encourage students to add to each other's information and knowledge where appropriate. As needed, restate any key ideas that students bring up.

3 Bring It Together

Elicit and Use Evidence of Student Thinking

- How can adjusting the numbers in an addition equation make the equation easier to solve?
- If you adjust the numbers in a subtraction or addition equation, why do you need to adjust both numbers?

Key Takeaways

- One addition and subtraction strategy is to adjust the numbers to numbers that are easier to work with.
- The adjustment must be made to both numbers in the equation.

Work Together

Students analyze and critique Marco's strategy. It might be beneficial to have students work through the calculation as it is described in the problem to determine the error.

Common Misconception: Students may think the numbers in an addition equation can be adjusted using the same operation. Remind them that the numbers should be adjusted using addition and subtraction so the sum is the same for the adjusted equation and the original equation. Some students may find it helpful to think of the equation in terms of a pan-balance metaphor.

Language of Math

Students have likely heard the word *adjust* in other contexts. They may be familiar with adjusting a seat or an article of clothing, but adjusting a number may be a new concept. Discuss the definition of *adjust* and how it applies to working with numbers.

CHOOSE YOUR OPTION

Activity-Based Exploration

Students explore adjusting subtraction and addition equations to help them work more efficiently.

Materials: Number Cards 0-10 Teaching Resource

Directions: Students work in pairs. Present the equations 417 + 328 and 417 - 328. Have pairs discuss how they might change the equations to make them easier to solve and share with the group. Discuss adjusting numbers to numbers that are easier to work with as a strategy. Provide only number cards 0-9 to each pair. The pair should randomly choose cards to create two 3-digit numbers and write a subtraction and addition equation. Students should attempt to use the adjusting strategy to solve each equation. It is important that students prove that their adjustments resulted in the same sum or difference as the original equation.

Implement Tasks That Promote Reasoning and Problem Solving

- Why do you think your sum or difference was different? What needs to be added or subtracted from it to equal the sum or difference of the original equation?
- · Is there only one way to adjust the numbers? Explain

Math is... Structure

• How is adjusting a subtraction equation different from adjusting an addition equation?

Activity Debrief: Have students share both their successful and unsuccessful strategies. Ensure students understand that they need to subtract from one number and add to the other when adjusting an addition equation and either add or subtract the same amount to the numbers in a subtraction equation.

Have students revisit the Pose the Problem question and discuss answers.

• How many more Tigers fans than Hawks fans are at the game?

A PDF of the Teaching Resource is available in the Digital Teacher Center.

Kate estimates how much money	Ross estimates the number of tickets
she needs to save to buy a car.	he has for prizes at the arcade.
A manager estimates the amount of	An interior designer estimates the
flooring a new store needs.	amount of fabric for a project.
An engineer estimates the weight	Juni estimates the disk space she
limit of an elevator.	will use before buying a computer.
er i mino tri kuno	1
narduuo e Gujáng asgjag asg jja	
An interior discipror estimates the	to Innum off saturalize regiments
amount of fabric for a project.	about autor apriced
Unit see thefore the disk space she	inform off saturation and
will use before before boying a	solation of an
manuary	solation of an

Guided Exploration

Students understand that they can adjust numbers in addition and subtraction equations to make the equations easier to solve.

Facilitate Meaningful Discourse

- If you are adjusting addends to help find the sum, why is it important to adjust both addends?
- Think About It: Are there other ways to adjust the addends?
- If you adjusted 109 to 100 in the addition equation instead of 110, how would 224 have to change?
- Think About It: Can you adjust by adding the same amount to both addends? Explain.
- Why do you need to adjust both numbers in the subtraction equation by the same amount?
- **Think About It:** Are there are ways to adjust the numbers in the subtraction equation?

E To help students understand they can adjust the numbers in a subtraction equation by either subtracting or adding the same amount to each number, have them think about how they could adjust the subtraction equation by adding the same amount to each number.

• Based on the numbers in subtraction equation, do you think it makes more sense to add or subtract the same amount to each number? Explain.

Math is... Structure

• How is adjusting a subtraction equation different from adjusting an addition equation?

Students consider how adjusting for subtraction is different from adjusting for addition.



English Learner Scaffolds

Entering/Emerging Support understanding of *adjust.* Demonstrate by using your hands to slightly fix your hair. As you do this say, *I am adjusting my hair.* Then adjust 3 things in a row, such as your hair, sweater, and socks. Ask, *Did I adjust my socks?* (yes) *Did I adjust my shoes?* (no)

Developing/Expanding Support understanding of *adjust*. Demonstrate by using your hands to slightly fix your hair. As you do this say, *I am adjusting my hair*. Pair students and ask them to come up with a definition for *adjust*. Provide a sentence frame: *Adjust means to* _____.

Bridging/Reaching Encourage students to identify synonyms for *adjust.* Have them write down their ideas first. Then have students list them together on the board. Examples may include *change, make changes to,* etc.

Practice & Reflect 10 min



Practice

Build Fluency from Understanding

Common Error: Exercise 11 Students may only subtract 1 from the subtrahend (851) to make a 10 and forget they must also subtract 1 from the minuend (925). Remind students that in a subtraction equation, both numbers must be adjusted by the same amount.

Practice Item Analysis

ltem	DOK	Rigor
1–6	2	Procedural Skill and Fluency
7	3	Conceptual Understanding
8	2	Conceptual Understanding
9	3	Conceptual Understanding
10–11	3	Application
12	3	Conceptual Understanding

🥏 Reflect

Students complete the Reflect question.

- How can adjusting just one number affect the addition or subtraction equation?
- Ask students to share their reflections with their classmates.

Math is... Mindset

• How have you shown others that you value their ideas?

Students reflect on how they developed stronger relationship skills.

Learning Targets

Ask students to reflect on the Learning Targets of the lesson.

- I can adjust numbers to make it easier to add or subtract two 3-digit numbers.
- I can explain how to adjust numbers to make it easier to add or subtract two 3-digit numbers.

To review today's lesson, have students watch the Math Replay video in their Digital Student Center.

Assign the On My Own practice to students from the Digital Teacher Center.



Exit Ticket Formative Assessment

The Exit Ticket assesses students' understanding of lesson concepts.

Metacognitive Check *Reflect on Your Learning* allows students to think about their level of understanding of the lesson content on a scale of 1 to 4 with 4 being the highest confidence.

Exit Ticket Skill Tracker

Item	DOK	Skill	Standard
1	1	Adjust numbers to add or subtract	3.NBT.A.2
2	3	Adjust numbers to add or subtract	3.NBT.A.2
3	2	Adjust numbers to add or subtract	3.NBT.A.2

Data Use students' scores on the *Exit Ticket* to assign the differentiated resources available. When students complete the *Exit Ticket* in the digital workspace, their responses are auto-scored.

Exit Ticket Recommendations

If students score	Then have students do
3 of 3	Additional Practice or any of the $f ig B$ or $f ig B$ activities
2 of 3	<i>Take Another Look</i> or any of the 🕒 activities
1 or fewer of 3	Small Group Intervention or any of the 🕞 activities

Key for Differentiation

- Reinforce Understanding
- Build Proficiency
- Extend Thinking



Lesson 2-8 Exit Ticket

Name

How can you adjust the subtraction equation to solve?
 238 - 137
 +3
 +3

241 - 140 = **101**

- Manny is solving 714 386. He wants to adjust the numbers to make the equation easier to solve.
 Which of the following steps could help Manny solve the equation?
 - A Subtract 4 from 714. Then, subtract 4 from 386.
 - **B.** Add 6 to 714. Then, subtract 6 from 386.
 - **C.** Subtract 14 from 714. Then, add 14 to 386.
 - **D.** Add 4 to 714. Then, subtract 4 from 386.
- Payton is solving 476 + 347. She wants to adjust the numbers to make the quation easier to solve.
 Which of the expressions have been correctly adjusted? Choose all that apply.

A. 470 + 341 B. 470 + 353 C. 480 + 351 D. 480 + 343



GO ONLINE

Reinforce Understanding

Which is Most Efficient?

Work with students in pairs. Provide the students with the same subtraction equation involving two-digit numbers, for example, 85 - 37 = 48. The students should adjust the numbers to write a different equation with the same difference. Have the students compare equations and decide which is most efficient. Watch for students who adjust one number up and the other down. Show students on a number line how numbers must be adjusted in the same direction to stay the same distance apart. Repeat the activity with a new equation.

WORKSTATIONS

GO ONLINE

B

Build Proficiency

Practice It! Game Station

Subtracting with Compatible Numbers Tic Tac Toe Students practice subtracting compatible numbers.



Interactive Additional Practice

Assign the digital version of the Student Practice Book.



Student Practice Book, pp. 15–16

Review	
You can adjust numbers to make the equation ea	in addition and subtraction equatic sier to work with.
Adjust Addition Equation	ns Adjust Subtraction Equation
513 + 172 = ? -3 + 3 510 + 175 = 68	369 - 125 = ? $-5 -5$ $7 - 5$ $364 - 120 = 244$
Subtract from one adder and add that amount to other addend.	nd Subtract from or add the same amount to both numbers.
solve it? 1. $362 - 142 = ?$ +3 +3 365 - 145 = 220	Adjust by adding 3.
2. $654 + 261$ -4 +4 650 + 265 = 915	Adjust by adding and subtracting 4.

Assign the interactive lesson to reinforce targeted skills.

Take Another Look Lesson

• Subtract-Take Apart Tens and Ones



Differentiation Resource Book, p. 15

Review Adjust addition and subtractio numbers to numbers that are e	n equation sasier to work with.
Adjust Addition Equations 316 + 208 = ? \downarrow \downarrow \downarrow -2 $+2\downarrow \downarrow314 + 210 = 524$	Adjust Subtraction Equations 227 - 101 = ? \downarrow \downarrow \downarrow -1 $-1\downarrow \downarrow \downarrow226 - 100 = 126$
Adjust both numbers to keep t as the original. Adjust each equation and find t	he sum or difference the same
 479 – 98 <u>381; Sample an</u> 158 – 46 <u>112; Sample ans</u> 	swer: 481 – 100 = 381 swer: 157 – 45 = 112
Adjust each addition equation a	and find the sum.

Own It! Digital Station Build Fluency Games

Assign the digital game to develop fluency with adding multiples of 10.



Extend Thinking

WORKSTATIONS

GO ONLINE

INDEPENDENT WORK

Use It! Application Station

History of the Railroad Students plan and diagram a railway system. They draw railway stations and label the distances between them. *The content* of this card has concepts covered later in Lesson 2-12. You may want to assign this card to students ready to explore content covered later in this unit.



Spiral Review

Assign the digital Spiral Review Practice to students or download and print PDFs of the Spiral Review from the Digital Teacher Center.



Student Practice Book, pp. 15–16



Websketch Exploration

Assign a websketch exploration to apply skills and extend thinking.



Differentiation Resource Book, p. 16

Lesson 2-8 • Extend Thinking Adjust Numbers to Add or Subtract

Name



LESSON 2-9 Use Addition to Subtract

Learning Targets

- I can show how addition and subtraction are related.
- I can explain how addition and subtraction are related.

Content

O **3.NBT.A.2** Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Math Practices and Processes

MPP Use appropriate tools strategically.

MPP Look for and make use of structure.

Focus

Content Objective	Language Objectives	SEL Objective
 Students use related addition equations to find the difference. 	 Students describe a bar diagram using precise measurements for distance: <i>miles</i>. To support sense-making, use MLR6: Three Reads. 	 Students engage in respectful discourse with peers about various perspectives for approaching a mathematical challenge.

· Students extend their

between addition and

Now

Coherence

Previous
 Students explored the
relationship between addition
and subtraction with 2-digit

- and subtraction with 2-digit numbers (Grade 2).
- Students explored addition patterns (Unit 2).

Rigor

Conceptual Understanding

- Students understand that they can solve a subtraction equation using a related addition equation.
- Conceptual understanding is not a targeted element of rigor for this standard.

Procedural Skill & Fluency

understanding of the relationship

subtraction to 3-digit numbers.

 Students build proficiency rewriting a subtraction equation as a related addition equation.

Application

Next

(Unit 3).

· Students explore the

relationship between

multiplication and division

• Students fluently add and

subtract multi-digit whole

numbers using the standard algorithm (Grade 4).

- Students apply their understanding of the relationship between addition and subtraction to solve real-world problems.
- Application is not a targeted element of rigor for this standard.

Vocabulary

Math Term bar diagram Academic Terms comparison conclude

Materials

The materials may be for any part of the lesson.

- base-ten blocks
- blank number cubes
- Number Cards 0-10 Teaching Resource

Number Routine Where Does It Go?

(5–7 min

Build Fluency Students build number sense as they determine the location of the same number of three different number lines. Remind students that exact placement is not necessary, but numbers should be placed in the general location where they belong.

These prompts encourage students to talk about their reasoning:

- Which placements were reasonable?
- How did you determine where to place the number on each number lines?
- How did you use the endpoints of each number line to determine the location of the number?
- What is another way to think about this?

Launch @ 5-7 min

Sense-Making Routine



Purpose Students consider how math is represented in the image of the map.

Notice & Wonder[™]

- What do you notice?
- What do you wonder?

Teaching Tip You may want to have students share with a partner when they may have seen a map like the one. Pairs could discuss when they have seen or used maps in their life.

Pose Purposeful Questions

The questions that follow may be asked in any order. They are meant to help advance students' understanding of the details in the map, and are based on possible comments and questions that students may make during the share out.

- What do you think the line represents?
- How do you know where the trip starts and ends?
- Why do you think a car is shown on the map?
- What math do you see in this image?

Math is... Mindset

• How can you show that you understand your partner's ideas?

Social Awareness: Develop Perspective

Encourage students to think about different ways to consider the Notice & Wonder[™] routine. With a partner, have them share different strategies they can use to identify what the information on the map represents. Invite students to consider and build off their partner's ideas.

Transition to Explore & Develop

Ask questions to encorage students to consider the distance the car has left to drive to complete the route and how they might determine that distance. Discuss possible operations that could be used to determine the unknown.

Establish Goals to Focus Learning

• What do we need to know to determine how far the car has left to drive?





Explore & Develop (© 20 min



have left to drive?

Adaline and her family are driving 575 miles to visit her grandmother. They drive 246 miles and stop for lunch.

How can you find how many miles they



You can represent the problem with a bar diagram.				
575				
246?				
You can write a subtraction equation with an unknown difference.	You can write an addition equation with an unknown addend.			
575 - 246 = ?	246 + ? = 575			
575 – 246 = 329	246 + 329 = 575			
Addition and subtraction are related. can rewrite a subtraction equation as addition equation with an unknown ad	You an dend. Math is Choosing Tools How can using an unknown addend equation be helpful when you subtract?			
Work Together				

Deigo wants to use addition to solve the equation 478 - 326 = ?. How can you explain this strategy? Sample answer: He can rewrite the subtraction equation as an unknown addend equation 326 + ? = 478. Then he can count on to find the difference. 478 - 326 = 152

68 Lesson 9 • Use Addition to Subtract

O Pose the Problem

Pose Purposeful Questions

- In your own words, what is this problem about?
- How does the map show 575 miles?
- What information do we know from reading the problem?

O Develop the Math

Choose the option that best meets your instructional goals.

MLR Three Reads

1st Read: Ensure students understand that Adaline and her family will drive 575 miles total.

2nd Read: Focus students' attention on how many miles they driven so far.

3rd Read: Brainstorm ways to find out how many miles they have left to drive.

O Bring It Together

Elicit and Use Evidence of Student Thinking

- Why might you want to use addition instead of subtraction to solve?
- What are some strategies you could use to find a missing addend?

Key Takeaway

 Rewriting a subtraction equation as a related addition equation is another strategy for finding the difference.

Work Together

Students should reflect on the steps needed to use addition to help find the difference. It may be beneficial to have students describe the steps to a partner before writing their responses.

Common Misconception: Students may rewrite the equation as 326 + 478 = ?. Encourage students to find the sum and insert it into the original equation. Then have them complete the subtraction to check their work. Remind students that 326 added to antoher addend will equal 478.

Language of Math

Students should be comfortable using place-value terms (ones, tens, hundreds) to describe 3-digit numbers. Students should describe various number representations with these terms.

Activity-Based Exploration

Students solve a problem using a related addition equation.

Materials: Number Cards 0–10 Teaching Resource

Directions: Have studends work in pairs. Present the expression 547 — 288. Students should discuss different ways they can model the equation. Then share as a group. If not mentioned, introduce a *bar diagram* as a tool. Work with students to represent the subtraction expression as a bar diagram.

Provide pairs with only number cards 0–9. Have students randomly choose number cards to create a subtraction equation with two 3-digit numbers and a symbol for the unknown difference. Have studuents represent the equation with a bar diagram. Then challenge students to write an addition equation that can help them find the difference. Students should record their work and find the difference. Encourage students to think of ways they can check their work. Students should repeat the activity as time allows.

Support Productive Struggle

- How can the bar diagram you created represent addition?
- How can you explain what each number in the subtraction equation means? How can you use this to write an addition equation?
- Can you think of a time when you used addition to check your answer to a subtraction problem? How could this help you?

Activity Debrief: Have student pairs share a subtraction equation and describe how they used an addition equation to help them solve. Ensure students undersand that a subtraction equation can be rewritten as an unknown addend equation. Discuss whether students found this strategy more useful than other subtraction strategies they know.

Math is... Choosing Tools

 How can using an unknown addend equation be helpful when you subtract?

Have students revisit the Pose the Problem question and discuss answers.

• How can you find how many miles they have left to drive?

A PDF of the Teaching Resource is available in the Digital Teacher Center.

Losson 2-4 Activity Cards		
Kate estimates how much money she needs to save to buy a car.	Ross estimates the number of tickets he has for prizes at the arcade.	
A manager estimates the amount of flooring a new store needs.	An interior designer estimates the amount of fabric for a project.	*
An engineer estimates the weight limit of an elevator.	Juni estimates the disk space she will use before buying a computer.	
uppe) Mala Milano	www.gov.equ.com	
Juni estimates the disk space she	figiow entit satemitise regime nA Initi of an elevator.	
arts satemitze sanglese to intern nA. 15e(org e tot total to innome	to truome artt satemitsa ragenem A .sbaan stotz wan e gninoolt	Activity Cards
Ross estimates the number of tickets. Ross estimates at the arcade.	Kate estimates fo save to buy a car. She needs to save to buy a car.	÷
	Activity Cards	
	p-Z uossa	: I

Guided Exploration

Students explore the relationship between addition and subtraction, and understand that a subtraction equation can be rewritten as an unknown addend problem.

Use and Connect Mathematical Representations

Discuss the different tools that could be used to represent the problem.

- How does the bar diagram represent the information in the problem?
- What operation would you use to solve this problem? Explain.
- **Think About It:** Is there more than one equation that can represent the problem?

Have students work with a partner to discuss the equations used to represent the information in the bar diagram.

- How are the numbers in the bar diagram represented by the subtraction and addition equations?
- Why can both a subtraction equation and an addition equation represent the problem?
- Do you see a relationship between the subtraction equation and the addition equation? Explain.

Math is... Choosing Tools

• How can using an unknown addend equation be helpful when you subtract?

Students consider how to use an unknown addend equation to help subtract.



English Learner Scaffolds

Entering/Emerging Support understanding of *rewrite*. Display a word in messy handwriting. Say, with a proud expression, *I wrote that*. Then look at it again, squint your eyes and say, *I think I should rewrite that*. Rewrite the word with neat handwriting and ask, *Am I rewriting the word*?

Developing/Expanding Support understanding of rewrite. Display a word in messy handwriting. Say, with a proud expression, *I wrote that*. Then look at it again, squint your eyes and say, *I think I should rewrite that*. Rewrite the word with neat handwriting and ask, *What does rewrite mean*?

Bridging/Reaching Support students' understanding of the prefix *re-*. Ask students to explain the meaning of the word *rewrite* in their own words. Then ask, *What do you think re- means*? Have students ask questions to clairfy.

Practice & Reflect © 10 min



Practice

Build Fluency from Understanding

■ Common Error: Exercises 1–3 Students may incorrectly rewrite the subtraction equations as related addition equations with unknown sums. Remind students that a subtraction equation should be rewritten as an unknown addend problem.

Practice Item Analysis

ltem	DOK	Rigor
1–3	1	Procedural Skill and Fluency
4–5	2	Conceptual Understanding
6–9	2	Procedural Skill and Fluency
10–11	2	Application
12	3	Conceptual Understanding

Reflect

Students complete the Reflect question.

• How are addition and subtraction related?

Ask students to share their reflections with their classmates.

Math is... Mindset

• How have you shown that you understand your classmates' ideas? Students reflect on how they practiced social awareness.

Learning Targets

Ask students to reflect on the Learning Targets of the lesson.

- I can show how how addition and subtraction are related.
- I can explain how addition and subtraction are related.

To review today's lesson, have students watch the Math Replay video in their Digital Student Center.

Assign the On My Own practice to students from the Digital Teacher Center.



Exit Ticket Formative Assessment

The Exit Ticket assesses students' understanding of lesson concepts.

Metacognitive Check *Reflect on Your Learning* allows students to think about their level of understanding of the lesson content on a scale of 1 to 4 with 4 being the highest confidence.

Exit Ticket Skill Tracker

Item	DOK	Skill	Standard
1	1	Use related addition equations to subtract	3.NBT.A.2
2	2	Use related addition equations to subtract	3.NBT.A.2
3	2	Use related addition equations to subtract	3.NBT.A.2

Data Use students' scores on the *Exit Ticket* to assign the differentiated resources available. When students complete the *Exit Ticket* in the digital workspace, their responses are auto-scored.

Exit Ticket Recommendations

If students score Then have students do	
3 of 3	Additional Practice or any of the $f ig B$ or $f ig B$ activities
2 of 3	<i>Take Another Look</i> or any of the 🕒 activities
1 or fewer of 3	Small Group Intervention or any of the 🔃 activities

Key for Differentiation

- **R**einforce Understanding
- Build Proficiency
- **G** Extend Thinking



	ime
1.	Abigail has 323 toy cars. She donates 147 of them to a children's hospital. Which equation can she use to find how many toy cars she has left?
	323 toy cars
	147 toy cars ? toy cars
	A. 323 + ? = 147 (B.) 323 - 147 = ?
	C. $147 - ? = 323$ D. $323 + 147 = ?$
	Which of the following equations can be used to find out how many pieces Kyle put together? Choose all that apply. A. $247 - ? = 500$ B. $500 = 247 + ?$ C. $500 - 247 = ?$ D. $500 = 247 - ?$ E. $500 - ? = 247$ F. $247 + 500 = ?$
3.	Which of these equations are related to the subtraction equation $582 - 153 = 429$? Choose all that apply.
	(A) 153 + 429 = 582 (B) 582 - 429 = 153
	C. $153 + 582 = 429$ D. $582 + 429 = 153$
	E. $429 - 153 = 582$
R	E. 429 – 153 = 582 eflect On Your Learning

ONLINE

00

Reinforce Understanding

What's the Related Fact?

Work with students in pairs. Give the students two number cubes. Students take turns rolling the cubes to create two 2-digit addends. Students find the sum and write the related subtraction equations. Have base-ten blocks available to students who need to model the problems. Make sure students recognize that two subtraction equations are possible for each pair of distinct addends. Repeat the activity with new rolls of the cubes.

Build Proficiency

WORKSTATIONS

ш

ONLIN

00

Practice It! Game Station

Addition and Subtraction Concentration Students practice identifying related addition and subtraction expressions.



Take Another Look Lessons

Assign the interactive lessons to reinforce targeted skills.

- Use a Related Addition Fact to Subtract
- Relate Addition and Subtraction



Interactive Additional Practice

Assign the digital version of the Student Practice Book.



Student Practice Book, pp. 17–18



Additional Practice You can use bar diagrams to represent situations involving addition and subtraction. Brooke makes programs for a school play. She needs a total of 675 programs. She has made 340 programs. Use a bar diagram to represent this situation. How many more programs does Brooke need to make? 675 340 -----?-----Write a subtraction and addition equation to represent the 675 - 340 = ?340 + ? = 675675 - 340 = 335340 + 335 = 675Complete the problem. **1.** Which equations are related to 736 - 314 = 422? Circle all **A.** 422 + 736 = 314 **C.** 314 + 422 = 736 **B.** 736 - 422 = 314 **D.** 736 + 314 = 422 2. Which equations are related to 672 - 230 = 442? Circle all **A.** 230 + 442 = 672 **C.** 672 - 442 = 230 **D.** 442 + 230 = 672 **B.** 672 + 230 = 442 Student Practice Book

Own It! Digital Station Build Fluency Games

Assign the digital game to develop fluency with adding multiples of 10.



Extend Thinking

WORKSTATIONS

GO ONLINE

INDEPENDENT WORK

Use It! Application Station

Build a Fire Tower Students design and build a model of a tower that could be used by a park ranger to spot fires. *The content of this card has concepts covered later in Lesson 2-12. You may want to assign this card to students ready to explore content covered later in this unit.*



Spiral Review

Assign the digital Spiral Review Practice to students or download and print PDFs of the Spiral Review from the Digital Teacher Center.



Student Practice Book, pp. 17–18

	f trading cards
	460 trading cards
	A. 460 + ? = 323 C. 323 - ? = 460
	B. 460 + 323 = ? D. 460 - 323 = ?
4.	A pet store has 235 fish for sale. In one day, they sell 140 fish. How many fish are left?
	What subtraction equation represents the problem? What is an addition equation related to your subtraction equation?
	$\frac{235}{140} + \frac{95}{95} = \frac{235}{235}$
5.	Mrs. Walker has 480 books in her classroom. She gives 185 books to a new teacher. How many books does Mrs. Walker have left?
	What subtraction equation represents the problem? What is an addition equation related to your subtraction equation? 480 - 185 = 295
	<u>185</u> + <u>295</u> = <u>480</u>
-	Give your child two small handfuls of coins. Count the number of cents in

Websketch Exploration

Assign a websketch exploration to apply skills and extend thinking.



Differentiation Resource Book, p. 18

Th pe	e table shows the results of a survey about t ownership.	Pet Ownership
1.	How many more people own 2 pets than 1 pet? Write both an addition and a subtraction equation. 189; Sample answer: 501 – 312 = ?; 312 + ? = 501	1 pet - 312 people 2 pets - 501 people 3 pets - 474 people 4 pets - 107 people
2.	How many more people own 2 pets than 3 per an addition and a subtraction equation. 27; Sample answer: 501 – 474 = ?; 4	ets? Write both 74 + ? = 501
	Sam uses the survey results to write a third subtraction equation. He uses the related addition equation $312 + ? = 474$ to help him find the missing difference. What question is Sam trying to answer? Explain.	
3.	Sam uses the survey results to write a third su equation. He uses the related addition equati 474 to help him find the missing difference. W Sam trying to answer? Explain.	ubtraction on 312 + ? = /hat question is
3.	Sam uses the survey results to write a third su equation. He uses the related addition equati 474 to help him find the missing difference. W Sam trying to answer? Explain. mple answer: Sam is trying to determine	ubtraction on 312 + ? = /hat question is ne how many
3. Sai	Sam uses the survey results to write a third su equation. He uses the related addition equati 474 to help him find the missing difference. W Sam trying to answer? Explain. mple answer: Sam is trying to determine the people own 3 pets than 1 pet. The	ubtraction on 312 + ? = /hat question is ne how many subtraction
3. Sai nc	Sam uses the survey results to write a third su equation. He uses the related addition equati 474 to help him find the missing difference. W Sam trying to answer? Explain. mple answer: Sam is trying to determine re people own 3 pets than 1 pet. The uation 474 – 312 = ? can be written as	Ibtraction on 312 + ? = /hat question is ne how many subtraction s 312 + ? = 474

LESSON 2-10 Fluently Add within 1,000

Learning Targets

- I can use different strategies to add 3-digit numbers.
- I can explain how to use different strategies to add 3-digit numbers.

Content

O 3.NBT.A.2 Fluently add and subtract within 1,000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Math Practices and Processes

MPP Make sense of problems and persevere in solving them.MPP Look for and make use of structure.

Focus

Content ObjectiveLanguage ObjectivesSEL Objective• Students explain different
strategies to add 3-digit
numbers.• Students use the transitional
word *then* to articulate a strategy
with more than one step.
• To optimize output, use MLR5:• Students discover and discuss
personal interests related to
mathematics and share these
interests with peers.

Co-Craft Problems.

Coherence

Previous	Now	Next	
 Students used addition strategies to add 2-digit numbers (Grade 2). 	Students fluently add 3-digit numbers by using different addition strategies.	• Students add two 3-digit numbers in two-step word problems (Unit 2).	
 Students explored addition strategies to add 3-digit numbers (Unit 2). 		• Students fluently add multi-digit whole numbers using the standard algorithm (Grade 4).	/
Rigor			_
Conceptual Understanding	Procedural Skill & Fluency	Application	
Students build upon their understanding of addition strategies to decide which strategy is most efficient. Students build fluency with addition by using different addition strategies. Students apply their understanding of addition strategies to decide which strategy is most efficient. Students build fluency with addition strategies. Students apply their understanding of addition strategies. Students apply their strategies. Students apply their understanding of addition strategies. Students apply the		 Students apply their understanding of addition strategies to solve real-world problems. 	
Conceptual understanding is not a targeted element of rigor		Application is not a targeted element of rigor for this standard.	
for this standard			

Vocabulary

Math Term partial sum Academic Terms justify process

Materials

The materials may be for any part of the lesson.

• blank number cubes

Number Routine Where Does it Go?

💽 5–7 min

Build Fluency Students build number sense as they determine the location of the same number on three different number lines.

These prompts encourage students to talk about their reasoning:

- What do you notice about each number line?
- How did you determine where 73 goes on each number line?
- Why is 73 not in the same place on each number line?



Lesson 2-10

Purpose Students think about the relationship among the numbers in a word problem and consider what the question might be.

Numberless Word Problem

- What math do you see in the problem?
- What question could you ask?

Teaching Tip Encourage students to come up with as many questions as possible about the word problem. This can help students see many questions are possible about the same scenario. Have students consider the information that is needed to answer each one.

Pose Purposeful Questions

The questions that follow may be asked in any order. They are meant to help advance students' understanding of the word problem and the questions that could be asked, and are based on possible comments and questions that students may make during the share out.

- What information might be missing from the problem?
- What operation might be used to answer the questions? Explain.

Math is... Mindset

• How can my math skills help me with my work today?

Self-Awareness: Identity and Belonging

Give students opportunities to share about themselves to reinforce their sense of identity and belonging. As students work collaboratively to complete the Numberless Word Problem routine, invite them to share a personal skill or interest related to math. Encourage them to think about how that skill can help them with their work adding 3-digit numbers today.

Transition to Explore & Develop

Encourage students to consider how addition might be used to answer some of the questions they created. Students should begin to think about different strategies they have used to add multi-digit numbers. Students also may start thinking about which strategies they find the most efficient.

Establish Goals to Focus Learning

• If you were asked to add two 3-digit numbers, which strategy would you use? Explain your thinking.

Fluently Add within 1,000

Be Curious

What question could you ask?

Last year the library's collection of books increased. This year additional books were added to the library.





Explore & Develop (© 20 min

Learn

Last year the library's collection of books grew from 350 to 722 books. This year 169 books were added to the library.

What strategies can you use to find the

total number of books in the library?

Math is... Exploring How can you decide which information in the problem is useful?

Partial Sums You can decompose each addend by place value and add the place values to find partial sums. Then add the partial sums to find the total.



You can use any addition strategy to find the sum. You can decide which addition strategy is most efficient for you.

📿 Work Together

Angel and Daniel find the sum of 348 + 227. Angel adjusts the addends. Daniel uses partial sums. Can either strategy be used to solve? Explain your reasoning.

Yes. Sample answer: You will find the sum 575 using either strategy. You can choose what strategy works best for you.

72 Lesson 10 • Fluently Add within 1,000

O Pose the Problem

Pose Purposeful Questions

- How is this problem like other problems you have solved?
- How can you estimate the answer?
- How might you represent the problem?

Math is... Exploring

How can you decide which information in the problem is useful?

Students make sense of the problem by identifying information that is needed and information that is extraneous.

O Develop the Math

Choose the option that best meets your instructional goals.

Co-Craft Problems

After students review the strategies, have them work in pairs to write a new word problem involving addition and write the solution on a separate piece of paper. Have each pair pass their word problem to another. Tell pairs to now solve the new word problem using each of the strategies. Then have pairs meet up and explain their work for the other's word problem.



O Bring It Together

Elicit and Use Evidence of Student Thinking

- How can you use your estimate to check your work?
- How can you use strategies to add 3-digit numbers?
- · How can you decide which strategy is most efficient for you?

Key Takeaway

• Any of the addition strategies can be used to find a sum.

Work Together

It may be helpful for students to work through the problem using both strategies. Have students consider whether the sums were the same when using either strategy.

Common Misconception: Students may think that there is one correct strategy to use with each problem. Remind students that any addition strategy can be used. Students should feel free to choose the strategy they find the most efficient.

Language of Math

Students need multiple opportunities to understand and use the terms *addend* and *sum*. Have volunteers write an addition equation with multi-digit addends and the sum on the board, and have them point to each addend and the sum. Then, the class can respond with the terms and definitions.

CHOOSE YOUR OPTION

Activity-Based Exploration

Students solve an addition problem using different strategies.

Materials: blank number cubes

Directions: Students work in pairs. Provide two number cubes, one labeled 0–5 and the other labeled 4–9, to each pair. One partner rolls both cubes three times to create two 3-digit numbers less than 500. Students write an addition equation using the numbers. Then students independently solve the equation using an addition strategy. Students should record their work. Have students compare their strategy with their partner. Encourage students to use a variety of strategies.

Support Productive Struggle

- How can you use partial sums to find the sum?
- How might you adjust the addends to find the sum?
- Is there another strategy you could use to solve? Explain.
- Which strategy do you think is most efficient? Explain.

Activity Debrief: Have students review their work and make observations about the strategies they used. Discuss as a group.

- Was there a strategy you used most often?
- How many times did you and your partner use the same strategy? different strategies?
- Was there are certain type of equation that you always used a particular strategy to solve?

Compare the strategies as a group and discuss when students chose to use each and why. Ask questions to encourage students to recognize that any addition strategy can be used to solve any addition equation. Students should choose the strategy that works best for them.

Have students revisit the Pose the Problem question and discuss answers.

• What strategies can you use to find the total number of books in the library?

Guided Exploration

Students review addition strategies they learned. They also think about which strategy they find most efficient.

Use and Connect Mathematical Representations

- Think About It: How did you determine what numbers to use in the equation?
- Think About It: How can you adjust the addends in a different way?
- What other addition strategies could you use to solve?
- How might you decide which strategy is most efficient?

Have students identify the different partial sums used to find the total sum and discuss how the addend 169 is decomposed.

• How is place value used to decompose 169 in different ways?

Have students adjust an addend in a different way than what's shown to find the sum. Have students share the different ways they adjusted the addend and explain why.



English Learner Scaffolds

Entering/Emerging Support understanding of the word *partial*. Draw a pizza on the board with 8 slices. Say, *This is NOT a partial pizza*. Then erase 3 slices. Say, *This is a partial pizza*. Draw the 3 slices again and ask, *Is this a partial pizza*? Erase some slices and ask, *Is this a partial pizza*?

Developing/Expanding Support understanding of the word *partial*. Draw a pizza on the board with 8 slices. Say, *This is NOT a partial pizza*. Then erase 3 slices. Say, *This is a partial pizza*. Draw an extra slice so only 2 are missing and ask, *Is this is a partial pizza? How do you know?*

Bridging/Reaching Guide students in expressing the difference between *partial* and *total*. Give students time to write their thoughts before sharing. Then have them revise their explanations as needed.

Practice & Reflect (© 10 min



Practice

Build Fluency from Understanding

Common Error: Exercises 1–4 If students adjust the addends to help find the sum, they may incorrectly add the same amount to each addend. Remind students that to adjust addends, they should subtract from one addend and add that amount to the other addend.

Practice Item Analysis

1–4 2 Procedural Skill and Fluency	
5 3 Conceptual Understanding	
6 2 Conceptual Understanding	
7 2 Application	
8–9 2 Procedural Skill and Fluency	
10–11 2 Application	
12 3 Application	

Reflect

Students complete the Reflect question.

• How do you decide which addition strategy to use when solving a problem?

Ask students to share their reflections with their classmates.

Math is... Mindset

• How did your math skills help you with your work today? Students reflect on how they practiced self-awareness.

Learning Targets

Ask students to reflect on the Learning Targets of the lesson.

- I can use different strategies to add 3-digit numbers.
- I can explain how to use different strategies to add 3-digit numbers.

To review today's lesson, have students watch the Math Replay video in their Digital Student Center.

Assign the On My Own practice to students from the Digital Teacher Center.



Exit Ticket Formative Assessment

The Exit Ticket assesses students' understanding of lesson concepts.

Metacognitive Check *Reflect on Your Learning* allows students to think about their level of understanding of the lesson content on a scale of 1 to 4 with 4 being the highest confidence.

Exit Ticket Skill Tracker

Item	DOK	Skill	Standard
1	1	Use and explain different strategies to add	3.NBT.A.2
2	1	Use and explain different strategies to add	3.NBT.A.2
3	3	Use and explain different strategies to add	3.NBT.A.2

Data Use students' scores on the *Exit Ticket* to assign the differentiated resources available. When students complete the *Exit Ticket* in the digital workspace, their responses are auto-scored.

Exit Ticket Recommendations

If students score Then have students do	
3 of 3	Additional Practice or any of the $f ig B$ or $f ig B$ activities
2 of 3	<i>Take Another Look</i> or any of the 🕒 activities
1 or fewer of 3	Small Group Intervention or any of the 🕞 activities

Key for Differentiation

- **Reinforce Understanding**
- **B** Build Proficiency
- **G** Extend Thinking



Lesson 2-10

1. W	hat is the correct so	olution for 387 + 304?
Α	. 611	B. 680
С	. 681	D 691
2. Er \$1 alt	nily's family spent \$ 94 on a speaker sys ogether?	325 on a new television. They spent stem. How much did they spend
Er	nily's family spent \$	519 altogether.
3. Al	valis solving 256 ±	
to	find the correct sur $\Delta dd 600 + 120 + 1$	479. Which statements describe a way n? Choose all that apply.
to A	find the correct sur Add 600 + 120 + Add 200 + 400 -	479. Which statements describe a way n? Choose all that apply. • 15. + 50 + 70 + 6 + 9.
to A B C	find the correct sur Add 600 + 120 + Add 200 + 400 - Add 200 + 400 -	 479. Which statements describe a way m? Choose all that apply. 15. 50 + 70 + 6 + 9. en, add 479. The result is the sum.
to B C D	 Add 600 + 120 + Add 600 + 120 + Add 200 + 400 - Add 4 to 256. The Add 1 to 479. The find the sum. 	 479. Which statements describe a way m? Choose all that apply. 15. 50 + 70 + 6 + 9. en, add 479. The result is the sum. n, add 256. Subtract 1 from the result to
to B C D E	 Add 600 + 120 + Add 600 + 120 + Add 200 + 400 - Add 4 to 256. The Add 1 to 479. The find the sum. Subtract 6 from 2 result to find the s 	 479. Which statements describe a way m? Choose all that apply. 15. 50 + 70 + 6 + 9. en, add 479. The result is the sum. n, add 256. Subtract 1 from the result to 56. Then, add 479. Subtract 6 from the sum.

Reflect On Your Learning



Reinforce Understanding

How Many Ways?

Prepare 3-digit addition problems, and a 4-column chart with these labels: Decompose 1st Addend, Decompose 2nd Addend, Decompose Both Addends, Adjust Addends. Review a sample problem. Present a problem and have students create as many representations as they are can, sorting them in appropriate columns. Then have students share their thinking. If students have difficulty with decomposing numbers, review place value and how to regroup tens and hundreds as ones and tens.

Build Proficiency

WORKSTATIONS

ONLINE

00

NDEPENDENT WORK

Practice It! Game Station

Multi-Digit Addition Tic Tac Toe Students use various strategies to add multi-digit numbers.



Take Another Look Lessons

Assign the interactive lessons to reinforce targeted skills.

- Add 3- and 2-Digit Numbers
- Add Two 3-Digit Numbers



Interactive Additional Practice

Assign the digital version of the Student Practice Book.



Student Practice Book, pp. 19–20





JRK

GO ONLINE

Own It! Digital Station Build Fluency Games

Assign the digital game to develop fluency with adding multiples of 10.



Extend Thinking

WORKSTATIONS

GO ONLINE

Use It! Application Station

History of the Railroad Students plan and diagram a railway system. They draw railway stations and label the distances between them. *The content* of this card has concepts covered later in Lesson 2-12. You may want to assign this card to students ready to explore content covered later in this unit.



Spiral Review

Assign the digital Spiral Review Practice to students or download and print PDFs of the Spiral Review from the Digital Teacher Center.



Student Practice Book, pp. 19–20



INDEPENDENT WORK

Websketch Exploration

Assign a websketch exploration to apply skills and extend thinking.



Differentation Resource Book, p. 20



LESSON 2-11 Fluently Subtract within 1,000

Learning Targets

- I can use different strategies to subtract two 3-digit numbers.
- I can explain how to use different strategies to subtract two 3-digit numbers.

Content

O **3.NBT.A.2** Fluently add and subtract within 1,000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Math Practices and Processes

MPP Make sense of problems and persevere in solving them.MPP Look for and express regularity in repeated reasoning.

Focus

Content Objective	Language Objectives	SEL Objective
• Students explain different strategies to subtract 3-digit numbers.	 Students use command verbs to explain the steps of a strategy. To support sense-making, use MLR8: Discussion Supports. 	 Students set a focused mathematical goal and make a plan for achieving that goal.

Coherence

Previous	Now	Next
 Students used different strategies to subtract 2-digit numbers (Grade 2). Students used different strategies to subtract 3-digit numbers (Unit 2). 	• Students extend their understanding of subtraction strategies to choose the best strategy when subtracting two 3-digit numbers.	• Students fluently add and subtract multi-digit whole numbers using the standard algorithm (Grade 4).
Rigor		
Conceptual Understanding	Procedural Skill & Fluency	Application
 Students build on their understanding of subtraction as they notice patterns and compatibility in the numbers they are subtracting. 	 Students build proficiency in using different strategies to subtract two 3-digit numbers. 	 Students apply their understanding of subtraction to solve problems in a real-world context.
Conceptual understanding is not a targeted element of rigor for this standard.		element of rigor for this standard.

Vocabulary

Math Term decompose Academic Terms justify response

Materials

The materials may be for any part of the lesson.

- blank number cubes
- transparent spinners

Number Routine Where Does It Go? © 5-7 min

Build Fluency Student build number sense as they determine the location of the same number on three different number lines.

These prompts encourage students to talk about their reasoning:

- What do you know about the endpoints of the first number line?
- What friendly numbers could you use to estimate the location of 86 on the first number line? Explain.
- How would you estimate the location of 86 on the second number line? Will it be closer to 50 or 100? What other friendly numbers could you use?
- How would you subdivide the third number line mentally to place the point for 86?
- Will 86 be closer to 70 or 100 on the number line? Why?

Launch @ 5-7 min



Purpose Students consider whether decomposing a number is the only strategy to solve a subtraction problem.

Is It Always True?

• Is what Niko says always true?

Teaching Tip Have students work independently to determine whether there are other ways to solve the problem. Then, have students share their ideas with a partner. Facilitate a classroom discussion to consider all the ways the problem can be solved.

Pose Purposeful Questions

The questions that follow may be asked in any order. They are meant to help advance students' understanding of the strategies they can use to subtract, and are based on possible comments and questions that students may make during the share out.

- What does it mean to decompose 135?
- How can place value help you subtract 348 135?
- Could adjusting numbers help you solve this problem? Explain.

Math is... Mindset

• What goal do you want to accomplish today?

Self-Regulation: Goal-Setting

Before students begin the Is It Always True? routine, invite them to share or write down one mathematical goal they have for the day. Have students create a plan for how they will work toward achieving their goal. Encourage students to focus their goals around subtracting 3-digit numbers.

Transition to Explore & Develop

Ask questions to encourage students to explore other strategies that might be used to solve the problem. Students should recognize there are several other strategies that can be used to subtract 348 - 135.

Establish Goals to Focus Learning

• Let's explore the strategies that can be used to subtract.





Explore & Develop (© 20 min

Learn

Mateo sold 543 tickets to the newest action movie Friday night. He sold 134 fewer tickets on Saturday night than Friday. Then Sunday afternoon he sold 248 tickets.

	Exploring			
What strategies can you use to find number of tickets he sold Saturday?	the How is this problem like other problems you have solved?			
Deserves on New Issue	A direct block beautions			
Decompose One Number	Adjust Numbers			
You can decompose one	You can adjust the numbers to			
number in different ways and	numbers that are easier to work with. Subtract from or add the same amount to both numbers			
subtract the parts				
542 400 442				
543 - 100 = 443				
443 - 30 = 413	543 - 134 = ?			
413 - 3 = 410	+6 +6			
410 - 1 = 409	$\overline{}$			
543 – 134 = 409	549 - 140 = 409			
Related Addition Equation				
You can write an addition equation with an unknown addend				

543 - 134 = ?	134 + ? = 543
543 – 134 = 409	134 + 409 = 543

You can use any subtraction strategy to find the difference. You can decide which subtraction strategy is most efficient for you.

📿 Work Together

What strategy might be useful to solve 542 — 118? Explain your reasoning.

Sample answer: I think decomposing 118 is a useful strategy. It is easier to subtract a number in parts.

76 Lesson 11 • Fluently Subtract within 1,000

O Pose the Problem

Pose Purposeful Questions

- What information are we trying to find?
- Is there information in the problem we do not need in order to find the number of tickets Mateo sold Saturday? Explain.
- Think About It: What numbers are needed to solve the problem?

Math is... Exploring

· How is this problem like other problems you have solved?

Students consider similar problems they have already solved using subtraction with 3-digit numbers or have provided extraneous information.

O Develop the Math

Choose the option that best meets your instructional goals.

Discussion Supports

Prompt students to share any information they already know from reading the problem. Model thinking with a think-aloud. As they discuss, encourage students to add to each other's nformation and knowledge when appropriate.

3 Bring It Together

Elicit and Use Evidence of Student Thinking

- Are there situations when you would not decompose a 3-digit number to subtract? Explain.
- If you change a subtraction equation to an addition equation with an unknown addend, how do you solve for the unknown addend?
- When you adjust numbers in a subtraction equation, how would you decide whether to add or subtract an amount from both sides?

Key Takeaway

• Students explain different strategies to subtract 3-digit numbers.

Work Together

Students may find it helpful to use all three strategies to solve the equation. Then students can decide which strategy they found to be the most efficient.

Common Error: Students who adjust by adding 2 to 198 may subtract 2 from 542. Remind students that when you adjust numbers in a subtraction situation, you either add or subtract the same amount from both numbers.

Language of Math

Students have been using the term *decompose* since Grade 1. Students should be comfortable using this term when describing strategies they use to add and subtract 3-digit numbers.

CHOOSE YOUR OPTION

Activity-Based Exploration

Students solve a problem using different strategies.

Materials: blank number cubes

Directions: Students work in pairs. Provide blank number cubes, one labeled 0–5 and the other labeled 4–9, to each pair. A student rolls both cubes three times and creates two 3-digit numbers. The student creates a subtraction equation with the numbers. The student analyzes the equation and states the strategy they will use to solve. Their partner then chooses a different strategy to solve the equation. Students should record their work. Have students compare their strategy with their partner. Students should discuss how the strategies were the same and different. They should also discuss their strategy preferences. Have students switch roles and repeat as time allows.

Support Productive Struggle

- How could you use decomposing to solve? Is there only one way to decompose?
- How can adjusting help you solve? Is there more than one way to adjust?
- How can addition help you solve?

Activity Debrief: Have students describe how they used different strategies to solve the problems. Have students note strategies they preferred and those they do not. Students should explain their reasoning.

• Describe when you might use one strategy for one situation and a different strategy for antoher situation.

Have students revisit the Pose the Problem question and discuss answers.

• What strategies can you use to find the total number of tickets he sold on Saturday?

Guided Exploration

Students identify the numbers and operation needed to solve a word problem. Then students discuss different strategies they can use to solve the problem, such as decomposing, adjusting, or relating addition to subtraction.

Use and Connect Mathematical Representations

- What strategies can you use to find the number of tickets Mateo sold on Saturday?
- Do the numbers in a subtraction equation affect the strategy that you choose to solve it? Explain.
- Think About It: How can you decompose 134 in a different way?
- How do you determine which strategy will work best?
- Think About It: Why are the numbers in the subtraction equation adjusted by 6?

Have students work with a partner to explore ways to solve for the missing addend in 134 + ? = 543. Ask partnerships to share their strategies with the class.



English Learner Scaffolds

Entering/Emerging Support understanding of the prefix *un-* in *unknown*. Tell students to show you a thumbs up for true and a thumbs down for false. Say, *If I know something, it is known*. Pause for a thumbs up. Say, *If I know something, it is unknown*. Pause for a thumbs down.

Developing/Expanding Support understanding of the prefix *un-* in *unknown.* Ask, *Is it true or false that something unknown is known?* (false) *Is it true or false that something unknown is not known?* (true) Then ask, *What do you think un- means in unknown?* (not) **Bridging/Reaching** Encourage students to break apart the term *unknown.* First ask students to explain the word's meaning in their own words. Then ask, *What do you think the prefix un- means?* (not)

Practice & Reflect © 10 min



Practice

Build Fluency from Understanding

Common Error: Exercise 7 Students may think they need to add 102 to Cadence's points in order to solve the problem. Have students reread the problem to find the number of points Cadence earned in her recent online game. Use an open number line to help students see that Cadence scored 102 *fewer* points in her previous game. Then, ask students which scores to compare to find how many more points Marco earned.

Practice Item Analysis

Item	DOK	Rigor
1–4	2	Procedural Skill and Fluency
5	2	Application
6	3	Conceptual Understanding
7	2	Application
8–9	3	Procedural Skill and Fluency
10	3	Application
11	3	Conceptual Understanding
12	3	Application

Reflect

Students complete the Reflect question.

- How do you determine if a strategy is efficient?
- Ask students to share their reflections with their classmates.

Math is... Mindset

• How have you worked to accomplish your goal today? Students reflect on how they practiced self-regulation.

Learning Targets

Ask students to reflect on the Learning Targets of the lesson.

- I can use different strategies to subtract two 3-digit numbers.
- I can explain how to use different strategies to subtract two 3-digit numbers.

To review today's lesson, have students watch the Math Replay video in their Digital Student Center.

Assign the On My Own practice to students from the Digital Teacher Center.



Exit Ticket

The Exit Ticket assesses students' understanding of lesson concepts.

Metacognitive Check *Reflect on Your Learning* allows students to think about their level of understanding of the lesson content on a scale of 1 to 4 with 4 being the highest confidence.

Exit Ticket Skill Tracker

ltem	DOK	Skill	Standard
1	1	Use and explain different strategies to subtract	3.NBT.A.2
2	1	Use and explain different strategies to subtract	3.NBT.A.2
3	3	Use and explain different strategies to subtract	3.NBT.A.2

Data Use students' scores on the *Exit Ticket* to assign the differentiated resources available. When students complete the *Exit Ticket* in the digital workspace, their responses are auto-scored.

Exit Ticket Recommendations

If students score	Then have students do
3 of 3	Additional Practice or any of the $f ig B$ or $f ig B$ activities
2 of 3	<i>Take Another Look</i> or any of the 🕒 activities
1 or fewer of 3	Small Group Intervention or any of the 😱 activities

Key for Differentiation

- Reinforce Understanding
- Build Proficiency
- Extend Thinking



Lesson 2-11 **Exit Ticket** Name 1. What is the correct solution for 763 - 379? **A.** 332 **B.** 340 **C.** 384 **D.** 400 2. Malika's family travels 426 miles on Friday. On Saturday, they travel 278 miles. How many more miles did they travel on Friday than Saturday? 148 miles 3. There are 597 pieces of constructions paper and 632 pieces of tissue paper. Which equations could be used to find out how many more pieces of tissue paper there are than construction paper? Choose all that apply. (A.) 632 - ? = 597 **B.** 597 + 632 = ? C. 635 - 600 = ? **D.** 630 - 600 = ? (E.) 597 + ? = 632 (F.) 630 - 595 = ? **Reflect On Your Learning** ľm I can teach I'm still learning. l understand. confused. someone else. Assessment Resource Book 25

Assian

Reinforce Understanding

Subtraction Strategy Spin

Take Another Look Lessons

Assign the interactive lessons to

• Subtract 3- and 2-Digit Numbers

• Subtract 3- and 2-Digit Numbers

Subtract 3-Digit Numbers Across Zeros

Differentiation Resource Book, p. 21

Lesson 2-11 · Reinforce Understanding

Fluently Subtract Within 1,000

Adjust Numbers

 $459 \pm 1 = 460$

261 + 1 = 262

-260

Use a strategy to find the difference. Show your work. **1.** 253 – 125 = ? **128 3.** 456 – 375 = ? **81**

20 = **133**, **133** - **3** = **130**, **450** + **6** = **456**, **25** +

You can use different strategies to find a sum.

reinforce targeted skills.

(No Regrouping)

Name

Review

Solve, 459 - 261 = ? Decompose

One Number

459

-200

259

209

199 1 198

Sample work:

130 - 2 = 128

Sample work:

867 + 3 = 870, 342 + 3 = 345.

870 - 345 = 525

10

253 - 100 = 153, 153 -

2. 867 – 342 = ? **525**

50

(Regroup)

Create spinners with a subtraction strategy written on each section. Provide students with two number cubes. Have each student roll number cubes four times and make a subtraction equation with two 2-digit numbers. Then spin the spinner to determine the strategy that students should use. Have students discuss how they used the strategy to solve their subtraction problems. Ask students whether the strategy was helpful for their problem or if they would have preferred a different strategy, and why. Then spin to find another strategy.

WORKSTATIONS

ONLINE

00

B

Build Proficiency

Practice It! Game Station

Subtract Across Zeros Bump Students use subtraction strategies to solve problems.



Interactive Additional Practice

Assign the digital version of the Student Practice Book.



Student Practice Book, pp. 21–22

^{anding} t Within 1,000	Lesson 2-11 Additional Practice
ies to find a sum. t Numbers Related Addition $+ 1 = 460$ Equation $+ 1 = 262$ $459 - 261 = 198$ $4 6 0$ $261 + 198 = 459$ $2 2 0 0$ 200 -2 $1 9 8$	ReviewYou can use different strategies to find the difference when subtracting.Decompose One NumberAdjust Numbers $527 - 288 = ?$ $527 - 288$ $527 - 288 = ?$ $527 - 288$ $527 - 80 = 247$ $529 - 290 = 239$ $247 - 8 = 239$ $288 + ? = 527$ Related Addition Equation $527 - 288 = ?$ $527 - 288 = ?$ $288 + ? = 527$ $527 - 288 = 239$ $288 + 239 = 527$
erence. Show your work. 3. $456 - 375 = ?$ 81 Sample work: $375 + 25$ = 400, 400 + 50 = 450, 450 + 6 = 456, 25 + 50 + 6 = 81 4. $598 - 364 = ?$ 234 Sample work: 598 - 300 = 298, 298 - 60 = 238, 238 - 4 = 234	 How can you find the difference? Explain your strategy. 1. 856 - 623 = <u>233</u> Sample answer: I chose to subtract 3 from both sides because 623 is close to 620. 2. 719 - 321 = <u>398</u> Sample answer: I chose to decompose to solve because breaking the numbers into parts made it easier to subtract.
on Resource Book	Student Practice Book

Differentiation Resource Book

Own It! Digital Station Build Fluency Games

Assign the digital game to develop fluency with adding multiples of 10.



Extend Thinking

Use It! Application Station

Buy New Playground Equipment Students create lists of playground equipment purchases that would stay within a school's budget.



Spiral Review

Assign the digital Spiral Review Practice to students or download and print PDFs of the Spiral Review from the Digital Teacher Center.



Student Practice Book, pp. 21–22

3.	At a bookstore, there are 387 fiction books and 652 history books. What equation could you use to find the difference between the number of fiction books and history books? Use the strategy of your choice to find the solution to your equation. Your equation: $652 - 387 = ?$	used or distributions.
	Sample answer: 652 - 387 = ? +3 +3 655 - 390 = 265	a only and may not be further reprod
4.	There are 514 adults and 301 children at a water park. What equation could you use to find the difference between the number of adults and the number of children? Use the strategy of your choice to find the solution to your equation. Your equation: $514 - 301 = ?$	relating be reproduced for learned classroom at
	Sample answer: 514 - 300 = 214 214 - 1 = 213	This most
5.	Russell and Beth are asked to solve the equation $267 - 112$. Russell rewrites the equation as $112 + ___ = 267$. Beth rewrites the equation as $265 - 110 = __$. Which strategy is more efficient? Justify your answer.	
	Sample answer: Beth's strategy is more efficient because it is easier to subtract 265 – 110.	
		Il Education

Student Practice Book

INDEPENDENT WORK

WORKSTATIONS

GO ONLINE

Websketch Exploration

Assign a websketch exploration to apply skills and extend thinking.



Differentiation Resource Book, p. 22

Lesson 2-11 • Extend Thinking Fluently Subtract Within 1,000

Name

Jan sold a total of 752 tickets to baseball games this week. The table shows the number of tickets sold on the days of the week.

Day of the Week	Number of Tickets Sold
Sunday	225
Monday	216
Tuesday	83
Wednesday	47
Thursday	38
Friday	31
Saturday	?

 Is the difference between the number of tickets Jan sold on Sunday and Wednesday greater than, less than, or equal to the difference between the number of tickets she sold on Monday and Thursday? Explain your answer. equal to; check students' explanation.

2. How many tickets did Jan sell on Saturday? Show your work. 112; check students' explanation.

 How many more tickets did Jan sell on the day she sold the most tickets than she did on the day she sold the least?
 194; check students' explanation.

Differentiation Resource Book

Lesson 2-11 • Fluently Subtract within 1,000

LESSON 2-12 Solve Two-Step Problems Involving Addition and Subtraction

Learning Targets

- I can solve problems that have more than one step.
- I can explain how to solve problems that have more than one step.

Content

3.0A.D.8 Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

Math Practices and Processes

MPP Make sense of problems and persevere in solving them.MPP Model with mathematics.

Focus

Content Objectives

- Students write and solve equations to represent a two-step problem.
- Students use letters for the unknowns.

Coherence

Language Objectives Students describe the amount they need to find in a word problem using the verb *need*.

 To maximize linguistic and cognitive meta-awareness, use MLR2: Collect and Display.

SEL Objective Students determine the strategies and analyses necessary to make inform decisions when engaging

necessary to make informed decisions when engaging in mathematical practices.

Previous	Now	Next
 Students solved word problems involving addition and subtraction (Grade 2). Students added and subtracted 3-digit numbers (Unit 2). 	 Students apply their understanding of adding and subtracting 3-digit numbers to solve two-step problems using addition and subtraction. 	 Students use addition and subtraction to solve word problems involving perimeter (Unit 11). Students fluently add and subtract multi-digit whole numbers using the standard algorithm (Grade 4).

Vocabulary

Math Terms	Academic
bar diagram	identify
unknown	process

Terms

Materials

The materials may be for any part of the lesson.

- Problem-Solving Tool Teaching Resource
- **Number Routine** Would You Rather?

💽 5–7 min

Build Fluency Students build number sense as they compare amounts and sums.

These prompts encourage students to talk about their reasoning:

- What strategies did you use to find your answer?
- How can you compare the numbers of tickets without finding exact sums?

Rigor

Conceptual Understanding

 Students use their understanding of representations to solve word problems involving addition and subtraction of 3-digit numbers.

Procedural Skill & Fluency Application

 Students build proficiency with adding and subtracting 3-digit numbers as they solve two-step problems.

Procedural skill and fluency is not a targeted element of rigor for this standard. Students apply their understanding of addition and subtraction to solve real-world problems that involve more.

problems that involve more than one step.



Purpose Students understand that it may require two or more steps and different operations to solve a problem.

Numberless Word Problem

- What math do you see in the problem?
- What question could you ask?

Teaching Tip Have students desribe the problem in their own words to a partner. Students should consider when they have seen similar problems and what strategies they used to solve.

Pose Purposeful Questions

The questions that follow may be asked in any order. They are meant to help advance students' understanding of two-step word problem, and are based on possible comments and questions that students may make during the share out.

- How many steps might this problem have? Explain.
- What operation(s) might you use to solve this problem?
- What information would you need to answer one of the questions?

Math is... Mindset

• What goal do you want to accomplish today?

SEL Self-Regulation: Analysis

As students begin the Numberless Word Problem routine, have them think about different ways to analyze or describe the problem. As students analyze the problem, encourage them to think about what is most useful or helpful to them as they work to understand the information in the problem.

Transition to Explore & Develop

Encourage students to analyze the situation and describe why each piece of information might be provided. Ask questions to encourage students to consider the possibility of using two steps to solve the problem and what type of operations might be involved.

Establish Goals to Focus Learning

• Let's explore how you can solve addition and subtraction word problems that involve more than one step.

Lesson 2-12 Solve Two-Step Problems Involving Addition and Subtraction

Be Curious

What question could you ask?

Lea earns points playing her favorite dance video game. She plays the next level and earns more points. Lea needs points to buy a new song for the game.





Explore & Develop (© 20 min

Learn

Lea earns 235 points playing her favorite dance video game. She plays the next level and earns 112 more points. Lea needs 475 points to buy a new song for the game.



You can represent each step in a two-step problem using an equation with a letter for the unknown.

O Work Together

Students collect books to donate to other schools. The first week they collect 348 books. The next week they collect 405 books. They donate 250 books to one nearby school. How can you represent the number of books they have left to donate?

Sample answer: 348 + 405 = c; 753 - 250 = d; 753 - 250 = 503; 503 books

80 Lesson 12 • Solve Two-Step Problems Involving Addition and Subtraction

O Pose the Problem

Pose Purposeful Questions

- What information do we need to find to solve the problem?
- What operations will you use to solve this problem? Explain.
- Think About It: Without solving, do you think Lea needs more than or fewer than 100 more points to buy a new song? Support your reasoning.

O Develop the Math

Choose the option that best meets your instructional goals.

Collect and Display

As students discuss the questions, listen and write on the board any relevant expression they come up with such as *more than* and *fewer than*. Display these for student reference, and use them to help make connections between student language and math vocabulary. Update the collection with new understandings as the lesson progresses.

O Bring It Together

Elicit and Use Evidence of Student Thinking

- Based on the equations, what does the letter *a* represent?
- What strategies can you use to find the difference between the number of points earned and the number of points needed to buy a new song?

Key Takeaway

 Solving two-step addition and subtraction problems requires making sense of the problem, representing the problem with an equation, and then using strategies to solve the equation.

Work Together

Encourage students to restate the problem in their own words to a partner and describe what they need to find. Have students darw bar diagrams to help them understand what each step might be.

Common Error: Students may incorrectly interpret the problem as asking for the total number of books the students collected. Remind them that this is a two-step problem.

Language of Math

Students need multiple opportunities to use math terms so they become part of their active vocabulary. When students are discussing the representations used in the lesson, encourage them to use *bar diagram* and *unknown* in their descriptions and their reasoning.

Activity-Based Exploration

Students explore strategies for solving a two-step problem.

Materials: Problem-Solving Tool Teaching Resource

Directions: Provide each student with the *Problem-Solving Tool* Teaching Resource. Read the Pose the Problem aloud as a group. Have students describe the problem in their own words to a partner. Students should work independently with the support of the *Problem-Solving Tool* to solve the Pose the Problem.

Support Productive Struggle

- Are there two things you need to find? Explain.
- How can you represent each part of the problem?
- How could you use a bar diagram to represent each part of the problem?
- How can you use a letter to represent the unknown?
- What tools can you use to check your work?

Math is... Modeling

• How can you represent the problem in a different way?

Activity Debrief: Place students in pairs and have them explain the strategies they used to solve the problem. Encourage students to use their *Problem-Solving Tool* to explain the steps they took to solve, including how they represented each part of the problem. Then pair students with a new partner to discuss their strategies.

After students have had time to share, review as a class the equations that represent each part of the problem and how a letter can be used to represent the unknown. Discuss how a bar diagram may be helpful in representing each part of the problem.

A PDF of the Teaching Resource is avaialable in the Digital Teacher Center.

Kate estimates how much money she needs to save to buy a car.	Ross estimates the number of tickets he has for prizes at the arcade.	
A manager estimates the amount of flooring a new store needs.	An interior designer estimates the amount of fabric for a project.	ł
An engineer estimates the weight limit of an elevator.	Juni estimates the disk space she will use before buying a computer.	ĺ
Juni estimates the disk space she will use before buying a computer.	Inglew orlt satemitse readingen nA nativele na to timil	
An interior designer estimates and mount of tablic (or a project and a state of the state of the state of a social state of the state of the mount of the state of the state of the mount of the state of the state of the mount of the state o	A manager estimates the amount of floomp a new store needs. Mgineer estimates the weight immi of an elevator.	

Guided Exploration

Students understand that two-step word problems can be solved using an equation to represent each of the steps and a letter can be used to represent each unknown.

Pose Purposeful Questions

- What are the unknowns in the problem that you need to find?
- How could we show one of the unknowns in a representation?
- **Think About It:** How could you use a tool to represent the information in the problem?

Math is... Modeling

• How can you represent the problem in a different way? Students consider how a different representation could model the information in the problem.

• To help students understand there could be more than one way to write equations with unknowns, have several volunteers share their approach to writing equations to represent the bar diagram.

• What process could you use to determine the equations that will represent the bar diagrams?



English Learner Scaffolds

Entering/Emerging Support understanding of the verb *need*. Hold up an item and say, I *want this. I need 2 dollars to buy it.* Then act out getting money and make a sad face. Say, *I only have 1 dollar. But I need 2 dollars to buy it.* Then ask, *Can I buy it, yes or no?* (no)

Developing/Expanding Support understanding of the difference between *need* and *has*. Hold up an item and say, *I need 2 dollars to buy it*. Then make a sad face and say, *But I only have 1 dollar*. Confirm understanding by asking, *How many more dollars do I need?* (You need one more.)

Bridging/Reaching Have students explain the difference between *have* and *need*. Use questions or examples to prompt students' understanding as needed. Ask students to express whether they agree with others' ideas.

Practice & Reflect © 10 min

	on my own	
	Name	
	How can you write an equation	to represent the bar diagram?
	1. 410 390	2. 665
	a	532
	Sample answer:	Sample answer:
	410 + 390 = a	532 + b = 665
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
	How can you draw a bar diagram 3 601 - b = 299	n to represent the equation? 4 $100 \pm a = 750$
	Sample answer:	Sample answer:
	601	750
	299	100 <i>a</i>
	Represent and solve the probler	n. Use letters for the unknowns.
	 Sam and Ben take turns drivin May and 454 miles in June If 	ng. They traveled 417 miles in Sam drove 502 of the miles.
	how many miles did Ben drive	e?
	Sample answer: 417 + 4 871 - 502 = b: 369 = b	+54 = a; 871 = a; b; 369 miles
	6. Jaya earned \$187 babysitting	. She bought a wireless speaker
	for \$129 and a carrying case t she have left?	for \$26. How much money does
	Sample answer: 187 – 1	129 = f; 58 = f;
	58 - 26 = g ; 32 = g ; \$3 7. Judy has 323 beads. Sarah ha	32 as 142 more beads than Judy.
	How many beads do they hav	ve together?
	465 + 323 = v; 788 = v	142 = x; 465 = x; /; 788 beads
	465 + 323 = y; 788 = y Unit 2 · U:	142 = x; 465 = x; r; 788 beads se Place Value to Fluently Add and Subtract within 1,000 81
	465 + 323 = y; 788 = y Unit 2 • U	142 = x; 465 = x; x; 788 beads se Place Value to Fluently Add and Subtract within 1,000 81
v ca	465 + 323 = y; 788 = y Unit 2 · Us an you solve for the unknown?	142 = x; 465 = x; r; 788 beads se Place Value to Fluently Add and Subtract within 1,000 81
v ca m =	465 + 323 = y; 788 = y Unit 2 · Us unit 2 · Us an you solve for the unknown? = 456 - 236 9.	142 = x; 465 = x; x; 788 beads se Place Value to Fluently Add and Subtract within 1,000 867 = 235 + k
v ca m = m =	465 + 323 = y; 788 = y Unit 2 · Us unit 2 · Us an you solve for the unknown? = 456 - 236 9. = 220	142 = x; 465 = x; <i>r</i> ; 788 beads se Place Value to Fluently Add and Subtract within 1,000 81 867 = $235 + k$ 632 = k
w ca m = m =	465 + 323 = y; 788 = y Unit 2 · U an you solve for the unknown? = 456 - 236 9. = 220	142 = x; 465 = x; <i>x</i> ; 788 beads se Place Value to Fluently Add and Subtract within 1,000 81 867 = $235 + k$ 632 = k
w ca m = m = STI	465 + 323 = y; 788 = y $Unit 2 + 0$ $unit 2 + 0$ $465 - 236 = 220$	142 = x; 465 = x; <i>r</i> ; 788 beads se Place Value to Fluently Add and Subtract within 1,000 81 867 = $235 + k$ 632 = k k of the
m = m = STI	an you solve for the unknown? $= 456 - 236 \qquad 9.$ $= 220$ EM Connection Saffron keeps track tries she has at her bakery each date	142 = x ; 465 = x ; 7 ; 788 beads se Place Value to Fluently Add and Subtract within 1,000 81 867 = 235 + k 632 = k k of the y. On Monday,
m = m = stri passhee	$465 + 323 = y; 788 = y$ $unit 2 \cdot us$ an you solve for the unknown? = 456 - 236 9. = 220 EM Connection Saffron keeps tract stries she has at her bakery each da bakes 324 pastries and sells 172 pi d of the day she has 584 pastries in	142 = x; 465 = x; <i>r</i> ; 788 beads se Place Value to Fluently Add and Subtract within 1,000 81 867 = $235 + k$ 632 = k k of the y. On Monday, astries. At the her bakery.
m = m = str pas she enc Hov	465 + 323 = y; 788 = y Unit 2 · Us an you solve for the unknown? $= 456 - 236 \qquad 9.$ $= 220$ EM Connection Saffron keeps tract stries she has at her bakery each da bakes 324 pastries and sells 172 pi d of the day she has 584 pastries in w many pastries did she start the data	142 = x ; 465 = x ; r; 788 beads se Place Value to Fluently Add and Subtract within 1,000 81 867 = 235 + k 632 = k 632 = k k of the y. On Monday, astries. At the her bakery. ay with?
m = m = STI pas she enc Hov 73	465 + 323 = y; 788 = y Unit 2 · Us an you solve for the unknown? $= 456 - 236 \qquad 9.$ $= 220$ EM Connection Saffron keeps tracted by the solution of the sol	142 = x; 465 = x; ; 788 beads se Place Value to Fluently Add and Subtract within 1,000 81 867 = 235 + k 632 = k k of the y. On Monday, astries. At the her bakery. by with?
m = m = sti pas she enc Hov 73 Elrc	$465 + 323 = y; 788 = y$ $unit 2 \cdot us$ an you solve for the unknown? = 456 - 236 9. = 220 EM Connection Saffron keeps tract stries she has at her bakery each da a bakes 324 pastries and sells 172 p. d of the day she has 584 pastries in w many pastries did she start the da 6 pastries by's Balloon Emporium sells boxes are are 100 balloons in a box. In la	142 = x; 465 = x; r; 788 beads se Place Value to Fluently Add and Subtract within 1,000 81 867 = 235 + k 632 = k k of the y. On Monday, astries. At the her bakery. ny with? of balloons. inuary, they sell 3 boxes.
m = m = m = STI pas she enc Hov 73 Elrc The In F	465 + 323 = y; 788 = y $unit 2 + 0s$ $= 456 - 236 = 9.$ $= 220$ EM Connection Saffron keeps track tries she has at her bakery each da a bakes 324 pastries and sells 172 pr d of the day she has 584 pastries in w many pastries did she start the da 16 pastries by's Balloon Emporium sells boxes ere are 100 balloons in a box. In Ja February, they sell 6 boxes. If they	142 = x; 465 = x; r; 788 beads se Place Value to Fluently Add and Subtract within 1,000 81 867 = 235 + k 632 = k 867 = 235 + k 632 = k k of the y. On Monday, astries. At the her bakery. ny with? r of balloons. muary, they sell 3 boxes. started with 10 boxes,
m = m = STI pass enc The Elrc The In F how	465 + 323 = y; 788 = y Unit 2 · Us an you solve for the unknown? $= 456 - 236 \qquad 9.$ $= 220$ EM Connection Saffron keeps track the bakes 324 pastries and sells 172 particles and 172 partic	142 = x; 465 = x; r; 788 beads se Place Value to Fluently Add and Subtract within 1,000 81 867 = 235 + k 632 = k k of the g: On Monday, astries. At the her bakery. g: with? of balloons. inuary, they sell 3 boxes. started with 10 boxes, to sell?
m = m = sti pas she enc Hov 73 Elrc The In F hov 10	465 + 323 = y; 788 = y $unit 2 + 02$ $unit 2 + 02$ an you solve for the unknown? = 456 - 236 9. = 220 EM Connection Saffron keeps track tries she has at her bakery each da a bakes 324 pastries and sells 172 pi d of the day she has 584 pastries in w many pastries did she start the da 36 pastries by's Balloon Emporium sells boxes are are 100 balloons in a box. In Ja February, they sell 6 boxes. If they w many balloons do they have left 0 balloons	142 = x; 465 = x; ; 788 beads se Place Value to Fluently Add and Subtract within 1,000 81 867 = 235 + k 632 = k k of the y. On Monday, astries. At the her bakery. ny with? To f balloons. inuary, they sell 3 boxes. started with 10 boxes, to sell?
m = m = sti pass she ence The In F how 10 Ext ste	465 + 323 = y; 788 = y unit 2 · Us unit 2 · Us an you solve for the unknown? = 456 - 236 9. = 220 EM Connection Saffron keeps track tries she has at her bakery each da a bakes 324 pastries and sells 172 pr d of the day she has 584 pastries in w many pastries did she start the da 66 pastries bay's Balloon Emporium sells boxes are are 100 balloons in a box. In Ja February, they sell 6 boxes. If they w many balloons do they have left 0 balloons tend Your Thinking The bar diag p word problem. Write a two-step	142 = x; 465 = x; <i>r</i> ; 788 beads se Place Value to Fluently Add and Subtract within 1,000 81 867 = 235 + k 632 = k 632 = k 100 Monday, astries. At the her bakery. ny with? 100 100
m = m = STI pass she ence The In F how 10 Ext ste rep	EXAMPLE CONNECTION 465 + 323 = y; 788 = y unit 2 · U an you solve for the unknown? = 456 - 236 9. = 220 EM Connection Saffron keeps track stries she has at her bakery each da bakes 324 pastries and sells 172 pi d of the day she has 584 pastries in w many pastries did she start the da 16 pastries 17 part of the start the data 18 pastries 19 part of the start the data 19 pastries 19 part of the start the data 19 pastries 10 balloons Emporium sells boxes are are 100 balloons in a box. In Ja February, they sell 6 boxes. If they w many balloons do they have left 10 balloons 10 	142 = x; 465 = x; 788 beads se Place Value to Fluently Add and Subtract within 1,000 81 867 = 235 + k 632 = k 632 = k 100 Monday, astries. At the her bakery. by with? 100 100
m = m = m = STI pass she ence How 73 Elro The In F how 10 Ext rep	EXAMPLE CONNECTION A (65 + 323 = y; 788 = y) Unit 2 · Using	142 = x; 465 = x; ; 788 beads se Place Value to Fluently Add and Subtract within 1,000 81 867 = 235 + k 632 = k 867 = 235 + k 632 = k k of the y. On Monday, astrise. At the her bakery. y with? • of balloons. muary, they sell 3 boxes. started with 10 boxes, to sell? ram represents a two- word problem that could
r ca m = m = STI pass she ence The In F how 10 Ext stel rep 11 STI Sa	EXAMPLE answer: Jenna bad 144	142 = x; 465 = x; r; 788 beads se Place Value to Fluently Add and Subtract within 1,000 81 867 = 235 + k 632 = k 867 = 235 + k 632 = k 867 = 235 + k 632 = k 867 = 235 + k 632 = k 100 Monday, astries. At the her bakery. wy with? 100 For balloons. Inuary, they sell 3 boxes. started with 10 boxes, to sell? ram represents a two- word problem that could 4 stickers. Kya cave her
m = m = m = m = m = m = m = m = m = m =	an you solve for the unknown? = $465 + 323 = y$; $788 = y$ unit 2 · Us an you solve for the unknown? = $456 - 236$ 9. = 220 EM Connection Saffron keeps track stries she has at her bakery each dar a bakes 324 pastries and sells 172 pr d of the day she has 584 pastries in w many pastries did she start the dar 36 pastries by's Balloon Emporium sells boxes are are 100 balloons in a box. In Jar 37 balloons 38 constries 40 balloons 40 balloons 40 balloons 40 balloons 41 256 103 41 256 103 41 256 103 55 more stickers. Then Jenn	142 = x; 465 = x; ; 788 beads se Place Value to Fluently Add and Subtract within 1,000 81 867 = 235 + k 632 = k k of the y. On Monday, astries. At the her bakery. wy with? of balloons. started with 10 boxes, to sell? ram represents a two- word problem that could 4 stickers. Kya gave her a bought 103 stickers.
m = m = m = m = m = m = m = m = m = m =	EXAMPLE answer: Jean you solve for the unknown? 465 + 323 = y; 788 = y $unit 2 \cdot us$ an you solve for the unknown? = 456 - 236 9. = 220 EM Connection Saffron keeps traction three sizes and sells 172 p. d of the day she has 584 pastries in w many pastries did she start the data 16 pastries by's Balloon Emporium sells boxes are are 100 balloons in a box. In Ja- Tebruary, they sell 6 boxes. If they w many balloons do they have left 10 balloons 14 256 103 14 256 103 15 more stickers. Then Jenn by many stickers does Jenn 16 more stickers. Chen Jenn	142 = x; 465 = x; r; 788 beads se Place Value to Fluently Add and Subtract within 1,000 81 867 = 235 + k 632 = k k of the y. On Monday, astries. At the her bakery. ny with? • of balloons. unuary, they sell 3 boxes. started with 10 boxes, to sell? ram represents a two- word problem that could 4 stickers. Kya gave her a bought 103 stickers. a have now?
m = m = m = m = m = m = m = m = m = m =	an you solve for the unknown? = $465 + 323 = y$; $788 = y$ unit 2 · Us an you solve for the unknown? = $456 - 236$ 9. = 220 EM Connection Saffron keeps track stries she has at her bakery each da bakes 324 pastries and sells 172 pi d of the day she has 584 pastries in w many pastries did she start the da 16 pastries by's Balloon Emporium sells boxes are are 100 balloons in a box. In Ja February, they sell 6 boxes. If they w many balloons do they have left 0 balloons tend Your Thinking The bar diaging p word problem. Write a two-step present the bar diagram. 14 256 103 	142 = x; 465 = x; r; 788 beads se Place Value to Fluently Add and Subtract within 1,000 81 867 = 235 + k 632 = k k of the y. On Monday, astries. At the her bakery. wy with? of balloons. muary, they sell 3 boxes. started with 10 boxes, to sell? ram represents a two- word problem that could 4 stickers. Kya gave her a bought 103 stickers. a have now?
m = m = m = STI pass shee enco 73 Elro The In F how 10 Ext step In F how 25 Ho Re 25 Ho Re	EXAMPLE answer: $323 = y$; $788 = y$ Unit 2 · U an you solve for the unknown? = 456 - 236 9. = 220 EM Connection Saffron keeps track stries she has at her bakery each da a bakes 324 pastries and sells 172 pi d of the day she has 584 pastries in w many pastries did she start the da 36 pastries by's Balloon Emporium sells boxes are are 100 balloons in a box. In Ja February, they sell 6 boxes. If they w many balloons do they have left 0 balloons tend Your Thinking The bar diag p word problem. Write a two-step oresent the bar diagram. 14 256 103 19 more stickers. Then Jenn 56 more stickers. Then Jenn 57 more stickers does Jenn 67 flect 19 more may vary.	142 = x; 465 = x; ; 788 beads se Place Value to Fluently Add and Subtract within 1,000 81 867 = 235 + k 632 = k 867 = k 867 = k 868 = k 868 = k 868 = k 868 = k 868 = k 868 = k 86
x ca m = m = STI pass she enc How 73 Elrcc The In F how 10 Externa Sa 25 How Sa 25 How Sa 25 How Sa 25 How 10 10 10 10 10 10 10 10 10 10	EXAMPLE answer: $323 = y$; $788 = y$ unit 2 · Us an you solve for the unknown? = $456 - 236$ 9. = 220 EM Connection Saffron keeps track tries she has at her bakery each da bakes 324 pastries and sells 172 pr d of the day she has 584 pastries in w many pastries did she start the da 16 pastries by's Balloon Emporium sells boxes are are 100 balloons in a box. In Ja February, they sell 6 boxes. If they w many balloons do they have left 10 balloons 14 256 103 14 256 103 15 more stickers. Then Jenn bw many stickers does Jenn flect can you make sense of a two-step wers may vary.	142 = x; 465 = x; r; 788 beads se Place Value to Fluently Add and Subtract within 1,000 81 867 = 235 + k 632 = k 867 = 235 + k 632 = k 87 87 87 87 87 87 87 87 87 87

Practice

Build Fluency from Understanding

Common Misconception: Exercise 11 Students may misinterpret the question and provide the number of boxes, instead of the number of balloons, left to sell.

Practice Item Analysis

DOK	Rigor
1	Conceptual Understanding
2	Application
1	Procedural Skill and Fluency
2	Application
3	Application
1	рок 2 2 2 3

Reflect

Students complete the Reflect question.

- How can you make sense of a two-step problem?
- Ask students to share their reflections with their classmates.

Math is... Mindset

How have you thought about a problem in a different way?

Students reflect on how they practiced responsible decision-making.

earning Targets

Ask students to reflect on the Learning Targets of the lesson.

- I can solve problems that have more than one step.
- I can explain how to solve problems that have more than one step.

To review today's lesson, have students watch the Math Replay video in their Digital Student Center.

Assign the On My Own practice to students from the Digital Teacher Center.



Exit Ticket Formative Assessment

The Exit Ticket assesses students' understanding of lesson concepts.

Metacognitive Check *Reflect on Your Learning* allows students to think about their level of understanding of the lesson content on a scale of 1 to 4 with 4 being the highest confidence.

Exit Ticket Skill Tracker

Item	DOK	Skill	Standard
1	2	Solve two-step word problems represented with an equation with a letter for the unknown	3.0A.D.8
2	2	Solve two-step word problems represented with an equation with a letter for the unknown	3.0A.D.8
3	2	Solve two-step word problems represented with an equation with a letter for the unknown	3.0A.D.8

Data Use students' scores on the *Exit Ticket* to assign the differentiated resources available. When students complete the *Exit Ticket* in the digital workspace, their responses are auto-scored.

Exit Ticket Recommendations

If students score	Then have students do
3 of 3	Additional Practice or any of the $f B$ or $f B$ activities
2 of 3	<i>Take Another Look</i> or any of the 🕒 activities
1 or fewer of 3	Small Group Intervention or any of the 🕞 activities

Key for Differentiation

Reinforce Understanding

- Build Proficiency
- **G** Extend Thinking



Lesson 2-12 Exit Ticket

Name____

4 TI 400		stibuto					
I here are 128 passengers on the train. At the first stop, 1/							
passengers get on the train and 45	passengers get on the train and 45 passengers get on the train.						
Which pair of equations can be us	Which pair of equations can be used to find the number of						
passengers on the train after the r	passengers on the train after the first stop?						
A. $128 + 60 = a$	(B.) $128 - 17 = a$	e oth an					
188 = a	111 = a	ST III O					
188 - 17 = D 171 - b	111 + 43 = b 154 - b	roed das					
171 – 5	154 – 6	d for lice					
C. $43 + 128 = a$	D. $43 + 17 = a$	sproduce					
1/1 = a	60 = a	nay be					
1/1 + 1/ = b	128 - 60 = b	naterial					
188 <i>= b</i>	b = b	This					
 Jayla earned \$187 babysitting. She went shopping and bought headphones for \$129 and a carrying case for \$26. How much money does she have left? Jayla has \$ 32 . 							
3. The principal needs 243 party favors for the third-grade party. One parent donates 40 party favors. A second parent donates 125 party favors. How many party favors does the principal still need?							
(A.) 78 party favors B. 118	(A.) 78 party favors B. 118 party favors						
C. 178 party favors D. 20	03 party favors	lacation					
Reflect On Your Learning							
l'm l'm still learning. confused.	l understand. l can teach someone else.	Cogni					
0	— <u> </u>						
26 Assessment Resource Book							
GO ONLINE

INDEPENDENT WORK

82B

Reinforce Understanding

Find the Solution

Work with students in pairs. Provide students with two-step word problems. Have the students work together to solve the problems. Students should check their answers to the problems to make sure they make sense. If students struggle, encourage them to draw a picture or diagram to show what they know after the first sentence, then apply that information to determine what they know after the second sentence, and so on.

Build Proficiency

WORKSTATIONS

ONLINE

00

NDEPENDENT WORK

Practice It! Game Station

Multi-Step Addition or Subtraction Race Students solve multi-step addition and subtraction problems.



Take Another Look Lesson

Assign the interactive lesson to reinforce targeted skills.

Add and Subtract in Word
 Problems



Differentiation Resource Book, p. 23

Lesson 2-12 · Reinforce Understanding How Can I Solve Two-Step Problems Involving Addition and Subtraction?

Name

Review

Julius works at an orchard.for two days. On the first day, he picks 231 apples. On the second day, he picks 16 fewer apples than on first day. How many apples does he pick this week?

Step One	Step Two
How many applesdoes he pick on the second day?	How many apples does he pick this week?
231 - 16 = a	231 + 215 = b
231-1=230	231 + 200 = 431
16 – 1 = 15	431 + 10 = 441
230 - 15 = 215	441 + 5 = 446
He picks 215 apples on the second day.	He picks a total of 446 apples this week.

Solve. Show your work. Check students' work.

- Lola walked Monday, Tuesday, and Wednesday for a total of 270 minutes. She walked 112 minutes on Monday and 86 minutes on Tuesday. How long did she walk Wednesday?
 72 minutes
- Liam drove 462 miles Friday. He drove 21 more miles on Saturday than he did on Friday. How many total miles did Liam drive those two days? <u>945 miles</u>

Differentiation Resource Book

Interactive Additional Practice

Assign the digital version of the Student Practice Book.



Student Practice Book, pp. 23–24



Own It! Digital Station Build a Fire Tower Students design and Build Fluency Games Assign the digital game to develop WORKSTATIONS fluency with adding multiples of 10. **Spiral Review** Assign the digital Spiral Review Assign a digital simulation to apply **GO ONLINE** Practice to students or skills and extend thinking. download and print PDFs of the Spiral Review from the Digital Teacher Center.

Student Practice Book, pp. 23–24

Re	present and solve the problem. Use letters for the unknowns.	
3.	Blakely grows 847 zucchini. She sells 215 zucchini. She give away 140 zucchini. How many zucchini does she have left?	
	Sample answer: $215 + 140 = a$; $a = 355$; 847 - 355 = b; $492 = b$; Blakey has 492 zucchini.	ot be further reproduced or distributed.
4.	Tisha collects stamps. She has 612 stamps. Her mother gives her 131 more stamps. She then sells 107 of her stamps. How many stamps does she have now?	for licensed classificant site only and may i
	Sample answer: $612 + 131 = a$; $a = 743$; 743 - 107 = b; $b = 636$; Tisha has 636 stamps.	This motivital may be reproduced
5.	Victor is giving out flyers for a sporting event. He gave out 368 flyers. Then, he was given 248 more flyers to give out. If Victor now has 875 flyers, how flyers did he start with?	
	Sample answer: 875 – 248 = <i>x</i> ; <i>x</i> = 627; 627 + 368 = <i>y</i> ; <i>y</i> = 995; Victor had 995 flyers.	
		rgit © Molene-Hill Education
10	Write a two-step word problem for your child involving a family task such as shopping or paying bills. Have him or her explain the steps needed to find the solution.	Copy

Student Practice Book

Extend Thinking

Use It! Application Station

build a model of a tower that could be used by a park ranger to spot fires.



Websketch Exploration



Differentiation Resource Book, p. 24

Lesson 2-12 · Extend Thinking **How Can I Solve Two-Step Problems Involving Addition and Subtraction?**

Name

INDEPENDENT WORK

Renee worked Monday through Friday this week for a total of 40 hours. On Monday, she worked six hours. On Tuesday, she worked three more hours than on Monday. On Wednesday, she worked five fewer hours than on Tuesday. On Thursday, she worked seven more hours than on Wednesday.

1. How many hours did Renee work Monday through Thursday? Complete the table.

Day of the Week	Number of Hours Worked
Monday	6
Tuesday	9
Wednesday	4
Thursday	11
Friday	10

2. She is paid \$8 per hour. How much did she get paid for each day? Complete the table.

Day of the Week	Wages (\$)
Monday	48
Tuesday	72
Wednesday	32
Thursday	88
Friday	80

3. How much did Renee get paid for the week? **320**

Differentiation Resource Book

Unit Review



Students can complete the **Unit Review** to prepare for the **Unit Assessment.** Students may complete the Review in their Interactive eBook in the Digital Student Center.

Vocabulary Review

Item Analysis

Item	Lesson
1	2-7
2	2-3
3	2-2
4	2-3
5	2-1

Review

Item Analysis

Item	DOK	Lesson	Standard
6	1	2-1	3.NBT.A.1
7	1	2-2	3.NBT.A.1
8	2	2-4	3.NBT.A.2
9	1	2-4	3.NBT.A.2
10	1	2-3	3.NBT.A.1 3.NBT.A.2
11	1	2-5	3.0A.D.9
12	1	2-5	3.0A.D.9
13	2	2-6	3.NBT.A.2

To review the lessons in this unit, have students watch the Math Replay video in their Digital Student Center.

Assign the Unit Review practice to students from the Digital Teacher Center.



Item Analysis (continued)

Item	DOK	Lesson	Standard
14	2	2-7	3.NBT.A.2
15	1	2-8	3.NBT.A.2
16	1	2-9	3.NBT.A.2
17	3	2-10	3.NBT.A.2
18	1	2-11	3.NBT.A.2
19	2	2-12	3.0A.D.8

Performance Task

Standards: 3.NBT.A.1, 3.NBT.A.2, 3.OA.D.8, 3.OA.D.9 **Rubric** (6 points)

Parts A & B (DOK 2) – 2 points

- **2 POINTS** Student's work reflects proficiency adding and subtracting two 3-digit numbers. The student's solutions are both correct.
- **1 POINT** Student's work reflects developing proficiency adding and subtracting two 3-digit numbers. The solution to only one of the problems is correct.
- **0 POINTS** Student's work reflects a poor understading of adding and subtracting two 3-digit numbers. Both solutions for the problems are incorrect.

Parts C & D (DOK 3)– 2 points for each part

- **2 POINTS** Students work shows proficiency solving a two-step word problem. The student's solution is correct.
- **1 POINT** Students work shows developing proficiency of two-step word problems. The student's solution is correct.
- **0 POINTS** Student's work reflects a poor understading of two-step word problems. The student's solution is incorrect.

🥘 Reflect

The Reflect question provides an opportunity for students to express their understanding of the unit level focus question.



Performance Task

Saffron is helping in a new pastry shop that has been open for two weeks.

Pastry Shop Customers			
Week Number of Customers			
1	324		
2	289		
3	?		

Part A How many total customers did the pastry shop have in Weeks 1 and 2? 324 + 289 = 613 customers

Part B What is the difference between the number of customers in Weeks 1 and 2? 324 - 289 = 35 customers

Part C The pastry shop's goal is to have 800 customers within the first 3 weeks. How many customers must visit in Week 3 for the shop to reach the goal?

324 + 289 = 613 customers, 800 - 613 = 187 customers in Week 3 to meet her goal

Part D If the pastry shop has 847 visitors in the first 3 weeks, which week would have more customers: Week 1 or Week 3? How many more?

Week 1 would have more customers, 324 to 234. There were 90 more customers in Week 1.

Reflect

How can you use strategies to add and subtract multi-digit numbers?

Answers may vary.

86 Unit 2 • Performance Task

Fluency Practice





Fluency Check

Add or subtract.

3. 49 + 16 =	65	10. 58 + 2 =	60
4. 75 + 0 =	75	11. 89 – 23 =	66
5. 76 - 42 =	34	12. 19 + 2 =	21
6. 58 + 37 =	95	13. 52 – 1 =	51
7. 87 – 2 =	85	14. 54 – 31 =	23
8. 29 – 1 =	28	15. 17 + 25 =	42
9. $61 + 0 =$	61	16 , 49 + 48 =	97

Fluency Talk

Explain to a friend how to make 10 to add $28 + 17$. Sample answer: Since $17 = 2 + 15$, add $28 + 2 = 30$, and then $30 + 15 = 45$.
How is adjusting to make a 10 different when subtracting than when adding?
Sample answer: When adding, you add to one number and subtract from the other. When subtracting, you add to both numbers or subtract from both numbers.

Fluency practice helps students develop procedural fluency, that is, the "ability to apply procedures accurately, efficiently, and flexibly." Because there is no expectation of speed, students should not be timed when completing the practice activity.

Build Fluency Objective Students use 10 to add and subtract within 100.

Fluency Progression

Unit	Skill	Standard
1	Add and Subtract 0, 1, and 2 (Within 100)	2.NBT.B.5
2	Use 10 (Within 100)	2.NBT.B.5
3	Use Partial Sums to Add (Within 100)	2.NBT.B.5
4	Decompose to Subtract (Within 100)	2.NBT.B.5
5	Use Partial Sums to Add (Within 1,000)	3.NBT.A.2
6	Decompose to Subtract (Within 1,000)	3.NBT.A.2
7	Multiply by 2	3.0A.C.7
8	Multiply by 10	3.0A.C.7
9	Multiply by 5	3.0A.C.7
10	Multiply by 4	3.0A.C.7
11	Multiply by 3	3.0A.C.7
12	Multiply by 6 and 7	3.0A.C.7
13	Multiply by 8 and 9	3.0A.C.7

Fluency Expectations

Grade 2

- Add and subtract within 20 by memory.
- Add and subtract within 100.

Grade 3

- Add and subtract within 1,000.
- Multiply and divide within 100.

Grade 4

• Add and subtract within 1,000,000.

Number Card Reasoning

Student draw on their understanding of place value to add and subtract. Use the rubric shown to evaluate students' work.

Standard 3.NBT.A.1, 3.NBT.A.2

Rubric (10 points)

Part A (DOK-1) - 2 points

- **2 POINTS** Student's work reflects proficiency with understanding place value of 3-digit numbers. Student rounds numbers correctly.
- 1 POINTS Student's work reflects developing proficiency with place value of 3-digit numbers and with two correct answers.
- **OPOINTS** Student's work shows weak proficiency with place value of 3-digit numbers and answers one question correctly.

Part B (DOK-3) – 2 points

- **2 POINTS** Student's work reflects proficiency with identifying the greatest sum of two numbers and explains why.
- **1 POINTS** Student's work reflects developing proficiency by identifying the greatest sum of two numbers, but does not explain why.
- **OPOINTS** Student's work shows weak proficiency with identifying the greatest sum of two numbers and does not explain why.

Part C (DOK-3) – 2 points

- **2 POINTS** Student's work reflects proficiency with identifying the only two numbers with the greatest difference and explains why.
- **1 POINTS** Student's work reflects developing proficiency with identifying the only two numbers with the greatest difference, but does not explain why there is only one correct solution.
- **OPOINTS** Student's work shows weak proficiency with identifying the two numbers that will have the greatest difference. Does not explain clearly why there can only be one correct solution.

Part D (DOK-2)- 2 points

- **2 POINTS** Student's work reflects proficiency by correctly showing two different ways to add.
- **1 POINTS** Student's work reflects developing proficiency by showing one correct way to add or shows two ways to add correctly but does not show addition correctly.
- **OPOINTS** Student's work shows weak proficiency with adding, adds incorrectly, or cannot showing the strategy.

Part E – 2 points

- 2 POINTS Student's work reflects proficiency by correctly showing two ways to subtract.
- **1 POINTS** Student's work reflects developing proficiency by showing one correct way to subtract or shows two ways to subtract but does not subtract correctly.
- **OPOINTS** Student's work shows weak proficiency with subtraction; subtracts incorrectly or cannot show the strategy.

Performance Task							
Name	Name						
Numb	Number Card Reasoning						
You have a deck of number cards. Each card has a number from 0 to 9. Suppose you turn over six of the cards and you see the numbers shown.							
4	5	1	2	0	3		
Part A							

Use the numbers on the cards to write two 3-digit numbers. One number should be the greatest number you can make and the other should be the least. The 0 card cannot be in hundreds place. You may use sticky notes to make the cards easy to move around to make different numbers. 543, 102

Write your two numbers in expanded form. 500 + 40 + 3:100 + 0 + 2

Round your numbers to the nearest hundred and the nearest ten. 500 and 100; 540 and 100

Part B

Unit 2

Use the number cards. What is the greatest possible sum of two 3-digit numbers? You may only use each number on the number cards once. Explain your answer.

951; 531 + 420 = 951; To get the largest sum, the digits with the greatest value, 4 and 5, need to be in the hundreds place. The digits 2 and 3 need to be in the tens place. The digits with the least value are in the ones place.

Assessment Resource Book 27

Part C

Use the number cards. What is the greatest possible difference of two 3-digit numbers? You may only use each number on the number cards once. Is there more than one correct answer? Explain. 543 - 102 = 441; No, because the greatest difference is the difference between the greatest number and the least number I wrote in Task A.

Part D

Use the pair of numbers you used to make the greatest sum in Part B and show the addition two different ways. State which method you think is more efficient. Sample answer: Way 1: use partial sums 531 + 420 = 500 + 400 = 900 and 30 + 20 = 50 and 1 + 0 = 1. So, 900 + 50 + 1 = 951; Way 2: take 31 from 531 and add it to 420 to get 451 and then you have 500 + 451 = 951; I think using partial sums is the most efficient method because it is quicker to add by place value.

Part E

Make two new 3-digit numbers with the number cards and find the difference. Show the subtraction in two ways. State which method you think is more efficient. Sample answer: Way 1: 541 - 203. I subtracted 3 from each number which gave me 538 – 200 = 338; Way 2: I added 7 to each number to get 548 - 210 = 338. I think the first method is more efficient because I can subtract 538 - 200 in my head. I only need to subtract 200 from 500.

28 Assessment Resource Book

Unit Assessment

Two forms of the Unit Assessment, Form A and Form B, are available for either print or digital administration. The items on the two assessments are parallel items, assessing the same concept and standard. The table below provides the item analysis for both forms.

Both Unit Assessments are available in the Assessment Resource Book or as downloadable files from the Digital Teacher Center.

Data When students complete the Unit Assessment in the Digital Student Center, their responses are auto-scored.

Item Analysis

ltem	DOK	Lesson	Guided Support Intervention Lesson	Standard
1	1	2-2	Round 3-Digit Numbers (Nearest 10)	3.NBT.A.1
2	1	2-1	Expanded Form through 9,999	3.NBT.A.1
3	1	2-10	Add Two 3-Digit Numbers	3.NBT.A.2
4	2	2-6	Add 3- and 2-Digit Numbers	3.NBT.A.2
5	1	2-11	Subtract 3- & 2-Digit Number (Regroup)	3.NBT.A.2
6	3	2-3	Round 3-Digit Numbers (Nearest 100)	3.NBT.A.1
7	2	2-9	Use a Related Addition Fact to Subtract	3.NBT.A.2
8	3	2-8	Subtract-Take Apart Tens and Ones	3.NBT.A.2
9	1	2-7	Subtract-Take Apart Tens and Ones	3.NBT.A.2
10	2	2-12	Add and Subtract in Word Problems	3.0A.D.8
11	2	2-4	Add 3- and 2-Digit Numbers	3.NBT.A.2
12	1	2-11	Subtract 3- & 2-Digit Number (Regroup)	3.NBT.A.2
13	1	2-10	Add Two 3-Digit Numbers	3.NBT.A.2
14	1	2-11	Subtract 3-Digit Numbers across Zeros	3.NBT.A.2
15	3	2-5	Even and Odd Addition Patterns	3.0A.D.9
16	2	2-12	Add and Subtract in Word Problems	3.0A.D.8
17	3	2-4	Add 3- and 2-Digit Numbers	3.0A.D.9
18	2	2-2	Round 3-Digit Numbers (Nearest 100)	3.NBT.A.1

GD

Assign the digital Unit Assessment (Form A or B) to students or download and print PDFs from the Digital Teacher Center.



	- U		
	Na	ma	
distributed.	1	Which of the following numbers has been rounded correctly	
to people of	1.	to the nearest ten?	
t be further re		A. 288 \rightarrow 300 B. 357 \rightarrow 360	
ou fou puo		C. $384 \rightarrow 390$ D. $425 \rightarrow 420$	
om uso anly			
ensed cinsta	2.	What is seven thousand, three hundred ninety-eight written ir	i
pl to pootpo		standard form and expanded form?	
ney be repor		7,398 7,000 + 300 + 90 +	8
This matteria	3.	On Monday, Kenji read 248 pages of a book. On Tuesday, he read 175 pages. How many pages did Kenji read over the two days? pages	
	4.	Tarek is solving 461 + 327 using partial sums. To find the partial sums of the tens, which numbers would he add?	
		(A) 60 + 20 B. 60 + 30	
		C. 40 + 30 D. 10 + 70	
Education			
McGraw-Hill	5.	Hector is reading a book with 542 pages. He has already read	d
Copyright ©		299 pages. How many pages are left to read?	
		A. 241 pages (B. 243 pages	
		C. 341 pages D. 343 pages	
6. Ca nu	ssie mbe	Assessment Resour	ce Book 29
6. Ca nu • F • 1 WH Ca €. C. 7. Us two ↓	ssie mbe First, fhen hich o ssie 94' 94' e the o wa	wants to estimate the difference between two rs. she rounded both numbers to the nearest hundred, , she subtracted her two rounded number to get 700. expression could be the original subtraction problem started with? Choose all that apply. 2 - 125 B . 937 - 149 1 - 251 D . 852 - 163 e bar diagram to help you find the unknown number ys.	ce Book 29 Prettype promodula upper of on language provide a set our owner preserve of the set our owner preserve out owner preserve out owner prese
5. Ca nu • F • 1 Wh Ca • • • • • • • • • • • • • • • • • •	ssie mbe First, Then hich o ssie 94' 94' e the	Assessment Resour wants to estimate the difference between two rs. she rounded both numbers to the nearest hundred. , she subtracted her two rounded number to get 700. expression could be the original subtraction problem started with? Choose all that apply. 2 – 125 B. 937 – 149 I – 251 D 852 – 163 e bar diagram to help you find the unknown number ys.	properties the provided and the properties of th
5. Ca nu • F • 1 WH Ca C. C. Us two • • • 38	ssie mbe First, hen hich o ssie 94' 94' 1+_	wants to estimate the difference between two rs. she rounded both numbers to the nearest hundred. , she subtracted her two rounded number to get 700. expression could be the original subtraction problem started with? Choose all that apply. 2 - 125 B. $937 - 1491 - 251$ D. $852 - 163e bar diagram to help you find the unknown numberys.547$	ce Book 29
6. Ca nu • F • 1 Wh Ca € • C. 7. Us two two \$ 54	ssie mbe first, fhen nich o ssie 94' 94' 94' 1+ 1+ 	wants to estimate the difference between two rs. she rounded both numbers to the nearest hundred. , she subtracted her two rounded number to get 700. expression could be the original subtraction problem started with? Choose all that apply. 2 - 125 B . 937 – 149 1 - 251 D $852 - 163e bar diagram to help you find the unknown numberys.547547547$	ce Book 29 Protograp o peopode supply o fait per fait set mesono passag in peopode sq hu protograp o
6. Ca nu • F • 1 Wh Ca • C. • C. • C. • C. • C. • C. • C. • S. • Wh • C. • C. • S. • S. • S. • S. • S. • S. • S. • S	ssie mbe First, hen ich (ssie) 782 94' 94' 94' 94' 94' 94' 94' 94' 94' 94'	wants to estimate the difference between two rs. she rounded both numbers to the nearest hundred. , she subtracted her two rounded number to get 700. expression could be the original subtraction problem started with? Choose all that apply. 2 - 125 B. $937 - 1491 - 251$ D. $852 - 163a bar diagram to help you find the unknown numberys.547$	perturbative and the perturbative perturbati
5. Ca nu • F • 1 WH Ca • C. • C. • Us two • two • • • • • • • • • • • • • • • • • • •	ssie mbe irst, hen nich o ssie) 782 94' 94' 94' 94' 94' 94' 94' 94' 94' 94'	wants to estimate the difference between two rs. she rounded both numbers to the nearest hundred. , she subtracted her two rounded number to get 700. expression could be the original subtraction problem started with? Choose all that apply. 2 - 125 B. $937 - 1491 - 251$ D $852 - 163e bar diagram to help you find the unknown numberys.547$	real Book 29
 6. Ca nu F T Wf Ca C C T Us T C T Us T <	ssie mbe first, hen hich (ssie) 78: 94' e the o wa 1+ 43!) 93: 85' 29' ww.ca	wants to estimate the difference between two rs. she rounded both numbers to the nearest hundred. she subtracted her two rounded number to get 700. expression could be the original subtraction problem started with? Choose all that apply. 2 - 125 B. 937 - 149 1 - 251 D 852 - 163 e bar diagram to help you find the unknown number ys. 547 	prepared to a proposition used to a proposition of the true (for our processity) promotion of the proposition of the propositio
6. Ca nu • F • 1 Wh Ca • C. • C. • Us • two • two • • • • 1 • • 1 • • 1 • • • • • 1 •	ssie mbe irst, hen ich o ssie 94' 94' 94' 1+_ 77- 1+_ 1+_ 1+_ 1+_ 93' 85' 299 062: 85' 299	wants to estimate the difference between two rs. she rounded both numbers to the nearest hundred. , she subtracted her two rounded number to get 700. expression could be the original subtraction problem started with? Choose all that apply. 2 - 125 B. $937 - 1491 - 251$ D. $852 - 163a bar diagram to help you find the unknown numbery.547$	cee Book 29
 Ca nu F T WH Ca C. C. T. Us T. Us T. Us S. WH A. B. WH A. B. D. E. P. Hoo T22 T23 T24 T24	ssie mbe irst, hen ich o ssie) 782 94' 94' 1+_ 7- 1+ 1+_ 7- 1+ 438 93' 93') 622 85' 299 062 99-	wants to estimate the difference between two rs. she rounded both numbers to the nearest hundred. , she subtracted her two rounded number to get 700. expression could be the original subtraction problem started with? Choose all that apply. 2 - 125 B . $937 - 1491 - 251$ D $852 - 163ab bar diagram to help you find the unknown numberys.547$	ce Book 29
 C. Can units of the second seco	ssie mbe irst, hen ssie 94' e the o wa 1+ - 7 - - 1+ - - 7 - - 1 - 93' 93' 93' 93' 93' 99 - - 99 - -	wants to estimate the difference between two rs. she rounded both numbers to the nearest hundred. she subtracted her two rounded number to get 700. expression could be the original subtraction problem started with? Choose all that apply. 2 - 125 B. $937 - 1491 - 251$ D $352 - 163ab bar diagram to help you find the unknown numbery.547$	CeBbook 29
 6. Ca nu F T Wh Ca C. C. T. Us T. Us S4 S4	ssie mbe irst, hen ssie 94 e the o wa 94 1+_ 7- 1 438 93) 622 299 0622 99 - 99 - 99 -	wants to estimate the difference between two rs. she rounded both numbers to the nearest hundred, she subtracted her two rounded number to get 700. expression could be the original subtraction problem started with? Choose all that apply. 2 - 125 B. $937 - 1493 - 251$ B. $937 - 1493 - 94 - 431 - 1003 - 94 - 431 - 1003 - 94 - 431 - 1003 - 94 - 431 - 1003 - 135 - 300 - 130an you decompose to solve 729 - 405? Fill in the blanks.405 = ?400 - 3295 - 324$	Cognythic CheCounnell Education

Ur	nit Ass	essment, Fori	m A (continued	d)		
Na	me					
10.	The sc	hool cafeteria get	s 247 apples ar	nd 289 oranges	s to	
	serve f	or lunch. During the their lunch. How	he week, stude	nts eat 352 pie of fruit are left?	ces of	
	A . 10	5 pieces of fruit	B 184	pieces of fruit		
	C . 310) pieces of fruit	D. 394	pieces of fruit		
11.	On Mo After re Finally	nday, Ellie jumps esting, she jumps she jumps the ro	the rope 213 tin the rope 324 ti pe 186 times.	nes. Then she r mes. Then she	ests. rests.	
	Which	expressions show Choose all that a	rs how to find the pply.	he total number	rof	
	A. 32	4 + 186 + 213	B. 213	+ 186 - 324		
	C . 186	5 + 213 - 324	D. 213	+ 324 + 186		
12.	Lukas much o Dane s	saved \$739. Dane lid Dane save? aved \$ <u>455</u>	e saved \$284 le	ess than Lukas.	How	
			ol			
13.	in Eurc	un collects coins. pe. She has 443 d	one collects 27	o coins from co r countries. How	w many	
	coins c	loes she have alto	ogether?		J	
	A. 72	1 coins	B. 711 c	coins		
	C . 62	1 coins	D. 611 c	coins		
14	Kolvin	wine 508 tickets wi	hilo plaving area	de games He i	1505 247	
14.	tickets	to get a prize. How	v many tickets d	oes Kelvin have	left?	
	A. 26	1 tickets	B. 241	tickets		
	6	tickotc	D 151+	ickoto		
	0.16	lickets	D. 1511	ICKELS		
vrar	ian has	an even number o	D. ISIT		ent Resource B	ook
orar kca	ian has ses. Ch	an even number of	of new books to ell if each arran	Assessm	ent Resource B	ook
orar kca sibl	ian has ses. Ch e with a	an even number of eck Yes or No to t n even number of Bookcase B	of new books to ell if each arran ⁵ books to put o Yes	Assessm p put in two ngement is on the shelves.	ent Resource B	ook
orar kca sibl	ian has ses. Ch e with a case A /en	an even number of eck Yes or No to t n even number of Bookcase B odd	of new books to ell if each arran books to put o Yes	Assessm o put in two agement is on the shelves.	ent Resource B	doutleated.
orar kca sibl ook ev nur	ian has ses. Ch e with a case A /en nber	an even number of eck Yes or No to t n even number of Bookcase B odd number	of new books to ell if each arran i books to put o Yes	Assessm o put in two agement is in the shelves.	ent Resource B	polosed or distilluted
orar kca sibl ook nur o	ian has ses. Ch e with a case A /en nber dd	an even number of eck Yes or No to t n even number of Bookcase B odd number odd	of new books to ell if each arran books to put o Yes	Assessm o put in two igement is in the shelves.	ent Resource B	further reproduced or distributed.
orar kca sibl ook ev nur o nur	ian has ses. Ch e with a case A /en nber dd nber	an even number of eck Yes or No to t n even number of Bookcase B odd number odd number	of new books to ell if each arran books to put o Yes	Assessm opput in two agement is on the shelves.	ent Resource B	may not be further reproduced or distributed.
orar kca sibl ook nur o nur o	ian has ses. Ch e with a case A /en nber /en nber	an even number of eck Yes or No to t n even number of Bookcase B odd number odd number even number	of new books to ell if each arran books to put o Yes	Assessm opput in two agement is on the shelves.	ent Resource B	to only and may not be finither reproduced or distituted.
orar kca sibl ook nur o nur ev nur	ian has ses. Ch e with a case A /en nber /en nber /en nber	an even number of eck Yes or No to t n even number of Bookcase B odd number odd number even number	of new books to ell if each arran books to put o Yes	Assessm o put in two agement is in the shelves.	ent Resource B	dissoom use only and may not be further reproduced or distiluted.
orar kca sibl ook nur o nur ev nur	ian has ses. Ch e with a case A /en nber /en nber /en nber /en nber	an even number of eck Yes or No to t n even number of Bookcase B odd number odd number even number 8 hair bows. She c	of new books to ell if each arran books to put o Yes V gave 142 bows t	Assessm o put in two agement is in the shelves.	ent Resource B	for loosed classoon use say and may not be further reportioned or distituted.
prar kca sibl ook nur o nur ev nur	ian has ses. Ch e with a case A /en nber /en nber /en nber ade 308 eah mac	an even number of eck Yes or No to t n even number of Bookcase B odd number odd number even number 8 hair bows. She g te 169 bows. How	of new books to ell if each arran books to put o Yes Jave 142 bows to many bows do	Assessm	ent Resource B	reproduced for Research disasson use only and may not be further reproduced or distillutued.
prar kca sibl ook nur o nur ev nur ev nur	ian has ses. Ch e with a case A /en nber dd nber /en nber ade 308 eah mac how yor le ans	an even number of eck Yes or No to t n even number of Bookcase B odd number odd number even number 8 hair bows. She g a hair bows. She g ur work. Use a lett wer: 308 – 142	of new books to ell if each arran books to put o Yes yave 142 bows to many bows to err to represent 2 = a; a = 16	Assessm	ent Resource B	rial may be reproduced for Renseed these one and and not be findine reproduced on that that
prar kca sibl ook nur o nur ev nur ev nur ev nur	ian has ses. Ch e with a case A /en nber /en nber /en ade 308 eah mac how you le ans 169 =	an even number of eck Yes or No to t n even number of Bookcase B odd number odd number even number 8 hair bows. She g le 169 bows. How ur work. Use a lett wer: 308 – 142 b; b = 335;	of new books to ell if each arran books to put o Yes yave 142 bows for many bows do the represent 2 = a; a = 16	Assessm o put in two agement is in the shelves.	ent Resource B	The material may be repositioned for these or diseason use only and may not be further repositioned or that banked.
orar kca sibl ook nur o nur ev nur ev nur	ian has ses. Ch e with a case A /en nber /en /en nber /en nber /en nber /en nber /en nber /en nber /en nber /en nber /en nber /en nber /en nber /en nber /en nber /en nber /en nber /en nber /en nber /en nber /en nber /en /en nber /en nber /en /en nber /en /en /en nber /en /en /en /en /en /en /en /en /en /en	an even number of eck Yes or No to t n even number of Bookcase B odd number odd number even number 8 hair bows. She g te 169 bows. How ar work. Use a lett wer: 308 – 142 b; b = 335; 5 hair bows.	of new books to ell if each arran books to put o Yes yave 142 bows to many bows do rer to represent 2 = a; a = 16	Assessm o put in two agement is in the shelves. No V to her sister. bes she have the unknown. 56;	ent Resource B	This material may be reproduced by Reenord classroom are only and may not be further reproduced to distributed.
nur orar ev nur o nur ev nur ev nur ev nur	ian has ses. Ch e with a case A /en nber /en /en nber /en nber /en nber /en nber /en nber /en nber /en nber /en nber /en nber /en nber /en nber /en nber /en nber /en nber /en nber /en nber /en nber /en nber /en nber /en /en nber /en nber /en /en nber /en /en /en nber /en /en /en /en /en /en /en /en /en /en	an even number of eck Yes or No to t n even number of Bookcase B odd number odd number even number B hair bows. She of the 169 bows. How ur work. Use a lett wer: 308 – 142 b; b = 335; 5 hair bows.	of new books to ell if each arran books to put o Yes gave 142 bows to many bows do er to represent 2 = a; a = 16	Assessm o put in two agement is in the shelves.	ent Resource B	The interiet mg be reported for learned descreme sets and mg not be future reported or distinated
orar kca sible ev nur o nur ev nur ev nur is a	ian has ses. Ch e with a case A /en nber / / / / / / / / / / / / / / / / / / /	an even number of eck Yes or No to t n even number of Bookcase B odd number odd number even number 3 hair bows. She g te 169 bows. How ur work. Use a lett wer: 308 – 142 5 bair bows. 5 hair bows.	b. Isree of new books to ell if each arran books to put o Yes 	Assessm p put in two igement is in the shelves. No Vo to her sister. pes she have the unknown. S6; 204 to add	ent Resource B	The material may be reproduced for learned diseasons use only and may out be further reproduced to distinated
prar kca sible ev nur o nur ev nur ev nur ev nur is a is a is a	ian has ses. Ch e with a case A /en nber /en no no /en no /en no /en no /en no /en no /en no /en no /en no /en /en /en /en /en /en /en /en /en /en	an even number of eck Yes or No to t n even number of Bookcase B odd number odd number even number 8 hair bows. She g le 169 bows. How ur work. Use a lett wer: 308 – 142 b; b = 335; 5 hair bows. 26 + 204. She su en, she subtracts by? Explain	b. Isrt of new books to ell if each arran books to put o Yes 	Assessm o put in two igement is in the shelves. No Vo to her sister. bes she have the unknown. 56; 204 to add . Do you agree	ent Resource B	This national may be reproduced by Research discovers use each and may not be further separational or distributed.
nur orar kca sible ev nur o nur ev nur o nur ev nur o nur is a + : is a + : S	ian has ses. Ch e with a case A /en nber /en /en /en /en /en /en /en /en /en /en	an even number of eck Yes or No to t n even number of Bookcase B odd number odd number even number 3 hair bows. She g de 169 bows. She g de 169 bows. How ur work. Use a lett wer: 308 – 142 b; b = 335; 5 hair bows. 26 + 204. She su en, she subtracts by? Explain. answer: Mia n	b. Isrt of new books to ell if each arran books to put o Yes gave 142 bows to many bows do ter to represent 2 = a; a = 16 ubtracts 4 from the sum eeds to add	Assessm o put in two Igement is on the shelves. No Image: the shelves. to her sister. to her sister. to her sister. the unknown. 56; 204 to add . Do you agree 4 to the sum	ent Resource B	The methods may be reproduced to these on the only and may not be further reproduced to the high-high-
orar kca sible ook nur o nur e nur e nur e nur e nur e nur e s is a + : is a + : is a + : is a	ian has ses. Ch e with a case A /en nber / / nber /en nber / / / / / / / / / / / / / / / / / / /	an even number of eck Yes or No to t n even number of Bookcase B odd number odd number even number 3 hair bows. She g the if 9 bows. How ur work. Use a lett wer: 308 – 142 5 hair bows. 5 hair bows. 26 + 204. She su en, she subtracts gy? Explain. answer: Mia nu ubtracting 4.	of new books to ell if each arran books to put o Yes gave 142 bows to many bows do the to represent 2 = a; a = 16 abtracts 4 from 14 4 from the sum eeds to add	Assessm o put in two agement is in the shelves. No V to her sister. bes she have the unknown. 56; 204 to add . Do you agree 4 to the sum	ent Resource B	The individing the reproduced for learned discussion use only and may cut for further reproduced to its lightened.
nur ev nur ev nur ev nur ev nur ev nur ev nur ev nur ev nur ev nur ev nur ev nur ev nur ev nur ev nur ev nur ev sibli si si sibli sibli si si si si sibli sibli si si si	ian has ses. Ch e with a case A /en nber dd nber /en nber / / / / / / / / / / / / / / / / / / /	an even number of eck Yes or No to t n even number of Bookcase B odd number odd number even number 3 hair bows. She g te 169 bows. How ar work. Use a lett wer: 308 – 142 b; b = 335; 5 hair bows. 26 + 204. She su en, she subtracts gy? Explain. answer: Mia ma ubtracting 4.	of new books to ell if each arran books to put o Yes gave 142 bows to many bows do the many bows do the rorepresent 2 = a; a = 16 ubtracts 4 from 1 4 from the sum eeds to add	Assessm o put in two agement is in the shelves. No V to her sister. bes she have the unknown. 56; 204 to add . Do you agree 4 to the sum	ent Resource B	The material may be reproduced by Remost discovers are only and may cut be further reportioned or Restlands.
orar kca sible ook ev nur o nur ev nur ev nur ev nur ev nur sible sible sible ook ev nur o nur ev nur o sible sibl	ian has ses. Ch e with a case A /en nber dd nber /en nber ade 308 eah mac how you le ansy 169 = nas 33 dding 3 200. Th r strateg d of su	an even number of eck Yes or No to t n even number of Odd number odd number even number B hair bows. She of the 169 bows. How ur work. Use a lett wer: 308 – 142 5 hair bows. 5 hair bows. 26 + 204 . She su en, she subtracts by? Explain. answer: Mia nu abtracting 4.	of new books to ell if each arran books to put o Yes gave 142 bows to many bows do er to represent 2 = a; a = 16 abtracts 4 from 1 4 from the sum	Assessm o put in two agement is on the shelves. No v to her sister. bes she have the unknown. S6; 204 to add . Do you agree 4 to the sum	ent Resource B	This indication up the reproduced for benness classions use only not be future reproduced to latituded
orar kca sibl ook nur ev nur ev nur ev nur ev s h h is a i + : Sa tea	ian has ses. Ch e with a case A /en nber / nber / / nber / / nber / / / / / / / / / / / / / / / / / / /	an even number of eck Yes or No to t n even number of Bookcase B odd number odd number even number 3 hair bows. She g te 169 bows. How ur work. Use a lett wer: 308 – 142 b b = 335; 5 hair bows. 26 + 204. She su en, she subtracts gy? Explain. answer: Mia no ubtracting 4.	of new books to ell if each arran books to put o Yes gave 142 bows to many bows do er to represent 2 = a; a = 16 abtracts 4 from 1 4 from the sum eeds to add	Assessm p put in two agement is in the shelves. No Volume to her sister. Des she have the unknown. S6; 204 to add . Do you agree 4 to the sum ister says that	In the source B	The material angle to reproduced for browned dearson are early and may not be future reproduced to the back-
orar kca sibl ev nur ev nur ev nur ev nur ev nur ev nur ev sibl sibl ev nur ev nur ev nur ev nur ev nur ev sibl sibl sibl sibl sibl sibl sibl sibl	ian has ses. Ch e with a case A /en nber / nber / / nber / / nber / / / / / / / / / / / / / / / / / / /	an even number of eck Yes or No to t n even number of Bookcase B odd number odd number even number B hair bows. She g te 169 bows. How ur work. Use a lett wer: 308 – 142 b b = 335; 5 hair bows. 26 + 204. She su en, she subtracts gy? Explain. answer: Mia no ubtracting 4.	of new books to ell if each arran books to put o Yes gave 142 bows to many bows do er to represent 2 = a; a = 16 abtracts 4 from 1 4 from the sum eeds to add of repairs. His s s. Which best d	Assessm o put in two agement is in the shelves. No Vo to her sister. bes she have the unknown. S6; 204 to add . Do you agree 4 to the sum ister says that escribes how	ent Resource B	well fiducion The maintif may be reported for leaved (account se od) and up of be finite reprised or listenet.
orar kca sibli ook nur on nur ev nur on nur ev nur or s s h h h h h h h h h h h h h h h h h	ian has ses. Ch e with a case A /en nber / nber / / nber / / nber / / / / / / / / / / / / / / / / / / /	an even number of eck Yes or No to t n even number of Bookcase B odd number odd number even number 8 hair bows. She g le 169 bows. How ur work. Use a lett wer: 308 — 142 5 hair bows. 5 hair bows. 26 + 204. She su en, she subtracts gy? Explain. answer: Mia no ubtracting 4. eds \$1,472 worth of it \$1,500 in repairs ith her estimate?	b. Isrt of new books to ell if each arran books to put o Yes 	Assessm o put in two Igement is in the shelves. No If the shelves. No If the shelves. No If the unknown. Sof; 204 to add . Do you agree 4 to the sum ister says that escribes how	ent Resource B	It is nativiting by reported to leave taken and any taken to be added to be ad
nur orar kca sibl ook nur o nur ev nur o nur ev nur o nur ev nur o nur ev nur o nur ev sibl ook sibl ook nur o nur ev sibl ook sibl oo sibl oo sibl oo sibl oo sibl oo sibl oo sibl oo sibl oo sibl oo sibl oo sibl oo sibl oo sibl oo sibl oo sibl oo sibl oo sibl oo sibl oo sibl oo sibloo si sibloo si si si si si si si si si si si si si	ian has ses. Ch e with a case A /en nber dd nber /en nber ade 308 eah mac how you le ans 169 = nas 33 dding 3 200. Th r strateg d of su car nee : is abou ne up w e roundd	an even number of eck Yes or No to t n even number of Bookcase B odd number odd number even number 8 hair bows. She g le 169 bows. How ur work. Use a lett wer: 308 – 142 b; b = 335; 5 hair bows. 26 + 204. She su en, she subtracts gy? Explain. answer: Mia nu ubtracting 4.	b. Isrt of new books to ell if each arran books to put o Yes 	Assessm o put in two igement is in the shelves. No ister sister. Des she have ister says that escribes how	ent Resource B	Copyrit C McGaverill Educion The anti-right may be reproduced to leaved teacour use only and may use be further reproduced to distributed.
nur orar kca sibl ook nur onur ev nur onur ev nur oris a + : b oris car sibl ook ook ook ook ook ook ook oo	ian has ses. Ch e with a case A /en nber dd nber /en nber ade 308 eah mac how you le ans 169 = nas 33 dding 3 200. Th r strateg ado f su car nee is abou ne up w e rounde	an even number of eck Yes or No to t n even number of Bookcase B odd number odd number even number B hair bows. She g de 169 bows. How ar work. Use a lett wer: 308 – 142 b; b = 335; 5 hair bows. 26 + 204. She su en, she subtracts by? Explain. answer: Mia nu btracting 4.	of new books to ell if each arran books to put o Yes gave 142 bows to many bows do to represent 2 = a; a = 16 ubtracts 4 from 1 4 from the sum eeds to add of repairs. His s s. Which best d one. ten. bundred	Assessm o put in two Igement is on the shelves. No Image: the shelves. to her sister. to her sister. to her sister. to her sister. 204 to add . Do you agree 4 to the sum ister says that escribes how	ent Resource B	Copyright C. McGan-Fill Education The netheration day be reproduced by Lennord detavorum use only and may use Lenten-produced on Databated.
m Lessa a sa a sa a sa a sa a sa a sa a s	ian has ses. Ch e with a case A /en nber dd nber /en ade 308 eahow you e ans ade 308 eahow you e ans ado ado 308 eahow you e ans ado ado 308 eahow you e ans ado	an even number of eck Yes or No to t n even number of Bookcase B odd number odd number even number 8 hair bows. She g de 169 bows. She g de 169 bows. She g de 169 bows. How ar work. Use a lett wer: 308 – 142 5 hair bows. 26 + 204. She su en, she subtracts by? Explain. answer: Mia nu answer: Mia nu an	bf new books to ell if each arran books to put o Yes gave 142 bows to gave 142 bows to rmany bows do cer to represent 2 = a; a = 16 abtracts 4 from 1 4 from the sum eeds to add of repairs. His s s. Which best do one. ten. hundred.	Assessm o put in two Igement is on the shelves. No Image: She have to her sister. Des she have the unknown. S6; 204 to add . Do you agree 4 to the sum ister says that escribes how	ent Resource B	Copyright Clabitionerfil Elonation Copyright Clabitionerfil Elonation

Form B

Un	it 2			
U	nit A	ssessn	ient, Form B	
Na 1.	Which o	of the followin earest ten?	ng numbers has been rounded correctly	
	 (A) 534 C. 829 	$\rightarrow 530$ $\rightarrow 820$	 B. 472 → 500 D. 383 → 390 	
2.	What is standard	nine thousai d form and e 273	rd, two hundred seventy-three written in xpanded form? 9,000 + 200 + 70 + 3	
3.	Last wee fair. This Khadija 507	ek, Khadija r s week she n make over t bookmar	nade 248 bookmarks to sell at the book nade 259, How many bookmarks did he two weeks? ks	
4.	Fred is s partial s A. 10 4	solving 178 + ums of the te + 40	- 429 using partial sums. To find the ans, which numbers would he add? B. 80 + 30	
	C. 80 -	+ 90	(b) 70 + 20	
5.	Kaleb is 492 pag A. 431 C. 331	reading a b ges. How ma pages pages	ook with 823 pages. He has already read ny pages are left to read? B. 415 pages D. 315 pages	
	kanana		Assessment Resource Book 33	
	481 948	+ 467 3-467	_= 948 = 481	
	8. Whi	ich equation 211 — 199 =	s are true? Choose all that apply.	
	B.	381 - 299 :	= 380 - 300	
	(C.) (D.)	794 - 283 822 - 109 :	= 800 - 289 = 813 - 100	
	E.	299 — 135 =	= 300 - 130	
	9. Hov	w can you de $3 - 304 = 2$	compose to solve 958 - 304? Fill in the blanks.	
	958	3 - <u>300</u>	_= 658	
	658	3 – <u>4</u>	_= 654	
	34 Asses	ssment Resource I	Jook	
		an off	A. 301 + 236 - 154 (B) 154 + 236 + 301 (C) 236 + 154 + 301 D. 236 + 154 - 301	
			 Emma saved \$752. Betty saved \$239 less than Emma. How much did Betty save? Betty saved \$ <u>513</u>. 	- Proventing and a constrained of the constrained o
			13. Pat collects trading cards. He has 481 baseball cards and 449 football cards. How many trading cards does Pat have altogether?	on be failers reproduced to dot
		dow-bill forceton	A. 820 trading cards B. 830 trading cards C. 920 trading cards D 930 trading cards	Seas par fipe our service oup p
		Copyright O Mc	 14. Aisha picks 406 blackberries. She use 275 blackberries to make jam. How many blackberries does Aisha have left? A. 121 blackberries (B) 131 blackberries 	and he reproduced for Acres
			C. 231 blackberries D. 271 blackberries	The redució
			Assessment Resource Boo	yk 35
			 Randy is adding 574 + 421. He adds 6 to 574 to add 580 + 421. Then, he adds 6 to the sum. Do you agree with hi strategy? Explain. No: Sample answer: Randy needs to subtract 6 fr 	is
			the sum instead of adding 6.	
			 Amira raises \$1,383 for a school fundraiser. She says that amount is about \$1,380. Which best describes how she came up with her estimate? 	L .
			A. She rounded to the nearest hundred.B. She rounded to the nearest ten.	Copredit 6
			C. She rounded to the nearest thousand.D. She rounded to the nearest one.	
			36 Assessment Resource Book	

Grade 3

Unit 1: Math Is...

- Math Is Mine
- Math Is Exploring and Thinking
- Math Is In My World
- Math Is Explaining and Sharing
- Math Is Finding Patterns
- Math Is Ours

Unit 2: Use Place Value to Fluently Add and Subtract within 1,000.

- Represent 4-Digit Numbers
- Round Multi-Digit Numbers
- Rounding Numbers
- Estimate Sums and Differences
- Use Addition Properties to Add
- Addition Patterns
- Use Partial Sums to Add
- Decompose to Subtract
- Adjust Numbers to Add or Subtract
- Use Addition to Subtract
- Fluently Add within 1,000

Unit 3: Multiplication and Division

- Understand Equal Groups
- Use Arrays to Multiply
- Understand the Commutative Property
- Understand Equal Sharing
- Understand Equal Grouping
- Relate Multiplication and Division
- Find the Unknown

Unit 4: Use Patterns to Multiply by 0, 1, 2, 5, and 10

- Use Patterns to Multiply by 2
- Use Patterns to Multiply by 5
- Use Patterns to Multiply by 10
- Use Patterns to Multiply by 1 and 0
- Multiply Fluently by 0, 1, 2, 5, and 10
- Solve Problems Involving Equal Groups
- Multiply by 2 and 5

Unit 5: Use Properties to Multiply by 3, 4, 6, 7, 8, and 9

- Understand the Distributive Property
- Use Properties to Multiply by 3
- Use Properties to Multiply by 4
- Use Properties to Multiply by 6
- Use Properties to Multiply by 8
- Use Properties to Multiply by 7 and 9
- Multiply by 7 and 9
- Solve Problems Involving Arrays

Unit 6: Connect Area and Multiplication

- Understand Area
- Count Unit Squares to Determine Area
- Use Multiplication to Determine Area
- Determine the Area of a Composite Figure
- Use the Distributive Property to Determine Area
- Solve Area Problems
- Expressions for Area

Unit 7: Fractions

- Partition Shapes into Equal Parts
- Understand Fractions
- Representing Fractions
- Represent Fractions on a Number Line
- Represent One Whole as a Fraction
- Represent Whole Numbers as Fractions
- Represent a Fraction Greater Than One on a Number Line

Unit 8: Fraction Equivalence and Comparison

- Understand Equivalent Fractions
- Represent Equivalent Fractions
- Represent Equivalent Fractions on a Number Line
- Compare Fraction Wholes
- Compare Fractions with the Same Denominator
- Compare Fractions with the Same Numerator
- Compare Fractions
- Equivalent Fractions Card Sort

Unit 9: Use Multiplication to Divide

- Use Multiplication to Solve Division Equations
- Divide by 2
- Divide by 5 and 10
- Old Module 4 probe
- Divide by 1 and 0
- Divide by 3 and 6
- Divide by 4 and 8
- Divide by 9
- Divide by 7
- Multiply and Divide Fluently within 100

Unit 10: Use Properties and Strategies to Multiply and Divide

- Patterns with Multiples of 10
- More Multiplication Patterns
- Understand the Associative Property
- Multiplication Equations
- Two-Step Problems Involving Multiplication
 and Division
- Solve Two-Step Problems
- Explain the Reasonableness of a Solution

Unit 11: Perimeter

- Understand Perimeter
- Determine Perimeter of Figures
- Determine an Unknown Side Length
- · Solve Problems Involving Area and Perimeter
- Expressions for Perimeter and Area [Old Module 5]
- Solve Problems Involving Measurement

Unit 12: Measurement and Data

- Measure Liquid Volume
- Measure Mass
- Estimate Liquid Volume and Mass
- Solve Problems Involving Liquid Volume and Mass
- Tell Time to the Nearest Minute
- Solve Problems Involving Time
- Understand Scaled Picture Graphs
- Understand Scaled Bar Graphs
- Solve Problems Involving Scaled Graphs
- Measure to Halves or Fourths of an Inch
- Show Measurement Data on a Line Plot

Unit 13: Describe and Analyze 2-Dimensional Shapes

- Describe and Classify Polygons
- Describe Quadrilaterals
- Classify Quadrilaterals
- Draw Quadrilaterals with Specific Attributes