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GRADE 2 • MODULE 1

Sums and Differences to 100

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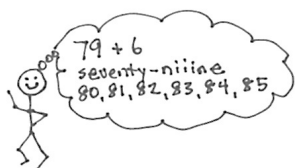
Grade 2 • Module 1

Sums and Differences to 100

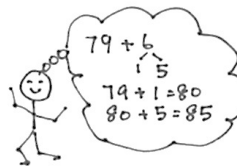
OVERVIEW

Module 1 sets the foundation for students to master sums and differences to 20 (**2.OA.2**). Students subsequently apply these skills to fluently add one-digit to two-digit numbers at least through 100 using place value understanding, properties of operations, and the relationship between addition and subtraction (**2.NBT.5**). In Grade 1, students worked extensively with numbers to gain fluency with sums and differences within 10 (**1.OA.5**) and became proficient in counting on (a Level 2 strategy). They also began to make easier problems to add and subtract within 20 and 100 by making ten and taking from ten (Level 3 strategies) (**1.OA.6, 1.NBT.4–6**).¹

Level 2: Count on



Level 3: Make an easier problem



In Module 1, students advance from Grade 1's subtraction of a multiple of ten to a new complexity, subtracting single-digit numbers from both multiples of ten (e.g., $40 - 9$) and from any two-digit number within 100 (e.g., $41 - 9$).

$$40 - 9 = 31$$

$$\begin{array}{r} / \backslash \\ 30 \quad 10 \end{array}$$

$$10 - 9 = 1$$

$$30 + 1 = 31$$

$$41 - 9 = 32$$

$$\begin{array}{r} / \backslash \\ 31 \quad 10 \end{array}$$

$$10 - 9 = 1$$

$$31 + 1 = 32$$

Topic A's two lessons are devoted solely to the important practice of fluency, the first lesson working within 20 and the second extending the same fluencies to numbers within 100. Topic A reactivates students' Kindergarten and Grade 1 learning as they energetically practice the following prerequisite skills for Level 3 decomposition and composition methods:

- decompositions of numbers within ten² (e.g., $0 + 7$, $1 + 6$, $2 + 5$, and $3 + 4$, all equal seven).
- partners to ten³ (e.g., 10 and 0, 9 and 1, 8 and 2, 7 and 3, 6 and 4, 5 and 5, and "I know 8 needs 2 to make ten").
- tens plus sums⁴ (e.g., $10 + 9$, $10 + 8$).

¹See the Progression Documents "K, Counting and Cardinality" and "K-5, Operations and Algebraic Thinking" pp. 36 and 39, respectively.

²K.OA.3; 1.OA.6

³K.OA.4

⁴K.NBT.1; 1.NBT.2b

For example, students quickly remember make ten facts. They then immediately use those facts to solve problems with larger numbers (e.g., “I know 8 needs 2 to make 10, so 58 needs 2 to make 6 tens or sixty!”). Lessons 1 and 2 include Sprints that bring back automaticity with the *tens plus* sums, which are foundational for adding within 100 and expanded form (e.g., “I know $10 + 8 = 18$, so $40 + 8 = 48$ ”).

Topic B takes Grade 1’s work to a new level of fluency as students make easier problems to add and subtract within 100 by using the number system’s base ten structure. The topic begins with students using place value understanding to solve problems by adding and subtracting like units (e.g., “I know $8 - 5 = 3$, so $87 - 50 = 37$ because 8 tens – 5 tens = 3 tens. I know $78 - 5$, too, because 8 ones – 5 ones = 3 ones. I used the same easier problem, $8 - 5 = 3$, just with ones instead of tens!”). Students then practice making ten within 20 before generalizing that strategy to numbers within 100 (e.g., “I know $9 + 6 = 15$, so $79 + 6 = 85$, and $89 + 6 = 95$ ”).

The preceding lessons segue beautifully into the new concepts of Topic B, subtracting single-digit numbers from two-digit numbers greater than 20. In Lesson 6, students use the familiar take from ten strategy to subtract single-digit numbers from multiples of ten (e.g., $60 - 8$, as shown below). In Lesson 7, students practice taking from ten within 20 when there is the complexity of some ones in the total (e.g., $13 - 8$, as shown below). In Lesson 8, they then subtract single-digit numbers from 2-digit numbers within 100 when there are also some ones (e.g., $63 - 8$, as shown below).

Lesson 6

$$\begin{array}{r} 60 - 8 = 52 \\ \swarrow \searrow \\ 50 \quad 10 \\ 10 - 8 = 2 \\ 50 + 2 = 52 \end{array}$$

Lesson 7

$$\begin{array}{r} 13 - 8 = 5 \\ \swarrow \searrow \\ 3 \quad 10 \\ 10 - 8 = 2 \\ 3 + 2 = 5 \end{array}$$

Lesson 8

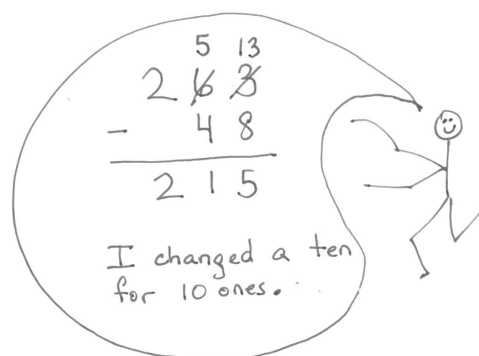
$$\begin{array}{r} 63 - 8 = 55 \\ \swarrow \searrow \\ 53 \quad 10 \\ 10 - 8 = 2 \\ 53 + 2 = 55 \end{array}$$

Decompose and Subtract From Ten

These strategies deepen place value understandings in preparation for Module 3 and the application of those understandings to addition and subtraction in Modules 4 and 5. Listen to how the language of *make ten* and *take from ten* is foundational to the work of later modules:

Module 3: “I have 10 tens, so I can make a hundred. It’s just like I can make a ten when I have 10 ones.”

Module 5: “When I solve $263 - 48$, I take a ten from 6 tens to make 5 tens and 13 ones. Now, I am ready to subtract in the ones place” (pictured to the right).



Note that mastery of sums and differences within 100 is not to be expected in Module 1 but rather by Module 8. Because the amount of practice required by each student to achieve mastery prior to Grade 3 will vary, a motivating, differentiated fluency program needs to be established in these first 2 weeks to set the tone for the year.

In Grade 2 Module 1, Application Problems begin in Topic B. They contextualize learning as students apply strategies to solving simple *add to*, *take from*, *put together/take apart* problem types using the Read-Draw-Write, or RDW, process (**2.OA.1**). Application Problems may precede the Concept Development to act as the lead-in, allowing students to discover through problem-solving the logic and usefulness of a strategy before it is formally presented. Or, problems may follow the Concept Development so that students connect and apply new learning to real-world situations. At the beginning of Grade 2, problem-solving may begin more as a guided activity, with the goal being to move students to independent problem-solving, wherein they reason through the relationships embedded within the problem and choose an appropriate strategy to solve (MP.5).

Notes on Pacing for Differentiation

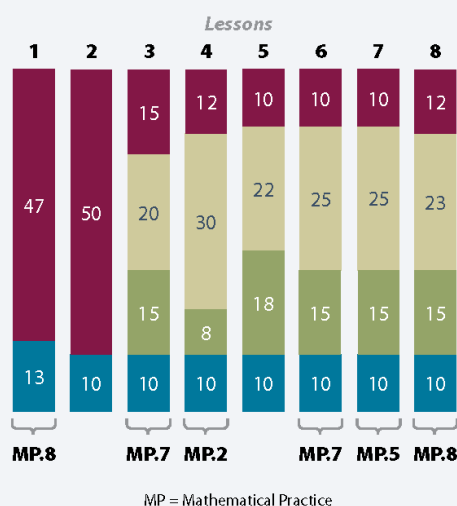
It is not recommended to modify or omit any lessons in Module 1.



Distribution of Instructional Minutes

This diagram represents a suggested distribution of instructional minutes based on the emphasis of particular lesson components in different lessons throughout the module.

- Fluency Practice
- Concept Development
- Application Problems
- Student Debrief



Focus Grade Level Standards

Represent and solve problems involving addition and subtraction.⁵

- 2.OA.1** Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. (See CCLS Glossary, Table 1.)

Add and subtract within 20.⁶

- 2.OA.2** Fluently add and subtract within 20 using mental strategies. (See standard 1.OA.6 for a list of mental strategies.) By end of Grade 2, know from memory all sums of two one-digit numbers.

⁵From this point forward, fluency practice with addition and subtraction to 20 is part of the students' ongoing experience.

⁶From this point forward, fluency practice with addition and subtraction to 20 is part of the students' ongoing experience.

Use place value understanding and properties of operations to add and subtract.⁷

- 2.NBT.5** Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

Foundational Standards

- K.OA.3** Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., $5 = 2 + 3$ and $5 = 4 + 1$).
- K.OA.4** For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.
- K.NBT.1** Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., $18 = 10 + 8$); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.
- 1.OA.5** Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
- 1.OA.6** Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).
- 1.NBT.2** Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:
- 10 can be thought of as a bundle of ten ones—called a “ten.”
 - The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.
- 1.NBT.4** Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.
- 1.NBT.5** Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.
- 1.NBT.6** Subtract multiples of 10 in the range 10–90 from multiples of 10 in the range 10–90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

⁷The balance of this cluster is addressed in Modules 4 and 5.

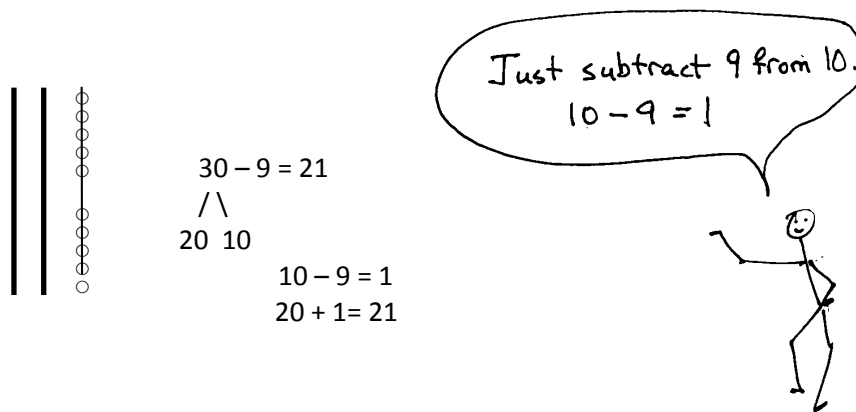
Focus Standards for Mathematical Practice

MP.2 Reason abstractly and quantitatively. Students reason abstractly when they decontextualize a word problem, representing a situation with a number sentence (e.g., *Mark had a stick of 9 green linking cubes. His friend gave him 4 yellow linking cubes. How many linking cubes does Mark have now?*). In their solutions, students write $9 + 4 = 13$. In so doing, they have decontextualized the quantity from the situation. They then contextualize the solution when they write a statement of the answer (e.g., “Mark has 13 linking cubes now”). They reason that the 13 refers to the quantity, or number, of linking cubes.

MP.5 Use appropriate tools strategically. As students become more comfortable with tools and make ten/take from ten strategies, they begin to make smart decisions about when these tools might be useful to solve various problems.

MP.7 Look for and make use of structure. Students use the structure of the place value system to add and subtract like units within 100 (e.g., “I know $8 - 5 = 3$, so $87 - 50 = 37$ because 8 tens $-$ 5 tens = 3 tens. I know $78 - 5$, too, because 8 ones $-$ 5 ones = 3 ones. I used the same easier problem, $8 - 5 = 3$, just with ones instead of tens!”).

MP.8 Look for and express regularity in repeated reasoning. In order to use the make ten and take from ten strategies efficiently, students practice completing a unit of ten during fluency in many ways (e.g., the teacher flashes a ten-frame and students identify the missing part). This skill is applied throughout the module. For example, students see the repeated reasoning of taking from ten in Lessons 6, 7, and 8 to subtract single-digit numbers. Whether solving $30 - 9$, $13 - 9$, or $31 - 9$, they take out the ten, subtract 9 from 10, and put together the parts that are left (see image below).



Overview of Module Topics and Lesson Objectives

Standards	Topics and Objectives	Days
2.OA.2 K.OA.3 K.OA.4 K.NBT.1 1.NBT.2b 1.OA.5 1.OA.6	A Foundations for Fluency with Sums and Differences Within 100 Lesson 1: Practice making ten and adding to ten. Lesson 2: Practice making the next ten and adding to a multiple of ten.	2
2.OA.1 2.OA.2 2.NBT.5 1.NBT.4 1.NBT.5 1.NBT.6	B Initiating Fluency with Addition and Subtraction Within 100 Lesson 3: Add and subtract like units. Lesson 4: Make a ten to add within 20. Lesson 5: Make a ten to add within 100. Lesson 6: Subtract single-digit numbers from multiples of 10 within 100. Lesson 7: Take from ten within 20. Lesson 8: Take from ten within 100.	6
	End-of-Module Assessment: Topics A–B (assessment 1 day, return $\frac{1}{2}$ day, remediation or further applications $\frac{1}{2}$ day)	2
Total Number of Instructional Days		10

Terminology

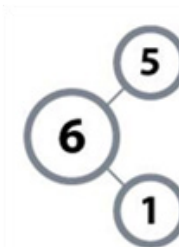
New or Recently Introduced Terms

- Make a ten (compose a unit of ten, e.g., $49 + 3 = 40 + 10 + 2$)

Familiar Terms and Symbols⁸

- Addend (one of the numbers being added)
- A ten (a place value unit composed of 10 ones)
- Count on (count up from one addend to the total)
- Expression (e.g., $2 + 1$, $13 - 6$)
- Like units (e.g., frogs and frogs, ones and ones, tens and tens)
- Make ten and take from ten (e.g., $8 + 3 = 8 + 2 + 1$ and $15 - 7 = 10 - 7 + 5 = 3 + 5$)
- Number sentence (e.g., $2 + 3 = 5$, $7 = 9 - 2$, $10 + 2 = 9 + 3$)
- Number bond (see image to the right)
- One (a place value unit, 10 of which may be composed to make a ten)
- Part (e.g., “What is the unknown part? $3 + \underline{\quad} = 8$ ”)
- Partners to 10 (e.g., 10 and 0, 9 and 1, 8 and 2, 7 and 3, 6 and 4, 5 and 5)
- Say Ten counting (see the chart to the right)
- Ten plus facts (e.g., $10 + 3 = 13$, $10 + 5 = 15$, $10 + 8 = 18$)
- Total (e.g., for $3 + 4 = 7$ or $7 - 4 = 3$, seven is the whole, or total)

Number Bond

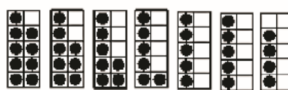


Regular	Say Ten
fifty-one	5 tens 1
sixty-seven	6 tens 7
seventy-five	7 tens 5
eighty-four	8 tens 4
ninety-five	9 tens 5

Suggested Tools and Representations

- 100-bead Rekenrek
- 5-group column
- Dice
- Hide Zero cards (Lesson 2 Template 1)
- Linking cubes
- Number bond
- Personal white boards
- Place value chart
- Quick ten (vertical line representing a unit of ten)
- Ten-frame cards (Lesson 1 Fluency Template 1)

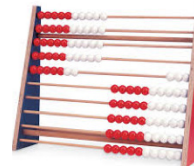
Ten-Frame Cards



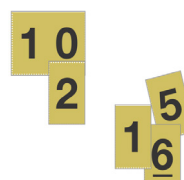
5-Group Column



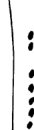
Rekenrek



Hide Zero Cards



Quick Ten and Ones



⁸These are terms and symbols students have seen previously.

Suggested Methods of Instructional Delivery

Directions for Administration of Sprints

Sprints are designed to develop fluency. They should be fun, adrenaline-rich activities that intentionally build energy and excitement. A fast pace is essential. During Sprint administration, teachers assume the role of athletic coaches. A rousing routine fuels students' motivation to do their personal best. Student recognition of increasing success is critical, and so every improvement is celebrated.

One Sprint has two parts with closely related problems on each. Students complete the two parts of the Sprint in quick succession with the goal of improving on the second part, even if only by one more.

With practice the following routine takes about 8 minutes.

Sprint A

Pass Sprint A out quickly, face down on student desks with instructions to not look at the problems until the signal is given. (Some Sprints include words. If necessary, prior to starting the Sprint, quickly review the words so that reading difficulty does not slow students down.)

- T: You will have 60 seconds to do as many problems as you can.
- T: I do not expect you to finish all of them. Just do as many as you can, your personal best. (If some students are likely to finish before time is up, assign a number to *count by* on the back.)
- T: Take your mark! Get set! THINK! (When you say *THINK*, students turn their papers over and work furiously to finish as many problems as they can in 60 seconds. Time precisely.)
- T: Stop! Circle the last problem you did. I will read just the answers. If you got it right, call out "Yes!" If you made a mistake, circle it. Ready?
- T: (Energetically, rapid-fire call the first answer.)
- S: Yes!
- T: (Energetically, rapid-fire call the second answer.)
- S: Yes!

Repeat to the end of Sprint A or until no one has any more correct. If need be, read the *count-by* answers in the same way the Sprint answers were read. Each number *counted by* on the back is considered a correct answer.

- T: Fantastic! Now, write the number you got correct at the top of your page. This is your personal goal for Sprint B.
- T: How many of you got 1 right? (All hands should go up.)
- T: Keep your hand up until I say the number that is 1 more than the number you got right. So, if you got 14 correct, when I say 15 your hand goes down. Ready?
- T: (Quickly.) How many got 2 correct? 3? 4? 5? (Continue until all hands are down.)

Optional routine, depending on whether or not the class needs more practice with Sprint A:

- T: I'll give you one minute to do more problems on this half of the Sprint. If you finish, stand behind your chair. (As students work, the person who scored highest on Sprint A could pass out Sprint B.)
- T: Stop! I will read just the answers. If you got it right, call out "Yes!" If you made a mistake, circle it. Ready? (Read the answers to the first half again as students stand.)

Movement

To keep the energy and fun going, always do a stretch or a movement game in between Sprints A and B. For example, the class might do jumping jacks while skip counting by 5 for about 1 minute. Feeling invigorated, students take their seats for Sprint B, ready to make every effort to complete more problems this time.

Sprint B

Pass Sprint B out quickly, face down on student desks with instructions not to look at the problems until the signal is given. (Repeat the procedure for Sprint A up through the show of hands for how many are right.)

- T: Stand up if you got more correct on the second Sprint than on the first.
- S: (Stand.)
- T: Keep standing until I say the number that tells how many more you got right on Sprint B. So, if you got 3 more right on Sprint B than you did on Sprint A, when I say 3, you sit down. Ready? (Call out numbers starting with 1. Students sit as the number by which they improved is called. Celebrate the students who improved most with a cheer.)
- T: Well done! Now, take a moment to go back and correct your mistakes. Think about what patterns you noticed in today's Sprint.
- T: How did the patterns help you get better at solving the problems?
- T: Rally Robin your thinking with your partner for 1 minute. Go!

Rally Robin is a style of sharing in which partners trade information back and forth, one statement at a time per person, for about 1 minute. This is an especially valuable part of the routine for students who benefit from their friends' support to identify patterns and try new strategies.

Students may take Sprints home.

RDW or Read, Draw, Write (a Number Sentence and a Statement)

Mathematicians and teachers suggest a simple process applicable to all grades:

1. Read.
2. Draw and label.
3. Write a number sentence.
4. Write a word sentence (statement).

The more students participate in reasoning through problems with a systematic approach, the more they internalize those behaviors and thought processes.

- What do I see?
- Can I draw something?
- What conclusions can I make from my drawing?

Modeling with Interactive Questioning	Guided Practice	Independent Practice
The teacher models the whole process with interactive questioning, some choral response, and talk such as “What did Monique say, everyone?” After completing the problem, students might reflect with a partner on the steps they used to solve the problem. “Students, think back on what we did to solve this problem. What did we do first?” Students might then be given the same or a similar problem to solve for homework.	Each student has a copy of the question. Though guided by the teacher, they work independently at times and then come together again. Timing is important. Students might hear, “You have 2 minutes to do your drawing.” Or, “Put your pencils down. Time to work together again.” The Debrief might include selecting different student work to share.	The students are given a problem to solve and possibly a designated amount of time to solve it. The teacher circulates, supports, and thinks about which student work to show to support the mathematical objectives of the lesson. When sharing student work, students are encouraged to think about the work with questions such as, “What do you notice about Jeremy’s work?” “What is the same about Jeremy’s work and Sara’s work?”

Personal White Boards

Materials Needed for Personal White Boards

- 1 heavy duty, clear sheet protector
- 1 piece of stiff red tag board 11" × 8 ¼"
- 1 piece of stiff white tag board 11" × 8 ¼"
- 1 3"× 3" piece of dark synthetic cloth for an eraser (e.g., felt)
- 1 low odor dry erase marker: fine point

Directions for Creating Personal White Boards

Cut the white and red tag to specifications. Slide into the sheet protector. Store the eraser on the red side. Store markers in a separate container to avoid stretching the sheet protector.

Frequently Asked Questions About Personal White Boards

Why is one side red and one white?

- The white side of the board is the “*paper*.” Students generally write on it and if working individually, then turn the board over to signal to the teacher that they have completed their work. The teacher then says, “Show me your boards,” when most of the class is ready.

What are some of the benefits of a personal white board?

- The teacher can respond quickly to gaps in student understandings and skills. “Let’s do some of these on our personal boards until we have more mastery.”
- Student can erase quickly so that they do not have to suffer the evidence of their mistake.

- They are motivating. Students love both the drill and thrill capability and the chance to do story problems with an engaging medium.
- Checking work gives the teacher instant feedback about student understanding.

What is the benefit of this personal white board over a commercially purchased dry erase board?

- It is much less expensive.
- Templates such as place value charts, number bond mats, hundreds boards, and number lines can be stored between the two pieces of tag for easy access and reuse.
- Worksheets, story problems, and other problem sets can be done without marking the paper so that students can work on the problems independently at another time.
- Strips with story problems, number lines, and arrays can be inserted and still have a full piece of paper on which to write.
- The red versus white side distinction clarifies expectations. When working collaboratively, there is no need to use the red side. When working independently, students know how to keep their work private.
- The sheet protector can be removed if necessary to project the work.

Scaffolds⁹

The scaffolds integrated into *A Story of Units* give alternatives for how students access information as well as express and demonstrate their learning. Strategically placed margin notes are provided within each lesson elaborating on the use of specific scaffolds at applicable times. They address many needs presented by English language learners, students with disabilities, students performing above grade level, and students performing below grade level. Many of the suggestions are organized by Universal Design for Learning (UDL) principles and are applicable to more than one population. To read more about the approach to differentiated instruction in *A Story of Units*, please refer to “How to Implement *A Story of Units*.”

⁹Students with disabilities may require Braille, large print, audio, or special digital files. Please visit the website www.p12.nysed.gov/specialed/aim for specific information on how to obtain student materials that satisfy the National Instructional Materials Accessibility Standard (NIMAS) format.

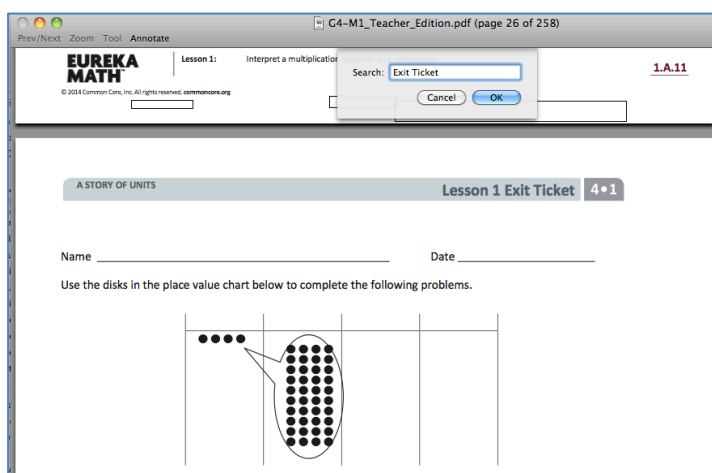
Preparing to Teach a Module

Preparation of lessons will be more effective and efficient if there has been an adequate analysis of the module first. Each module in *A Story of Units* can be compared to a chapter in a book. How is the module moving the plot, the mathematics, forward? What new learning is taking place? How are the topics and objectives building on one another? The following is a suggested process for preparing to teach a module.

Step 1: Get a preview of the plot.

- A: Read the Table of Contents. At a high level, what is the plot of the module? How does the story develop across the topics?
- B: Preview the module's Exit Tickets¹⁰ to see the trajectory of the module's mathematics and the nature of the work students are expected to be able to do.

Note: When studying a PDF file, enter "Exit Ticket" into the search feature to navigate from one Exit Ticket to the next.



Step 2: Dig into the details.

- A: Dig into a careful reading of the Module Overview. While reading the narrative, *liberally* reference the lessons and Topic Overviews to clarify the meaning of the text—the lessons demonstrate the strategies, show how to use the models, clarify vocabulary, and build understanding of concepts. Consider searching the video gallery on *Eureka Math*'s website to watch demonstrations of the use of models and other teaching techniques.
- B: Having thoroughly investigated the Module Overview, read through the chart entitled Overview of Module Topics and Lesson Objectives to further discern the plot of the module. How do the topics flow and tell a coherent story? How do the objectives move from simple to complex?

Step 3: Summarize the story.

Complete the Mid- and End-of-Module Assessments. Use the strategies and models presented in the module to explain the thinking involved. Again, liberally reference the work done in the lessons to see how students who are learning with the curriculum might respond.

¹⁰A more in-depth preview can be done by searching the Problem Sets rather than the Exit Tickets. Furthermore, this same process can be used to preview the coherence or flow of any component of the curriculum, such as Fluency Practice or Application Problems.

Preparing to Teach a Lesson

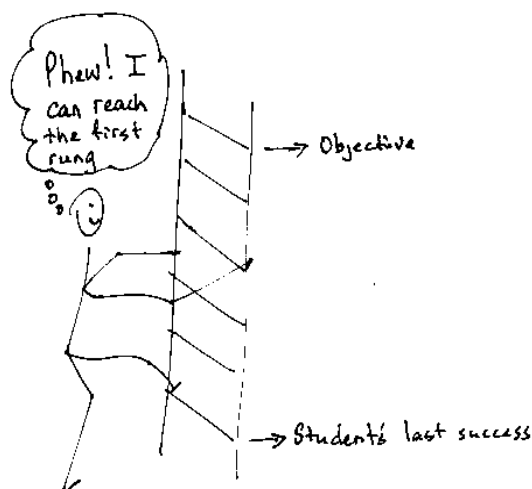
A three-step process is suggested to prepare a lesson. It is understood that at times teachers may need to make adjustments (customizations) to lessons to fit the time constraints and unique needs of their students. The recommended planning process is outlined below. Note: The ladder of Step 2 is a metaphor for the teaching sequence. The sequence can be seen not only at the macro level in the role that this lesson plays in the overall story, but also at the lesson level, where each rung in the ladder represents the next step in understanding or the next skill needed to reach the objective. To reach the objective, or the top of the ladder, all students must be able to access the first rung and each successive rung.

Step 1: Discern the plot.

- A: Briefly review the module's Table of Contents, recalling the overall story of the module and analyzing the role of this lesson in the module.
- B: Read the Topic Overview related to the lesson, and then review the Problem Set and Exit Ticket of each lesson in the topic.
- C: Review the assessment following the topic, keeping in mind that assessments can be found midway through the module and at the end of the module.

Step 2: Find the ladder.

- A: Complete the lesson's Problem Set.
- B: Analyze and write notes on the new complexities of each problem as well as the sequences and progressions throughout problems (e.g., pictorial to abstract, smaller to larger numbers, single- to multi-step problems). The new complexities are the rungs of the ladder.
- C: Anticipate where students might struggle, and write a note about the potential cause of the struggle.
- D: Answer the Student Debrief questions, always anticipating how students will respond.



Step 3: Hone the lesson.

At times, the lesson and Problem Set are appropriate for all students and the day's schedule. At others, they may need customizing. If the decision is to customize based on either the needs of students or scheduling constraints, a suggestion is to decide upon and designate "Must Do" and "Could Do" problems.

- A: Select "Must Do" problems from the Problem Set that meet the objective and provide a coherent experience for students; reference the ladder. The expectation is that the majority of the class will complete the "Must Do" problems within the allocated time. While choosing the "Must Do" problems, keep in mind the need for a balance of calculations, various word problem types¹¹, and work at both the pictorial and abstract levels.

¹¹See the Progression Documents "K, Counting and Cardinality" and "K-5, Operations and Algebraic Thinking" pp. 9 and 23, respectively.

- B: “Must Do” problems might also include remedial work as necessary for the whole class, a small group, or individual students. Depending on anticipated difficulties, those problems might take different forms as shown in the chart below.

Anticipated Difficulty	“Must Do” Remedial Problem Suggestion
The first problem of the Problem Set is too challenging.	Write a short sequence of problems on the board that provides a ladder to Problem 1. Direct the class or small group to complete those first problems to empower them to begin the Problem Set. Consider labeling these problems “Zero Problems” since they are done prior to Problem 1.
There is too big of a jump in complexity between two problems.	Provide a problem or set of problems that creates a bridge between the two problems. Label them with the number of the problem they follow. For example, if the challenging jump is between Problems 2 and 3, consider labeling the bridging problems “Extra 2s.”
Students lack fluency or foundational skills necessary for the lesson.	Before beginning the Problem Set, do a quick, engaging fluency exercise, such as a Rapid White Board Exchange, “Thrilling Drill,” or Sprint. Before beginning any fluency activity for the first time, assess that students are poised for success with the easiest problem in the set.
More work is needed at the concrete or pictorial level.	Provide manipulatives or the opportunity to draw solution strategies. Especially in Kindergarten, at times the Problem Set or pencil and paper aspect might be completely excluded, allowing students to simply work with materials.
More work is needed at the abstract level.	Hone the Problem Set to reduce the amount of drawing as appropriate for certain students or the whole class.

- C: “Could Do” problems are for students who work with greater fluency and understanding and can, therefore, complete more work within a given time frame. Adjust the Exit Ticket and Homework to reflect the “Must Do” problems or to address scheduling constraints.
- D: At times, a particularly tricky problem might be designated as a “Challenge!” problem. This can be motivating, especially for advanced students. Consider creating the opportunity for students to share their “Challenge!” solutions with the class at a weekly session or on video.
- E: Consider how to best use the vignettes of the Concept Development section of the lesson. Read through the vignettes, and highlight selected parts to be included in the delivery of instruction so that students can be independently successful on the assigned task.
- F: Pay close attention to the questions chosen for the Student Debrief. Regularly ask students, “What was the lesson’s learning goal today?” Help them articulate the goal.

Assessment Summary

Type	Administered	Format	Standards Addressed
End-of-Module Assessment Task	After Topic C	Constructed response with rubric	2.OA.1 2.OA.2 2.NBT.5



Topic A

Foundations for Fluency with Sums and Differences Within 100

2.OA.2, K.OA.3, K.OA.4, K.NBT.1, 1.NBT.2b, 1.OA.5, 1.OA.6

Focus Standards:	2.OA.2	Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.
Instructional Days:	2	
Coherence -Links from:	G1–M2	Introduction to Place Value Through Addition and Subtraction Within 20
	G1–M4	Place Value, Comparison, Addition and Subtraction to 40
	G1–M6	Place Value, Comparison, Addition and Subtraction to 100
-Links to:	G2–M4	Addition and Subtraction Within 200 with Word Problems to 100
	G3–M2	Place Value and Problem Solving with Units of Measure

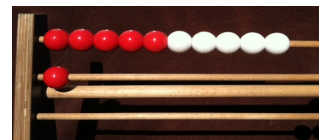
In this first topic of Grade 2, students set the stage for fluency with sums and differences within 100 (**2.OA.2**) by focusing on three essential skills:

1. Knowing the decompositions of any number within 10 (**K.OA.3, 1.OA.6**),
2. Knowing partners to 10 (**K.OA.4**),
3. Knowing teen numbers as $10 + n$ (**K.NBT.1, 1.NBT.2b**).

Topic A energetically revisits this familiar ground from Kindergarten and Grade 1 at a new pace.

In Lesson 1, targeted fluency work begins with ten-frame flashes where students review ways to make and take from ten (e.g., $9 + 1 = 10$, $10 - 9 = 1$). Students practice Say Ten counting on the Rekenrek (eleven or “ten 1,” pictured to the right), and they become reacquainted with Sprints using a familiar $10 + n$ Sprint. Finally, students decompose ten in different ways by rolling a die and recording number bonds within 10 in “Target Practice.”

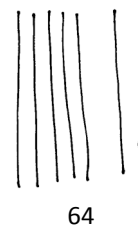
Lesson 2 follows a similar path as Lesson 1, with activities now extending to numbers within 100. Students review representations of two-digit numbers with quick tens and ones (see image to the right) in preparation for upcoming work within the module. Students build confidence and proficiency alternating between regular and Say Ten counting with the support of Hide Zero cards and a 100-bead Rekenrek, saying “6 tens 4” for 64. The final fluency in Lesson 2 focuses on making the next ten (e.g., $57 + 3 = 60$), which is foundational to the mastery of sums and differences to 100 (**2.NBT.5**).



Ten



Hide Zero



The Application Problem and Concept Development are intentionally omitted from this topic to devote time to reviewing foundational fluencies for sums and differences within 100. All the exercises herein should be included in future fluency work as necessary so that students enter Grade 3 having memorized their single-digit addition facts and demonstrated fluency with sums and differences within 100 (**2.NBT.5**).

A Teaching Sequence Toward Mastery of Foundations for Fluency with Sums and Differences Within 100

Objective 1: Practice making ten and adding to ten.
(Lesson 1)

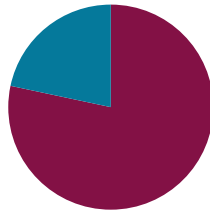
Objective 2: Practice making the next ten and adding to a multiple of ten.
(Lesson 2)

Lesson 1

Objective: Practice making ten and adding to ten.

Suggested Lesson Structure

■ Fluency Practice	(47 minutes)
■ Student Debrief	(13 minutes)
Total Time	(60 minutes)



NOTES ON TOPIC A'S LESSON STRUCTURE:

Grade 2 students spend much of the year adding and subtracting. Topic A's lessons are a review of many of the fluency activities and experiences students know well from Grade 1. The purpose of the two days is to joyfully quicken the pace of Grade 1 work, establish new class routines, and remember foundational skills necessary for success with fluency with sums and differences within 100, a Grade 2 fluency goal. The Concept Development lessons begin in Topic B.

Fluency Practice (47minutes)

- Ten-Frame Flash **2.OA.2** (5 minutes)
- Happy Counting the Say Ten Way **2.OA.2** (6 minutes)
- Sprint: Add a Ten and Some Ones **2.OA.2** (18 minutes)
- Target Practice: Within 10 **2.OA.2** (10 minutes)
- Pairs to Ten with Number Bonds **2.OA.2** (8 minutes)

Ten-Frame Flash (5 minutes)

Materials: (T) Ten-frame cards (Fluency Template 1), 5-group column cards (Fluency Template 2)

Note: By alternating between ten-frame and 5-groups column cards, students develop flexible perception of numbers 6–10 in two parts, with one part as 5. This activity practices the core fluency objective from Grade 1, adding and subtracting within 10.

The teacher flashes a ten-frame card for 2–3 seconds and guides students to respond on a signal. Students then generate a number sentence to get to 10.

T: (Flash the 9 ten-frame card. Give the signal.)

S: 9.

T: How much does 9 need to make 10?

S: 1.

T: Say the addition number sentence to make 10, starting with 9.

S: $9 + 1 = 10$.

T: (Continue to show the 9 card.) Tell me a related subtraction sentence starting with 10.

S: $10 - 1 = 9$. $10 - 9 = 1$.

Continue the process, using both ten-frame cards and 5-group column cards in the following suggested sequence: 8, 2, 5, 7, 3, 6, 4, 10, and 0.

MP.8

Part 3: Say Ten as Ten Plus Facts

To segue to the upcoming Sprint, students say addition sentences for teen numbers when one addend is 10. Alternate between the regular way and the Say Ten way.

- T: If I say ten 2, you say $10 + 2 = 12$.
 T: What do you say if I say thirteen?
 S: $10 + 3 = 13$.
 T: Yes! You guessed the pattern. Here's another. Ten 5.
 S: $10 + 5 = 15$.
 T: Fourteen.
 S: $10 + 4 = 14$.

Use the following suggested sequence: ten 6, seventeen, eighteen, ten 5, eleven, ten 8, ten 1, etc.

Sprint: Add a Ten and Some Ones (18 minutes)

Materials: (S) Add Ten and Some Ones Sprint

Note: See the *Suggested Methods of Instructional Delivery* in the Module Overview for clear instructions on administering Sprints. This Sprint brings automaticity back with the *ten plus* sums, which are foundational for the make a ten strategy and expanded form.

Target Practice: Within 10 (10 minutes)

Materials: (S) Per set of partners: personal white board, target practice (Fluency Template 3), 1 numeral die

Note: Decomposition of single-digit numbers and 10 is a foundational skill for fluency with sums and differences to 20.

Assign Partner A and Partner B. Students write the target number, 10, in the circle at the top right of the target practice template.

Directions:

- Partner A rolls the die.
- Partner A writes the number rolled in one part of the first number bond.
- Partner B makes a bull's eye by writing the missing part that is needed to make ten.

Adjust the target number as appropriate for each pair of students, focusing on totals of 6, 7, 8, 9, and 10.



**NOTES ON
MULTIPLE MEANS
OF ACTION AND
EXPRESSION:**

For Sprints, a fast pace is essential to build energy and excitement. To support students who do not excel under pressure, give them the chance to practice the Sprint at home the night before it is administered.

To maintain a high level of energy and enthusiasm, always do a stretch or movement game in between Sprint A and Sprint B. For example, do jumping jacks while skip-counting by fives.



**NOTES ON
MULTIPLE MEANS
OF ACTION AND
REPRESENTATION:**

For students who have not yet mastered their pairs to ten, use fingers as models. Have students show the larger addend on their fingers and encourage them to look at their tucked fingers to determine the partner to make ten.

Pairs to Ten with Number Bonds (8 minutes)

Materials: (S) Personal white board

Note: This is a foundational skill for mastery of sums and differences to 20.

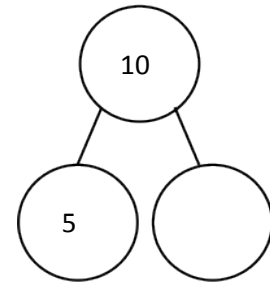
T: I'll show a number bond, and you tell me the missing part to make 10.

T: (Draw the bond shown to the right.)

S: 5.

T: (Erase the 5 and write 8.)

S: 2.



Continue with the following suggested sequence: 9, 7, 3, 6, 4, 1, 10, and 0.

T: With your partner, take turns saying pairs to make 10. Partner A, you will go first for now.

After about 30 seconds, have partners switch roles.

Student Debrief (13 minutes)

Lesson Objective: Practice making ten and adding to ten.

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

Guide students in a conversation to debrief today's lesson.

Any combination of the questions below may be used to lead the discussion.

- What math work did we do today that you remember from last year?
- What do you hope to get better at in math this year?
- Do you have a favorite math fact and why?
- Can you figure out the math goal of today's lesson? What name would you give this lesson?



NOTES ON STUDENT DEBRIEF:

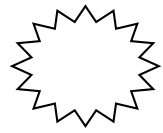
To close the majority of lessons, invite students to figure out the math goal. As the year progresses, they will come to anticipate this question, and responses will get increasingly mathematical, precise, and insightful. By engaging in the metacognitive exercise of articulating the goal, students take another step toward owning their learning. When possible, also ask students, "How would you teach this? Who would you teach it to?"

Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

A

Number Correct:



Name _____

Date _____

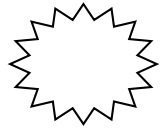
Add a Ten and Some Ones

1.	$10 + 1 = \underline{\quad}$	16.	$3 + 10 = \underline{\quad}$
2.	$10 + 2 = \underline{\quad}$	17.	$4 + 10 = \underline{\quad}$
3.	$10 + 4 = \underline{\quad}$	18.	$1 + 10 = \underline{\quad}$
4.	$10 + 3 = \underline{\quad}$	19.	$2 + 10 = \underline{\quad}$
5.	$10 + 5 = \underline{\quad}$	20.	$5 + 10 = \underline{\quad}$
6.	$10 + 6 = \underline{\quad}$	21.	$\underline{\quad} = 10 + 5$
7.	$\underline{\quad} = 10 + 1$	22.	$\underline{\quad} = 10 + 8$
8.	$\underline{\quad} = 10 + 4$	23.	$\underline{\quad} = 10 + 9$
9.	$\underline{\quad} = 10 + 3$	24.	$\underline{\quad} = 10 + 6$
10.	$\underline{\quad} = 10 + 5$	25.	$\underline{\quad} = 10 + 7$
11.	$\underline{\quad} = 10 + 2$	26.	$16 = \underline{\quad} + 6$
12.	$10 + 6 = \underline{\quad}$	27.	$8 + \underline{\quad} = 18$
13.	$10 + 9 = \underline{\quad}$	28.	$\underline{\quad} + 10 = 17$
14.	$10 + 7 = \underline{\quad}$	29.	$19 = \underline{\quad} + 10$
15.	$10 + 8 = \underline{\quad}$	30.	$18 = 8 + \underline{\quad}$

B

Improvement: _____

Number Correct: _____



Name _____

Date _____

Add a Ten and Some Ones

1.	$10 + 5 = \underline{\quad}$	16.	$4 + 10 = \underline{\quad}$
2.	$10 + 4 = \underline{\quad}$	17.	$3 + 10 = \underline{\quad}$
3.	$10 + 3 = \underline{\quad}$	18.	$2 + 10 = \underline{\quad}$
4.	$10 + 2 = \underline{\quad}$	19.	$1 + 10 = \underline{\quad}$
5.	$10 + 1 = \underline{\quad}$	20.	$3 + 10 = \underline{\quad}$
6.	$10 + 5 = \underline{\quad}$	21.	$\underline{\quad} = 10 + 6$
7.	$\underline{\quad} = 10 + 4$	22.	$\underline{\quad} = 10 + 9$
8.	$\underline{\quad} = 10 + 2$	23.	$\underline{\quad} = 10 + 5$
9.	$\underline{\quad} = 10 + 1$	24.	$\underline{\quad} = 10 + 7$
10.	$\underline{\quad} = 10 + 3$	25.	$\underline{\quad} = 10 + 8$
11.	$\underline{\quad} = 10 + 4$	26.	$17 = \underline{\quad} + 7$
12.	$10 + 6 = \underline{\quad}$	27.	$3 + \underline{\quad} = 13$
13.	$10 + 7 = \underline{\quad}$	28.	$\underline{\quad} + 10 = 16$
14.	$10 + 9 = \underline{\quad}$	29.	$18 = \underline{\quad} + 10$
15.	$10 + 8 = \underline{\quad}$	30.	$17 = 7 + \underline{\quad}$

Name _____

Date _____

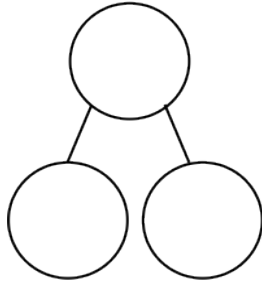
1. Add or subtract. Complete the number bond to match.

a. $9 + 1 = \underline{\quad}$

$1 + 9 = \underline{\quad}$

$10 - 1 = \underline{\quad}$

$10 - 9 = \underline{\quad}$

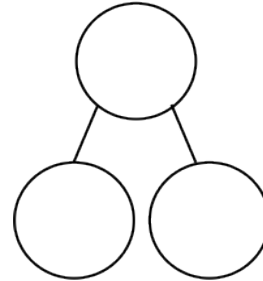


b. $4 + 6 = \underline{\quad}$

$6 + 4 = \underline{\quad}$

$10 - 6 = \underline{\quad}$

$10 - 4 = \underline{\quad}$



2. Solve.

a. $10 + 5 = \underline{\quad}$

b. $13 = 10 + \underline{\quad}$

c. $10 + 8 = \underline{\quad}$

Name _____

Date _____

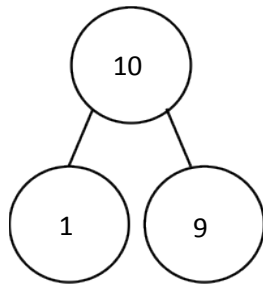
1. Add or subtract. Complete the number bond for each set.

$9 + 1 = \underline{\quad}$

$1 + 9 = \underline{\quad}$

$10 - 1 = \underline{\quad}$

$10 - 9 = \underline{\quad}$

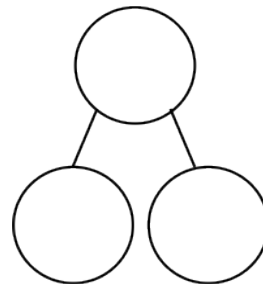


$8 + 2 = \underline{\quad}$

$2 + 8 = \underline{\quad}$

$10 - 2 = \underline{\quad}$

$10 - 8 = \underline{\quad}$



2. Solve. Draw a number bond for each set.

$6 + 4 = \underline{\quad}$

$4 + 6 = \underline{\quad}$

$10 - 4 = \underline{\quad}$

$10 - 6 = \underline{\quad}$

$3 + 7 = \underline{\quad}$

$7 + 3 = \underline{\quad}$

$10 - 7 = \underline{\quad}$

$10 - 3 = \underline{\quad}$

3. Solve.

$10 = 7 + \underline{\quad}$

$10 = 3 + \underline{\quad}$

$10 = 5 + \underline{\quad}$


$10 = 2 + \underline{\quad}$



$10 = \underline{\quad} + 8$




$10 = \underline{\quad} + 4$

$10 = \underline{\quad} + 6$

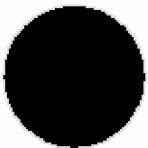
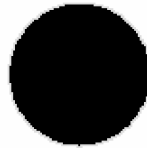
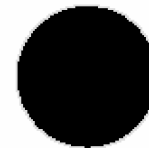
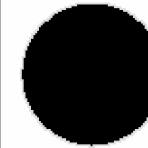
$10 = \underline{\quad} + 1$

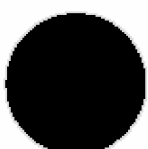
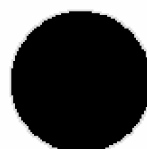
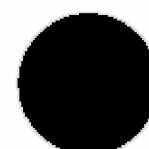
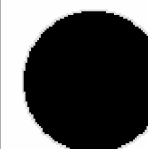
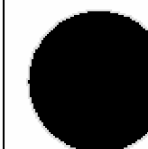
				

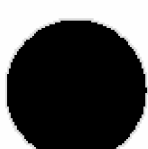
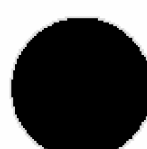

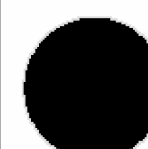
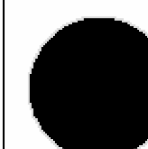
				

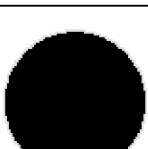
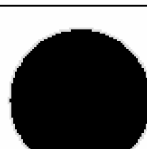
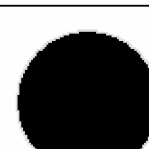
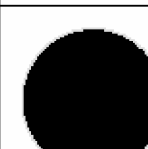
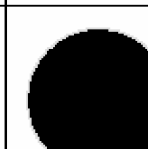
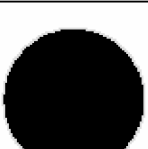
				

ten-frame cards





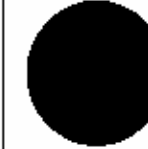





























				

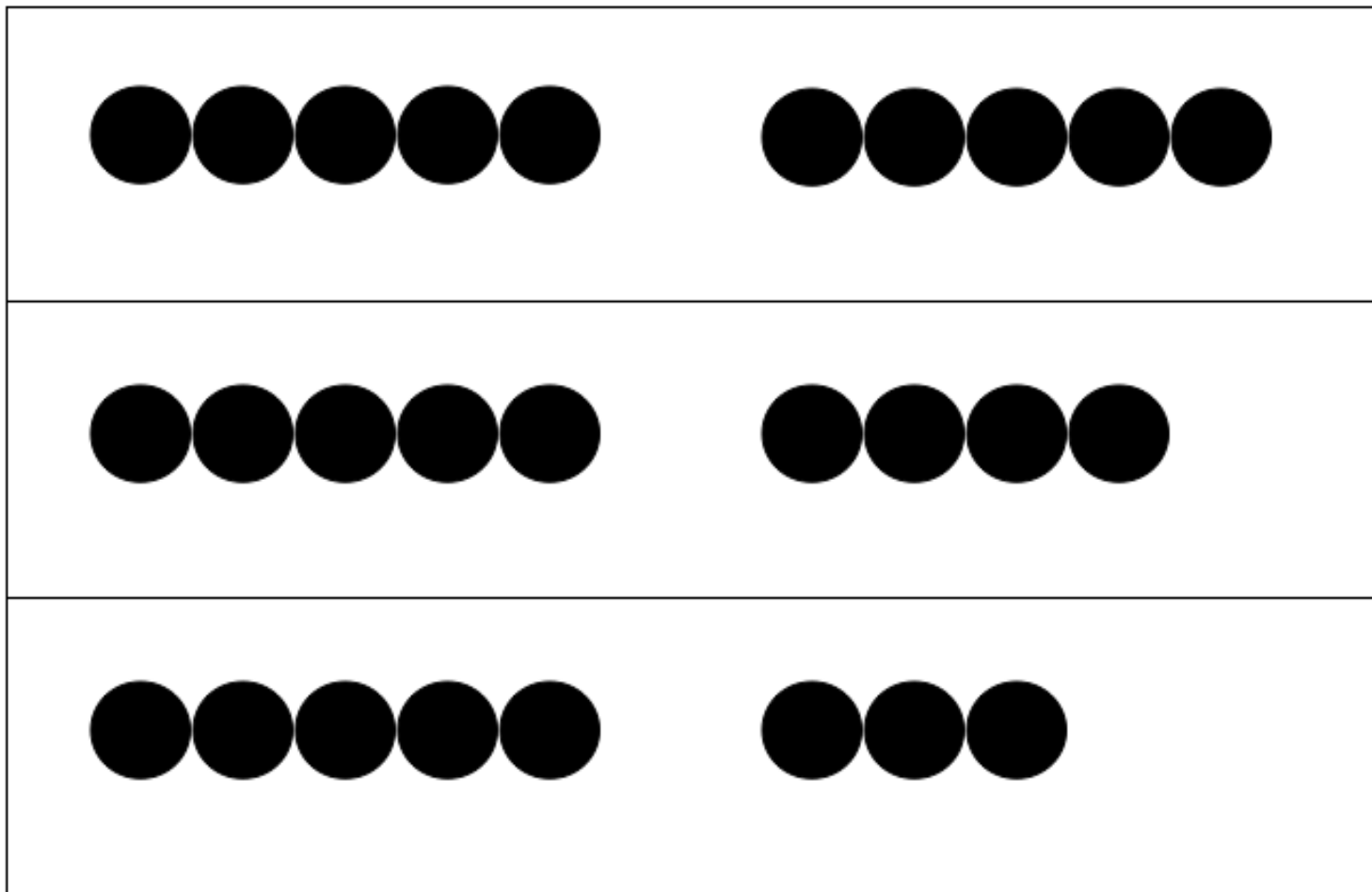
				

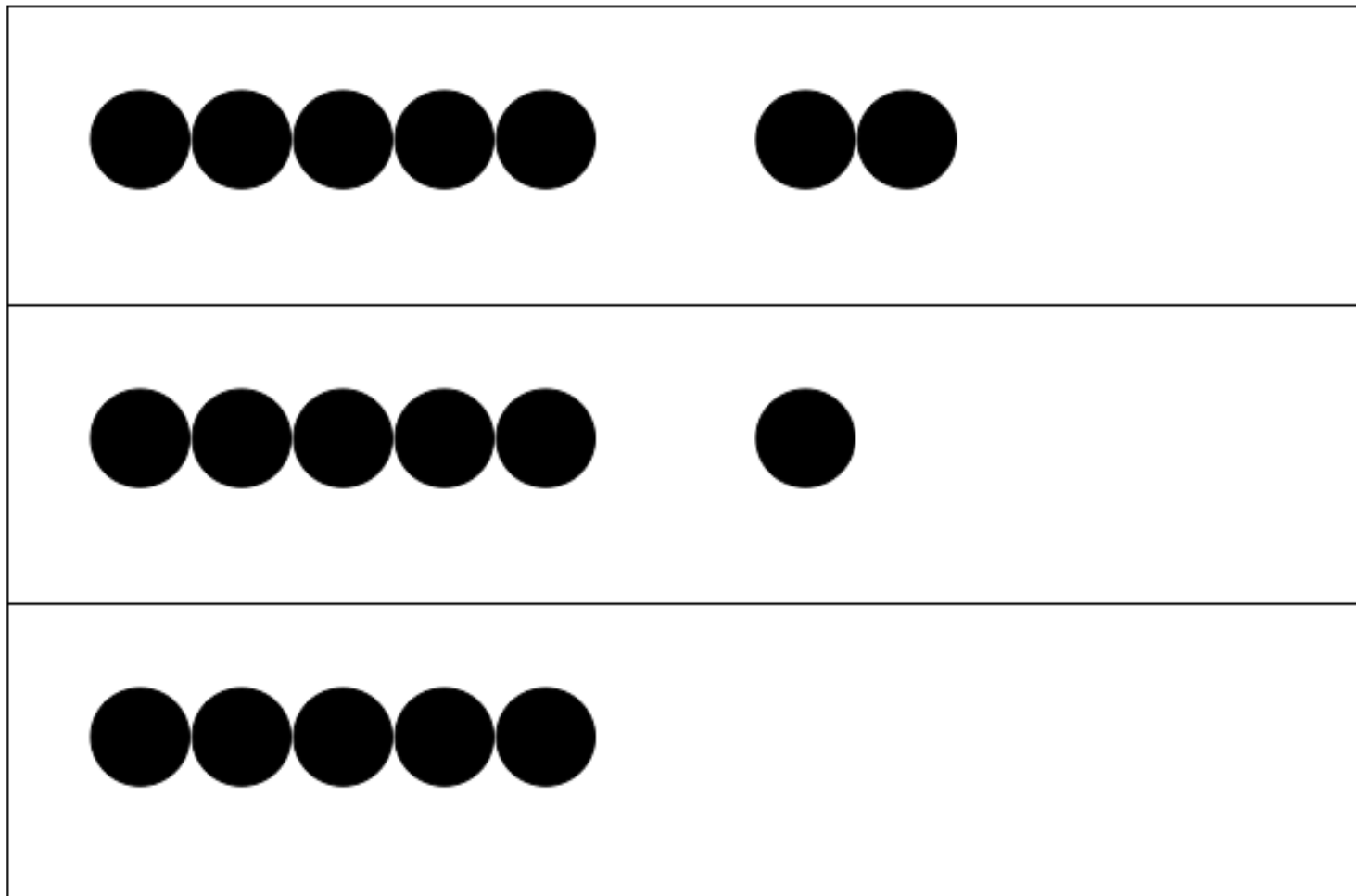
ten-frame cards





ten-frame cards



5-group column cards

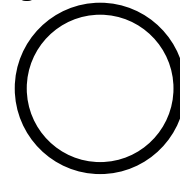


5-group column cards

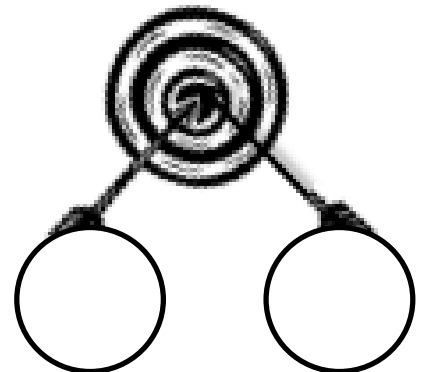
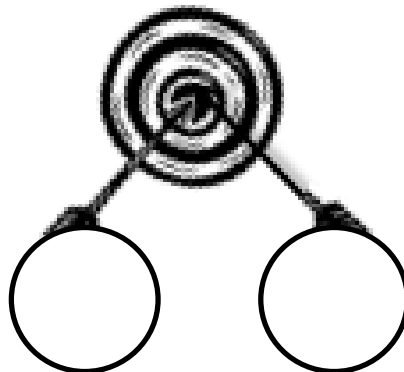
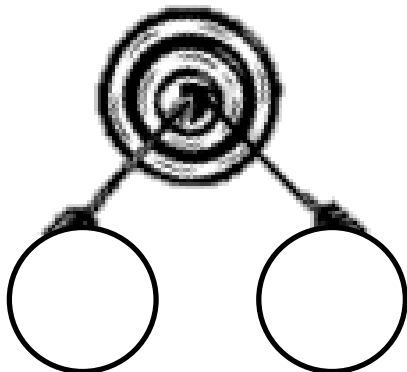
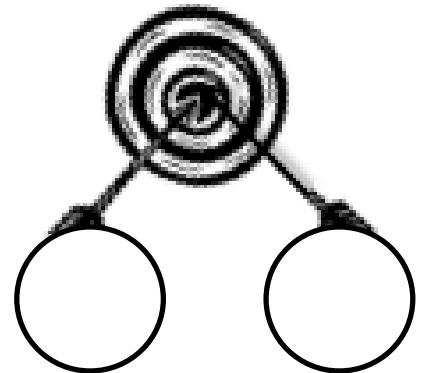
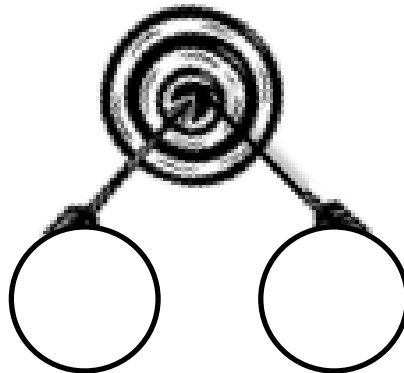
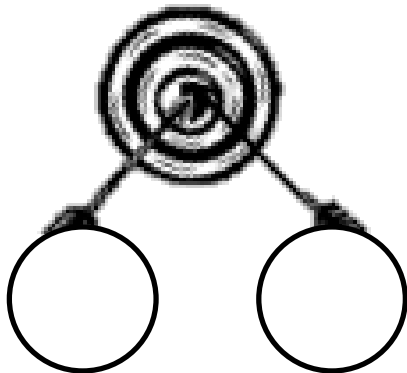
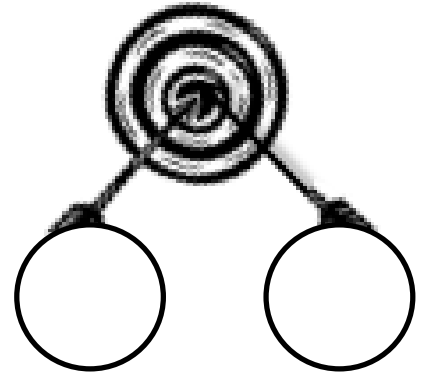
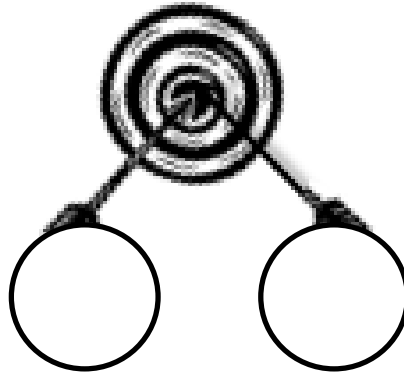
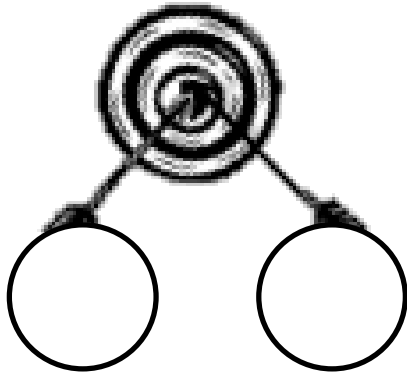
5-group column cards

Target Number:



Target Practice

Choose a *target number*, and write it in the middle of the circle on the top of the page. Roll a die. Write the number rolled in the circle at the end of one of the arrows. Then, make a bull's eye by writing the number needed to make your target in the other circle.



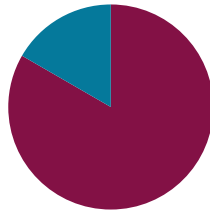
target practice

Lesson 2

Objective: Practice making the next ten and adding to a multiple of ten.

Suggested Lesson Structure

■ Fluency Practice	(50 minutes)
■ Student Debrief	(10 minutes)
Total Time	(60 minutes)



Fluency Practice (50 minutes)

- The Value of Tens and Ones **2.OA.2** (4 minutes)
- Happy Counting the Say Ten Way **2.OA.2** (10 minutes)
- Sprint: Add Tens and Ones **2.OA.2** (18 minutes)
- Target Practice: Within 10 **2.OA.2** (10 minutes)
- Make the Next Ten **2.OA.2** (8 minutes)

The Value of Tens and Ones (4 minutes)

Note: This activity reviews representing two-digit numbers with quick tens and ones in preparation for upcoming work within the module.

T: Tell me the total value of my tens and ones when I give the signal.
(Draw 1 quick ten and 7 ones.)

S: 17.

T: The Say Ten way?

S: 1 ten 7.

T: Say the addition sentence to add the ten and ones.

S: $10 + 7 = 17$.

T: (Draw 2 tens and 2 ones. Give the signal.) Tell me the total value.

S: 22.

T: The Say Ten way?

S: 2 tens 2.

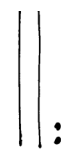
T: Say the addition sentence starting with the larger number.

S: $20 + 2 = 22$.

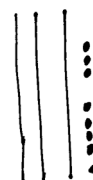
Continue the process using the following possible sequence:
29, 32, 38, 61, 64, 72, 81, 99, and 100.



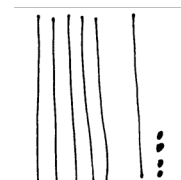
17



22



38



64

Happy Counting the Say Ten Way (10 minutes)

Materials: (T) 100-bead Rekenrek, Hide Zero cards (Fluency Template)

Note: Repeating a similar fluency activity two days in a row gives students confidence and allows them to build proficiency.

Part 1: Say Ten Counting with the Rekenrek and Hide Zero Cards

T: (Show 11 with the Hide Zero cards. Pull them apart to show the 10 and the 1. Repeat silently with 15 and 19.)

T: (Show 12 with Hide Zero cards.) Say the number the regular way?

S: 12.

T: (Pull cards apart.) The Say Ten way?

S: Ten 2.

T: (Show 13.) The Say Ten way?

S: Ten 3.

T: The regular way?

S: 13.

T: Let's Say Ten count starting from 15 using the Rekenrek.

(To show 15, pull to the left a row of ten and a second row of five.)

T: Count the beads on the left the Say Ten way. (Show 15 beads.)

S: Ten 5, ten 6, ten 7, ten 8, ten 9.

T: 2 tens (show two rows of ten beads pulled to the left), and the pattern begins again.

S: 2 tens 1, 2 tens 2, 2 tens 3, 2 tens 4, 2 tens 5.

T: Let's start with a new number. (Move beads to show 47.)

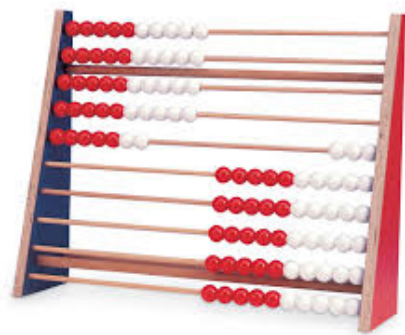
T: How much do I have?

S: 47.

T: What is 47 the Say Ten way? (Pictured to the right.)

S: 4 tens 7.

For about 2 minutes, students count up and down within 100. Each 20 to 30 seconds, begin a new counting sequence starting from a larger decade. While moving up and down, cross over tens frequently (e.g., 38, 39, 40, 41, 40, 39 or 83, 82, 81, 80, 79, 78, 79, 80, 81) as this is more challenging, especially counting down.



Part 2: Happy Counting

T: Follow my hand as we Happy Count. Watch my thumb.

T: Let's start at 2 tens 8. (Stop before students start to lose enthusiasm, after about 1 minute.)

T: Excellent! Try it with your partner. Partner A, you are the teacher today. I'll give you 30 seconds.

To segue to the Sprint in the following activity, ask students to share the number sentences for the following numbers.

T: Let's share number sentences that break apart two-digit numbers into tens and ones. (Show 28 on the Rekenrek and with Hide Zero cards.) I say 2 tens 8, and you say $20 + 8 = 28$. (Break apart Hide Zero cards to show 20 and 8.)

T: 2 tens 8.

S: $20 + 8 = 28$.

T: (Write $20 + 8 = 28$.)

T: 5 tens 3.

S: $50 + 3 = 53$.

T: (Write $50 + 3 = 53$.)

Use the following suggested sequence: 36, 19, 58, 77, 89, 90.

Sprint: Add Tens and Ones (18 minutes)

Materials: (S) Add Tens and Some Ones Sprint

Note: This Sprint brings automaticity back with the *tens plus* sums, which are foundational for adding within 100 and expanded form.

Target Practice: Within 10 (10 minutes)

Materials: (S) Per set of partners: personal white board, target practice (Lesson 1 Fluency Template 3), 1 numeral die

Note: Decomposition of single-digit numbers and 10 is a foundational skill for fluency with sums and differences to 20.

Assign Partner A and Partner B. Students write their choice of target number in the circle at the top right of the Target Practice template.

- Partner A rolls the die.
- Partner A writes the number rolled in the circle at the end of one of the arrows.
- Partner B makes a bull's eye by writing the number in the other circle that is needed to make the target.

Adjust the target number as appropriate for each pair of students, focusing on totals of 6, 7, 8, 9, and 10. If the pair demonstrates fluency, challenge them to move into teen numbers!



**NOTES ON
MULTIPLE MEANS
OF ACTION AND
EXPRESSION:**

For students who are performing significantly below grade level and were unable to work past the first 10 questions in Lesson 1, perhaps let them do "Add a Ten and Some Ones" again today, this time with drawings or materials.



**NOTES ON
MULTIPLE MEANS
OF ENGAGEMENT:**

For students who have mastered partners within 10, assign numbers within 20 as the target number.

Make the Next Ten (8 minutes)

Note: This is a foundational skill for mastery of sums and differences to 20. If students do not know their partners to 10, do not advance to making multiples of ten.

T: I'll say a number, and you tell me what it needs to make the next 10.

T: 8. Get ready.

S: 2.

T: 28.

S: 2.

T: 58.

S: 2.

Continue the process using the following possible sequence: 7, 27, 67, 87.

T: With your partner, take turns saying pairs to make 10, 20, 30, 40, 50, 60, 70, 80, 90, or 100. It's your choice. Partner A, you will go first for now.

After about 30 seconds, have partners switch roles. Keep it fun and joyful!

Student Debrief (10 minutes)

Lesson Objective: Practice making the next ten and adding to a multiple of ten.

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

Guide students in a conversation to debrief today's lesson.

Any combination of the questions below may be used to lead the discussion.

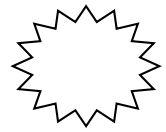
- How does knowing $10 + 3$ help us with $50 + 3$?
- How does knowing that 8 needs 2 to make ten help us know how to get from 28 to the next ten?
- How are Hide Zero cards and the Rekenrek similar? How are they different?
- What learning today did you remember from last year?
- Can you figure out the math goal of today's lesson? What name would you give this lesson?

Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

A

Number Correct:



Name _____

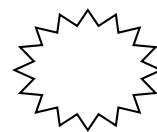
Date _____

Add Tens and Ones

1.	$10 + 3 = \underline{\quad}$	16.	$10 + \underline{\quad} = 13$
2.	$20 + 2 = \underline{\quad}$	17.	$40 + \underline{\quad} = 42$
3.	$30 + 4 = \underline{\quad}$	18.	$60 + \underline{\quad} = 61$
4.	$50 + 3 = \underline{\quad}$	19.	$70 + \underline{\quad} = 75$
5.	$20 + 5 = \underline{\quad}$	20.	$80 + \underline{\quad} = 83$
6.	$50 + 5 = \underline{\quad}$	21.	$60 + 9 = \underline{\quad}$
7.	$\underline{\quad} = 40 + 1$	22.	$80 + 9 = \underline{\quad}$
8.	$\underline{\quad} = 20 + 4$	23.	$80 + \underline{\quad} = 86$
9.	$\underline{\quad} = 20 + 3$	24.	$90 + \underline{\quad} = 97$
10.	$\underline{\quad} = 30 + 5$	25.	$\underline{\quad} + 6 = 76$
11.	$\underline{\quad} = 40 + 5$	26.	$\underline{\quad} + 6 = 86$
12.	$30 + 6 = \underline{\quad}$	27.	$86 = \underline{\quad} + 6$
13.	$20 + 9 = \underline{\quad}$	28.	$\underline{\quad} + 60 = 67$
14.	$40 + 7 = \underline{\quad}$	29.	$95 = \underline{\quad} + 90$
15.	$50 + 8 = \underline{\quad}$	30.	$97 = 7 + \underline{\quad}$

B

Improvement: _____ Number Correct: _____



Name _____

Date _____

Add Tens and Ones

1.	$10 + 2 = \underline{\quad}$	16.	$10 + \underline{\quad} = 12$
2.	$20 + 3 = \underline{\quad}$	17.	$40 + \underline{\quad} = 42$
3.	$30 + 4 = \underline{\quad}$	18.	$60 + \underline{\quad} = 61$
4.	$50 + 4 = \underline{\quad}$	19.	$70 + \underline{\quad} = 75$
5.	$40 + 5 = \underline{\quad}$	20.	$80 + \underline{\quad} = 83$
6.	$50 + 1 = \underline{\quad}$	21.	$70 + 8 = \underline{\quad}$
7.	$\underline{\quad} = 50 + 1$	22.	$80 + 8 = \underline{\quad}$
8.	$\underline{\quad} = 20 + 4$	23.	$70 + \underline{\quad} = 76$
9.	$\underline{\quad} = 20 + 2$	24.	$90 + \underline{\quad} = 99$
10.	$\underline{\quad} = 30 + 5$	25.	$\underline{\quad} + 8 = 78$
11.	$\underline{\quad} = 40 + 3$	26.	$\underline{\quad} + 6 = 96$
12.	$30 + 7 = \underline{\quad}$	27.	$86 = \underline{\quad} + 6$
13.	$20 + 8 = \underline{\quad}$	28.	$\underline{\quad} + 60 = 67$
14.	$40 + 9 = \underline{\quad}$	29.	$95 = \underline{\quad} + 90$
15.	$50 + 6 = \underline{\quad}$	30.	$97 = 7 + \underline{\quad}$

Name _____

Date _____

Solve.

1.

a. $10 + 3 = \underline{\quad}$

b. $30 + 4 = \underline{\quad}$

c. $60 + 5 = \underline{\quad}$

d. $90 + 1 = \underline{\quad}$

2.

a. $\underline{\quad} = 10 + 7$

b. $\underline{\quad} = 20 + 9$

c. $\underline{\quad} = 70 + 6$

d. $\underline{\quad} = 90 + 8$

Name _____

Date _____

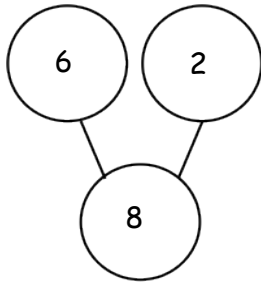
1. Add or subtract. Draw a number bond for (b).

a. $6 + 2 = \underline{\quad}$

$2 + 6 = \underline{\quad}$

$8 - 2 = \underline{\quad}$

$8 - 6 = \underline{\quad}$



b. $\underline{\quad} = 3 + 5$

$\underline{\quad} = 5 + 3$

$\underline{\quad} = 8 - 3$

$\underline{\quad} = 8 - 5$

2. Solve.

$20 + 4 = \underline{\quad}$

$\underline{\quad} = 20 + 9$

$40 + 3 = \underline{\quad}$

$\underline{\quad} = 40 + 8$

$70 + 2 = \underline{\quad}$

$\underline{\quad} = 50 + 6$

$80 + 5 = \underline{\quad}$

$\underline{\quad} = 90 + 7$

3. Solve.

$14 = 10 + \underline{\quad}$

$19 = \underline{\quad} + 9$

$23 = 20 + \underline{\quad}$

$29 = \underline{\quad} + 9$

$71 = 70 + \underline{\quad}$

$78 = \underline{\quad} + 8$

$82 = 80 + \underline{\quad}$

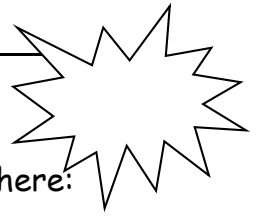
$87 = \underline{\quad} + 7$

Name _____

Date _____

Number Bond Dash

Do as many as you can in 90 seconds. Write the number of bonds you finished here:



1.	2.	3.	4.	5.
6.	7.	8.	9.	10.
11.	12.	13.	14.	15.
16.	17.	18.	19.	20.

1	0	0	1	0	1
2	0	0	2	0	2
3	0	0	3	0	3
4	0	0	4	0	4
5	0	0	5	0	5
6	0	0	6	0	6

Hide Zero cards

7	0	0	7	0	7
8	0	0	8	0	8
9	0	0	9	0	9

Hide Zero cards



Topic B

Initiating Fluency with Addition and Subtraction Within 100

2.OA.1, 2.OA.2, 2.NBT.5, 1.NBT.4, 1.NBT.5, 1.NBT.6

Focus Standards:	2.OA.1	Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
	2.OA.2	Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.
	2.NBT.5	Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
Instructional Days:	6	
Coherence -Links from:	G1–M2	Introduction to Place Value Through Addition and Subtraction Within 20
	G1–M4	Place Value, Comparison, Addition and Subtraction to 40
	G1–M6	Place Value, Comparison, Addition and Subtraction to 100
	-Links to:	
	G2–M4	Addition and Subtraction Within 200 with Word Problems to 100
	G3–M2	Place Value and Problem Solving with Units of Measure

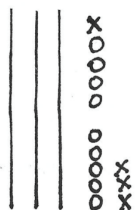
Now that students have sharpened their skills, they are ready to solve problems by decomposing and composing units. Lessons 3, 4, 5, and 7 revisit Grade 1 learning at a new pace and without a heavy reliance upon concrete and pictorial models while simultaneously preparing students for the new learning of Lessons 6 and 8, subtracting single-digit numbers from two-digit numbers within 100.

In Lesson 3, students use their understanding of place value to add and subtract like units, by decomposing addends into tens and ones. For example, students apply their knowledge that $7 - 2 = 5$ to solve $47 - 2$ (7 ones – 2 ones = 5 ones) and $73 - 20$ (7 tens – 2 tens = 5 tens).



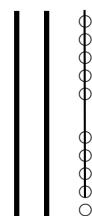
In Lesson 4, students use the Grade 1 make ten strategy. For example, to add $9 + 4$ (pictured to the right), students decompose 4 as 1 and 3 in order to complete a unit of ten ($9 + 1$) and then add, or compose, the ten with the remaining ones ($10 + 3$). They then apply the same understanding to make the *next* ten (pictured below) in Lesson 5.

$$\begin{array}{l} 9 + 4 = 13 \\ \quad \swarrow \searrow \\ \quad 1 \quad 3 \\ 9 + 1 = 10 \\ 10 + 3 = 13 \end{array}$$



$$\begin{array}{l} 39 + 4 = 43 \\ \quad \swarrow \searrow \\ \quad 1 \quad 3 \\ 39 + 1 = 40 \\ 40 + 3 = 43 \end{array}$$

In Lesson 6, students advance their Grade 1 take from ten strategy to subtract single-digit numbers from multiples of 10. For example, $30 - 9$ is solved by decomposing 30 as 20 and 10, taking from ten ($10 - 9$), and composing the parts that are left ($20 + 1$).

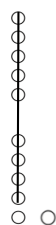


$$\begin{array}{l} 30 - 9 = 21 \\ \quad \swarrow \searrow \\ 20 \quad 10 \\ 10 - 9 = 1 \\ 20 + 1 = 21 \end{array}$$

Just subtract 9 from 10.
 $10 - 9 = 1$



In Lesson 7, students practice the Grade 1 take from ten strategy within 20. Students repeat the same reasoning from Lesson 6. For example, $11 - 9$ is solved by decomposing 11 as 1 and 10, taking from ten ($10 - 9$), and composing the parts that are left ($1 + 1$).



$$\begin{array}{l} 11 - 9 = 2 \\ \quad \swarrow \searrow \\ 1 \quad 10 \\ 10 - 9 = 1 \\ 1 + 1 = 2 \end{array}$$

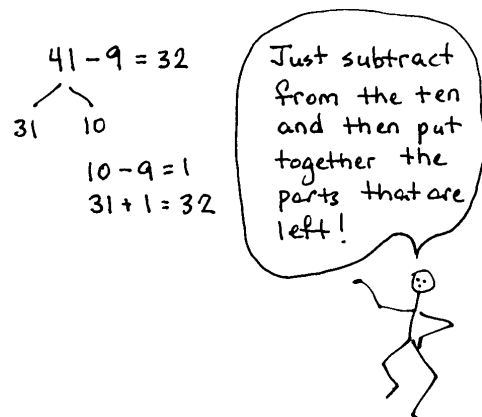
Just subtract $10 - 9 = 1$.
Then add the parts
that are left. $1 + 1 = 2$



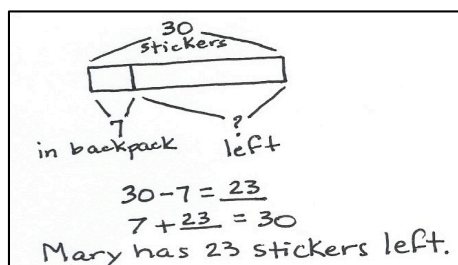
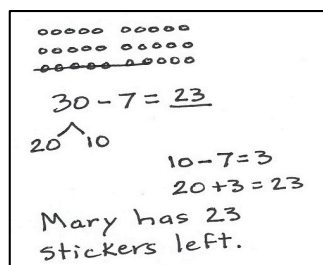
Topic B culminates with Lesson 8, where students, as in Lesson 6, extend the take from ten strategy to numbers within 100 (**2.NBT.5**). For example, to solve $41 - 9$, students decompose 41 as 31 and 10, take from ten ($10 - 9$), and add the parts that are left ($31 + 1$). Notice how the student talking to the right has now generalized the process from the specific problem.

Making a ten and taking from ten are strategies that lay the foundation for understanding place value and the base ten system. These Level 3 composition and decomposition methods powerfully pave the way for composing units and decomposing units of ten and a hundred when using the addition and subtraction algorithms in Modules 4 and 5. Furthermore, they exemplify Mathematical Practice 8, as students look for the opportunity to repeat patterns of reasoning both when calculating and in the context of word problems.

In Topic B, Application Problems contextualize learning as students apply strategies to problem solving using the RDW process. Students solve *add to*, *take from*, *put together/take apart* problem types with unknowns in different positions (**2.OA.1**). They demonstrate their understanding of the situation by representing it with a drawing, number sentence, and statement.



Mary buys 30 stickers. She puts 7 in her friend's backpack. How many stickers does Mary have left?



Many students will enter Grade 2 drawing simple circles or 5-groups to reason through and represent a given situation. Encourage sense making, and accept all reasonable drawings. Drawing a tape diagram to accurately represent story situations comes with time and practice.

A Teaching Sequence Toward Mastery of Initiating Fluency with Addition and Subtraction Within 100

Objective 1: Add and subtract like units.
(Lesson 3)

Objective 2: Make a ten to add within 20.
(Lesson 4)

Objective 3: Make a ten to add within 100.
(Lesson 5)

Objective 4: Subtract single-digit numbers from multiples of 10 within 100.
(Lesson 6)

Objective 5: Take from ten within 20.
(Lesson 7)

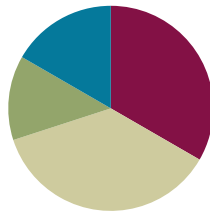
Objective 6: Take from ten within 100.
(Lesson 8)

Lesson 3

Objective: Add and subtract like units.

Suggested Lesson Structure

■ Fluency Practice	(15 minutes)
■ Concept Development	(20 minutes)
■ Application Problem	(15 minutes)
■ Student Debrief	(10 minutes)
Total Time	(60 minutes)



Fluency Practice (15 minutes)

- Sprint: Related Facts **2.OA.2** (15 minutes)

Sprint: Related Facts (15 minutes)

Materials: (S) Related Facts Sprint

Note: Students use their fluency with easier problems to solve more complex addition and subtraction problems within 100. Also, as students get better with the Sprint routine, the time allotted for the Sprint continues to decrease.

Concept Development (20 minutes)

Materials: (S) Personal white board

Part 1: Add and subtract like units, ones, to solve problems within 100 (e.g., $5 + 2$, $45 + 2$, $7 - 2$, $47 - 2$).

- T: What did you notice about today's Sprint?
- S: I noticed a pattern. I saw $3 + 1$ in the first 3 problems.
 $\rightarrow 3 + 1 = 4$. So, I also know that $13 + 1 = 14$ and $23 + 1 = 24$. \rightarrow I kept adding the same ones together in the first 3 problems, $3 + 1 = 4$. But the tens changed.
- T: Yes! Today's Sprint was filled with patterns. You can use easier facts like $3 + 1$ to solve other problems like $13 + 1$ and $23 + 1$.
- T: Turn and talk to your partner about other patterns you see in the Sprint.
- S: (Identify sequences of problems.)



NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Consider demonstrating on the 100-bead Rekenrek for students who would benefit from a concrete model of the problems.

T: (Draw an image of 5 circles and 2 Xs as shown to the right.)
Say addition and subtraction sentences this drawing represents.

S: $5 + 2 = 7$. $\rightarrow 2 + 5 = 7$. $\rightarrow 7 - 5 = 2$. $\rightarrow 7 - 2 = 5$.

T: Just like in our Sprint today, we can use problems like $5 + 2 = 7$ or $7 - 2 = 5$ to solve other problems. (Write $5 + 2 = 7$ and $7 - 2 = 5$. Add 4 quick tens to the drawing.)

T: $45 + 2$ is...?

S: 47.

T: (Write $45 + 2 = 47$.)

T: $47 - 2$ is...?

S: 45.

T: (Write $47 - 2 = 45$.)

T: What easier problem did you use to add and to subtract?

S: $5 + 2 = 7$. $\rightarrow 7 - 2 = 5$.

T: (Add 2 more quick tens to the drawing.) $67 - 2$ is...?

S: 65.

T: (Add subtraction number sentences to the growing list.) What easier problem did we still use to subtract the ones?

S: $7 - 2 = 5$.

T: Tell me the number sentence in unit form.

S: 7 ones $-$ 2 ones = 5 ones.

T: We didn't have to do anything to the tens except remember to put them together with the 5 ones!

Part 2: Add and subtract like units, tens, to solve problems within 100 (e.g., $51 + 20$, $54 + 20$, $71 - 20$, $74 - 20$).

$$\begin{array}{r} 51 + 20 = 71 \\ \swarrow \searrow \\ 50 \quad 1 \end{array}$$

$$\begin{array}{r} 54 + 20 = 74 \\ \swarrow \searrow \\ 50 \quad 4 \end{array}$$

$$\begin{array}{r} 58 + 20 = 78 \\ \swarrow \searrow \\ 50 \quad 8 \end{array}$$

T: (Write $51 + 20$ on the board.) $51 + 20$ is...?

S: 71.

T: How did you know?

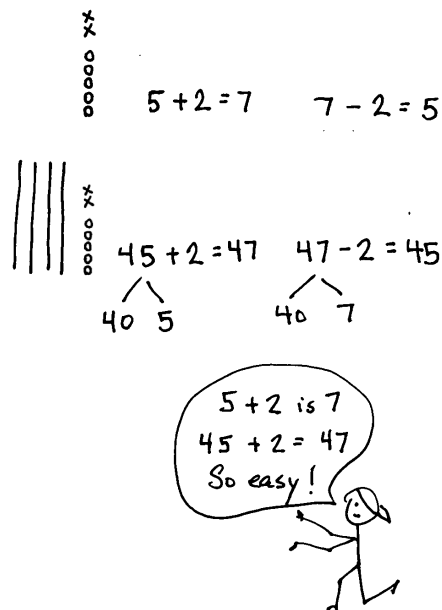
S: I added 20 to 50 to get 70 and then added 1. \rightarrow I drew a quick ten drawing. I added 2 more tens to my 5 tens. That gave me 7 tens and 1 one.

T: (Write the number bond to break apart 51 into 50 and 1.) How many tens are in 51?

S: 5 tens.

T: How many tens were we adding to 51?

S: 2 tens.



NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Have students who struggle to see the like units draw quick tens to represent the problems. As soon as possible, have them visualize the quick tens to prevent overdependence on drawing.

"Pretend you drew quick tens. How many do you see? How many do you subtract? How many are left?"

T: What easier problem did you use to help you solve 51 and 20? Talk to your partner.

S: $5 + 2 = 7$. \rightarrow 5 tens + 2 tens = 7 tens. $\rightarrow 50 + 20 = 70$.

Repeat the same reasoning with $54 + 20$ and $58 + 20$.

T: Compare $54 + 2$ to $54 + 20$. Talk to your partner.

S: We start with the same number in both problems.
 \rightarrow In one problem, we add 2 ones. In the other problem, we add 2 tens. \rightarrow Adding 2 ones is not the same as adding 2 tens. 56 is much less than 74. \rightarrow In one problem, we leave the ones alone, and in the other problem, we leave the tens alone.

T: (Write $71 - 20$.) Break apart 71 as tens and ones.

S: 70 and 1.

T: (Write the number bond for 71.) What is $71 - 20$?

S: 51.

T: How did you know?

S: 7 tens $-$ 2 tens = 5 tens. \rightarrow I took tens from tens. $70 - 20 = 50$. Then I added 1. \rightarrow I used an easier problem. I know $7 - 2 = 5$, so $70 - 20 = 50$.

Repeat the same reasoning with $73 - 20$ and $76 - 20$ and record.

T: Compare $73 - 20$ to $73 - 2$. Talk to your partner.

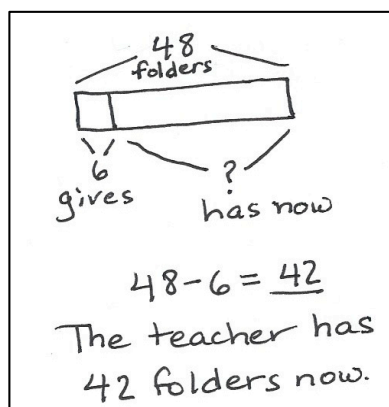
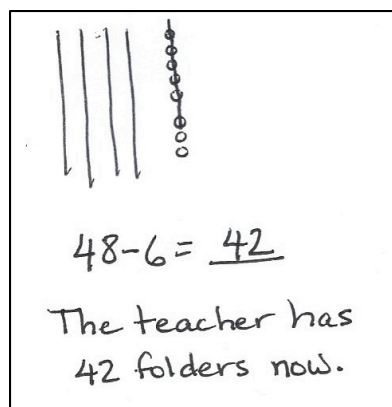
S: (Compare as previously.)

Repeat the process using the following sequence: $56 - 30$, $56 - 3$, $65 + 30$, $35 + 60$, $35 - 20$, $35 - 30$, $35 + 2$, $32 + 5$, $37 - 5$, $87 - 5$, $87 - 50$. After each problem, ask students to share the easier problem that helped them solve. Ask students to identify if they are adding or subtracting tens or ones.

Application Problem (15 minutes)

Note: This Application Problem follows the Concept Development to allow students to apply their understanding to a *take from result unknown* problem. The allotted time period includes 5 minutes to solve the Application Problem and 10 minutes to complete the Problem Set.

The teacher has 48 folders. She gives 6 folders to the first table. How many folders does she have now?



NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Rather than suggesting a strategy, choose to share two different solution strategies from students. Notice that the drawings represent student work at varying levels of sophistication. When sharing, encourage students to make connections between the models.

Note: This is the first application problem of Grade 2. The goal is to encourage all students to draw and solve using the RDW process. Some students may simply know the answer, so it is important to establish the purpose of the Application Problem of each lesson. It is the time to focus on understanding the situation presented in the problem and representing that situation with a drawing, a number sentence, and a statement of the answer. It is also the time for students to share their representations and their ways of thinking, which can help more students access problem-solving strategies. Save the tape diagram from this Application Problem to compare it to the tape diagram from Lesson 4 where students combine the parts rather than subtract a part.

Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. Some problems do not specify a method for solving. Students should solve these problems using the RDW approach used for Application Problems.

For some classes, it may be appropriate to modify the assignment by specifying which problems students should work on first. With this option, let the purposeful sequencing of the Problem Set guide your selections so that problems continue to be scaffolded. Balance word problems with other problem types to ensure a range of practice. Consider assigning incomplete problems for homework or at another time during the day.

Student Debrief (10 minutes)

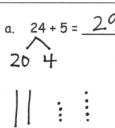
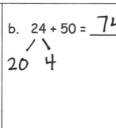
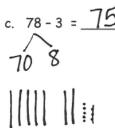
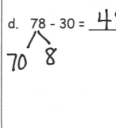
Lesson Objective: Add and subtract like units.

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- What is another problem that could be added to Problem 1(a)?
- Compare $24 + 5$ to $24 + 50$ with your partner. What's different?
- Share your explanation from Problem 4. What is another pair of addition sentences that has this same relationship?
- Do you think you could teach what you learned to someone else? How?
- Can you figure out the math goal of today's lesson? What name would you give this lesson?

Name <u>Mike</u> Date _____	
1. Solve.	
a. $30 + 6 = \underline{36}$	b. $50 - 30 = \underline{20}$
$30 + 60 = \underline{90}$	$51 - 30 = \underline{21}$
$35 + 40 = \underline{75}$	$57 - 4 = \underline{53}$
$35 + 4 = \underline{39}$	$57 - 40 = \underline{17}$
2. Solve.	
a. $24 + 5 = \underline{29}$ 	b. $24 + 50 = \underline{74}$ 
c. $78 - 3 = \underline{75}$ 	d. $78 - 30 = \underline{48}$ 

Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

3. Solve.

a. $38 + 10 = \underline{48}$ $18 + 30 = \underline{48}$	b. $35 - 10 = \underline{25}$ $35 - 20 = \underline{15}$
c. $56 + 40 = \underline{96}$ $46 + 50 = \underline{96}$	d. $75 - 40 = \underline{35}$ $75 - 30 = \underline{45}$

4. Compare $57 - 2$ to $57 - 20$. How are they different? Use words, drawings, or numbers to explain.

$57 - 2 = 55$ |||||: Take away 2 ones.

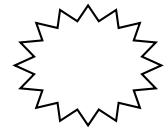
$57 - 20 = 37$ ||||X: Takeaway 2 tens.

Extension!

5. Andy had \$28. He spent \$5 on a book. $28 - 5 = 23$
 Lisa had \$20 and got \$3 more. $20 + 3 = 23$
 Lisa says she has more money. $20 + 3 = 23$
 Prove her right or wrong using pictures, numbers or words.
 Lisa is wrong. They have the same amount of money.

A

Number Correct:



Name _____

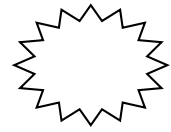
Date _____

*Write the missing number. Pay attention to the + and – signs.

1.	$3 + 1 = \underline{\quad}$	16.	$6 + 2 = \underline{\quad}$
2.	$13 + 1 = \underline{\quad}$	17.	$56 + 2 = \underline{\quad}$
3.	$23 + 1 = \underline{\quad}$	18.	$7 + 2 = \underline{\quad}$
4.	$1 + 2 = \underline{\quad}$	19.	$67 + 2 = \underline{\quad}$
5.	$11 + 2 = \underline{\quad}$	20.	$87 + 2 = \underline{\quad}$
6.	$21 + 2 = \underline{\quad}$	21.	$7 - 2 = \underline{\quad}$
7.	$31 + 2 = \underline{\quad}$	22.	$47 - 2 = \underline{\quad}$
8.	$61 + 2 = \underline{\quad}$	23.	$67 - 2 = \underline{\quad}$
9.	$4 - 1 = \underline{\quad}$	24.	$26 + 3 = \underline{\quad}$
10.	$14 - 1 = \underline{\quad}$	25.	$56 + \underline{\quad} = 59$
11.	$24 - 1 = \underline{\quad}$	26.	$\underline{\quad} + 3 = 76$
12.	$54 - 1 = \underline{\quad}$	27.	$57 - \underline{\quad} = 54$
13.	$5 - 3 = \underline{\quad}$	28.	$77 - \underline{\quad} = 74$
14.	$15 - 3 = \underline{\quad}$	29.	$\underline{\quad} - 4 = 73$
15.	$25 - 3 = \underline{\quad}$	30.	$\underline{\quad} - 4 = 93$

B

Number Correct:



Name _____

Date _____

*Write the missing number. Pay attention to the + and – signs.

1.	$2 + 1 = \underline{\quad}$	16.	$7 + 2 = \underline{\quad}$
2.	$12 + 1 = \underline{\quad}$	17.	$67 + 2 = \underline{\quad}$
3.	$22 + 1 = \underline{\quad}$	18.	$4 + 5 = \underline{\quad}$
4.	$3 + 2 = \underline{\quad}$	19.	$54 + 5 = \underline{\quad}$
5.	$13 + 2 = \underline{\quad}$	20.	$84 + 5 = \underline{\quad}$
6.	$23 + 2 = \underline{\quad}$	21.	$8 - 6 = \underline{\quad}$
7.	$43 + 2 = \underline{\quad}$	22.	$48 - 6 = \underline{\quad}$
8.	$63 + 2 = \underline{\quad}$	23.	$78 - 6 = \underline{\quad}$
9.	$5 - 1 = \underline{\quad}$	24.	$33 + 4 = \underline{\quad}$
10.	$15 - 1 = \underline{\quad}$	25.	$63 + \underline{\quad} = 67$
11.	$25 - 1 = \underline{\quad}$	26.	$\underline{\quad} + 3 = 77$
12.	$45 - 1 = \underline{\quad}$	27.	$59 - \underline{\quad} = 56$
13.	$5 - 4 = \underline{\quad}$	28.	$79 - \underline{\quad} = 76$
14.	$15 - 4 = \underline{\quad}$	29.	$\underline{\quad} - 6 = 73$
15.	$25 - 4 = \underline{\quad}$	30.	$\underline{\quad} - 6 = 93$

Name _____

Date _____

1. Solve.

a. $30 + 6 =$ _____

b. $50 - 30 =$ _____

$30 + 60 =$ _____

$51 - 30 =$ _____

$35 + 40 =$ _____

$57 - 4 =$ _____

$35 + 4 =$ _____

$57 - 40 =$ _____

2. Solve.

a. $24 + 5 =$ _____

b. $24 + 50 =$ _____

c. $78 - 3 =$ _____

d. $78 - 30 =$ _____

3. Solve.

a. $38 + 10 = \underline{\hspace{2cm}}$ $18 + 30 = \underline{\hspace{2cm}}$	b. $35 - 10 = \underline{\hspace{2cm}}$ $35 - 20 = \underline{\hspace{2cm}}$
c. $56 + 40 = \underline{\hspace{2cm}}$ $46 + 50 = \underline{\hspace{2cm}}$	d. $75 - 40 = \underline{\hspace{2cm}}$ $75 - 30 = \underline{\hspace{2cm}}$

4. Compare $57 - 2$ to $57 - 20$. How are they different? Use words, drawings, or numbers to explain.

Extension!

5. Andy had \$28. He spent \$5 on a book.

Lisa had \$20 and got \$3 more.

Lisa says she has more money.

Prove her right or wrong using pictures, numbers, or words.

Name _____

Date _____

Solve.

1. $23 + 5 = \underline{\hspace{2cm}}$

2. $68 - 5 = \underline{\hspace{2cm}}$

3. $43 + 30 = \underline{\hspace{2cm}}$

4. $76 - 60 = \underline{\hspace{2cm}}$

Name _____

Date _____

1. Solve.

a. $20 + 7 =$ _____

b. $80 - 20 =$ _____

$20 + 70 =$ _____

$85 - 2 =$ _____

$62 + 3 =$ _____

$85 - 20 =$ _____

$62 + 30 =$ _____

$86 - 20 =$ _____

c. $30 + 40 =$ _____

d. $70 - 30 =$ _____

$31 + 40 =$ _____

$75 - 30 =$ _____

$35 + 4 =$ _____

$78 - 3 =$ _____

$45 + 30 =$ _____

$75 - 40 =$ _____

2. Solve.

a. $42 + 7 = \underline{\hspace{2cm}}$	b. $24 + 70 = \underline{\hspace{2cm}}$
c. $49 - 2 = \underline{\hspace{2cm}}$	d. $98 - 20 = \underline{\hspace{2cm}}$

3. Solve.

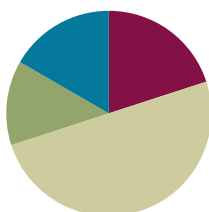
a. $16 + 3 = \underline{\hspace{2cm}}$ $13 + 6 = \underline{\hspace{2cm}}$	b. $37 - 3 = \underline{\hspace{2cm}}$ $37 - 4 = \underline{\hspace{2cm}}$
c. $26 + 70 = \underline{\hspace{2cm}}$ $76 + 20 = \underline{\hspace{2cm}}$	d. $97 - 50 = \underline{\hspace{2cm}}$ $97 - 40 = \underline{\hspace{2cm}}$

Lesson 4

Objective: Make a ten to add within 20.

Suggested Lesson Structure

Fluency Practice	(12 minutes)
Application Problem	(8 minutes)
Concept Development	(30 minutes)
Student Debrief	(10 minutes)
Total Time	(60 minutes)



Fluency Practice (12 minutes)

- Draw Tens and Ones **2.OA.2** (3 minutes)
- Make Ten **2.OA.2** (3 minutes)
- Make the Next Ten Within 100 **2.OA.2** (4 minutes)
- Take Out One **2.OA.2** (2 minutes)

Draw Tens and Ones (3 minutes)

Materials: (T) Linking cubes with ten-sticks and extra cubes, place value chart (S) Personal white board

Note: This fluency activity reviews place value as students analyze two representations of two-digit numbers.

T: Draw the number of cubes I show with quick tens and ones.

T: (Show 2 linking cube ten-sticks and 4 ones.)

S: (Draw as pictured to the right.)

T: Show me your boards. Tell me the number.

S: 24.

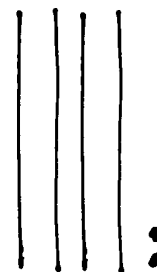
T: Draw the number I show with quick tens and ones.

T: (Write the number 42 on the place value chart.)

S: (Draw as pictured to the right.)

T: Tell me the number.

S: 42.



For the next minute, represent 18 and 81, 37 and 73, 29 and 92, alternating between showing the smaller number of each pair with cubes and the larger number with the place value chart.

Make Ten (3 minutes)

Materials: (S) Personal white board

Note: This is a foundational skill for mastery of sums and differences to 20.

T: I'll say a number, and you say how many more to make ten.

T: 9. Get ready.

S: 1.

T: Write the addition sentence. (Pause.) Show me your boards.

S: (Show $9 + 1 = 10$.)

T: (Scan each board, and accept $1 + 9 = 10$, $10 = 9 + 1$, etc.)

T: 8. (Pause as students write.) Get ready.

S: 2.

T: Write the addition sentence. (Pause.) Show me your boards.

S: (Show $8 + 2 = 10$.)

Continue with the following possible sequence: 2, 5, 6, 4, 7, and 3.

Make the Next Ten Within 100 (4 minutes)

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

Note: In this fluency activity, students apply their knowledge of partners to ten to find analogous partners to 20, 30, and 40 to prepare for today's lesson. Keep them motivated to use the patterns by removing the Rekenrek at times.

T: (Show 19.) Say the number.

S: 19.

T: Write the number sentence, starting with 19, to get to or make the next ten on your personal white board.

S: (Write $19 + 1 = 20$.)

T: (Scan the boards.) Tell me the addition sentence.

S: $19 + 1 = 20$.

T: (Move 1 bead to make 20 as students answer.)

T: (Show 39.) Say the number.

S: 39.

T: Write the number sentence, starting with 39, to make the next ten on your personal white board.

S: (Write $39 + 1 = 40$.)

T: (Scan the boards.) Tell me the addition sentence.

S: $39 + 1 = 40$.

T: (Move 1 bead to make 40 as students answer.)

Continue with the following possible sequence: 15, 35, 85; 18, 48, 68; 12, 52, and 92.

**NOTES ON
MULTIPLE MEANS
OF REPRESENTATION:**

Once the Rekenrek is removed, encourage students who need support to visualize the beads (ten-frames or 5-groups), or guide them to use fingers to model the number of ones in order to determine how many more make ten.

Take Out One (2 minutes)

Materials: (S) Personal white board

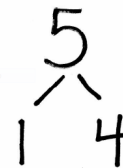
Note: In the lesson, students add 9 and 6 by adding 9 and 1 and 5. They “take out 1” from 5.

T: Let’s take out 1 from each number. I say 5. You write the number bond and say the two parts, 1 and 4.

T: 5.

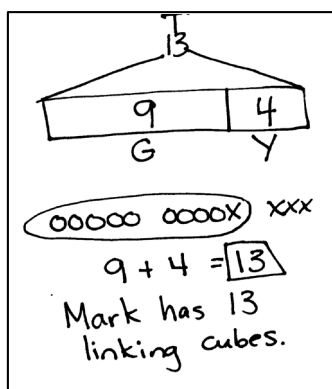
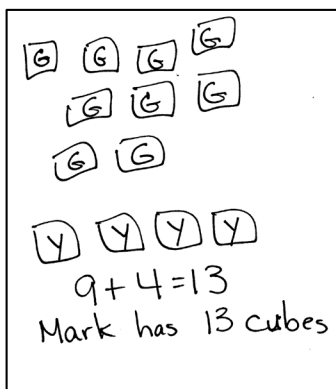
S: (Draw number bond.) 1 and 4.

Continue with the following possible sequence: 3, 10, 4, 7, 9, 8, and 6.



Application Problem (8 minutes)

Mark had a stick of 9 green linking cubes. His friend gave him 4 yellow linking cubes. How many linking cubes does Mark have now?



Note: This *add to result unknown* problem’s tape diagram can be compared to that of Lesson 3 when a part was subtracted.



NOTES ON MULTIPLE MEANS OF REPRESENTATION:

“Mark’s Linking Cubes” bridges into today’s Concept Development of making a ten to add. Rather than teach the make ten strategy during the Application Problem, notice what strategies students are independently using, and integrate these observations into the Concept Development. During the Student Debrief, consider coming back to the Application Problem, and invite students to apply today’s learning to show another way to solve the problem.

Concept Development (30 minutes)

Materials: (S) Personal white board

Part 1: Making ten from an addend of 9, 8, or 7.

Note: In Grade 1, students used ten-sticks and quick ten drawings extensively when making ten. Now in Grade 2, the objective is to work at the numerical level as soon as possible.

T: (Write $9 + 4$ on the board.)

T: Let’s draw to solve $9 + 4$ using circles and Xs.



NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

If time or precision is a factor, create templates of pre-drawn circles to model addends of 9, 8, and 7. Then, students can attend to drawing Xs to complete the ten and model the remainder of the problem.

T: (Quickly draw and count aloud 9 circles in a 5-group column as seen in the first image.)

T: How many Xs will we add?

S: 4 Xs.

T: (Using the X symbol, complete the ten and draw the other 3 Xs to the right as seen in the second image.)

T: Did we make a ten?

S: Yes!

T: Our $9 + 4$ is now a ten-plus fact. What fact can you see in the drawing?

S: $10 + 3 = 13$.

T: $10 + 3$ equals?

S: 13.

T: So, $9 + 4$ equals?

S: 13. (Write the solution.)

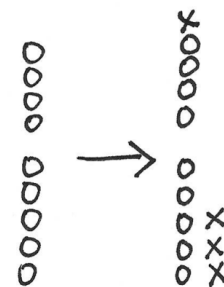
T: What did we take out of 4 so that we could make 10?

S: 1.

T: (Draw the number bond under 4 as shown to the right.)

T: (Write $9 + 5$.)

T: Solve using a number bond. (If students want or need to draw, allow them to.)



$$9 + 4 = 13$$

1 3

Continue with the following possible sequence: $9 + 6$, $9 + 7$, $8 + 9$, $8 + 3$, $8 + 4$, $8 + 7$, and $7 + 5$. Have students explain their work to a partner.

Part 2: Observing patterns.

T: Look at our list of problems where one part, or addend, is 9. Tell your partner what you notice about adding to 9.

S: You get 1 out! → The answer is 10 and 1 less than the other addend.

T: Look at the problems with 8 as an addend. Tell your partner what you notice.

S: You get 2 out! → You always take 2 out of the other addend.

T: How is solving $9 + 4$ and $8 + 4$ different?

S: We used 2 to make 10 when we added to 8 and 1 to make 10 when we added to 9. → We used a different number bond.

Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. Some problems do not specify a method for solving. This is an intentional reduction of scaffolding that invokes MP.5, Use Appropriate Tools Strategically. Students should solve these problems using the RDW approach used for Application Problems.

Student Debrief (10 minutes)

Lesson Objective: Make a ten to add within 20.

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- Let's look at Problems 11–14. How are the problems the same and different?
- Do you notice a pattern that will help you memorize your 9-plus facts? What other patterns do you notice?
- Explain the strategy we reviewed today. Can you think of another problem that the make ten strategy will help us solve?
- Can you figure out the math goal of today's lesson? What name would you give this lesson?

Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

Name Lisa Date _____

Solve.

1. $9 + 3 = 12$ 	2. $9 + 5 = 14$
3. $8 + 4 = 12$ 	4. $8 + 7 = 15$
5. $7 + 5 = 12$ 	6. $7 + 6 = 13$
7. $8 + 8 = 16$ 	8. $9 + 8 = 17$

Solve.

9. $10 + 2 = 12$ $9 + 3 = 12$	10. $10 + 3 = 13$ $9 + 4 = 13$
11. $10 + 4 = 14$ $8 + 6 = 14$	12. $10 + 6 = 16$ $7 + 9 = 16$

13. Lisa has 2 blue beads and 9 purple beads. How many beads does Lisa have in all?

Lisa has 11 beads in all.

14. Ben had 8 pencils and bought 5 more. How many pencils does Ben have all together?

$8 + 5 = 13$

Ben has 13 pencils all together.

Name _____

Date _____

Solve.

1. $9 + 3 =$ _____	2. $9 + 5 =$ _____
3. $8 + 4 =$ _____	4. $8 + 7 =$ _____
5. $7 + 5 =$ _____	6. $7 + 6 =$ _____
7. $8 + 8 =$ _____	8. $9 + 8 =$ _____

Solve.

9. $10 + \underline{\quad} = 12$ $9 + \underline{\quad} = 12$	10. $10 + \underline{\quad} = 13$ $9 + \underline{\quad} = 13$
11. $10 + \underline{\quad} = 14$ $8 + \underline{\quad} = 14$	12. $10 + \underline{\quad} = 16$ $7 + \underline{\quad} = 16$

13. Lisa has 2 blue beads and 9 purple beads. How many beads does Lisa have in all?

Lisa has beads in all.

14. Ben had 8 pencils and bought 5 more. How many pencils does Ben have altogether?

Name _____

Date _____

Solve.

1. $9 + 6 = \underline{\quad}$

2. $8 + 5 = \underline{\quad}$

Name _____

Date _____

Solve.

<p>1. $8 + 4 = \underline{\quad}$</p> <p style="margin-left: 40px;">/ 2 2</p> <p style="text-align: right; margin-right: 40px;">$8 + 2 = 10$ $10 + 2 = 12$</p>	<p>2. $9 + 7 = \underline{\quad}$</p>
<p>3. $9 + 3 = \underline{\quad}$</p>	<p>4. $8 + 6 = \underline{\quad}$</p>
<p>5. $7 + 6 = \underline{\quad}$</p>	<p>6. $7 + 8 = \underline{\quad}$</p>
<p>7. $8 + 8 = \underline{\quad}$</p>	<p>8. $8 + 9 = \underline{\quad}$</p>

9. Solve and match.

A	B
$10 + \underline{2} = 12$	$9 + 8 = \underline{\quad}$
$10 + \underline{\quad} = 13$	$9 + 6 = \underline{\quad}$
$10 + \underline{\quad} = 17$	$7 + 6 = \underline{\quad}$
$10 + \underline{\quad} = 15$	$6 + 8 = \underline{\quad}$
$4 + \underline{\quad} = 14$	$3 + 9 = \underline{12}$

10. Ronnie uses 5 brown bricks and 8 red bricks to build a fort.
How many bricks does Ronnie use in all?

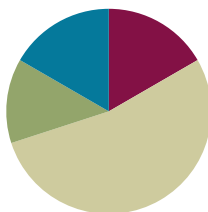
Ronnie uses bricks.

Lesson 5

Objective: Make a ten to add within 100.

Suggested Lesson Structure

■ Fluency Practice	(10 minutes)
■ Concept Development	(22 minutes)
■ Application Problem	(18 minutes)
■ Student Debrief	(10 minutes)
Total Time	(60 minutes)



Fluency Practice (10 minutes)

- Happy Counting: Say Ten Way **2.OA.2** (2 minutes)
- Put Together/Take Apart **2.OA.2** (3 minutes)
- Make the Next Ten Within 100 **2.OA.2** (5 minutes)

Happy Counting: Say Ten Way (2 minutes)

Note: Continued work with counting the Say Ten Way gives students confidence and allows them to build proficiency.

- T: Let's Happy Count the Say Ten Way. Let's start at 6 tens 2. Ready?
- S: 6 tens 2, 6 tens 1, 6 tens, 5 tens 9, 6 tens, 6 tens 1, 6 tens, 5 tens 9, 5 tens 8, 5 tens 9, 6 tens.
- T: Excellent! Try it for 30 seconds with your partner. Partner B, you are the teacher today.

Put Together/Take Apart (3 minutes)

Note: Students remember the relevance of ten-plus facts to larger numbers.

Put Together

- T: When I say a ten-plus fact, you say the answer on my signal.
- T: $10 + 5$. (Signal.)
- S: 15.
- T: $10 + 2$.
- S: 12.

Continue with the following possible sequence: $10 + 9$, $20 + 1$, $20 + 4$, $50 + 4$, $80 + 4$, $30 + 8$, $40 + 8$, $70 + 8$, $90 + 8$.



NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:

If students need more support to understand two-digit numbers as tens and ones, use the Hide Zero cards as used in Lesson 2.

Partner A models the tens; Partner B, the ones. Pairs move together and overlap the cards to model the number (e.g., 24). Likewise, they move apart for the *break apart* portion, separating the cards to model the value of the tens and ones (e.g., 20 and 4).

Take Apart

T: Now, when I say 13, you say $10 + 3$.

T: 13. (Signal.)

S: $10 + 3$.

Continue with the following possible sequence: 17, 11, 16, 18, 28, 78, 14, 34, and 94.

Make the Next Ten Within 100 (5 minutes)

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

Note: In this fluency activity, students apply their knowledge of partners to ten to find analogous partners to 20, 30, and 40, which prepares them for today's lesson.

For 30 seconds, say numbers 0–10. Students say partners to ten at the signal. Then, remove the Rekenrek.

T: (Show 9.) Say the number.

S: 9.

T: Tell me the number sentence to make ten.

S: $9 + 1 = 10$.

T: (Move 1 bead to make 10. Show 19.)

T: Say the number.

S: 19.

T: Write the number sentence to make 20.

S: $19 + 1 = 20$.

Continue with the following possible sequence: 29, 39; 5, 15, 25, 35; 8, 18, 28, 38; 7, 17, 27, and 37.

Concept Development (22 minutes)

Materials: (S) Personal white board

T: (Write $39 + 4$.) Talk to your partner about how you would solve this problem.

S: We can draw 39 circles and 4 Xs and count them all. → I can count on starting at 39. 40, 41, 42, 43.
→ You can add 1 to make 40 and add the 3. $40 + 3 = 43$.

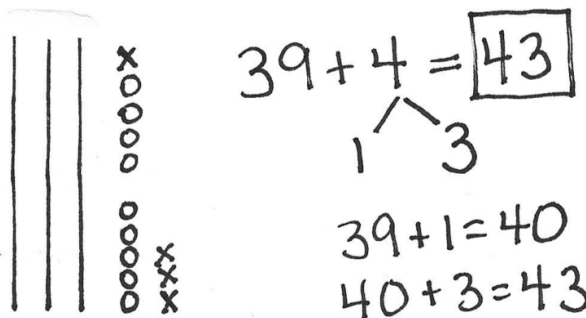
T: Draw 39 using quick tens and circles.

S: (Draw.)

T: Show me your board! (Pause. Ask students to redraw to show 9 either as a 5-group column or in a ten-frame configuration.)

T: Now draw 4 Xs. (Quietly remind certain students to complete the ten first.)

T: Write the number sentence with the solution.



- T: $39 + 4$ equals?
- S: 43.
- T: $39 + 4$ equals 40 plus ...?
- S: 3.
- T: (Write $39 + 4 = 40 + 3$.)
- T: Let's show $39 + 4$ using a number bond. We started with 39. How did we break apart 4 so we can make 40?
- S: 1 and 3. (Write number bond as shown in the image on the previous page.)

Repeat the process with the following suggested sequence: $49 + 5$, $79 + 5$, $48 + 5$, $78 + 5$, $7 + 29$, $7 + 48$, and $77 + 6$. Students should demonstrate understanding using at least one representation such as quick tens and ones or number bonds.



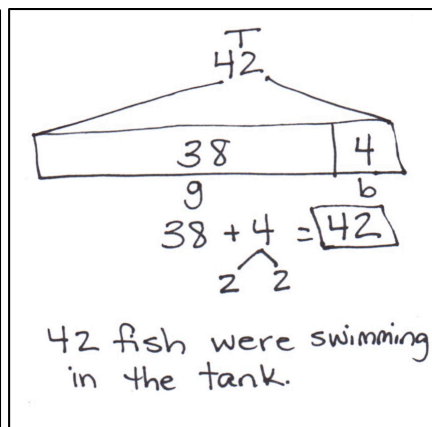
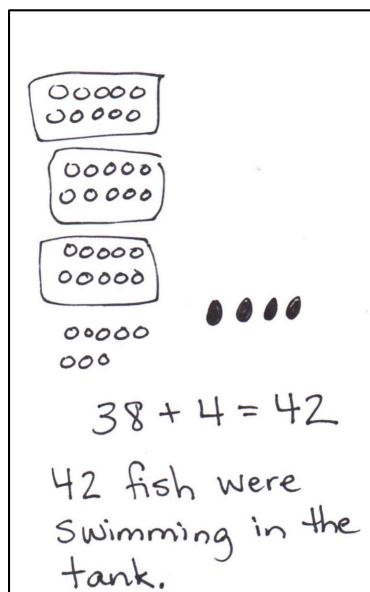
NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Scaffold questioning to guide connections, as in $49 + 5$:

- How many more does 9 need to make a 10? How about 19? 29?
- Where can we get 1 more?
- What should we take out of the other addend?
- How does your number bond match your quick ten drawing?

Application Problem (18 minutes)

Mia counted all the fish in a tank. She counted 38 goldfish and 4 black fish. How many fish were in the tank?



NOTES ON APPLICATION PROBLEMS:

These are the four steps of the problem-solving process:

- Read.
- Draw.
- Write a number sentence.
- Write a word sentence.

This process provides accommodation for students with disabilities and English language learners since it is both visual and kinesthetic.

Note: If students do not use the tape diagram, model it after two students have shared their solution strategies. Be sure to make connections between the different representations in students' drawings. "What part of the drawing using the ten-frames represents the goldfish?" "What part of the tape diagram represents the goldfish?" "Which drawing is more efficient?"

This Application Problem follows the Concept Development to provide an opportunity for students to apply the make ten strategy in the context of a *put together total unknown* problem. The allotted time period includes 8 minutes to solve the Application Problem and 10 minutes to complete the Problem Set.

Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students should solve these problems using the RDW approach used for Application Problems.

Student Debrief (10 minutes)

Lesson Objective: Make a ten to add within 100.

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- Look at Problems 1(a) and (b). How does knowing $9 + 3$ help you solve $19 + 3$?
- What other patterns do you notice in the Problem Set? Explain how the patterns help you solve the problems.
- Compare $43 + 5$ and $48 + 5$. What is different about them?
- Can you figure out the math goal of today's lesson? What name would you give this lesson?

Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 5 Problem Set 2•1

Name Evan Date _____

1. Solve.

a. $9 + 3 = 12$ $\begin{array}{r} 9 \\ +3 \\ \hline 12 \end{array}$ $9 + 1 = 10$ $10 + 2 = 12$	b. $19 + 3 = 22$ $\begin{array}{r} 19 \\ +3 \\ \hline 22 \end{array}$
c. $18 + 4 = 22$ $\begin{array}{r} 18 \\ +4 \\ \hline 22 \end{array}$	d. $38 + 7 = 45$ $\begin{array}{r} 38 \\ +7 \\ \hline 45 \end{array}$
e. $37 + 5 = 42$ $\begin{array}{r} 37 \\ +5 \\ \hline 42 \end{array}$	f. $57 + 6 = 63$ $\begin{array}{r} 57 \\ +6 \\ \hline 63 \end{array}$
g. $6 + 68 = 74$ $\begin{array}{r} 6 \\ +68 \\ \hline 74 \end{array}$	h. $8 + 78 = 86$ $\begin{array}{r} 8 \\ +78 \\ \hline 86 \end{array}$

EUREKA MATH Lesson 5: Make a ten to add within 100. Date: 2/25/15 engage^{ny} 75

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NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 4 Problem Set 2•1

2. Maria solved $67 + 5$ as shown. Show Maria a faster way to solve $67 + 5$.

$67 + 5 = 72$

$\begin{array}{r} 67 \\ +5 \\ \hline 72 \end{array}$

$67 + 5 = 72$ $67 + 3 = 70$
 $\begin{array}{r} 67 \\ +5 \\ \hline 72 \end{array}$ $\begin{array}{r} 70 \\ +2 \\ \hline 72 \end{array}$

3. Use the RDW process to solve.

- Jessa collected 78 shells on the beach.
- Susan collected 6 more shells than Jessa.
- How many shells did Susan collect?

$78 + 6 = 84$

$\begin{array}{r} 78 \\ +6 \\ \hline 84 \end{array}$

Susan collected 84 shells.


EUREKA MATH Lesson 4: Make a ten to add within 100. Date: 2/25/15 engage^{ny} 6

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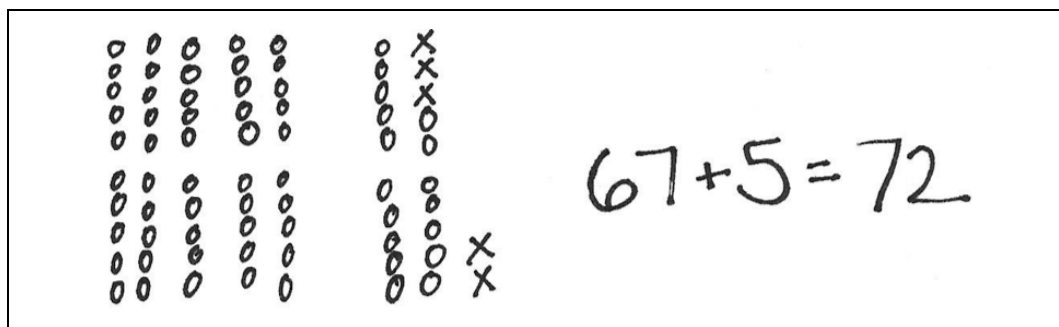
Name _____

Date _____

1. Solve.

a. $9 + 3 = \underline{\quad}$ 	b. $19 + 3 = \underline{\quad}$
c. $18 + 4 = \underline{\quad}$	d. $38 + 7 = \underline{\quad}$
e. $37 + 5 = \underline{\quad}$	f. $57 + 6 = \underline{\quad}$
g. $6 + 68 = \underline{\quad}$	h. $8 + 78 = \underline{\quad}$

2. Maria solved $67 + 5$ as shown. Show Maria a faster way to solve $67 + 5$.



3. Use the RDW process to solve.

Jessa collected 78 shells on the beach.
 Susan collected 6 more shells than Jessa.
 How many shells did Susan collect?

Name _____

Date _____

Solve.

a. $39 + 4 = \underline{\quad}$

b. $58 + 7 = \underline{\quad}$

Name _____

Date _____

1. Solve.

a. $9 + 3 = \underline{\quad}$



b. $29 + 5 = \underline{\quad}$

c. $49 + 7 = \underline{\quad}$

d. $59 + 6 = \underline{\quad}$

e. $18 + 4 = \underline{\quad}$

f. $48 + 6 = \underline{\quad}$

g. $58 + 6 = \underline{\quad}$

h. $78 + 8 = \underline{\quad}$

2. Solve.

a. $67 + 5 = \underline{\hspace{2cm}}$	b. $87 + 6 = \underline{\hspace{2cm}}$
c. $6 + 59 = \underline{\hspace{2cm}}$	d. $7 + 78 = \underline{\hspace{2cm}}$

3. Use the RDW process to solve.

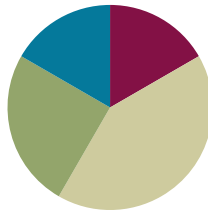
There were 28 students at recess. A group of 7 students came outside to join them. How many students are there now?

Lesson 6

Objective: Subtract single-digit numbers from multiples of 10 within 100.

Suggested Lesson Structure

■ Fluency Practice	(10 minutes)
■ Concept Development	(25 minutes)
■ Application Problem	(15 minutes)
■ Student Debrief	(10 minutes)
Total Time	(60 minutes)



Fluency Practice (10 minutes)

- One or Two Less **2.NBT.5** (5 minutes)
- Take from Ten **2.OA.2** (2 minutes)
- Take Out Ten **2.OA.2** (3 minutes)

One or Two Less (5 minutes)

Note: Students have been counting up and down across the ten in fluency activities such as Happy Counting since Kindergarten. In this lesson, they extend their knowledge about the change in decades to subtract from multiples of ten.

- T: (Show 20 beads.) How many beads?
 S: 20.
 T: (Push one bead back.) 1 less than 20 is ...?
 S: 19.
 T: $20 - 1$ is ...? Tell me the complete number sentence.
 S: $20 - 1 = 19$.

Continue with the following possible sequence: 30, 40, 50, 60, 70, 80, 90, 100. Repeat with 2 less.

Take from Ten (2 minutes)

Note: This activity develops the automaticity necessary to subtract fluently from the ten when using the take from ten strategy in Lessons 6, 7, and 8.

- T: When I say $10 - 9$, you say $10 - 9 = 1$. Ready? $10 - 9$.
 S: $10 - 9 = 1$.
 T: $10 - 5$.
 S: $10 - 5 = 5$.



NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:

During Fluency Practice, students build on their prior knowledge of place value from Grade 1. Design math centers that use place value materials such as:

- The Rekenrek: Students make ten, add/subtract across ten, or build numbers 11–100.
- Ten-frames: Students do ten-frame flash (with add or take away 1), two more/less, double it.

Continue with the following sequence: $10 - 2$, $10 - 4$, $10 - 6$, $10 - 7$, $10 - 3$, and $10 - 8$.

T: When I say 1, you say 9. Ready? 1.

S: 9.

T: 2.

S: 8.

Continue with the following sequence: 5, 0, 4, 7, 3, 8, 6, and 10.

Take Out Ten (3 minutes)

Material: (S) Personal white board

Note: Taking out 10 prepares students for subtracting a single-digit from a two-digit number where there are not enough ones.

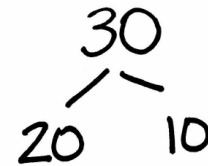
T: Let's take out 10 from each number. I say 30. You draw a number bond for 30 with parts 20 and 10. Show the ten on the right.

T: 30. Show me your board.

S: (Show number bond).

T: Read the parts from left to right.

S: 20 and 10.

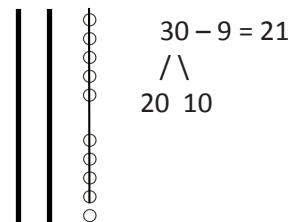
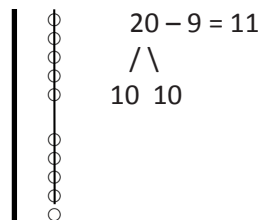
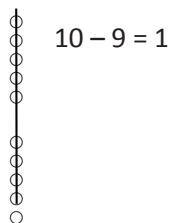


Continue with the following possible sequence: 50, 40, 60, 80, 70, 90, and 100. If time permits, invite partners to take turns giving each other more practice with numbers between 20 and 100.

Concept Development (25 minutes)

Materials: (S) Personal white board

Part 1: Subtraction of single-digit numbers from 20, 30, 40, 50, 60, 70, 80, and 90 using drawings.



T: (Draw a 5-group column.)

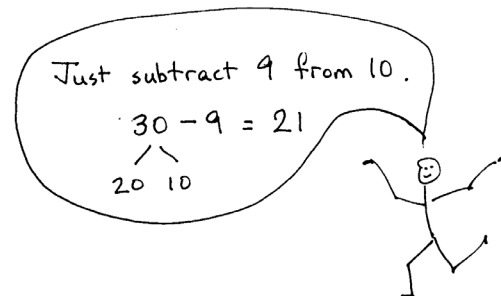
T: $10 - 9$ is ...? (Cross off 9 quickly with one line.)

S: 1.

T: (Draw a quick ten to the left of the 5-group column.)

T: $20 - 9$ is ...?

S: 11.



- T: Watch. (Write $20 - 9 = \underline{\quad}$, and show a number bond that breaks apart 20 into 10 and 10. Write $10 - 9 = 1$ and $10 + 1 = 11$.)
- T: Talk to your partner. How do the two number sentences relate to what we showed with our drawing? (Gesture to the picture.)
- S: The 10 minus 9 shows how we took from the ten. \rightarrow The 10 and the 1 are the parts that are left. We add them together, so $20 - 9 = 11$. \rightarrow It's like Take Out Ten! We broke 20 into 10 and 10, so we could take 9 from the ten. Then we added what was left.
- T: (Draw another quick ten, as shown.)
- T: $30 - 9$ is ...?
- S: 21.
- T: Explain to your partner how $10 - 9$ helps us to solve $30 - 9$.
- S: They're the same, but 30 has 2 more tens. \rightarrow 10 is inside 30 so you take from the ten. \rightarrow I know 30 is $20 + 10$ and $10 - 9$ is 1, so then I added 20 and 1.
- T: Yes! Knowing our partners of ten makes that easy! You noticed we always took from ten. After that, we put the parts that are left together.

Part 2: Subtraction of single-digit numbers from 20, 30, 40, 50, 60, 70, 80, and 90 without drawings.

Note: Following Part 1's work with the teacher drawing quick tens, model the use of just the number bond to solve. However, give students the option to draw.

- T: Watch. (Write $40 - 9 = \underline{\quad}$ with a number bond breaking apart 40 into 30 and 10.)
- T: What is the first step to solve?
- S: Take from 10.
- T: Give me the number sentence to take from ten.
- S: $10 - 9 = 1$.
- T: (Write $10 - 9 = 1$.) What is the next step?
- S: Add the parts that are left.
- T: Give me the number sentence.
- S: $30 + 1 = 31$.
- T: (Write $30 + 1 = 31$.)

$ \begin{array}{r} 40 - 9 = 31 \\ / \quad \backslash \\ 30 \quad 10 \\ 10 - 9 = 1 \\ 30 + 1 = 31 \end{array} $
--

Give students a variety of problems from simple to complex. Encourage them to solve without the quick ten and 5-group column. Use this possible sequence:

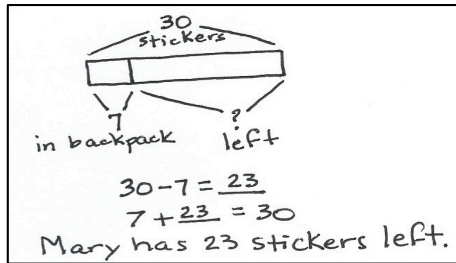
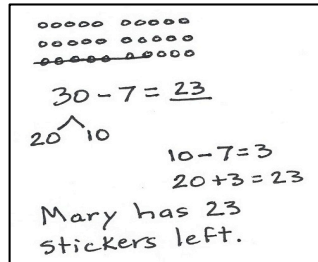
20 - 5	70 - 5
30 - 5	80 - 6
40 - 9	80 - 6
50 - 9	100 - 8
60 - 5	100 - 7

Allow time for students to work on their personal white boards so that they practice many problems. As students demonstrate proficiency, allow them to work on the Problem Set.

Application Problem (15 minutes)

Note: This Application Problem follows the Concept Development to allow students to apply their understanding to a *take from result unknown* problem. The allotted 15 minutes includes 5 minutes to solve the Application Problem and 10 minutes to complete the Problem Set.

Mary buys 30 stickers. She puts 7 in her friend's backpack. How many stickers does Mary have left?



Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students should solve these problems using the RDW approach used for Application Problems.

Student Debrief (10 minutes)

Lesson Objective: Subtract single-digit numbers from multiples of 10 within 100.

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

NYS COMMON CORE MATHEMATICS CURRICULUM		Lesson 6 Problem Set 2•1	
Name: <u>Tarick</u>		Date: _____	
1. Solve.			
a. $20 - 9 = \underline{11}$ $\begin{array}{r} 20 \\ -9 \\ \hline \end{array}$ $10 - 9 = 1$ $10 + 1 = 11$	b. $30 - 9 = \underline{21}$ $\begin{array}{r} 30 \\ -9 \\ \hline \end{array}$ $10 - 9 = 1$ $20 + 1 = 21$		
c. $20 - 8 = \underline{12}$ $\begin{array}{r} 20 \\ -8 \\ \hline \end{array}$ $10 - 8 = 2$ $10 + 2 = 12$	d. $30 - 7 = \underline{23}$ $\begin{array}{r} 30 \\ -7 \\ \hline \end{array}$ $10 - 7 = 3$ $20 + 3 = 23$		
e. $40 - 7 = \underline{33}$ $\begin{array}{r} 40 \\ -7 \\ \hline \end{array}$ $10 - 7 = 3$ $30 + 3 = 33$	f. $50 - 6 = \underline{44}$ $\begin{array}{r} 50 \\ -6 \\ \hline \end{array}$ $10 - 6 = 4$ $40 + 4 = 44$		
g. $80 - 6 = \underline{74}$ $\begin{array}{r} 80 \\ -6 \\ \hline \end{array}$ $10 - 6 = 4$ $70 + 4 = 74$	h. $90 - 5 = \underline{85}$ $\begin{array}{r} 90 \\ -5 \\ \hline \end{array}$ $10 - 5 = 5$ $80 + 5 = 85$		
EUREKA MATH™ Lesson 6: Subtract single-digit numbers from multiples of 10 within 100. Date: 2/2/15		engage ^{ny} 6	

Any combination of the questions below may be used to lead the discussion.

MP.7

- Explain how you solved Problem 1(b).
- How did number bonds help you solve our subtraction problems today?
- Can you figure out the goal of today's lesson? What name would you give our lesson today?
- Do you think you could teach what you learned to someone else? How?

Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 6 Problem Set 2•1

<p>i. $70 - 4 = 66$</p> <p>60 10</p> <p>$10 - 4 = 6$</p> <p>$60 + 6 = 66$</p>	<p>j. $60 - 2 = 58$</p> <p>50 10</p> <p>$10 - 2 = 8$</p> <p>$50 + 8 = 58$</p>
--	--

2. Fill in the number bond and solve.

$90 - 9 = 81$

80 10

$10 - 9 = 1$

$80 + 1 = 81$

3. Show how $10 - 6$ helps you solve $50 - 6$.

$10 - 6 = 4$

$50 - 6 = 44$

40 10

$10 - 6 = 4$

$40 + 4 = 44$

I know $10 - 6 = 4$. I can take out 10 from 50 and subtract 6 from 10. Then I can add what is left, $40 + 4$ to get 44.

4. Carla has 70 paper clips. She gives 6 away. How many paper clips does Carla have left?

$70 - 6 = 64$

60 10

$10 - 6 = 4$

$60 + 4 = 64$

Carla has 64 paper clips left.

EUREKA MATH Lesson 6: Subtract single-digit numbers from multiples of 10 within 100. Date: 2/2/15 engage^{ny} 7

Name _____

Date _____

1. Solve.

<p>a. $20 - 9 = \underline{\quad}$</p> <p style="margin-left: 40px;">/ \</p> <p style="margin-left: 20px;">10 10</p> <p style="margin-left: 200px;">$10 - 9 = 1$</p> <p style="margin-left: 200px;">$10 + 1 = 11$</p>	<p>b. $30 - 9 = \underline{\quad}$</p>
<p>c. $20 - 8 = \underline{\quad}$</p>	<p>d. $30 - 7 = \underline{\quad}$</p>
<p>e. $40 - 7 = \underline{\quad}$</p>	<p>f. $50 - 6 = \underline{\quad}$</p>
<p>g. $80 - 6 = \underline{\quad}$</p>	<p>h. $90 - 5 = \underline{\quad}$</p>

i. $70 - 4 = \underline{\hspace{2cm}}$

j. $60 - 2 = \underline{\hspace{2cm}}$

2. Fill in the number bond and solve.

$$90 - 9 = \underline{\hspace{2cm}}$$



$\underline{\hspace{2cm}} \quad \underline{\hspace{2cm}}$

3. Show how $10 - 6$ helps you solve $50 - 6$.

4. Carla has 70 paper clips.

She gives 6 away.

How many paper clips does Carla have left?

Carla has $\underline{\hspace{2cm}}$ paper clips left.

Name _____

Date _____

Solve.

1. $70 - 4 = \underline{\quad}$

2. $60 - 3 = \underline{\quad}$

Name _____

Date _____

1. Take out ten.

$\begin{array}{r} 30 \\ / \backslash \\ 20 \quad 10 \end{array}$	40	50
70	60	80

2. Solve.

$10 - 1 = \underline{\quad}$	$10 - 4 = \underline{\quad}$	$10 - 9 = \underline{\quad}$
$10 - 7 = \underline{\quad}$	$10 - 2 = \underline{\quad}$	$10 - 5 = \underline{\quad}$

3. Solve.

<p>a. $20 - 9 = \underline{11}$</p> $\begin{array}{r} / \backslash \\ 10 \quad 10 \end{array}$ <p>$10 - 9 = 1$ $10 + 1 = 11$</p>	<p>b. $30 - 9 = \underline{\quad}$</p>
--	---

c. $40 - 8 = \underline{\hspace{2cm}}$	d. $50 - 8 = \underline{\hspace{2cm}}$
e. $60 - 7 = \underline{\hspace{2cm}}$	f. $70 - 7 = \underline{\hspace{2cm}}$
g. $80 - 6 = \underline{\hspace{2cm}}$	h. $90 - 5 = \underline{\hspace{2cm}}$

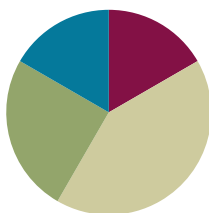
4. Show how $10 - 4$ helps you solve $30 - 4$.

Lesson 7

Objective: Take from 10 within 20.

Suggested Lesson Structure

Fluency Practice	(10 minutes)
Concept Development	(25 minutes)
Application Problem	(15 minutes)
Student Debrief	(10 minutes)
Total Time	(60 minutes)



Fluency Practice (10 minutes)

- Take Out Ten and Subtract **2.NBT.5** (10 minutes)

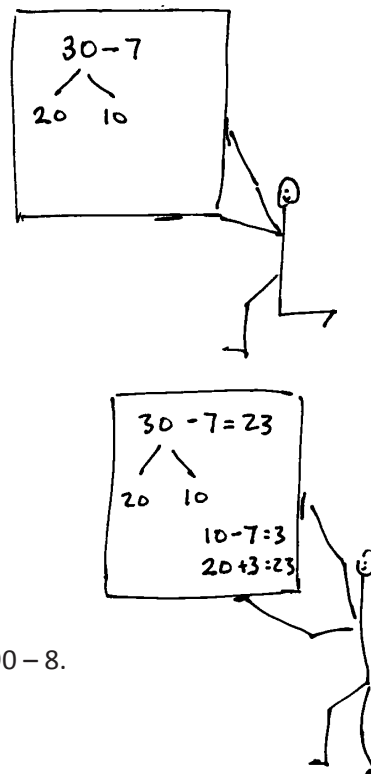
Take Out Ten and Subtract (10 minutes)

Materials: (S) Personal white board

Note: Taking out ten reviews subtracting a single digit from a two-digit multiple of ten ones.

- T: Write $30 - 7$ on your boards.
- T: Let's take out 10 from 30 using a number bond. Show the ten on the right.
- T: Show me your board.
- S: (Show number bond.)
- T: Read the parts from left to right.
- S: 20 and 10.
- T: $10 - 7$ is ...?
- S: 3.
- T: $20 + 3$ is ...?
- S: 23.
- T: So, $30 - 7$ is ...?
- S: 23.

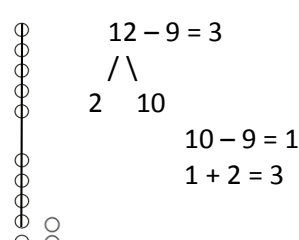
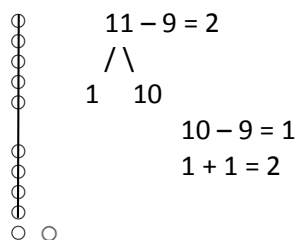
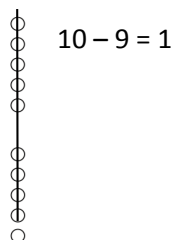
Continue with the following possible sequence: $40 - 7$, $50 - 5$, $70 - 5$, $80 - 8$, $90 - 8$.



Concept Development (25 minutes)

Materials: (S) Personal white board

Part 1: Subtraction of single-digit numbers from teen numbers using drawings.



T: (Draw a 5-group column.)

T: $10 - 9$ is ...? (Cross off 9 all at once.)

S: 1.

T: (Draw a one to the right of the 5-group column, as shown above, to model eleven.)

T: $11 - 9$ is ...?

S: 2.

T: Watch. (Write $11 - 9 = \underline{\quad}$. Then show a number bond that breaks apart 11 into 1 and 10. Write $10 - 9 = 1$ and $1 + 1 = 2$.)

T: Talk to your partner. How do the two number sentences relate to what we drew? (Gesture to the picture.)

S: The 10 minus 9 shows how we took from the ten.

→ We put together the parts that are left, the 1 and 1.

→ It's like Take Out Ten! We broke 11 into 1 and 10, so we could take 9 from ten. Then, we added the one.

T: (Draw another one, as shown above in the third image, to model 12.)

T: $12 - 9$ is ...?

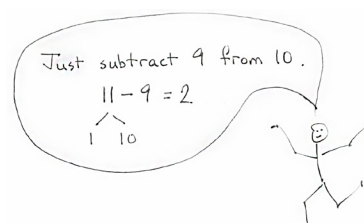
S: 3.

T: (Write $12 - 9 = 3$. Then, show a number bond that breaks apart 12 into 2 and 10. Write $10 - 9 = 1$ and $1 + 2 = 3$.)

T: Explain to your partner how $10 - 9$ helps us to solve $12 - 9$.

S: $10 - 9 = 1$ is an easier problem because I know my partners to ten. $1 + 2$ is super easy! → 12 just has 2 more ones than 10, so the answer is just 2 more than $10 - 9$.

T: Yes! Knowing our partners of ten makes that easier! You noticed we always took from ten. After that, we put the parts that are left together.



NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

As students become proficient with making an easier problem, they may use alternate methods to solve. Accept any mathematically reasonable strategy. For example, to solve $13 - 8$, students may think $13 - 3 = 10$ and $10 - 5 = 5$. Another strategy is to count on by thinking $8 + \underline{\quad} = 13$. $8 + 2 = 10$ and $10 + 3 = 13$, so $2 + 3 = 5$. Encourage students to share their thinking with the class.

Part 2: Subtraction of single-digit numbers from teen numbers without drawings.

Note: Following Part 1's work with drawing the 5-group column, model the use of just the number bond to solve. However, give students the option to draw or use their fingers.

T: Watch how I solve without a drawing. (Write $12 - 9 = \underline{\quad}$ with a number bond breaking apart 12 into 2 and 10.)

$$\begin{array}{r} 12 - 9 = \underline{\quad} \\ \begin{array}{c} / \quad \backslash \\ 2 \quad 10 \end{array} \\ 10 - 9 = 1 \\ 1 + 2 = 3 \end{array}$$

T: What is the first step to solve?

S: Take from 10.

T: Give me the number sentence to take from ten.

S: $10 - 9 = 1$.

T: (Write $10 - 9 = 1$.) What is the next step?

S: Add the parts that are left.

T: Give me the number sentence.

S: $1 + 2 = 3$.

T: (Write $1 + 2 = 3$.)

T: We can do this another way! Show me 12 fingers.

S: We only have 10.

T: Put 2 pretend fingers in your mind.

S: Okay!

T: Let's subtract $12 - 9$.

T: Take 9 from your real fingers all at once.

S: (Put down 9 fingers.)

T: How many fingers are left?

S: 1 finger.

T: You forgot about your pretend fingers! We are solving $12 - 9$, not $10 - 9$.

S: Oops! 3 fingers.

T: So, what is $12 - 9$? Say the complete number sentence.

S: $12 - 9 = 3$.



10 fingers..... 2 pretend fingers



1 finger..... 2 pretend fingers



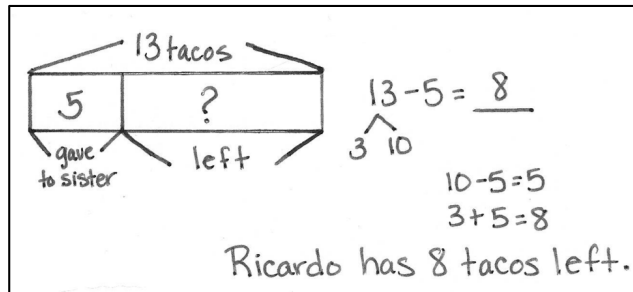
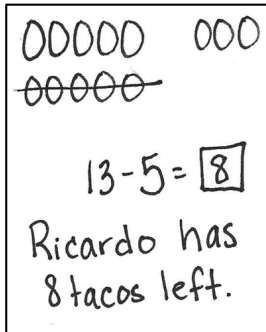
NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Students working below grade level might use ten-sticks of linking cubes or drawings of 5-groups to assist in understanding the take from ten strategy. To bridge back to solving numerically, encourage students to visualize to avoid overdependence on the models.

Repeat the process using the following suggested sequence: $12 - 8$, $11 - 5$, $13 - 6$, and $11 - 7$. Using personal white boards, students record solutions with number bonds. Allow them to use pretend fingers, if needed.

Application Problem (15 minutes)

Ricardo gave 5 tacos to his sister. He started with 13. How many tacos does Ricardo have left?



Note: This *take from change unknown* problem provides practice in recognizing that the missing part can be found by subtracting or adding on. A flexible understanding of the relationship of addition to subtraction and parts to totals is also necessary to use Level 3 strategies. The allotted time period of 15 minutes includes 5 minutes to solve the Application Problem and 10 minutes to complete the Problem Set.

Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students should solve these problems using the RDW approach used for Application Problems.

Student Debrief (10 minutes)

Lesson Objective: Take from ten within 20.

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

NYS COMMON CORE MATHEMATICS CURRICULUM		Lesson 7 Problem Set 2•1	
Name <u>Tabitha</u>		Date _____	
1. Solve.			
a. $11 - 9 = 2$ $\begin{array}{r} 11 \\ - 9 \\ \hline 2 \end{array}$ $10 - 9 = 1$ $1 + 1 = 2$	b. $12 - 9 = 3$ $\begin{array}{r} 12 \\ - 9 \\ \hline 3 \end{array}$ $10 - 9 = 1$ $2 + 1 = 3$	c. $13 - 9 = 4$ $\begin{array}{r} 13 \\ - 9 \\ \hline 4 \end{array}$ $10 - 9 = 1$ $3 + 1 = 4$	
d. $11 - 8 = 3$ $\begin{array}{r} 11 \\ - 8 \\ \hline 3 \end{array}$ $10 - 8 = 2$ $1 + 2 = 3$	e. $12 - 8 = 4$ $\begin{array}{r} 12 \\ - 8 \\ \hline 4 \end{array}$ $10 - 8 = 2$ $2 + 2 = 4$	f. $13 - 8 = 5$ $\begin{array}{r} 13 \\ - 8 \\ \hline 5 \end{array}$ $10 - 8 = 2$ $3 + 2 = 5$	
g. $11 - 7 = 4$ $\begin{array}{r} 11 \\ - 7 \\ \hline 4 \end{array}$ $10 - 7 = 3$ $1 + 3 = 4$	h. $12 - 7 = 5$ $\begin{array}{r} 12 \\ - 7 \\ \hline 5 \end{array}$ $10 - 7 = 3$ $2 + 3 = 5$	i. $13 - 7 = 6$ $\begin{array}{r} 13 \\ - 7 \\ \hline 6 \end{array}$ $10 - 7 = 3$ $3 + 3 = 6$	

Eureka Math Lesson 7: Take from 10 within 20. Date: 2/2/15 engage^{ny} 6

Any combination of the questions below may be used to lead the discussion.

- Look at Problem 1. What patterns do you see?
- Look at Problem 2(a). How does knowing your partners of 10 help you solve both $14 - 8$ and $14 + 8$?
- What do you have to know to be able to use the take from ten strategy?
- What do you think the math goal of this lesson was? What would be a good name for this lesson?

Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 7 Problem Set 2•1

2. Solve.

a. $14 - 6 = 8$
 $\begin{array}{r} 14 \\ - 6 \\ \hline 8 \end{array}$
 $10 - 6 = 4$
 $4 + 4 = 8$

b. $11 - 5 = 6$
 $\begin{array}{r} 11 \\ - 5 \\ \hline 6 \end{array}$
 $10 - 5 = 5$
 $1 + 5 = 6$

c. $16 - 7 = 9$
 $\begin{array}{r} 16 \\ - 7 \\ \hline 9 \end{array}$
 $10 - 7 = 3$
 $6 + 3 = 9$

Solve.

3. Shane has 12 pencils. He gave some pencils to his friends. Now, he has 7 left. How many pencils did he give away?

$12 - \underline{\quad} = 7$
 $12 - 7 = 5$
 $\begin{array}{r} 12 \\ - 7 \\ \hline 5 \end{array}$

$10 - 7 = 3$
 $2 + 3 = 5$

Shane gave away 5 pencils.

4. Victoria gave 6 celery sticks to her mom. She started with 13. How many celery sticks does she have left?

$13 - 6 = 7$
 $\begin{array}{r} 13 \\ - 6 \\ \hline 7 \end{array}$

$10 - 6 = 4$
 $3 + 4 = 7$

Victoria has 7 celery sticks left.

EUREKA MATH Lesson 7: Take from 10 within 20 Date: 2/2/15 engage^{ny} 7

Name _____

Date _____

1. Solve.

a. $\begin{array}{r} 11 - 9 = \underline{\quad} \\ \wedge \\ 1 \ 10 \end{array}$	b. $12 - 9 = \underline{\quad}$	c. $13 - 9 = \underline{\quad}$
d. $11 - 8 = \underline{\quad}$	e. $12 - 8 = \underline{\quad}$	f. $13 - 8 = \underline{\quad}$
g. $11 - 7 = \underline{\quad}$	h. $12 - 7 = \underline{\quad}$	i. $13 - 7 = \underline{\quad}$

2. Solve.

a. $14 - 6 = \underline{\quad}$	b. $11 - 5 = \underline{\quad}$	c. $16 - 7 = \underline{\quad}$
------------------------------------	------------------------------------	------------------------------------

Solve.

3. Shane has 12 pencils. He gives some pencils to his friends. Now, he has 7 left. How many pencils did he give away?

4. Victoria gave 6 celery sticks to her mom. She started with 13. How many celery sticks does she have left?

Name _____

Date _____

Solve.

1.

$15 - 7 = \underline{\hspace{2cm}}$

2.

$14 - 6 = \underline{\hspace{2cm}}$

Name _____

Date _____

1. Take out ten.

$\begin{array}{r} 17 \\ / \backslash \\ 7 \quad 10 \end{array}$	14	18
13	16	19

2. Solve.

$10 - 2 = \underline{\quad}$	$10 - 7 = \underline{\quad}$	$10 - 6 = \underline{\quad}$
$10 - 5 = \underline{\quad}$	$10 - 8 = \underline{\quad}$	$10 - 9 = \underline{\quad}$

3. Solve.

<p>a. $14 - 9 = \underline{\quad}$</p> $\begin{array}{r} / \backslash \\ 4 \quad 10 \end{array}$ <p>$10 - 9 = 1$</p> <p>$1 + 4 = \underline{\quad}$</p>	<p>b. $15 - 8 = \underline{\quad}$</p>
<p>c. $13 - 7 = \underline{\quad}$</p>	<p>d. $12 - 8 = \underline{\quad}$</p>

Solve.

4. Robert has 16 cups. Some are red. Nine are blue. How many cups are red?

_____ cups are red.

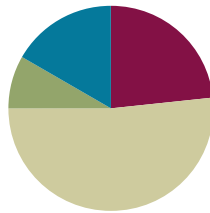
5. Lucy spent \$8 on a game. She started with \$14. How much money does Lucy have left?

Lesson 8

Objective: Take from 10 within 100.

Suggested Lesson Structure

■ Fluency Practice	(12 minutes)
■ Concept Development	(23 minutes)
■ Application Problem	(15 minutes)
■ Student Debrief	(10 minutes)
Total Time	(60 minutes)



NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Roll and Follow the Rule (5 minutes)

Materials: (S) 1 die per student or pair

Directions:

Give students a base number (e.g., 17).

Students roll the die to find the part to subtract from the base number (e.g., if 4 is rolled, solve $17 - 4$).

For 1 minute, students roll, subtract, and write the subtraction sentence starting with the base number. When time is called, they count the total number of sentences completed.

Continue the process with a different base number (e.g., 15, 13, and 11).

Note: Starting with a base number of 17 means there are always more ones than the number of ones that could be rolled on the die. As the base number decreases, students begin to decide whether to take from the ten or from the ones.

Fluency Practice (12 minutes)

- Take from a Ten or Take from the Ones **2.OA.2** (2 minutes)
- Take Out Ten and Subtract **2.NBT.5** (10 minutes)

Take from a Ten or Take from the Ones (2 minutes)

Note: This fluency activity draws attention to the fact that when there are not enough ones to subtract, students must take from a ten.

- T: This time, tell me if I take from a ten or take from the ones. When I say $13 - 2$, you say “take from the ones” since $3 \text{ ones} - 2 \text{ ones} = 1 \text{ one}$.
- T: But if I say $13 - 9$, you say “take from a ten” since $3 \text{ ones} - 9 \text{ ones}$ is work for Grade 6 not Grade 2. Ready?
- T: $24 - 1$.
- S: Take from the ones.
- T: $24 - 9$.
- S: Take from a ten.

Continue with the following suggested sequence: $16 - 2$, $32 - 1$, $21 - 9$, $15 - 6$, $16 - 6$, $18 - 8$, $13 - 8$.

Take Out Ten and Subtract (10 minutes)

Materials: (S) Personal white board

Note: Taking out ten reviews subtracting a single-digit from a two-digit multiple of ten ones.

T: Write $30 - 7$ on your boards.

T: Let's take out 10 from 30 using a number bond. Show the ten on the right.

T: Show me your board.

S: (Show number bond.)

T: Read the parts from left to right.

S: 20 and 10.

T: $10 - 7$ is ...?

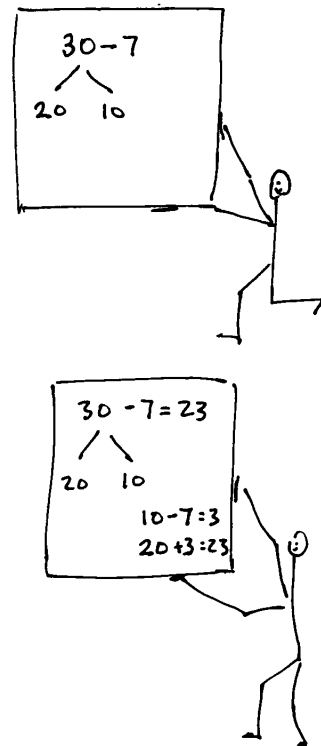
S: 3.

T: $20 + 3$ is ...?

S: 23.

T: So, $30 - 7$ is ...?

S: 23.



Continue with the following possible sequence: $40 - 7$, $50 - 5$, $70 - 5$, $80 - 8$, $90 - 8$.

Concept Development (23 minutes)

Materials: (S) Personal white board

Note: In this lesson, students continue working with the take from ten strategy at the abstract level, using number bonds without the support of pretend fingers.

T: (Project and read aloud.) Jacob has 13 bouncy balls. He gives 8 of them to his friend Pete. How many bouncy balls does Jacob have left?

T: Take a moment to solve. (Pause.) Talk with your partner. What number sentence could you use to solve?

S: $8 + 5 = 13$. $\rightarrow 13 - 8 = 5$.

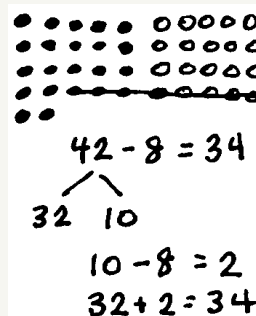
T: What strategy did you use to solve.

S: I counted on from 8. \rightarrow I used pretend fingers.
 \rightarrow I used a number bond and take from ten.

T: If you didn't already, work with your partner to solve using the take from ten strategy. Record your work on your personal white board.

**NOTES ON
MULTIPLE MEANS
OF ENGAGEMENT:**

As in Lesson 7, students may draw or use concrete materials to solve. Take from ten is readily demonstrated on the Rekenrek or with 5-group rows as pictured below. By alternating between using materials and visualizing, students may come to trust their thinking and find they can both understand and solve numerically.



- T: (Show correct student work.) Explain how you used the take from ten strategy to solve.
- S: I used a number bond to break 13 into 3 and 10. Then I wrote $10 - 8 = 2$, and $2 + 3 = 5$, so $13 - 8 = 5$.
- T: Let's return to our story. What does this 5 mean in our story of Jacob and Pete?
- S: Jacob has 5 bouncy balls left!
- T: Let's pretend Jacob has 23 bouncy balls and shares 8 with Pete. Work with your partner to see how many balls Jacob has left. Record your work on your personal white board.
- T: How did you solve?

$$\begin{array}{r} 13 - 8 = 5 \\ \wedge \\ 3 \quad 10 \\ 10 - 8 = 2 \\ 3 + 2 = 5 \end{array}$$

$$\begin{array}{r} 23 - 8 = ______ \\ \wedge \\ 13 \quad 10 \\ 10 - 8 = 2 \\ 13 + 2 = 15 \end{array}$$

$$\begin{array}{r} 43 - 8 = ______ \\ \wedge \\ 33 \quad 10 \\ 10 - 8 = 2 \\ 33 + 2 = 35 \end{array}$$

- S: I used a number bond to break 23 into 13 and 10. Then I wrote $10 - 8 = 2$, and $13 + 2 = 15$, so $23 - 8 = 15$.
- T: Now solve $43 - 8$. Work with your partner to solve using the take from ten strategy. Record your work on your personal white board.

Continue with the following sequence: $15 - 7$, $25 - 7$, $55 - 7$ and $14 - 9$, $24 - 9$, $64 - 9$.

MP.8

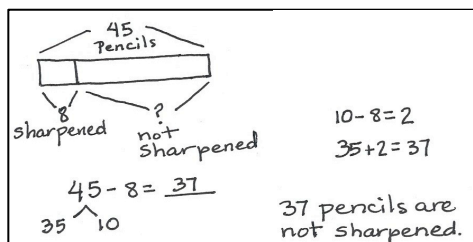
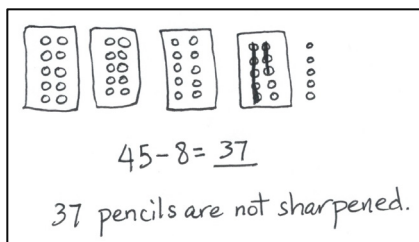
- T: Turn and talk to your partner. What patterns did you notice when solving these problems?
- S: I always took out the ten from the total and subtracted. \rightarrow Every time I subtracted 8 from ten I got 2 ones. \rightarrow I could make an easier problem with the parts that were left, like $33 + 2 = 35$.
- T: Is taking from ten and adding the parts that are left a pattern? Talk to your partner.
- S: No, because a pattern is something you have to see. \rightarrow Yes! I remember we found patterns when we were learning our addition facts in first grade. \rightarrow And when we make ten, that is a pattern, too. We just do the same thing over and over again!
- T: Yes, a pattern can be something you see, but it's also something we do again and again. We have a pattern here of taking from ten and adding the parts that are left to make an easier problem!

NOTES ON
MP.8:

Students may say that there are patterns because they see a number bond or addition symbol in each problem. Help students distinguish between the object (e.g., the bond or symbol) and the action (e.g., taking apart or putting together). When communicating about MP.8, be sure that students realize that a set of actions can be a pattern, as is demonstrated in the vignette. This is an important bridge to understanding multi-step processes such as the algorithms.

Application Problem (15 minutes)

Emma has 45 pencils. Eight pencils are sharpened. How many pencils are not sharpened?



Note: This *take apart addend unknown* problem provides practice decomposing to subtract from a ten. The allotted time period includes 5 minutes to solve the Application Problem and 10 minutes to complete the Problem Set.

Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students should solve these problems using the RDW approach used for Application Problems.

Student Debrief (10 minutes)

Lesson Objective: Take from 10 within 100.

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- Look at Problem 1. What patterns do you see? What did you do to solve?
- How did you solve Problem 2?
- What do you think the math goal of this lesson was? What would be a good name for this lesson?

NYS COMMON CORE MATHEMATICS CURRICULUM		Lesson 8 Problem Set 2•1	
Name <u>Sandy</u>		Date _____	
1. Solve.			
a.	b.	c.	
$12 - 9 = 3$ $\begin{array}{r} 12 \\ -9 \\ \hline 3 \end{array}$ $10 - 9 = 1$ $2 + 1 = 3$	$22 - 9 = 13$ $\begin{array}{r} 22 \\ -9 \\ \hline 13 \end{array}$ $10 - 9 = 1$ $12 + 1 = 13$	$42 - 9 = 33$ $\begin{array}{r} 42 \\ -9 \\ \hline 33 \end{array}$ $10 - 9 = 1$ $32 + 1 = 33$	
d.	e.	f.	
$13 - 8 = 5$ $\begin{array}{r} 13 \\ -8 \\ \hline 5 \end{array}$ $10 - 8 = 2$ $3 + 2 = 5$	$23 - 8 = 15$ $\begin{array}{r} 23 \\ -8 \\ \hline 15 \end{array}$ $10 - 8 = 2$ $13 + 2 = 15$	$53 - 8 = 45$ $\begin{array}{r} 53 \\ -8 \\ \hline 45 \end{array}$ $10 - 8 = 2$ $43 + 2 = 45$	
g.	h.	i.	
$14 - 6 = 8$ $\begin{array}{r} 14 \\ -6 \\ \hline 8 \end{array}$ $10 - 6 = 4$ $4 + 4 = 8$	$24 - 6 = 18$ $\begin{array}{r} 24 \\ -6 \\ \hline 18 \end{array}$ $10 - 6 = 4$ $14 + 4 = 18$	$84 - 6 = 78$ $\begin{array}{r} 84 \\ -6 \\ \hline 78 \end{array}$ $10 - 6 = 4$ $74 + 4 = 78$	
EUREKA MATH		engage ^{ny}	
Lesson 8: Take from 10 within 100.		6	

Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

NYS COMMON CORE MATHEMATICS CURRICULUM
Lesson 8 Problem Set 2•1

2. Solve.

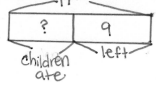
<p>a. $24 - 9 = 15$</p> <div style="margin-left: 20px;"> $\begin{array}{r} 14 \\ 10 \end{array}$ </div> <div style="margin-left: 40px;"> $10 - 9 = 1$ $14 + 1 = 15$ </div>	<p>b. $36 - 7 = 29$</p> <div style="margin-left: 20px;"> $\begin{array}{r} 26 \\ 10 \end{array}$ </div> <div style="margin-left: 40px;"> $10 - 7 = 3$ $26 + 3 = 29$ </div>	<p>c. $53 - 6 = 47$</p> <div style="margin-left: 20px;"> $\begin{array}{r} 43 \\ 10 \end{array}$ </div> <div style="margin-left: 40px;"> $10 - 6 = 4$ $43 + 4 = 47$ </div>
<p>d. $42 - 8 = 34$</p> <div style="margin-left: 20px;"> $\begin{array}{r} 32 \\ 10 \end{array}$ </div> <div style="margin-left: 40px;"> $10 - 8 = 2$ $32 + 2 = 34$ </div>	<p>e. $61 - 5 = 56$</p> <div style="margin-left: 20px;"> $\begin{array}{r} 51 \\ 10 \end{array}$ </div> <div style="margin-left: 40px;"> $10 - 5 = 5$ $51 + 5 = 56$ </div>	<p>f. $85 - 8 = 77$</p> <div style="margin-left: 20px;"> $\begin{array}{r} 75 \\ 10 \end{array}$ </div> <div style="margin-left: 40px;"> $10 - 8 = 2$ $75 + 2 = 77$ </div>

3. Mrs. Watts has 17 tacos. The children ate some. Nine tacos are left. How many tacos did the children eat?

$17 - \underline{\quad} = 9$
 $17 - 9 = 8$

$\begin{array}{r} 7 \\ 10 \end{array}$

$10 - 9 = 1$
 $7 + 1 = 8$



The children ate 8 tacos.

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Lesson 8: Take from 10 within 100.
Date: 2/2/15

engage^{ny}

Name _____

Date _____

1. Solve.

a. $12 - 9 = \underline{\quad}$ $\begin{array}{r} \diagup \diagdown \\ 2 \quad 10 \end{array}$	b. $22 - 9 = \underline{\quad}$	c. $42 - 9 = \underline{\quad}$
d. $13 - 8 = \underline{\quad}$	e. $23 - 8 = \underline{\quad}$	f. $53 - 8 = \underline{\quad}$
g. $14 - 6 = \underline{\quad}$	h. $24 - 6 = \underline{\quad}$	i. $84 - 6 = \underline{\quad}$

2. Solve.

a. $24 - 9 = \underline{\hspace{2cm}}$	b. $36 - 7 = \underline{\hspace{2cm}}$	c. $53 - 6 = \underline{\hspace{2cm}}$
d. $42 - 8 = \underline{\hspace{2cm}}$	e. $61 - 5 = \underline{\hspace{2cm}}$	f. $85 - 8 = \underline{\hspace{2cm}}$

3. Mrs. Watts had 17 tacos. The children ate some. Nine tacos were left. How many tacos did the children eat?

Name _____

Date _____

Solve.

1. $21 - 9 = \underline{\hspace{2cm}}$	2. $34 - 8 = \underline{\hspace{2cm}}$	3. $82 - 7 = \underline{\hspace{2cm}}$
---	---	---

Name _____

Date _____

1. Take out ten.

$\begin{array}{r} 26 \\ / \backslash \\ 16 \quad 10 \end{array}$	34	58
85	77	96

2. Solve.

$10 - 1 = \underline{\hspace{2cm}}$	$10 - 5 = \underline{\hspace{2cm}}$	$10 - 2 = \underline{\hspace{2cm}}$
$10 - 4 = \underline{\hspace{2cm}}$	$10 - 7 = \underline{\hspace{2cm}}$	$10 - 8 = \underline{\hspace{2cm}}$

3. Solve.

a. $13 - 7 = \underline{\hspace{2cm}}$	b. $15 - 8 = \underline{\hspace{2cm}}$
c. $14 - 6 = \underline{\hspace{2cm}}$	d. $16 - 9 = \underline{\hspace{2cm}}$

e. $42 - 7 = \underline{\hspace{2cm}}$	f. $54 - 6 = \underline{\hspace{2cm}}$
g. $71 - 5 = \underline{\hspace{2cm}}$	h. $92 - 9 = \underline{\hspace{2cm}}$

4. Emma has 16 markers. She gave Jack some. Seven markers are left. How many markers did Emma give Jack?

Name _____

Date _____

1. Solve.

a. $18 + 4 = \underline{\hspace{2cm}}$	b. $48 - 6 = \underline{\hspace{2cm}}$
c. $15 - 8 = \underline{\hspace{2cm}}$	d. $8 + 65 = \underline{\hspace{2cm}}$
e. $66 + 30 = \underline{\hspace{2cm}}$	f. $83 - 9 = \underline{\hspace{2cm}}$

2. Write a number sentence and statement to answer the sticker questions below. Include a math drawing if you like.

a. Trevor's mom gave him 6 stickers to start his collection. He received 25 more for his birthday. How many stickers does Trevor have now?

b. James has 40 stickers and gives away 7. How many stickers does James have now?

3. Solve.

a. $13 - 7 = \underline{\quad}$	b. $29 + 6 = \underline{\quad}$
c. $42 + 5 = \underline{\quad}$	d. $36 + 60 = \underline{\quad}$
e. $80 - 8 = \underline{\quad}$	f. $85 - 60 = \underline{\quad}$

4. Tammy gave 7 markers to Sam. She started with 42 markers. How many markers does Tammy have now? Write a number sentence and statement to answer. Include a math drawing if you like.

End-of-Module Assessment Task Standard Addressed

Topics A–B

Represent and solve problems involving addition and subtraction.

- 2.OA.1** Use addition and subtraction within 100 to solve one-and two-step problems involving situations of adding to, taking from, putting together, taking apart, and comparing with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. (See CCLS Glossary, Table 1.)

Add and subtract within 20.

- 2.OA.2** Fluently add and subtract within 20 using mental strategies. (See standard 1.OA.6 for a list of mental strategies.) By end of Grade 2, know from memory all sums of two one-digit numbers.

Use place value understanding and properties of operations to add and subtract.

- 2.NBT.5** Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

Evaluating Student Learning Outcomes

A Progression Toward Mastery is provided to describe steps that illuminate the gradually increasing understandings that students develop *on their way to proficiency*. In this chart, this progress is presented from left (Step 1) to right (Step 4). The learning goal for students is to achieve Step 4 mastery. These steps are meant to help teachers and students identify and celebrate what the students CAN do now and what they need to work on next.

A Progression Toward Mastery

Assessment Task Item and Standards Addressed	STEP 1 Little evidence of reasoning without a correct answer. (1 Point)	STEP 2 Evidence of some reasoning without a correct answer. (2 Points)	STEP 3 Evidence of some reasoning with a correct answer or evidence of solid reasoning with an incorrect answer. (3 Points)	STEP 4 Evidence of solid reasoning with a correct answer. (4 Points)
1 2.OA.2 2.NBT.5	Student correctly answers 1–2 problems.	Student correctly answers 3–4 problems.	Student correctly answers 5 problems.	Student correctly answers: a. 22 b. 42 c. 7 d. 73 e. 96 f. 74 The correct answer is evidence of solid reasoning. However, use student work to determine whether a student is working at Level 1, 2, or 3.
2 2.OA.2	Student incorrectly solves and does not include a reasonable number sentence or statement.	Student incorrectly solves but includes both a reasonable number sentence and statement. OR Student correctly solves but is unable to write both a correct statement and number sentence.	For parts (a) and (b), student correctly answers 31 and 33. However, either the number sentence or statement is incorrect or missing.	a. Student correctly answers 31 stickers and writes the number sentence $25 + 6$ or $6 + 25$ to solve. Student writes a complete statement to answer how many stickers Trevor has now. b. Student correctly answers 33 stickers and writes the number sentence $40 - 7$ to solve. Student writes a statement to answer how many stickers James has now.



A Progression Toward Mastery

3 2.OA.2 2.NBT.5	Student correctly answers 1–2 problems.	Student correctly answers 3–4 problems.	Student correctly answers 5 problems.	Student correctly answers: a. 6 b. 35 c. 47 d. 96 e. 72 f. 25 The correct answer is evidence of solid reasoning. However, use student work to determine whether a student is working at Level 1, 2, or 3.
4 2.OA.1	Student incorrectly solves and does not include a reasonable number sentence or statement.	Student incorrectly solves but includes both a reasonable number sentence and statement. OR Student correctly solves but is unable to write both a correct statement and number sentence.	Student correctly answers 35. However, either the number sentence or statement is incorrect or missing.	Student correctly: a. Answers 35 markers. b. Writes the number sentence $42 - 7 = 35$ or $7 + 35 = 42$ to solve. c. Writes a complete statement to answer how many markers Tammy has now.

Name Mike

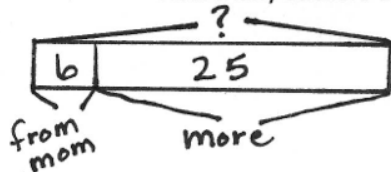
Date _____

1. Solve.

a. $18 + 4 = \underline{22}$ $\begin{array}{r} 18 \\ + 4 \\ \hline 22 \end{array}$ $18 + 2 = 20$ $20 + 2 = 22$	b. $48 - 6 = \underline{42}$
c. $15 - 8 = \underline{7}$ $\begin{array}{r} 15 \\ - 8 \\ \hline 7 \end{array}$ $10 - 8 = 2$ $5 + 2 = 7$	d. $8 + 65 = \underline{73}$ $\begin{array}{r} 8 \\ + 65 \\ \hline 73 \end{array}$ $65 + 5 = 70$ $70 + 3 = 73$
e. $66 + 30 = \underline{96}$	f. $83 - 9 = \underline{74}$ $\begin{array}{r} 83 \\ - 9 \\ \hline 74 \end{array}$ $10 - 9 = 1$ $73 + 1 = 74$

2. Write a number sentence and statement to answer the sticker questions below. Include a math drawing if you like.

- a. Trevor's mom gave him 6 stickers to start his collection. He received 25 more for his birthday. How many stickers does Trevor have now?



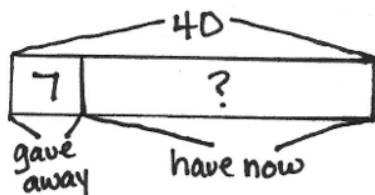
$$25 + 6 = \underline{31}$$

Now Trevor has 31 stickers.

$$25 + 5 = 30$$

$$30 + 1 = 31$$

- b. James has 40 stickers and gives away 7. How many stickers does James have now?



$$40 - 7 = \underline{33}$$

Now James has 33 stickers.

$$10 - 7 = 3$$

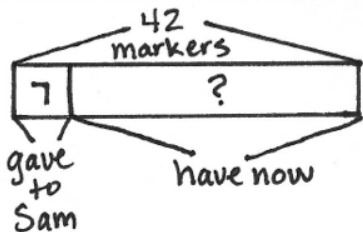
$$30 + 3 = 33$$

3. Solve.

<p>a.</p> $\begin{array}{r} 13 \\ \text{ } \end{array} - 7 = \underline{6}$ $\begin{array}{r} 10 \\ 3 \end{array}$ $10 - 7 = 3$ $3 + 3 = 6$	<p>b.</p> $29 + 6 = \underline{35}$ $\begin{array}{r} 1 \\ 5 \end{array}$ $29 + 1 = 30$ $30 + 5 = 35$
<p>c.</p> $42 + 5 = \underline{47}$	<p>d.</p> $36 + 60 = \underline{96}$
<p>e.</p> $\begin{array}{r} 80 \\ 70 \end{array} - 8 = \underline{72}$ $\begin{array}{r} 10 \\ 10 \end{array}$ $10 - 8 = 2$ $70 + 2 = 72$	<p>f.</p> $85 - 60 = \underline{25}$

4. Tammy gave 7 markers to Sam. She started with 42 markers. How many markers does Tammy have now?

Write a number sentence and statement to answer. Include a math drawing if you like.



$$42 - 7 = \underline{35}$$

$$\begin{array}{r} 32 \\ 10 \end{array}$$

Now Tammy has 35 markers.

$$10 - 7 = 3$$

$$32 + 3 = 35$$



Answer Key

GRADE 2 • MODULE 1

Sums and Differences to 20

Lesson 1

Sprint

Side A

- | | | |
|--------|--------|--------|
| 1. 11 | 11. 12 | 21. 15 |
| 2. 12 | 12. 16 | 22. 18 |
| 3. 14 | 13. 19 | 23. 19 |
| 4. 13 | 14. 17 | 24. 16 |
| 5. 15 | 15. 18 | 25. 17 |
| 6. 16 | 16. 13 | 26. 10 |
| 7. 11 | 17. 14 | 27. 10 |
| 8. 14 | 18. 11 | 28. 7 |
| 9. 13 | 19. 12 | 29. 9 |
| 10. 15 | 20. 15 | 30. 10 |

Side B

- | | | |
|--------|--------|--------|
| 1. 15 | 11. 14 | 21. 16 |
| 2. 14 | 12. 16 | 22. 19 |
| 3. 13 | 13. 17 | 23. 15 |
| 4. 12 | 14. 19 | 24. 17 |
| 5. 11 | 15. 18 | 25. 18 |
| 6. 15 | 16. 14 | 26. 10 |
| 7. 14 | 17. 13 | 27. 10 |
| 8. 12 | 18. 12 | 28. 6 |
| 9. 11 | 19. 11 | 29. 8 |
| 10. 13 | 20. 13 | 30. 10 |

Exit Ticket

- | | | | | | |
|----|----|------------------------|----|----|----|
| 1. | a. | 10, 10, 9, 1; 10, 9, 1 | 2. | a. | 15 |
| | b. | 10, 10, 4, 6; 10, 6, 4 | | b. | 3 |
| | | | | c. | 18 |

Homework

- | | | | |
|----|---------------------------------|----|------------|
| 1. | 10, 10, 9, 1 | 3. | 3, 7, 5, 8 |
| | 10, 10, 8, 2; 10, 8, 2 | | 2, 6, 4, 9 |
| 2. | 10, 10, 6, 4; number bond drawn | | |
| | 10, 10, 3, 7; number bond drawn | | |

Lesson 2

Sprint

Side A

- | | | |
|--------|--------|--------|
| 1. 13 | 11. 45 | 21. 69 |
| 2. 22 | 12. 36 | 22. 89 |
| 3. 34 | 13. 29 | 23. 6 |
| 4. 53 | 14. 47 | 24. 7 |
| 5. 25 | 15. 58 | 25. 70 |
| 6. 55 | 16. 3 | 26. 80 |
| 7. 41 | 17. 2 | 27. 80 |
| 8. 24 | 18. 1 | 28. 7 |
| 9. 23 | 19. 5 | 29. 5 |
| 10. 35 | 20. 3 | 30. 90 |

Side B

- | | | |
|--------|--------|--------|
| 1. 12 | 11. 43 | 21. 78 |
| 2. 23 | 12. 37 | 22. 88 |
| 3. 34 | 13. 28 | 23. 6 |
| 4. 54 | 14. 49 | 24. 9 |
| 5. 45 | 15. 56 | 25. 70 |
| 6. 51 | 16. 2 | 26. 90 |
| 7. 51 | 17. 2 | 27. 80 |
| 8. 24 | 18. 1 | 28. 7 |
| 9. 22 | 19. 5 | 29. 5 |
| 10. 35 | 20. 3 | 30. 90 |

Exit Ticket

- | | | | | | |
|----|----|----|----|----|----|
| 1. | a. | 13 | 2. | a. | 17 |
| | b. | 34 | | b. | 29 |
| | c. | 65 | | c. | 76 |
| | d. | 91 | | d. | 98 |

Homework

- | | | | | |
|----|----|-------------------------------|----|----------------|
| 1. | a. | 8, 8, 6, 2 | 3. | 4, 3, 1, 2 |
| | b. | 8, 8, 5, 3; number bond drawn | | 10, 20, 70, 80 |
| 2. | | 24, 43, 72, 85 | | |
| | | 29, 48, 56, 97 | | |

Number Bond Dash

- | | | | |
|-----|---|-----|---|
| 1. | 1 | 11. | 1 |
| 2. | 2 | 12. | 8 |
| 3. | 1 | 13. | 2 |
| 4. | 2 | 14. | 7 |
| 5. | 0 | 15. | 3 |
| 6. | 3 | 16. | 4 |
| 7. | 2 | 17. | 3 |
| 8. | 3 | 18. | 2 |
| 9. | 4 | 19. | 7 |
| 10. | 8 | 20. | 6 |

Lesson 3

Sprint

Side A

1. 4
2. 14
3. 24
4. 3
5. 13
6. 23
7. 33
8. 63
9. 3
10. 13

11. 23
12. 53
13. 2
14. 12
15. 22
16. 8
17. 58
18. 9
19. 69
20. 89

21. 5
22. 45
23. 65
24. 29
25. 3
26. 73
27. 3
28. 3
29. 77
30. 97

Side B

1. 3
2. 13
3. 23
4. 5
5. 15
6. 25
7. 45
8. 65
9. 4
10. 14

11. 24
12. 44
13. 1
14. 11
15. 21
16. 9
17. 69
18. 9
19. 59
20. 89

21. 2
22. 42
23. 72
24. 37
25. 4
26. 74
27. 3
28. 3
29. 79
30. 99

Problem Set

1.
 - a. 36, 90, 75, 39
 - b. 20, 21, 53, 17
2.
 - a. 29
 - b. 74
 - c. 75
 - d. 48
3.
 - a. 48, 48
 - b. 25, 15
 - c. 96, 96
 - d. 35, 45
4. Answers will vary.
5. Lisa is wrong. They both have the same amount of money. Pictures, numbers, and words will vary.

Exit Ticket

1. 28
2. 63
3. 73
4. 16

Homework

1.
 - a. 27, 90, 65, 92
 - b. 60, 83, 65, 66
 - c. 70, 71, 39, 75
 - d. 40, 45, 75, 35
2.
 - a. 49
 - b. 94
 - c. 47
 - d. 78
3.
 - a. 19, 19
 - b. 34, 33
 - c. 96, 96
 - d. 47, 57

Lesson 4

Problem Set

- | | |
|-------|------------------------------------|
| 1. 12 | 8. 17 |
| 2. 14 | 9. 2, 3 |
| 3. 12 | 10. 3, 4 |
| 4. 15 | 11. 4, 6 |
| 5. 12 | 12. 6, 9 |
| 6. 13 | 13. 11 |
| 7. 16 | 14. Ben has 13 pencils altogether. |

Exit Ticket

- 15
- 13

Homework

- | | |
|-------|--------------------------------|
| 1. 12 | 9. Answer provided |
| 2. 16 | $10 + 3 = 13$ and $7 + 6 = 13$ |
| 3. 12 | $10 + 7 = 17$ and $9 + 8 = 17$ |
| 4. 14 | $10 + 5 = 15$ and $9 + 6 = 15$ |
| 5. 13 | $4 + 10 = 14$ and $6 + 8 = 14$ |
| 6. 15 | 10. 13 |
| 7. 16 | |
| 8. 17 | |

Lesson 5

Problem Set

1.
 - a. 12
 - b. 22
 - c. 22
 - d. 45
 - e. 42
 - f. 63
 - g. 74
 - h. 86
2. Shows an alternate way to solve $67 + 5$
3. Uses the RDW process to show that Susan collects 84 shells

Exit Ticket

- a. 43
- b. 65

Homework

1.
 - a. 12
 - b. 34
 - c. 56
 - d. 65
 - e. 22
 - f. 54
 - g. 64
 - h. 86
2.
 - a. 72
 - b. 93
 - c. 65
 - d. 85
3. 35 students; RDW approach used

Lesson 6

Problem Set

1.
 - a. 11
 - b. 21
 - c. 12
 - d. 23
 - e. 33
 - f. 44
 - g. 74
 - h. 85
 - i. 66
 - j. 58
2. 81; 80, 10
3. Drawings will vary; 44
4. 64

Exit Ticket

1. 66
2. 57

Homework

1. Answer provided
30, 10
40, 10
60, 10
50, 10
70, 10
2. 9
6
1
3
8
5
3.
 - a. Answer provided
 - b. 21
 - c. 32
 - d. 42
 - e. 53
 - f. 63
 - g. 74
 - h. 85
4. Drawings will vary; 26

Lesson 7

Problem Set

- 2
 - 3
 - 4
 - 3
 - 4
 - 5
 - 4
 - 5
 - 6
- 8
 - 6
 - 9
- Shane gave away 5 pencils.
- Victoria has 7 celery sticks left.

Exit Ticket

- 8
- 8

Homework

- Answer provided
4, 10
8, 10
3, 10
6, 10
9, 10
- 8
3
4
5
2
1
- 5; 5
 - 7
 - 6
 - 4
- 7
- Lucy has \$6 left.

Lesson 8

Problem Set

1.
 - a. 3
 - b. 13
 - c. 33
 - d. 5
 - e. 15
 - f. 45
 - g. 8
 - h. 18
 - i. 78
2.
 - a. 15
 - b. 29
 - c. 47
 - d. 34
 - e. 56
 - f. 77
3. The children ate 8 tacos.

Exit Ticket

1. 12
2. 26
3. 75

Homework

1. Answer provided
24, 10
48, 10
75, 10
67, 10
86, 10
2. 9
5
8
6
3
2
3.
 - a. 6
 - b. 7
 - c. 8
 - d. 7
 - e. 35
 - f. 48
 - g. 66
 - h. 83
4. Emma gave Jack 9 markers.