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.)

After 60 seconds:

T: Stop! Circle the last problem you did. I will read just the answers. If you got it right, call out "Yes!"and give a fist pump. 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 you read Sprint answers. 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 your 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 you might have the person who scored highest on *Sprint A* pass out

Sprint B.)

T: Stop! I will read just the answers. If you got it right, call out "Yes!" and give a fist pump. 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 Sprint 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 to not look at the problems until the signal is given. (Repeat the procedure for *Sprint A* up through the show of hands for how many right.)

T: Stand up if you got more correct on the second Sprint than on the first.

S: (Students 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.

Personal White Boards

Materials Needed for Personal White Boards

1 High Quality Clear Sheet Protector
1 piece of stiff red tag board 11" x 8 ¼"
1 piece of stiff white tag board 11" x 8 ¼"
1 3"x 3" piece of dark synthetic cloth for an eraser
1 Low Odor Blue Dry Erase Marker: Fine Point

Directions for Creating Personal White Boards

Cut your white and red tag to specifications. Slide into the sheet protector. Store your 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 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 a hole 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 to write on.
- The red versus white side distinction clarifies your expectations. When working collaboratively, there is no need to use the red. When working independently, the students know how to keep their work private.
- The sheet protector can be removed so that student work can be projected on an overhead.

Scaffolds[5]

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*."

[5] Students 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.

A # Correct _____

Topic or skill addressed:

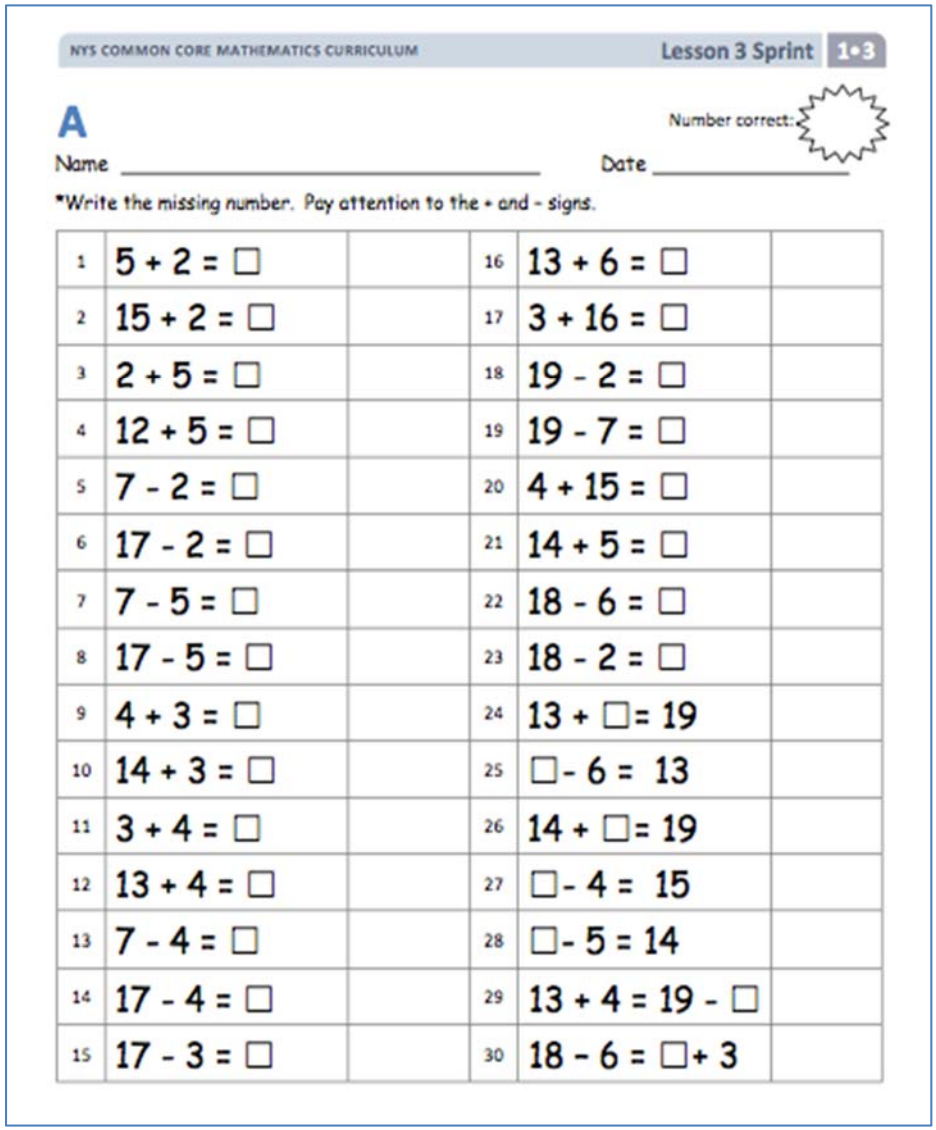
1			23		
2			24		
3			25		
4			26		
5			27		
6			28		
7			29		
8			30		
9			31		
10			32		
11			33		
12			34		
13			35		
14			36		
15			37		
16			38		
17			39		
18			40		
19			41		
20			42		
21			43		
22			44		

B Improvement _____ # Correct _____

Topic or skill addressed:

1			23		
2			24		
3			25		
4			26		
5			27		
6			28		
7			29		
8			30		
9			31		
10			32		
11			33		
12			34		
13			35		
14			36		
15			37		
16			38		
17			39		
18			40		
19			41		
20			42		
21			43		
22			44		

Analyze a Grade 1 Sprint



NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 3 Sprint 1•3

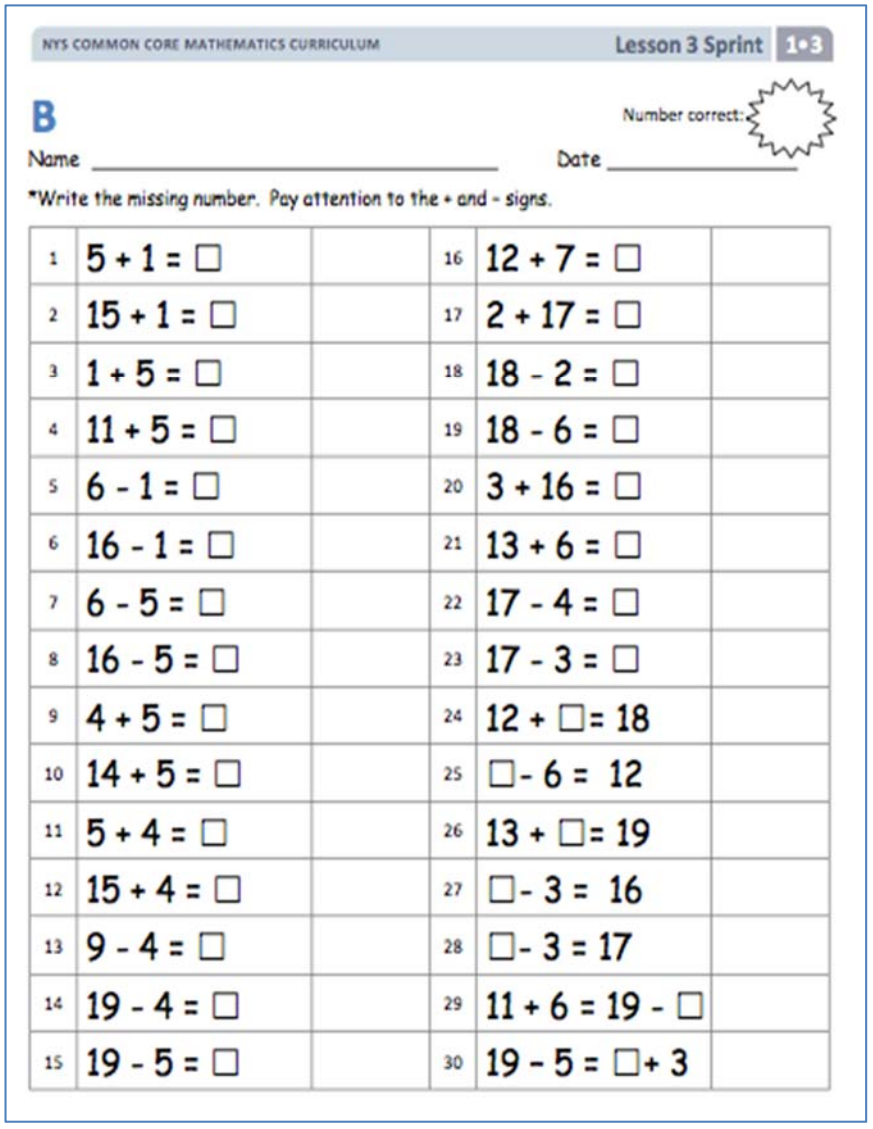
A

Number correct:

Name _____ Date _____

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

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



NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 3 Sprint 1•3

B

Number correct:

Name _____ Date _____

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

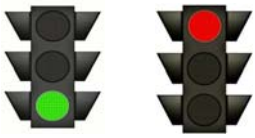
1	5 + 1 = ☐		16	12 + 7 = ☐	
2	15 + 1 = ☐		17	2 + 17 = ☐	
3	1 + 5 = ☐		18	18 - 2 = ☐	
4	11 + 5 = ☐		19	18 - 6 = ☐	
5	6 - 1 = ☐		20	3 + 16 = ☐	
6	16 - 1 = ☐		21	13 + 6 = ☐	
7	6 - 5 = ☐		22	17 - 4 = ☐	
8	16 - 5 = ☐		23	17 - 3 = ☐	
9	4 + 5 = ☐		24	12 + ☐ = 18	
10	14 + 5 = ☐		25	☐ - 6 = 12	
11	5 + 4 = ☐	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

Sequence Analysis

Set A: Green Light, Red Light

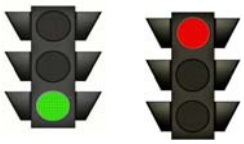
Draw a green dot and a red dot next to each other. Explain to students that they will start counting and stop counting on the number as indicated by the color code.[1]

Kindergarten



1	3
1	5
2	3
2	4
3	4
3	5
3	1
5	1
5	4
5	3
4	3
4	2

Grade 1



1	6
4	10
5	1
10	5
7	12
12	5
8	14
18	24
12	7
22	17
38	44
44	38

In the space below, write a sequence for Green Light/ Red Light for Grade 2, 3, 4 or 5 students. (Students can count by different units rather than just by ones!)

[1] Note: Grade 1 students learn to "count on." At times it might be wise to have students "count on" from the green number, meaning the count would start at the next number rather than the number shown.

Set B: Beep Counting

Write number sequences on the board with missing numbers. Students read the sequence aloud, saying "beep" for the missing number. Then, students say the missing number on your signal.

Grade 1

a. 10, 11, 12, ___	b. 110, 111, 112, ___	c. 20, 19, 18, ___	d. 120, 119, 118, ___
e. 17, 18, __, 20	f. 117, 118, ___, 120	h. 8, 9, ___, 11	i. 108, 109, ___, 111
j. 12, 11, ___, 9	k. 112, 111, ___, 109	l. ___, 7, 8, 9	m. ___, 107, 108, 109

Grade 2

a. 108, 109, 110, ___	b. 118, 119, 120, ___	c. 100, 101, 102, ___	d. 200, 201, 202, ___
e. 102, 101, ___, 99	f. 202, 201, ___, 199	h. 201, 200, ___, 198	i. 301, 300, ___, 298
j. 210, ___, 208, 207	k. 310, ___, 308, 307	l. ___, 199, 198, 197	m. ___, 299, 298, 297

In the space below, write a sequence for Beep Number for Grade 2, 3, 4 or 5 students.

Set C: Equivalent Counting

Grade 3: Equivalent Counting with Units of 4 (4 minutes)

Note: This activity builds fluency with multiplication facts using units of 4. The progression builds in complexity. Work students up to the highest level of complexity where they can confidently participate.

1	2	3	4	5	6	7	8	9	10
1 four	2 fours	3 fours	4 fours	5 fours	6 fours	7 fours	8 fours	9 fours	10 fours
4	8	12	16	20	24	28	32	36	40
1 four	8	3 fours	16	5 fours	24	7 fours	32	9 fours	40
4	2 fours	12	4 fours	20	6 fours	28	8 fours	36	10 fours

Grade 4: Count by Equivalent Fractions

Note: This activity builds fluency with equivalent fractions. The progression builds in complexity. Work the students up to the highest level of complexity in which they can confidently participate.

$\frac{0}{8}$	$\frac{1}{8}$	$\frac{2}{8}$	$\frac{3}{8}$	$\frac{4}{8}$	$\frac{5}{8}$	$\frac{6}{8}$	$\frac{7}{8}$	$\frac{8}{8}$
0	$\frac{1}{8}$	$\frac{2}{8}$	$\frac{3}{8}$	$\frac{4}{8}$	$\frac{5}{8}$	$\frac{6}{8}$	$\frac{7}{8}$	1 whole
0	$\frac{1}{8}$	$\frac{2}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{6}{8}$	$\frac{7}{8}$	1 whole
0	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1 whole

Grade 5: Count by Fractions

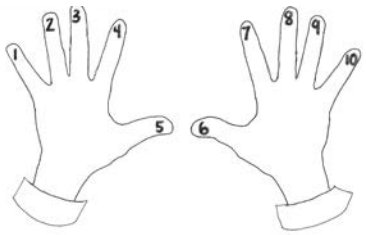
Note: This fluency reviews the equalence of fractions greater than 1 and those expressed in largest units.

$\frac{1}{4}$	$\frac{2}{4}$	$\frac{3}{4}$	$\frac{4}{4}$	$\frac{5}{4}$	$\frac{6}{4}$	$\frac{7}{4}$	$\frac{8}{4}$	$\frac{9}{4}$	$\frac{10}{4}$	$\frac{11}{4}$	$\frac{12}{4}$
$\frac{1}{4}$	$\frac{2}{4}$	$\frac{3}{4}$	1	$\frac{5}{4}$	$\frac{6}{4}$	$\frac{7}{4}$	2	$\frac{9}{4}$	$\frac{10}{4}$	$\frac{11}{4}$	3
$\frac{1}{4}$	$\frac{2}{4}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{2}{4}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$	$2\frac{2}{4}$	$2\frac{3}{4}$	3
$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{3}{4}$	3

In the space below, create an "equivalent counting" sequence using different either measurement units or base ten units.

Eureka Math Counting Exercises

Kindergarten



Counting with the Number Glove to 8 (4 minutes)

Count up and down, as in Lesson 1, only now dramatically emphasize the transition from 5 to 6 by bringing the hand in and out of view when changing directions. Number gloves are illustrated at right, as viewed from the students' perspective.

Happy Counting (3 minutes)

Note: This activity helps students internalize the whole number counting sequence and become comfortable changing directions in their count.

T: Let's play Happy Counting! Remember, when I hold my hand like this (two fingers pointing up), I want you to count up. If I put my hand like this (two fingers pointing down), I want you to count down. If I do this (closed fist) that means stop, but try hard to remember the last number you said. Ready?

S: (Teacher's fingers up) 1, 2, 3, 4, 5 (closed fist, fingers pointing down), 4, 3, 2, 1 (closed fist, fingers up), 2, 3 (closed fist, fingers down), 2, 1 (closed fist, fingers up), 2, 3, 4, 5 (closed fist, fingers down), 4, 3 (closed fist, fingers up), 4, 5, 6 (closed fist, fingers down), 5, 4 (closed fist, fingers up), 5, 6, 7, 8 (closed fist, fingers down).

Continue Happy Counting to ten 3 (i.e., 13), increasing the numbers as students demonstrate mastery.

Count Teen Numbers (4 minutes)

T: Count from 11 to 20 the Say Ten way.

S: Ten 1, ten 2, ten 3, ten 4, ten 5, ten 6, ten 7, ten 8, ten 9, 2 tens.

T: Count back from 20 to 11 the Say Ten way.

S: 2 tens, ten 9, ten 8, ten 7, ten 6, ten 5, ten 4, ten 3, ten 2, ten 1.

T: Count from 11 to 20 the regular way.

S: 11, 12, 13, 14, 15, 16, 17, 18, 19, 20.

T: Count back from 20 to 11 the regular way.

S: 20, 19, 18, 17, 16, 15, 14, 13, 12, 11.

T: Now I want you to change the way you count each time. We'll say the first number the Say Ten way. Then we'll say the next number the regular way. Listen to my example. Ten one, 12, ten three, 14, ten five, 16. Now it's your turn.

S: Ten one, 12, ten three, 14, ten five, 16, ten seven, 18, ten nine, 20.

T: Count back from 20 to 11 starting with the Say Ten way.

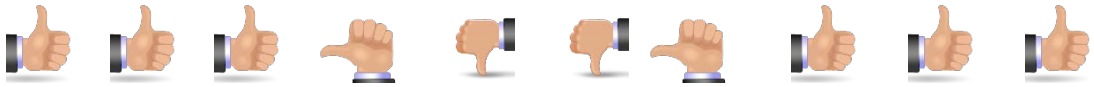
S: 2 tens, 19, ten eight, 17, ten six, 15, ten four, 13, ten two, 11.

First Grade

Happy Counting (3 minutes)

Note: In the first two modules, students practice counting by ones, tens, twos, and fives, both the regular way and the Say Ten way. Reviewing these counting patterns within 40 prepares students for Module 4 while strengthening their understanding of place value and their ability to add and subtract.

Choose a counting pattern and range based on your students' skill level. If they are very proficient up to 40, start at 40 and quickly go up to 80. If they are proficient between 40 and 80, Happy Count between 80 and 120. To really reinforce place value, try alternating between counting the regular way and the Say Ten way.

T: 

T/S: ten 9 20 2 tens 1 (pause) 20 ten 9 (pause) 20 2 tens 1 22

Happy Counting by Tens (2 minutes)

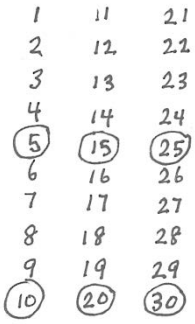
Note: Reviewing Happy Counting by Tens prepares students to recognize the efficiency of counting groups of 10 in today's lesson.

Happy Count by tens the regular way and Say Ten way from 0–120. To really reinforce place value, try alternating between counting the regular way and the Say Ten way.

T/S: 0 10 20 (pause) 10 0 (pause) 10 20 30 (etc.)

Think Count (2 minutes)

Materials: (T) Chart of numbers to 30 with multiples of 5 circled



Note: This activity prepares students for today's lesson, where they will be adding 5 minutes until they reach 30 minutes to connect half past the hour to 30 minutes past the hour.

Display the chart. Students think-count to 20, saying multiples of 5 aloud. Hide the chart and let students try to remember the sequence, counting slowly by fives to 20. Repeat think-counting and slowly skip-counting first to 25, then to 30.

Happy Counting (2 minutes)

Note: In this module, students will be adding and subtracting within 100 and extending their counting and number writing skills to 120. Give students practice counting by ones and tens within 100. When Happy Counting by ones, spend more time changing directions where changes in tens occur, which is typically more challenging. Happy Count by ones the regular way and Say Ten way between 60 and 100. Then Happy Count by tens, starting at a number with some ones (e.g., 78).

T/S: 97 96 (pause) 97 98 (pause) 99 100 99 100 (etc.)

Second Grade

Happy Counting by Tens: Crossing 100 (3 minutes)

Note: Students skip-count by tens as foundation for counting equal groups in the lesson.

T: Let's count by tens, starting at 160. Ready? (Point up rhythmically until a change is desired. Close hand to indicate a stopping point. Point down to count in the opposite direction. Continue, periodically changing direction.)

S: 160, 170, 180, 190, 200, 210, 220, 230, 240. (Switch.) 230, 220, 210, 200, 190. (Switch.) 300, 310, 320, 330, 340, 350, 360, 370, 380, 390, 400, 410, 420. (Switch.) 410, 400, 390, 380.

T: Excellent! Try it for 30 seconds with your partner, starting at 300. Partner B, you are the teacher.

Skip-Counting by 2's (4 minutes)

Note: Students practice counting by 2's in preparation for their work with even and odd numbers in the lesson.

T: Let's skip-count by twos. On my signal, count by ones from 0 to 20 in a whisper. Ready? (Tap the desk while the students are counting, knocking on the twos. For example, tap, knock, tap, knock, etc.)

T: Did anyone notice what I was doing while you were counting? I was tapping by ones, but I knocked on every other number. Let's count again, and this time you can try knocking and tapping with me.

S: 0 (knock), 1 (tap), 2 (knock), 3 (tap), 4 (knock), 5 (tap), 6 (knock), etc.

Continue this routine up to 20.

Skip-Count by $5 and $10 Between 85 and 205 (3 minutes)

Materials: (T) 20 ten dollar bills, 10 five dollar bills
Note: Bring students to an area where you can lay the bills on the carpet or central location. Students apply their knowledge of skip-counting by fives and tens to counting bills in preparation for solving word problems with bills in the next lesson.

T: (Lay out $85 in bills so that all the students can see.) What is the total value of the bills?

S: $85.

T: Count in your head as I change the value. (Lay down ten dollar bills to make 95, 105, 115.)

T: What is the total value of the bills now?

S: $115.

T: (Remove ten dollar bills to make 105, 95.) What is the total value of the bills now?

S: $95.

T: (Add more ten dollar bills to make 105, 115, 125, 135, 145, 155, 165, 175, 185.) What is the total value of the bills?

S: $185.

T: (Lay down five dollar bills to make 190, 195, 200.) What is the total value of the bills?

S: $200

Continue to count up and back by 5 and 10, crossing over the hundred and where you notice students

Third Grade

Group Counting (10 minutes)

Note: Basic skip-counting skills from Grade 2 shift focus in this Grade 3 activity. Group-counting lays a foundation for interpreting multiplication as repeated addition. When students count groups in this activity, they add and subtract groups of two when counting up and down.

T: Let's count to 20 forward and backward. Watch my fingers to know whether to count up or down. A closed hand means stop. (Show signals as you explain.)

T: (Rhythmically point up until a change is desired. Show a closed hand then point down.)

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

T: Let's count to 20 forward and backward again. This time whisper every other number. Say the other numbers in a regular voice.

S: (Students whisper then speak every other number to 20 forward and backward.)

T: Let's count to 20 forward and backward again. This time, hum every other number instead of whispering. As you hum, think of the number.

S: (Hum), 2, (hum), 4, (hum), 6, etc.

T: Let's count to 20 forward and backward again. This time, think every other number instead of humming.

S: (Think), 2, (think), 4, (think), 6, etc.

T: What did we just count by? Turn and talk to your partner.

S: Twos.

T: Let's count by twos. (Direct students to count forward to and backward from 20, changing directions at times.)

Minute Counting (6 minutes)

Note: This activity reviews the Grade 2 standard of telling and writing time to the nearest 5 minutes. It prepares students to count by 5-minute intervals on the number line and clock in Lesson 2. Students also practice group counting strategies for multiplication in the context of time.

T: There are 60 minutes in 1 hour. Count by 5 minutes to 1 hour.

S: 5 minutes, 10 minutes, 15 minutes, 20 minutes, 25 minutes, 30 minutes, 35 minutes, 40 minutes, 45 minutes, 50 minutes, 55 minutes, 60 minutes. (Underneath 60 minutes, write 1 hour.)

T: How many minutes are in a half-hour?

S: 30 minutes.

T: Count by 5 minutes to 1 hour. This time, say *half-hour* when you get to 30 minutes.

Repeat the process using the following suggested sequences:

- Count by 10 minutes and 6 minutes to 1 hour.
- Count by 3 minutes to a half hour.

Fourth Grade

Unit Counting (5 minutes)

Note: This fluency will deepen student understanding of the composition and decomposition of units, laying a foundation for adding and subtracting grams and kilograms. Numbers are bolded to show change in direction of counting. Direct students to count by grams in the following sequence, letting them know with gestures when to change direction in counting, as shown in bold below:

- 500 g, 1,000 g, 1,500 g, 2,000 g, 2,500 g, 3,000 g, **2,500 g**, 2,000 g, 1,500 g, 1,000 g, 500 g
- 500 g, 1 kg, 1,500 g, 2 kg, 2,500 g, 3 kg, 2,500 g, **2 kg**, 1,500 g, 1 kg, 500 g
- 500 g, 1 kg, 1 kg 500 g, 2 kg, 2 kg 500 g, 3 kg, **2 kg 500 g**, 2 kg, 1 kg 500 g, 1 kg, 500 g

Group Count by Multiples of 10 and 100 (5 minutes)

Note: Changing units helps prepare students to recognize patterns of place value in multiplication.

T: Count by threes to 30.

S: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30.

T: Now count by 3 tens. When I raise my hand, stop counting.

S: 3 tens, 6 tens, 9 tens.

T: (Raise hand.) Say the number.

S: 90.

T: Continue.

S: 12 tens, 15 tens.

T: (Raise hand.) Say the number.

S: 150.

Repeat the process for 21 tens, 27 tens, and 30 tens. Repeat the process, counting by 4 hundreds, stopping to convert at 12 hundreds, 20 hundreds, 32 hundreds, and 40 hundreds. Repeat the process, counting by 6 hundreds, stopping at 18 hundreds, 30 hundreds, 48 hundreds, and 60 hundreds.

Count by Equivalent Fractions (4 minutes)

Materials: (S) Personal white boards

Note: This fluency activity reviews G4–M5–Lesson 4.

T: Count from 0 fourths to 4 fourths by 1 fourths. (Write as students count.)

S: $\frac{0}{4}$, $\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$, $\frac{4}{4}$.

T: 4 fourths is the same as one of what unit?

S: 1 whole.

T: (Beneath $\frac{4}{4}$, write 1.) Count by fourths again. This time, say "1 whole" when you arrive at 4 fourths. Start at zero.

S: 0, $\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$, 1 whole.

$\frac{0}{4}$	$\frac{1}{4}$	$\frac{2}{4}$	$\frac{3}{4}$	$\frac{4}{4}$
0	$\frac{1}{4}$	$\frac{2}{4}$	$\frac{3}{4}$	1

Repeat the process, counting by halves to 4 halves, fourths to 12 fourths.

Fifth Grade

Group Count by Multiples of 10 (3 minutes)

Note: Counting by multiples of 10 will prepare students for G5–M2–Lesson 17's Concept Development.

T: Count by threes.
S: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30.
T: Count by 3 tens. When I raise my hand stop counting.
S: 3 tens, 6 tens, 9 tens.
T: (Raise hand.) Say 9 tens in standard form.
S: 90.

Continue the process, stopping at 15 tens, 24 tens, and 30 tens.

Happy Counting with Mixed Numbers (3 minutes)

T: Let's count by 1/2 with mixed numbers. Ready? (Teacher rhythmically points up until a change is desired. Show a closed hand, then point down. Continue, mixing it up).
S: 1/2, 1, 1 1/2, 2 (stop), 1 1/2, 1, 1/2, 0 (stop), 1/2, 1, 1 1/2, 2, 2 1/2, 3, 3 1/2, 4 (stop), 3 1/2, 3, 2 1/2, 2, 1 1/2, 1 (stop), 1 1/2, 2, 2 1/2, 3, 3 1/2, 4, 4 1/2, 5.
T: Excellent. Try it for 30 seconds with your partner. Partner A, you are the teacher today.

Count by Cubic Centimeters (3 minutes)

Note: This fluency will prepare students for today's lesson.

T: Count by twos to 10. (Write as students count.)
S: 2, 4, 6, 8, 10.
T: Count by two-hundreds to 1,000. (Write as students count.)
S: 200, 400, 600, 800, 1,000.
T: Count by 200 cm^3 to 1,000 cm^3. (Write as students count.)
S: 200 cm^3, 400 cm^3, 600 cm^3, 800 cm^3, 1,000 cm^3.
T: Count by 200 cm^3. This time, when you come to 1,000 cm^3, say 1 liter. (Write as students count.)
S: 200 cm^3, 400 cm^3, 600 cm^3, 800 cm^3, 1 liter.

2	4	6	8	10
200	400	600	800	1,000
200 cm^3	400 cm^3	600 cm^3	800 cm^3	1,000 cm^3
200 cm^3	400 cm^3	600 cm^3	800 cm^3	1 liter

NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Have students skip-count as a group as they did in Grades K and 1 when they were counting by twos and threes. When they get to 1,000 cm^3, they should say 1 liter.

Eureka Math Choral Response Exercises

Kindergarten

5-Group Hands (3 minutes)

Materials: (T) Large 5-group cards (5–7)

T: (Show the 6 dot card.) Raise your hand when you know how many dots are on top. (Wait until all hands are raised, then signal.) Ready?

S: 5.

T: Bottom?

S: 1.

T: We can show this 5-group on our hands. 5 on top, 1 on the bottom, like this. (Demonstrate on hands, one above the other.)

S: (Show 5 and 1 on hands, one above the other.)

T: Push your hands out as you count on from 5, like this. 5 (extend the top hand forward), 6 (extend the bottom hand forward). Try it with me.

S: 5 (extend the top hand forward), 6 (extend the bottom hand forward).

Continue with 5, 6, 7, steadily decreasing guidance from the teacher, until students can show the 5-groups on their hands with ease.

Say Ten Push-Ups (4 minutes)

Note: This activity reviews students' understanding of numbers to 10 for the work of this module and extends to teen numbers in anticipation of Module 5.

T: We are going to do Say Ten Push-Ups. First, let's get ready to push up by counting to 10 the Math Way.

S: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10. (Students should start counting with 1 on the left pinky and continue to 10 on the right pinky.)

T: Great! Now that we have 10, we can continue counting with ten (push out both hands as if doing a push-up exercise in the air, then pause with closed fists close to body), 1 (push out the left hand, pinky finger). Repeat please.

S: Ten (push out both hands as if doing a push-up exercise in the air, then pause with closed fists close to body), 1 (push out the left hand, pinky finger).

T: Keep going with me. Ten (repeating push-up), 2 (push out the left hand pinky and ring finger).

Continue to 20 (2 ten or 10 and 10).

NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

As often as possible, create opportunities for every student to respond every time. The vignettes throughout the entire module facilitate this by continuously demonstrating varied response patterns and materials including choral response, partner talk, and personal boards Response patterns built on 100% student participation have powerful effects on student engagement and lesson pacing.

Choral response allows English language learner students to listen to correct pronunciation and language structure while practicing with the support of peer voices. Choral response that incorporates chanting like the counting activities presented to the left allows struggling students and those with auditory processing difficulty to be supported by the group as they pick up on language and patterns.

Wait time is an important component of choral response. It provides children with an opportunity to independently process the question and formulate an answer before speaking. This is a useful scaffold for ELL and struggling students. Wait time is built into many vignettes where dialogue says "pause" or when the teacher asks students to wait for a signal to respond.

Kindergarten Continued

Finger Number Pairs (4 minutes)

T: You've gotten very good at showing fingers the Math way. I want to challenge you to think of other ways to show numbers on your fingers. Hint… you can use two hands! First, I'll ask you to show me fingers the Math way. Then, I'll ask you to show me the number another way.
T: Ready? Show me 2!
S: (Hold up the pinky and ring fingers of the left hand.)
T: Now show me another way to make 2, using two hands.
S: (Show 1 finger on each hand.)
T: How we can be sure that we're still showing 2?
S: Count the fingers on both hands.

Continue the process with other numbers. For numbers where more than one combination is possible, have students try each other's combinations.

Note: This activity ensures that students do not become overly reliant on counting the Math way and gives them yet another method of breaking apart numbers, essential to the work of the next module.

Show Me 1 More, 1 Less (3 minutes)

T: Show me three fingers, the Math way.
S: (Hold up the left pinky, left ring finger, and the left middle finger.)
T: Now show me 1 more.
S: (Hold up the left pinky, left ring finger, the left middle finger, and the left index finger.)
T: How many fingers are you showing me now?
S: 4.
T: We can say it like this, "3. 1 more is 4." Echo me, please.
S: 3. 1 more is 4.
T: New number. Show me 5.
S: (Show open left hand.)
T: Now show me 1 less.
S: (Hold up the left pinky, left ring finger, left middle finger, and the left index finger.)
T: How many fingers are you showing me now?
S: 4.
T: We can say it like this, "5. 1 less is 4." Echo me, please.
S: 5. 1 less is 4.

Continue, and when they are ready, have students give *1 more* and *1 less* statements on their own.

Note: Students develop flexibility with the terms *more* and *less,* building upon the previous lesson, and preparing for the current lesson.

First Grade

Rekenrek: Ten Less (3 minutes)

Materials: (T) Rekenrek

Note: This is an anticipatory fluency for the take-from-ten subtraction strategy in Topic B, as students will need to decompose numbers by taking out a ten.

T: (Show *14* on the Rekenrek). Say the number.
S: 14.
T: Say it the Say Ten Way.
S: Ten 4.
T: What will my number be if I take out ten ones?
S: 4.
T: Let's check. (Take out ten.) Yes!

Continue with other teen numbers.

Take Out One (2 minutes)

Note: This activity supports fluency with decomposing numbers within 10. This skill is critical for using the upcoming Level 3 addition strategy of *make* ten. Students will need to fluently get 1 out of the second addend when adding 9.

T: Take out 1 on my signal. For example, if I say 5, you say 1 and 4.
T: 3 (snap).
S: 1 and 2.
T: 10 (snap).
S: 1 and 9.

Continue with all numbers within 10.

Addition Strategies Review (6 minutes)

Materials: (T) Hide Zero cards

Note: This review fluency helps strengthen students' understanding of the make ten and add the ones addition strategies, as well as their ability to recognize appropriate strategies based on the number of tens and ones in both addends.

Divide students into partners. Lay out your Hide Zero cards so they are easy to access. Show 9 and 6 with your cards.

T: Partner A, show me 9 on your Magic Counting Sticks. Partner B, show me 6. If I want to solve 9 + 6, how can I make a ten?
S: Take one from the 6 and add 1 to 9.
T: Yes. Show me! (Exchange the 9 and 6 cards for 10 and 5 as students adjust their fingers.) We changed 9 + 6 into an easier problem. Say our new addition sentence with the solution.

First Grade Continued

S: 10 + 5 = 15.

T: (Put the Hide Zero cards together to show 15.)
Say it the Say Ten way.

S: Ten 5.

T: (Show 13 with Hide Zero cards.) Partner A, show the ones. Partner B, show the tens. (Break apart the Hide Zero cards as students hold up their fingers.) If we want to add 2, should we make a ten to help us?

S: No. We already have a ten!

T: Should we add 2 to our 3 or our 10?

S: Our 3.

T: Yes! Partner A, show me 3 + 2. (Exchange the 3 card for a 5 card.) What is the answer?

S: 5.

T: So, Partner B, what is 13 + 2?

S: 15.

T: Say it the Say Ten way.

S: Ten 5.

Analogous Addition and Subtraction (3 minutes)

Note: This activity practices grade 1's core fluency and reminds students to use their knowledge of sums and differences within ten (e.g., 5 + 3 = 8) to solve analogous problems within 40 (15 + 3 = 18, 25 + 3 = 28 and 35 + 3 = 38).

T: On my signal, say the equation with the answer. 6 + 2 = (pause, snap).

S: 6 + 2 = 8.

T: 16 + 2 = (pause, snap).

S: 16 + 2 = 18.

Continue with 26 + 2 and 36 + 2. Then repeat, beginning with other addition or subtraction sentences within 10.

Suggested sequence:

- 5 + 3, 15, + 3, 25 + 3, 35 + 3
- 5 + 4, 4 + 5, 14 + 5, 24 + 5
- 7 + 2, 2 + 7, 12 + 7, 32 + 7
- 6 – 3, 16 – 3, 26 – 3, 36 – 3
- 8 – 2, 18 – 2, 28 – 2, 38 – 2
- 9 – 3, 9 – 6, 19 – 6, 29 - 6

Second Grade

Take Out a Part (4 minutes)

T: Let's take out 2 tens from each number.
T: I say 5 tens. You say, 2 tens + 3 tens = 5 tens.
T: 5 tens. Get ready. (Signal.)
S: 2 tens + 3 tens = 5 tens.
T: 7 tens. Get ready. (Signal.)
S: 2 tens + 5 tens = 7 tens.
T: Let's take out 20 from each number.
T: I say 50. You say, 20 + 30 = 50.
T: 50. Get ready. (Signal.)
S: 20 + 30 = 50.
T: 70. Get ready. (Signal.)
S: 20 + 50 = 70.

Continue with possible sequence: 83, 52, 97, 100, 105, 110, and 120.

T: Now let's take out 40. If I say 60, you say 40 + 20 = 60.
T: 50. Wait for the signal (pause and signal).
S: 40 + 10 = 50.

Continue with possible sequence: 70, 75, 81, 87, etc.

Think 10 to Add 9 (2 minutes)

T: Listen carefully! If I say, "9 + 5," you say, "10 + 4." Wait for my signal. Ready?
T: 9 + 5. (Signal)
S: 10 + 4.
T: 9 + 3.
S: 10 + 2.
T: 9 + 7.
S: 10 + 6.
T: 9 + 4.
S: 10 + 3.

Second Grade Continued

Module 4: More/Less (4 minutes)

Note: Practicing giving 1 or 10 more or less will prepare students to add and subtract 1 and 10 fluently.

T: For every number I say, you say a number that is 1 more. When I say 5, you say 6. Ready?

T: 5.

S: 6.

Continue with the following possible sequence: 9, 16, 19, 28, 38, 39, 44, 49, 54, and 60.

T: Now for every number I say, you say a number that is 10 more. When I say 50, you say 60. Ready?

T: 50.

S: 60.

Continue with the following possible sequence: 50, 80, 40, 20, 21, 28, 30, 35, 45, and 56.

T: Let's try saying 1 less for every number I say. When I say 6, you say 5. Ready?

T: 6.

S: 5.

Continue with the following possible sequence: 11, 14, 19, 20, 30, 31, 51, and 50.

T: Now for every number I say, you say a number that is 10 less. When I say 50, you say 40. Ready?

T: 50.

S: 40.

Continue with the following possible sequence: 80, 70, 50, 51, 41, 46, 48, 28, and 18.

Say Ten Counting to the Next Ten (5 minutes)

Note: Practicing this fluency helps students see a connection with counting the Say Ten way and making a ten. It provides a practice adding ones to make a multiple of 10.

T: Let's add to make the next ten the Say Ten way. I say 4 tens 2, you say 4 tens 2 + 8 = 5 tens. Ready?
6 tens 2.

S: 6 tens 2 + 8 = 7 tens.

T: 5 tens 1.

S: 5 tens 1 + 9 = 6 tens.

T: 7 tens 8.

S: 7 tens 8 + 2 = 8 tens.

Continue with the following possible sequence: 8 tens 4, 8 tens 5, 8 tens 9, 9 tens 6, 9 tens 3, and 9 tens 9.

Third Grade

Rename the Tens (2 minutes)

Note: This activity prepares students for rounding in today's lesson.

T: (Write 11 tens = ____.) Say the number.

S: 110.

Continue with the following possible sequence: 11 tens, 19 tens, 20 tens, 28 tens, 30 tens, 40 tens.

Find the Whole (2 minutes)

Materials: (T) Blank number bond

T: (Project number bond with parts $\frac{3}{5}$ and $\frac{2}{5}$.) Say the biggest part.

S: 3 fifths.

T: Say the smallest part.

S: 2 fifths.

T: How many fifths are in the whole?

S: 5 fifths.

T: (Write $\frac{5}{5}$ in the whole space.) Say the number sentence.

S: 3 fifths and 2 fifths equals 5 fifths.

Continue with the following possible sequence: $\frac{7}{10}$ and $\frac{3}{10}$, $\frac{5}{8}$ and $\frac{3}{8}$. Replace 8 eighths with one whole.

How Many Units of 6 (3 minutes)

Note: This fluency activity reviews multiplication and division with units of 6. Direct students to count forward and backward by sixes to 60, occasionally changing the direction of the count.

T: How many units of 6 are in 12?

S: 2 units of 6.

T: Give me the division sentence with the number of sixes as the quotient.

S: 12 ÷ 6 = 2.

Continue the process with 24, 36, and 48.

Fourth Grade

Base Ten Units (2 minutes)

Note: This fluency will bolster students' place value proficiency while reviewing multiplication concepts learned in Lessons 1 and 2.

T: (Project 2 tens =____.) Say the number in standard form.

S: 2 tens = 20.

Repeat for possible sequence: 3 tens, 9 tens, 10 tens, 11 tens, 12 tens, 19 tens, 20 tens, 30 tens, 40 tens, 80 tens, 84 tens, and 65 tens.

Convert Units (4 minutes)

Note: Reviewing these unit conversions that were learned in third grade will help prepare the students to solve problems with metric measurement and to understand metric measurement's relationship to place value.

T: (Write 1 m = ___ cm.) How many centimeters are in a meter?

S: 1 m = 100 cm.

Repeat process for 2 m, 3 m, 8 m, 8 m 50 cm, 7 m 50 cm, and 4 m 25 cm.

T: (Write 100 cm = ___ m.) Say the answer.

S: 100 m = 1 m.

T: (Write 150 cm = ___ m ___ cm.) Say the answer.

S: 150 cm = 1 m 50 cm.

Repeat process for 250 cm, 350 cm, 950 cm, and 725 cm.

Add Fractions (5 minutes)

Note: This fluency activity reviews G4–M6–Lesson 13.

T: (Write 90 + 7 = ___.) Say the addition sentence in unit form.

S: 9 tens + 7 ones = 97 ones.

T: (Write $\frac{9}{10} + \frac{7}{100} = \frac{\quad}{100}$.) Say the addition sentence in unit form.

S: 9 tenths + 7 hundredths = 97 hundredths.

Continue the process with the following possible sequence: 40 + 8 and $\frac{4}{10} + \frac{8}{100}$; 20 + 9 and $\frac{2}{10} + \frac{9}{100}$.

T: (Write 70 + 18 = ___.) Say the addition sentence in unit form.

S: 7 tens + 18 ones = 88 ones.

T: (Write $\frac{7}{10} + \frac{18}{100} = \frac{\quad}{100}$.) Say the addition sentence in unit form.

S: 7 tenths + 18 hundredths = 88 hundredths.

Continue the process with the following possible sequence: 60 + 13 and $\frac{6}{10} + \frac{13}{100}$; 30 + 29 and $\frac{3}{10} + \frac{29}{100}$.

Fifth Grade

State the Unit as a Decimal—Choral Response (4 minutes)

Notes: Reviewing these skills will help students work towards mastery of decimal place value, which will help them apply their place value skills to more difficult concepts.

T: (Write 9 tenths = ____.)
S: 0.9
T: (Write 10 tenths = ____.)
S: 1.0
T: Write 11 tenths = ____.)
S: 1.1
T: (Write 12 tenths = ____.)
S: 1.2
T: (Write 18 tenths = ____.)
S: 1.8
T: (Write 28 tenths = ____.)
S: 2.8
T: (Write 58 tenths = ____.)
S: 5.8

Repeat the process for 9 hundredths, 10 hundredths, 20 hundredths, 60 hundredths, 65 hundredths, 87 hundredths, and 118 tenths. (This last item is an extension.)

Multiply then Divide by the Same Number (6 minutes)

Note: This fluency drill reviews what happens when any number or expression is divided and then multiplied by the same number in preparation for today's lesson.

T: 3×2 is?
S: 6.
T: $3 \times 2 \times 10 \div 10$ is?
S: 6.
T: 5×0.3 is?
S: 1.5
T: $5 \times 0.3 \times 10 \div 10$ is?
S: 1.5.
T: (Continue the sequence with 3×2.5 and 2×3.4.)
T: Why are the products the same when we multiply by 10 and then divide by 10?
S: You are undoing what you did when you multiplied by 10. → We're moving over one place to the left on the place value chart and then back to the right again. → Because, it's just like multiplying by 1.

Fifth Grade Continued

Name the Fraction to Complete the Whole (4 minutes)

T: I'll say a fraction, you say the missing part to make one whole. Ready?
T: 1/2.
S: 1/2.
T: 4/5.
S: 1/5.
T: 1/7.
S: 6/7.
T: 4/9.
S: 5/9.
T: 18/20.
S: 2/20.
T: 147/150.
S: 3/150.
T: Share your strategy for making one whole with a partner.
T: With your partner, take turns giving each other problems to solve. You have one minute.

NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:

When students begin to quiz each other, group them in level-alike pairs.

Below Grade Level Performers: Provide a bar diagram template in personal boards so that students can quickly draw each fraction and see the missing part.

Above Grade Level Performers: Give them 1/2 as a target number. Their partner can give them any fraction less than one. They tell how much to add or subtract to get to one half, e.g. 3/7 → add 1/14, 9/10 → subtract 4/10.