



## Table of Contents

**GRADE 1 • MODULE 1**

## Sums and Differences to 10

<b>Module Overview</b>	i
Topic A: Embedded Numbers and Decompositions	1.A.1
Topic B: Counting On from Embedded Numbers	1.B.1
Topic C: Addition Word Problems	1.C.1
Topic D: Strategies for Counting On	1.D.1
Topic E: The Commutative Property of Addition and the Equal Sign	1.E.1
Topic F: Development of Addition Fluency Within 10	1.F.1
Topic G: Subtraction as an Unknown Addend Problem	1.G.1
Topic H: Subtraction Word Problems	1.H.1
Topic I: Decomposition Strategies for Subtraction	1.I.1
Topic J: Development of Subtraction Fluency Within 10	1.J.1
<b>Module Assessments</b>	1.S.1

## Grade 1 • Module 1

## Sums and Differences to 10

## OVERVIEW

In this first module of Grade 1, students make significant progress towards fluency with addition and subtraction of numbers to 10 (**1.OA.6**) as they are presented with opportunities intended to advance them from counting all to counting on which leads many students then to decomposing and composing addends and total amounts. In Kindergarten, students have achieved fluency with addition and subtraction facts to 5. This means they can decompose 5 into 4 and 1, 3 and 2, and 5 and 0. They can do this without counting all. They perceive the 3 and 2 embedded within the 5.

In Topic A, we continue the work of developing this ability with all the numbers within 10 in *put together* situations (**1.OA.1**), with a special focus on the numbers 6, 7, 8 and 9, since recognizing how much a number needs to make 10 is part of the Kindergarten standards (**K.OA.4**) and easier for most children. Students decompose numbers into 2 sets, or conceptually subitize, in Lessons 1 and 2 and record their decompositions as number bonds.

T: How many dots do you see?

S: 8!

T: What two parts do you see?

S: I see 5 and 3.

T: Did you need to count all the dots?

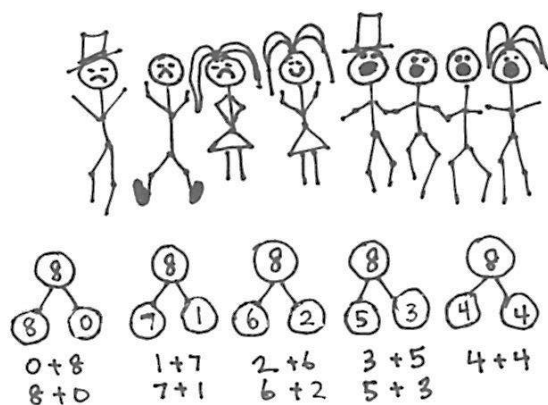
S: No! I could see the top row was a full five so I just said 6, 7, 8.



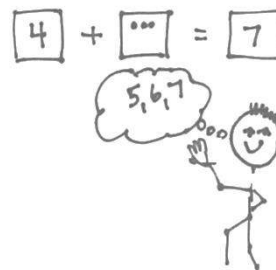
In Lesson 3, students see and describe *1 more* as + 1. They use the structure of the first addend rather than its cardinality just as the student speaking in the above vignette used the five. The number is a unit to which they can add one, or count on by one, without recounting. All three lessons are preparing the students to solve addition problems by counting on rather than counting all (**1.OA.5**).

Topic B continues the process of having the students compose and decompose. They describe *put together* situations (pictured to the right) with number bonds and count on from the first part to totals of 6, 7, 8, 9, and 10 (**1.OA.1**, **1.OA.5**). As they represent all the partners of a number, they reflect and see the decompositions, “Look at all these ways to make 8! I can see connections between them.”

Through dialogue, they engage in seeing both the composition invited by the *put together* situation, and the decomposition invited by the number bonds. Expressions are another way to model both the stories and the bonds, the compositions and the decompositions (**1.OA.1**).



In Topic C, students interpret the meaning of addition from *adding to with result unknown* or *putting together with result unknown* story problems by drawing their own pictures and generating solution equations. Advancing beyond the kindergarten word problem types, students next solve *add to with change unknown* problems such as, “Ben has 5 pencils. He got some more from his mother. Now he has 9 pencils. How many pencils did Ben get from his mother?” These problems set the foundation early in the module for relating addition to subtraction in Topic G (1.OA.4).<sup>1</sup>



In Topic D, students work outside the context of stories for three days, to further their understanding of and skill with counting on using 5-group cards.

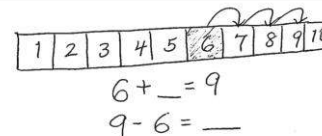
The first addend is represented with a numeral, symbolizing the structure to count on from. The dot side is shown of the number to be added. Students count on from the first addend. They learn to replace counting the dots by tracking the count on their fingers to find the solution (1.OA.5). In Lesson 16, they solve problems such as  $4 + \underline{\quad} = 7$  by tracking the number of counts as they say, “5, 6, 7” (1.OA.8).

In Topic E, in the context of addition to 10, students expand their knowledge of two basic ideas of mathematics: equality and the commutativity of addition (1.OA.3 and 1.OA.7). The equal sign lesson precedes the lessons on commutativity in order to allow students to later construct true number sentences such as  $4 + 3 = 3 + 4$  without misunderstanding the equal sign to mean that the numbers are the same. The students apply their new generalization about the position of the addends to count on from the larger number. For example, “I can count on 2 from 7 when I solve  $2 + 7$ !”

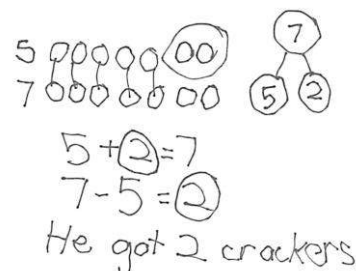
Like Topic E, Topic F leads the students to make more generalizations that support their deepening understanding of addition within 10. They learn to recognize doubles and doubles plus 1. They analyze the addition chart for repeated reasoning and structures (such as 5-groups, plus ones, doubles, sums equal to 10, etc.) that can help them to better understand relationships and connections between different addition facts.

Following the mid-module assessment, Topic G relates addition to subtraction. Since Module 4 in Kindergarten, students are very familiar with subtraction as “take away.” During the fluency portion of the lesson in Topics A through F, students have had opportunities to remember their Kindergarten work with subtraction. Therefore, Topic G can start immediately with the concept of subtraction as a missing addend, just as in Grade 3 students learn division as a missing factor in a multiplication problem.

Having already worked with *add to with change unknown* problems earlier in the module, students return to revisit this familiar problem type, reinterpreting it as subtraction (1.OA.1, 1.OA.4). The topic then uses the strategy of counting with both 5-group cards and the number path to solve subtraction problems (1.OA.5, 1.OA.6).



Ben had 5 crackers. He got some more. Now he has 7. How many crackers did Ben get?”



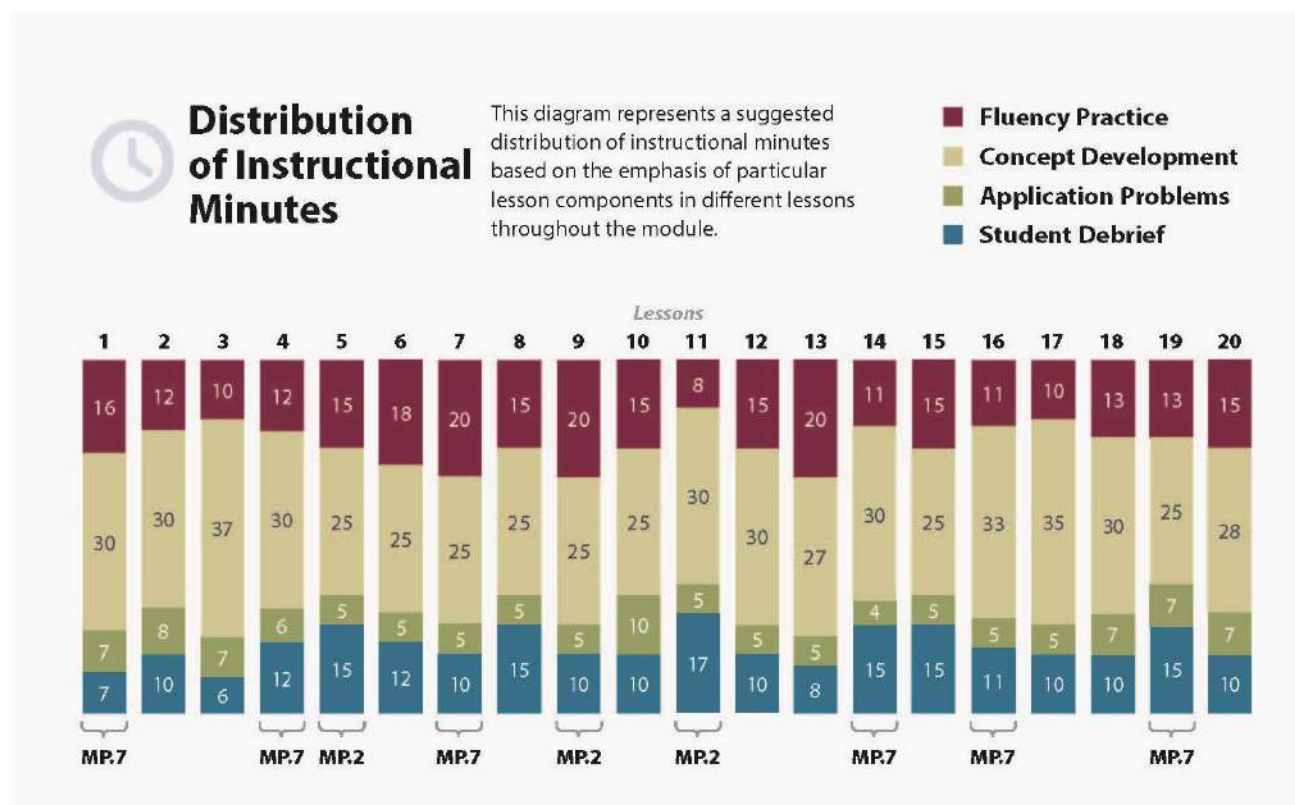
<sup>1</sup> For an analysis of addition and subtraction word problem types used in Grades K–2, please refer to the Counting and Cardinality Progression pages 7 and 9 and the Standards page 88.

Topic H is analogous to Topic C. Students interpret the meaning of subtraction as they solve different problem types involving subtraction (**1.OA.1**). Rather than using formal drawings or tape diagrams, throughout Module 1 students are encouraged to make math drawings that flow from their understanding of the stories. They engage in dialogue to relate their drawings to number sentences and explain the meaning of the subtraction symbol.

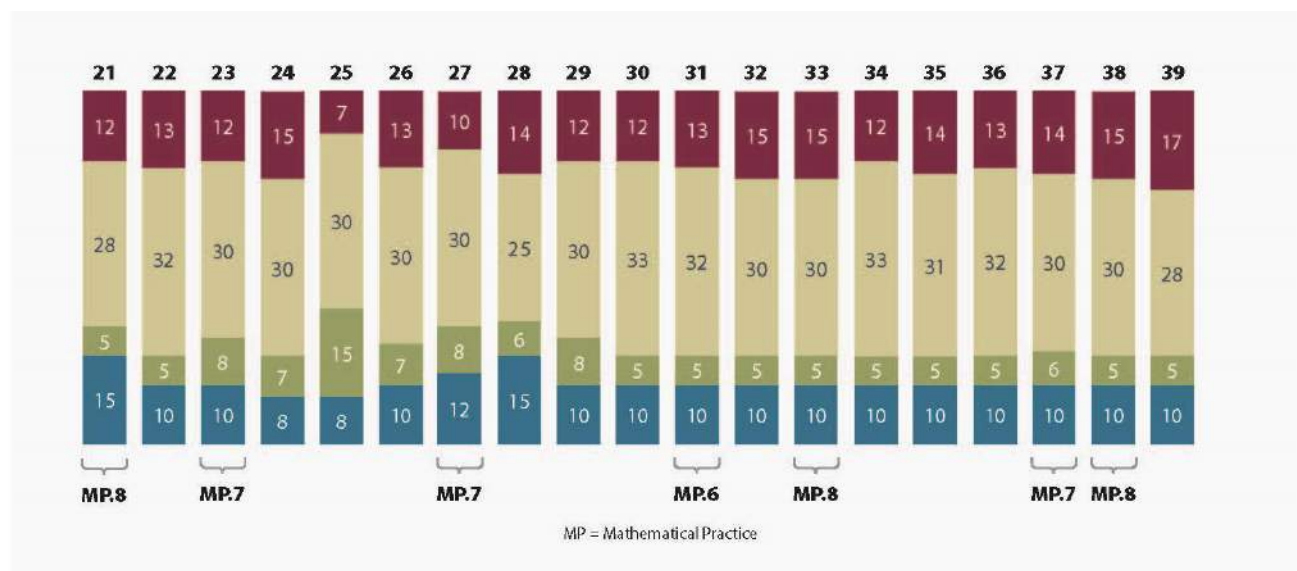
Topic I follows a week of intensive work with story problems to work on a more abstract level by visiting methods for subtraction involving special cases, subtracting 0 and 1, subtracting the whole number, and subtracting one less than the whole number. These two lessons are followed by three lessons in which students use familiar decompositions (5-groups and partners of 10) to conceptualize subtraction as finding a missing part (**1.OA.6**).

Finally, in Topic J, students analyze the addition chart for repeated reasoning and structures that support their journey towards fluency with subtraction within 10. The module closes with a lesson wherein students create sets of related addition and subtraction facts and use dialogue to explain their found connections ( $7 = 4 + 3$ ,  $7 - 4 = 3$ ,  $4 + 3 = 3 + 4$ ,  $4 = 7 - 3$ , etc.) They began the module with very basic counting on, and end the module both with the skill to count on and significant movement towards the goal of fluency, achieved as the second addend does not need to be counted or can be counted very quickly.

Please note that the assessments should be read aloud to the Grade 1 students.







## Focus Grade Level Standards<sup>2</sup>

### Represent and solve problems involving addition and subtraction.<sup>3</sup>

- 1.OA.1** Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart and comparing, with unknowns in all positions, e.g., by using objects, drawings and equations with a symbol for the unknown number to represent the problem. (See Glossary, Table 1.)

### Understand and apply properties of operations and the relationship between addition and subtraction.

- 1.OA.3** Apply properties of operations as strategies to add and subtract. (Students need not use formal terms for these properties.) *Examples: If  $8 + 3 = 11$  is known, then  $3 + 8 = 11$  is also known. (Commutative property of addition.) To add  $2 + 6 + 4$ , the second two numbers can be added to make a ten, so  $2 + 6 + 4 = 2 + 10 = 12$ . (Associative property of addition.)*
- 1.OA.4** Understand subtraction as an unknown-addend problem. *For example, subtract  $10 - 8$  by finding the number that makes 10 when added to 8.*

### Add and subtract within 20.

- 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.,  $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$ );

<sup>2</sup> In this module, work is limited to within 10.

<sup>3</sup> 1.OA.2 is addressed in Module 2.

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  $6 + 6 + 1 = 12 + 1 = 13$ ).

### Work with addition and subtraction equations.

- 1.OA.7** Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. *For example, which of the following equations are true and which are false?  $6 = 6$ ,  $7 = 8 - 1$ ,  $5 + 2 = 2 + 5$ ,  $4 + 1 = 5 + 2$ .*
- 1.OA.8** Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations  $8 + ? = 11$ ,  $5 = \square - 3$ ,  $6 + 6 = \square$ .*

## Foundational Standards

- K.CC.2** Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
- K.CC.4b** Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.
- K.CC.4c** Understand that each successive number name refers to a quantity that is one larger.
- 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.OA.5** Fluently add and subtract within 5.

## Focus Standards for Mathematical Practice

- MP.2 Reason abstractly and quantitatively.** Students make sense of quantities and their relations as they reason about two new problem types in Grade 1: *change unknown* and *addend unknown*. They write an addition sentence that corresponds to the situation and then reason to see that a subtraction number sentence also can be used to solve for the unknown. Furthermore, in Topic D, students decontextualize addition from stories and work on strategies for computing.
- MP.6 Attend to precision.** Students clarify the meaning of the commutative property as they represent the same stories with repositioned addends. Students also state the meaning of the equal sign when they represent one amount with 2 different expressions connected by the equal sign.
- MP.7 Look for and make use of structure.** Students use the structure of embedded numbers or a

known part from which to count on to find a total. After studying the commutative property, the larger addend becomes a structure from which to count on. Also, they analyze the addition chart for repeated reasoning and structures (such as 5-groups, plus ones, doubles, sums equal to 10, etc.) that can help them to better understand relationships and connections between different addition facts.

**MP.8** **Look for and express regularity in repeated reasoning.** Students recognize when they are adding they are counting on by the same amount (e.g., + 2 or + 3 is the same as counting on by 2 or 3). Therefore, they apply the same strategy to solve other problems, recognizing the repetition of the reasoning.

## Overview of Module Topics and Lesson Objectives

Standards	Topics and Objectives	Days
1.OA.6	<b>A Embedded Numbers and Decompositions</b> Lesson 1: Analyze and describe embedded numbers (to 10) using 5-groups and number bonds. Lesson 2: Reason about embedded numbers in varied configurations using number bonds. Lesson 3: See and describe numbers of objects using <i>1 more</i> within 5-group configurations.	3
1.OA.1 1.OA.5 1.OA.6	<b>B Counting On from Embedded Numbers</b> Lesson 4–5: Represent <i>put together</i> situations with number bonds. Count on from one embedded number or part to totals of 6 and 7 and generate all addition expressions for each total. Lesson 6–7: Represent <i>put together</i> situations with number bonds. Count on from one embedded number or part to totals of 8 and 9 and generate all expressions for each total. Lesson 8: Represent all the number pairs of 10 as number bond diagrams from a given scenario and generate all expressions equal to 10.	5
1.OA.1 1.OA.6 1.OA.5	<b>C Addition Word Problems</b> Lesson 9: Solve <i>add to with result unknown</i> and <i>put together with result unknown</i> math stories by drawing, writing equations, and making statements of the solution. Lesson 10: Solve <i>put together with result unknown</i> math stories by drawing and using 5-group cards. Lesson 11: Solve <i>add to with change unknown</i> math stories as a context for counting on by drawing, writing equations, and making statements of the solution.	5



Standards	Topics and Objectives		Days
		<p>Lesson 12: Solve <i>add to with change unknown</i> math stories using 5-group cards.</p> <p>Lesson 13: Tell <i>put together with result unknown</i>, <i>add to with result unknown</i>, and <i>add to with change unknown</i> stories from equations.</p>	
1.OA.5 1.OA.8 1.OA.6	D	<p><b>Strategies for Counting On</b></p> <p>Lesson 14–15: Count on up to 3 more using numeral and 5-group cards and fingers to track the change.</p> <p>Lesson 16: Count on to find the unknown part in missing addend equations such as <math>6 + \underline{\quad} = 9</math>. Answer, “How many more to make 6, 7, 8, 9, and 10?”</p>	3
1.OA.3 1.OA.7	E	<p><b>The Commutative Property of Addition and the Equal Sign</b></p> <p>Lesson 17–18: Understand the meaning of the equal sign by pairing equivalent expressions and constructing true number sentences.</p> <p>Lesson 19: Represent the same story scenario with addends repositioned (the commutative property).</p> <p>Lesson 20: Apply the commutative property to count on from a larger addend.</p>	4
1.OA.3 1.OA.6	F	<p><b>Development of Addition Fluency Within 10</b></p> <p>Lesson 21: Visualize and solve doubles and doubles plus 1 with 5-group cards.</p> <p>Lesson 22: Look for and make use of repeated reasoning on the addition chart by solving and analyzing problems with common addends.</p> <p>Lesson 23: Look for and make use of structure on the addition chart by looking for and coloring problems with the same total.</p> <p>Lesson 24: Practice to build fluency with facts to 10.</p>	4
		Mid-Module Assessment: Topics A–F (assessment 1 day, return 1 day, remediation or further applications 1 day)	3
1.OA.1 1.OA.4 1.OA.5	G	<p><b>Subtraction as an Unknown Addend Problem</b></p> <p>Lesson 25: Solve <i>add to with change unknown</i> math stories with addition and relate to subtraction. Model with materials and write corresponding number sentences.</p> <p>Lesson 26–27: Count on using the number path to find an unknown part.</p>	3



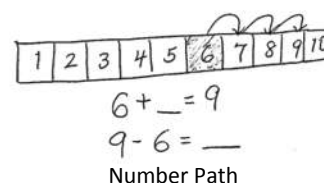
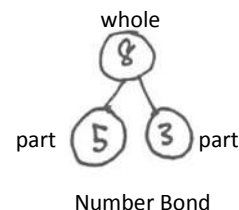
Standards	Topics and Objectives	Days
1.OA.1 1.OA.4 1.OA.5 1.OA.8	<b>H Subtraction Word Problems</b> Lesson 28: Solve <i>take from with result unknown</i> math stories with math drawings, true number sentences and statements, using horizontal marks to cross off what is taken away. Lesson 29: Solve <i>take apart with addend unknown</i> math stories with math drawings, equations and statements, circling the known part to find the unknown. Lesson 30: Solve <i>add to with change unknown</i> math stories with drawings, relating addition and subtraction. Lesson 31: Solve <i>take from with change unknown</i> math stories with drawings. Lesson 32: Solve <i>put together/take apart with addend unknown</i> math stories.	5
1.OA.5 1.OA.6 1.OA.4	<b>I Decomposition Strategies for Subtraction</b> Lesson 33: Model 0 less and 1 less pictorially and as subtraction number sentences. Lesson 34: Model $n - n$ and $n - (n - 1)$ pictorially and as subtraction sentences. Lesson 35: Relate subtraction facts involving fives and doubles to corresponding decompositions. Lesson 36: Relate subtraction from ten to corresponding decompositions. Lesson 37: Relate subtraction from nine to corresponding decompositions.	5
1.OA.6	<b>J Development of Subtraction Fluency Within 10</b> Lesson 38: Look for and make use of repeated reasoning and structure using the addition chart to solve subtraction problems. Lesson 39: Analyze the addition chart to create sets of related addition and subtraction facts.	2
	End-of-Module Assessment: Topics A–J (assessment 1 day, return 1 day, remediation or further applications 1 day)	3
<b>Total Number of Instructional Days</b>		<b>45</b>



## Terminology

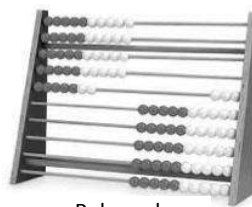
### New or Recently Introduced Terms

- Count on (Students count up from one addend to the total.)
- Track (Students use different objects to track the count on from one addend to the total.)
- Expression (e.g.,  $2 + 1$  or  $5 + 5$ .)
- Addend (One of the numbers being added.)
- Doubles (e.g.,  $3 + 3$  or  $4 + 4$ .)
- Doubles plus 1 (e.g.,  $3 + 4$  or  $4 + 5$ .)

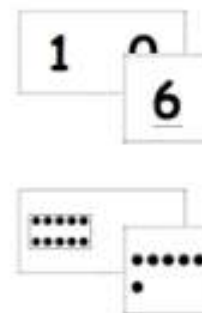


### Familiar Terms and Symbols<sup>4</sup>

- Part (e.g., “What is the unknown part?  $3 + \underline{\quad} = 8$ ”)
- Total and whole (“What is the total when we add 3 and 5?” Use interchangeably instead of sum.)
- Label (Students label math drawings using letters or words to indicate the referents from the story’s context.)
- Addition, equal, and subtraction signs
- Equation and number sentence (Use interchangeably throughout the module.)
- Number Bond, a graphic showing part/part/whole
- Equal sign (=)
- 5-groups (as pictured in the dot cards to the right), 2 rows of 5



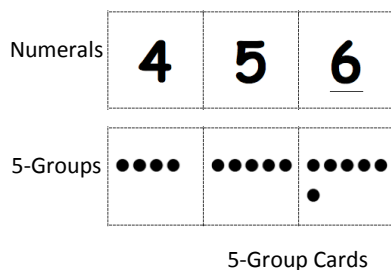
Rekenrek



Hide Zero Cards

## Suggested Tools and Representations

- Number Bonds
- Addition Chart
- Rekenrek
- Counters
- Number Path
- 5-Group Cards
- Hide Zero Cards



1+0	1+1	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+9
2+0	2+1	2+2	2+3	2+4	2+5	2+6	2+7	2+8	
3+0	3+1	3+2	3+3	3+4	3+5	3+6	3+7		
4+0	4+1	4+2	4+3	4+4	4+5	4+6			
5+0	5+1	5+2	5+3	5+4	5+5				
6+0	6+1	6+2	6+3	6+4					
7+0	7+1	7+2	7+3						
8+0	8+1	8+2							
9+0	9+1								
10+0									

Addition Chart

<sup>4</sup> These are terms and symbols students have used or 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.)

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<sup>5</sup>

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*.”

<sup>5</sup> Students with disabilities may require Braille, large print, audio, or special digital files. Please visit the website, [www.p12.nysed.gov/specialed/aim](http://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.

## Assessment Summary

Type	Administered	Format	Standards Addressed
Mid-Module Assessment Task	After Topic F	Constructed response with rubric	1.OA.1 1.OA.3 1.OA.5 1.OA.6 1.OA.7 1.OA.8
End-of-Module Assessment Task	After Topic J	Constructed response with rubric	1.OA.1 1.OA.3 1.OA.4 1.OA.5 1.OA.6 1.OA.7 1.OA.8





## Topic A

# Embedded Numbers and Decompositions

## 1.OA.6

<b>Focus Standard:</b>	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 $6 + 6 + 1 = 12 + 1 = 13$ ).
<b>Instructional Days:</b>	3	
<b>Coherence</b>	<b>-Links from:</b> GK–M4	Number Pairs, Addition and Subtraction to 10
	<b>-Links to:</b> G2–M4	Addition and Subtraction Within 200 with Word Problems to 100

In this first module of Grade 1, students make significant progress towards fluency with addition and subtraction of numbers to 10 (**1.OA.6**). They are presented with opportunities intended to advance them from *counting all* to *counting on*, which leads to decomposing and composing addends and total amounts. In Kindergarten, students have achieved fluency with addition and subtraction facts to 5. This means they can decompose 5 into 4 and 1, 3 and 2, and 5 and 0. They can do this without *counting all*. They perceive the 3 and 2 embedded within the 5.

In Grade 1's Topic A, we continue the work of developing this ability with all the numbers within 10 in *put together* situations, with a special focus on the numbers 6, 7, 8, and 9 in 5-group configurations, since recognizing how much a number needs to make 10 is part of the Kindergarten standards (**K.OA.4**) and easier for most children. Students decompose numbers into 2 visual sets, or conceptually subitize, and record their decompositions as number bonds. In Lesson 1, we use the 5-group configuration, as this organization allows students to quickly “see,” or perceptually subitize, the subset of 5. Once they have identified that first subset of 5, they can perceptually subitize the other part:

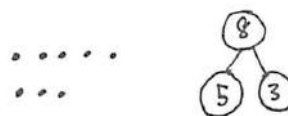
T: How many dots do you see?

S: 8!

T: What two parts do you see?

S: I see 5 and 3.

T: Did you need to count all the dots?



S: No! I could see the top row was a full 5 so I just saw the other part, which was 3.

Then the teacher guides students to *count on* from the 5 to determine the total. This process of conceptual subitizing, or breaking apart the total into two easily identifiable subsets, continues into Lesson 2, as students are presented with dots in varied configurations. As students discuss the different parts they each see within the total, and the different ways they're able to break the total apart, they begin to understand that a given quantity can be decomposed in a variety of ways. In Lesson 3, students see and describe *1 more* as  $+ 1$ , they use the structure of the first addend rather than its cardinality: the number is a unit to which they can add one, or *count on* by one, without recounting. Students now stand on this first embedded number, which lays the foundation for the Level 2 strategy of *counting on*. Students engage in math discussions throughout the lessons as they share their ways of seeing the embedded numbers and thinking of *1 more* and *1 less* (**1.OA.5**).

### A Teaching Sequence Towards Mastery of Embedded Numbers and Decompositions

**Objective 1:** Analyze and describe embedded numbers (to 10) using 5-groups and number bonds.  
(Lesson 1)

**Objective 2:** Reason about embedded numbers in varied configurations using number bonds.  
(Lesson 2)

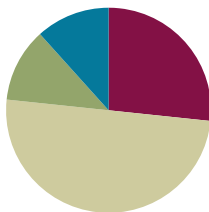
**Objective 3:** See and describe numbers of objects using *1 more* within 5-groups configurations.  
(Lesson 3)

## Lesson 1

**Objective:** Analyze and describe embedded numbers (to 10) using 5-groups and number bonds.

### Suggested Lesson Structure

■ Fluency Practice	(16 minutes)
■ Application Problem	(7 minutes)
■ Concept Development	(30 minutes)
■ Student Debrief	(7 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (16 minutes)

- Math Fingers Flash **K.CC.2, K.CC.4** (3 minutes)
- Sprint: Count Dots **K.CC.2, K.CC.5** (13 minutes)

### Math Fingers Flash (3 minutes)

Note: Visually recognizing (perceptually subitizing) sets of objects, particularly fingers, allows students to move toward seeing two sets of objects together (conceptually subitizing), thus preparing them for the fluency objective of Grade 1.



Teacher flashes fingers the Math Way for numbers 0–10 (see pictures above: teacher's raised fingers should begin with the right pinky and end with the left pinky so students see fingers from left to right).

T: I'm going to hold up some fingers the Math Way and then hide them. Look carefully and say the number you saw when I snap.

T: (Flash 3 fingers for 2–3 seconds and then hides them). Ready, (snap).

S: 3!



Repeat process for numbers within 5.

T: (Flash 7 fingers.) Ready, (snap).



S: 7!

T: (Hold up the five fingers on right hand.) How many fingers are on this hand?

S: 5.

T: Five (hold up the five hand then hold up the other fingers, one at a time) six, seven.

Repeat the process for numbers 6–10, inviting students to count on from 5 with you.

### Sprint: Count Dots (13 minutes)

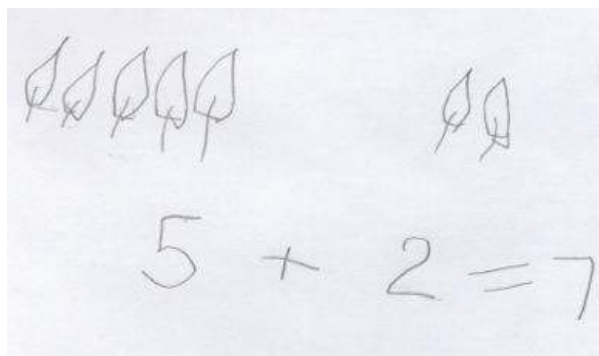
Materials: (S) 5-Group Dots Sprint

Note: Visually recognizing two sets of objects together (conceptually subitizing) provides students with a foundation for counting on as they solve addition problems. See the “Suggested Methods of Instructional Delivery” section in **G1-M1-Module Overview** for background on giving Sprints.

### Application Problem (7 minutes)

Dora found 5 leaves that blew in through the window. Then she found 2 more leaves that blew in. Draw a picture and use numbers to show how many leaves Dora found in all.

Note: Rather than specify to write a number sentence or number bond, since it is the first day of school, this application problem is more open-ended so that students can demonstrate their thinking and representational skills. This problem serves as a lead-up to the concept development of seeing the quantity of 5, and another number.



### Concept Development (30 minutes)

Materials: (T) 1 egg carton cut to 10 slots (S) 1 egg carton cut to 10 slots for each student, bag with 9 beads (or other fun classroom objects), personal white board with number bond template

T: Pull out your egg carton. Count to find out how many slots there are. Wait for the signal to tell me.

S: (Pause. When all are ready, give the signal.) 10!

T: Someone already cut 2 off.

T: How many slots are in the top row?



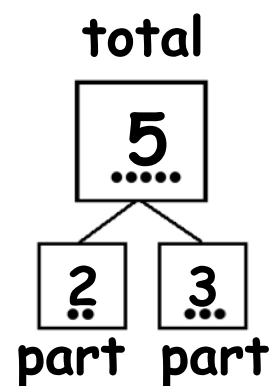
- S: 5!
- T: How many slots are in the bottom row?
- S: 5!
- T: Take out the objects in your bag. First count 5 into the top row from left to right. (Pause.) How many beads do you have in your top row?
- S: 5!
- T: Now we are going to be number detectives. Let's see what numbers are *hiding* inside of 5!
- T: I see 2 hiding inside. Look. (Show the 2 objects you found.) What other numbers do you see hiding inside 5? Talk to your partner.
- T: (Circulate and listen. Encourage those who are touching and counting rather than seeing the embedded numbers within 5 to recognize quantities of at least 2 or 3.)
- T: (Write the 5 in the total box of a number bond.) That's our total, or whole. Do you remember these *number bonds* from Kindergarten?
- S: Yes!
- T: You said there was a 2 hiding inside of 5. That's a part. (Write the 2 in the number bond.)
- T: Let's cover those 2 beads. What is the other part?
- S: 3!
- T: Let's write that in the other part of the number bond. (Write 3.)
- T: What 2 parts did we find make 5, detectives?
- S: 2 and 3!
- T: Let's see if we can find different numbers inside of 5. (Write 5 in the total box inside a new number bond.)
- T: (Continue to find the other numbers inside of 5 and generate the corresponding number bonds using the same process.)
- T: Let's take out 2 more beads and put them in the bottom row of the egg carton.
- T: How many beads are there now?
- S: 7.
- T: Turn and talk to your partner about what numbers you see inside 7.
- S: (Students share their observations as you circulate.)



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

Discourage the touch and count behavior which many students mistake for being good at school. Grade 1 students can subitize twos and threes without counting. They should be encouraged to recognize this since seeing embedded numbers (or subitizing) is the beginning of counting on.

### Number Bond



### NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Have students write the two parts on their number bond template. You might have them draw the beads at first to give further support for counting on and then later in the lesson represent the five groups numerically.



T: I heard a student say that they saw 5 beads. Are there 5 beads?

S: Yes!

T: Let's draw 5 dots as a part in our number bond instead of the number 5.

T: Where did you see the 5?

S: In the top row.

T: Let's cover the 5. What is the other part to make 7?

S: 2!

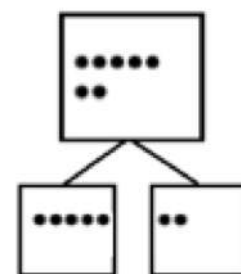
**MP.7**

T: Let's draw in 2 dots as the other part in the number bond.

T: Let's count on from 5 to find our total. Count with me. Let's start with 5. (Point to the fifth dot.)

T/S: Fiiiiive, 6, 7. (Point to each of the dots as you count them. Draw in 7 dots in the total box the 5-group way.)

T: Let's now represent this number bond with numbers instead of dots. (Lead the students to make the number bond numerically on their personal white boards.)



Number bond with parts drawn the 5-groups way.

Continue to find five and its partner within 6, 7, 8, and 9. Other combinations will be explored in Lesson 2. Release the students to work independently as you determine is best.

### 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.

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 careful 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. Assign incomplete problems for homework or at another time during the day.

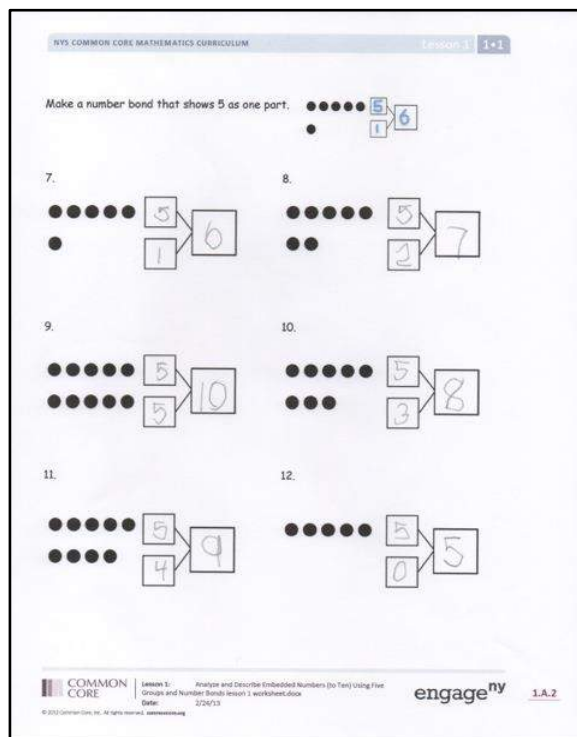
## Student Debrief (7 minutes)

**Lesson Objective:** Analyze and describe embedded numbers (to 10) using 5-groups and number bonds.

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. Have them work in pairs to check over their work and discuss how they saw the 5 and the other part to make their number bonds and find the totals. Then go over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

- Are there 5 butterflies? Strawberries? (We want students to see that there are 5 soccer balls, etc., embedded within the larger numbers. There are 6 butterflies in all. Have them identify the other part once they have seen the five within the number.)
- Look at the soccer balls and the pencils. What is the same about them? What is different about them? (Guide students to see that both 8 and 9 have 5 embedded in them. If they notice the other embedded numbers such as 1 to 8, that is great!)
- Can you show me five fingers? Show me five with two hands (i.e., 4 and 1, or 3 and 2). Now show me five with one hand.
- Can you show me 6 the Math Way with your fingers? (5 fingers on the left hand and thumb on the right hand.) Can you show me the 5 inside 6? Continue with 7, 8, 9, and 10.
- (Show examples of student work from the application problem.) What were the 2 parts in our story problem? What does that have in common with today's lesson?

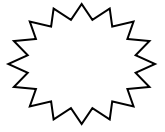


## Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

A

Number correct:



Name \_\_\_\_\_

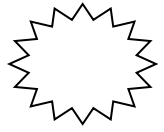
Date \_\_\_\_\_

\*Write the number of dots. Find 1 or 2 groups that make finding the total number of dots easier!

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

B

Number correct:



Name \_\_\_\_\_

Date \_\_\_\_\_

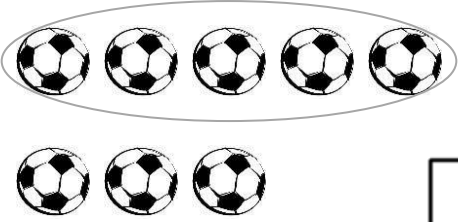
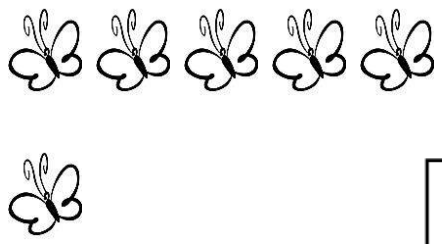
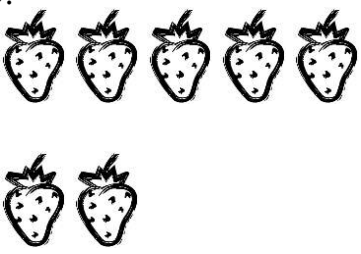
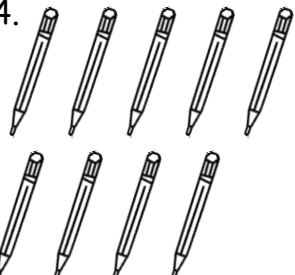
\*Write the number of dots. Find 1 or 2 groups that make finding the total number of dots easier!

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

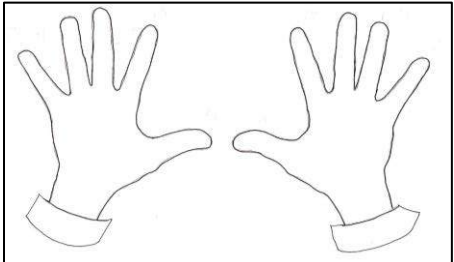
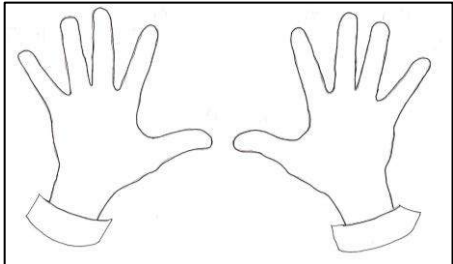
Name \_\_\_\_\_

Date \_\_\_\_\_

Circle 5 and make a number bond.

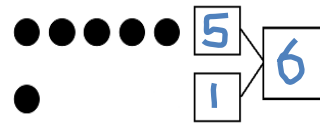
<p>1.</p>  <div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 1px solid black; width: 60px; height: 60px; margin-right: 10px;"></div> <div style="display: flex; flex-direction: column; align-items: center;"> <div style="border: 1px solid black; width: 40px; height: 40px; margin-bottom: 5px;"></div> <div style="display: flex; justify-content: space-between; width: 40px;"> <div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; line-height: 20px;">5</div> <div style="border: 1px solid black; width: 20px; height: 20px;"></div> </div> </div> </div>	<p>2.</p>  <div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 1px solid black; width: 60px; height: 60px; margin-right: 10px;"></div> <div style="display: flex; flex-direction: column; align-items: center;"> <div style="border: 1px solid black; width: 40px; height: 40px; margin-bottom: 5px;"></div> <div style="display: flex; justify-content: space-between; width: 40px;"> <div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; line-height: 20px;">5</div> <div style="border: 1px solid black; width: 20px; height: 20px;"></div> </div> </div> </div>
<p>3.</p>  <div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 1px solid black; width: 60px; height: 60px; margin-right: 10px;"></div> <div style="display: flex; flex-direction: column; align-items: center;"> <div style="border: 1px solid black; width: 40px; height: 40px; margin-bottom: 5px;"></div> <div style="display: flex; justify-content: space-between; width: 40px;"> <div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; line-height: 20px;">5</div> <div style="border: 1px solid black; width: 20px; height: 20px;"></div> </div> </div> </div>	<p>4.</p>  <div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 1px solid black; width: 60px; height: 60px; margin-right: 10px;"></div> <div style="display: flex; flex-direction: column; align-items: center;"> <div style="border: 1px solid black; width: 40px; height: 40px; margin-bottom: 5px;"></div> <div style="display: flex; justify-content: space-between; width: 40px;"> <div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; line-height: 20px;">5</div> <div style="border: 1px solid black; width: 20px; height: 20px;"></div> </div> </div> </div>

Put nail polish on the number of fingernails shown from left to right. Then fill in the parts. Make the number of fingernails on one hand a part.

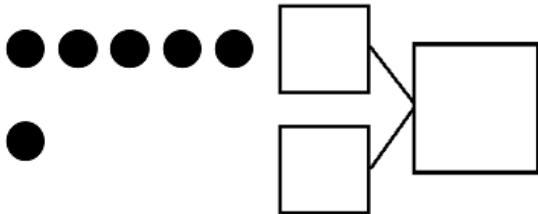
<p>5.</p> <div style="text-align: center; margin-bottom: 20px;"> <div style="border: 2px solid black; width: 80px; height: 80px; line-height: 80px; margin: 0 auto;">8</div> <div style="display: flex; justify-content: space-around; width: 100px; margin-top: 10px;"> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> </div> </div> <div style="text-align: center;">  </div>	<p>6.</p> <div style="text-align: center; margin-bottom: 20px;"> <div style="border: 2px solid black; width: 80px; height: 80px; line-height: 80px; margin: 0 auto;">6</div> <div style="display: flex; justify-content: space-around; width: 100px; margin-top: 10px;"> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> </div> </div> <div style="text-align: center;">  </div>
---	--



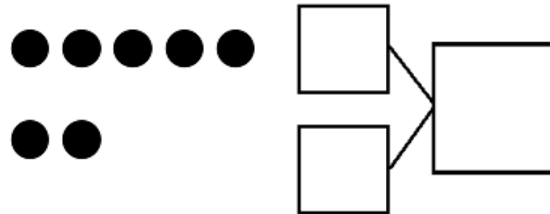
Make a number bond that shows 5 as one part.



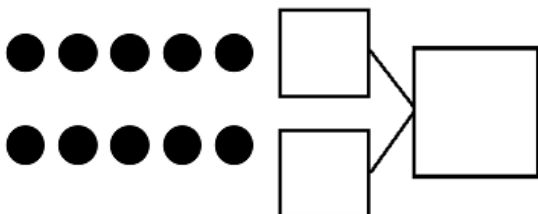
7.



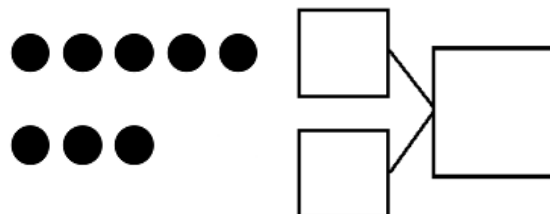
8.



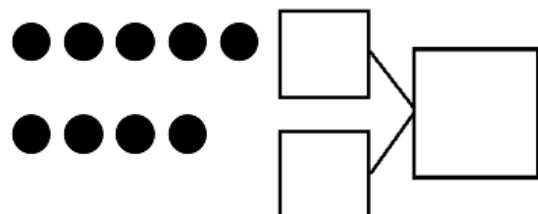
9.



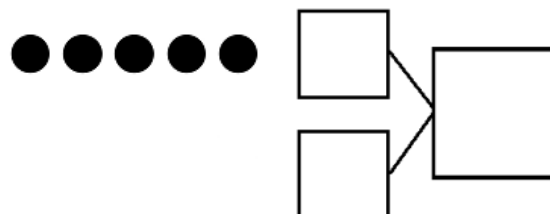
10.



11.



12.

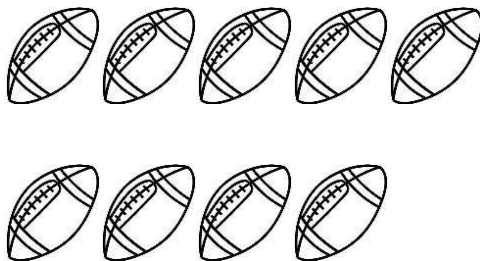
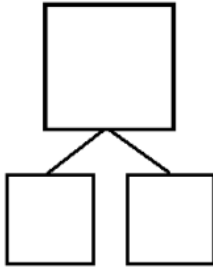


Name \_\_\_\_\_

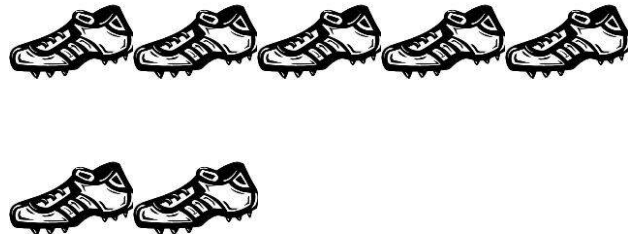
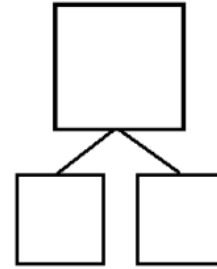
Date \_\_\_\_\_

Make a number bond for the pictures that shows 5 as one part.

1.



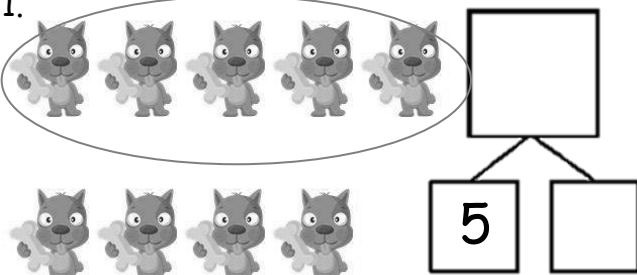
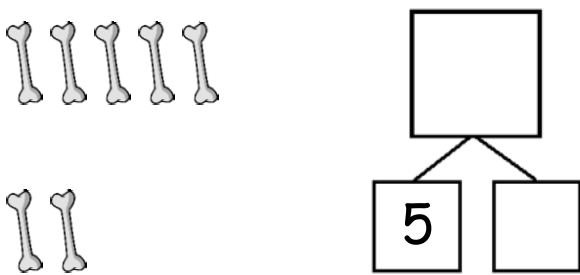
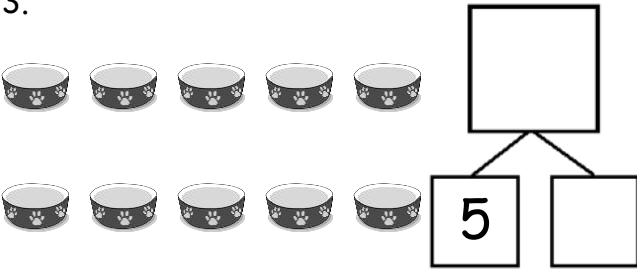
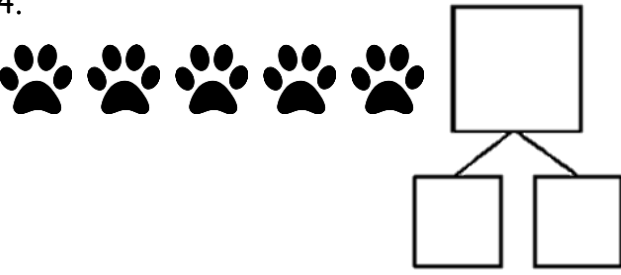
2.



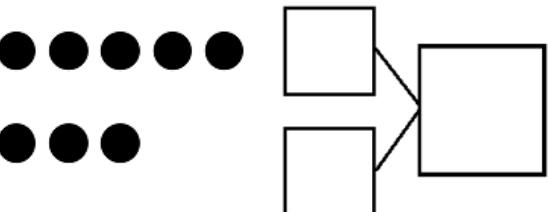
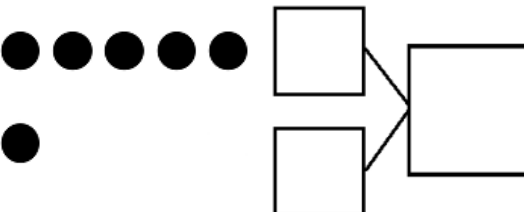
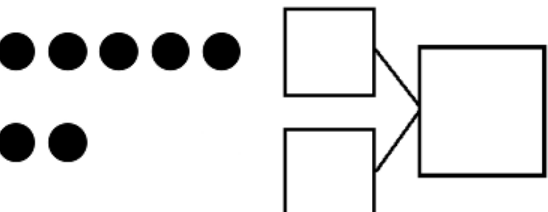
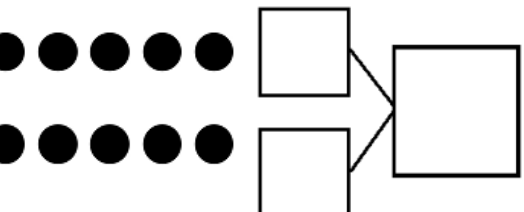
Name \_\_\_\_\_

Date \_\_\_\_\_

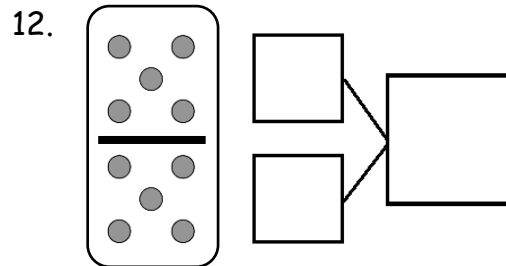
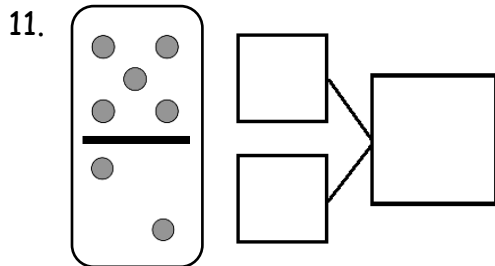
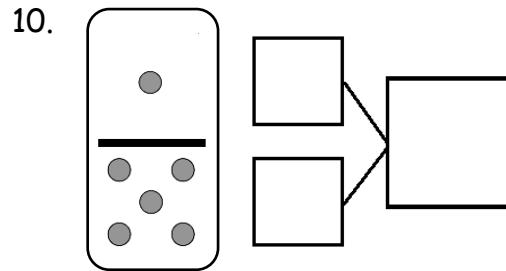
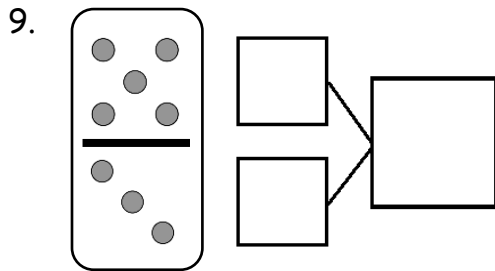
Circle 5 and make a number bond.

<p>1.</p> 	<p>2.</p> 
<p>3.</p> 	<p>4.</p> 

Make a number bond that shows 5 as one part.

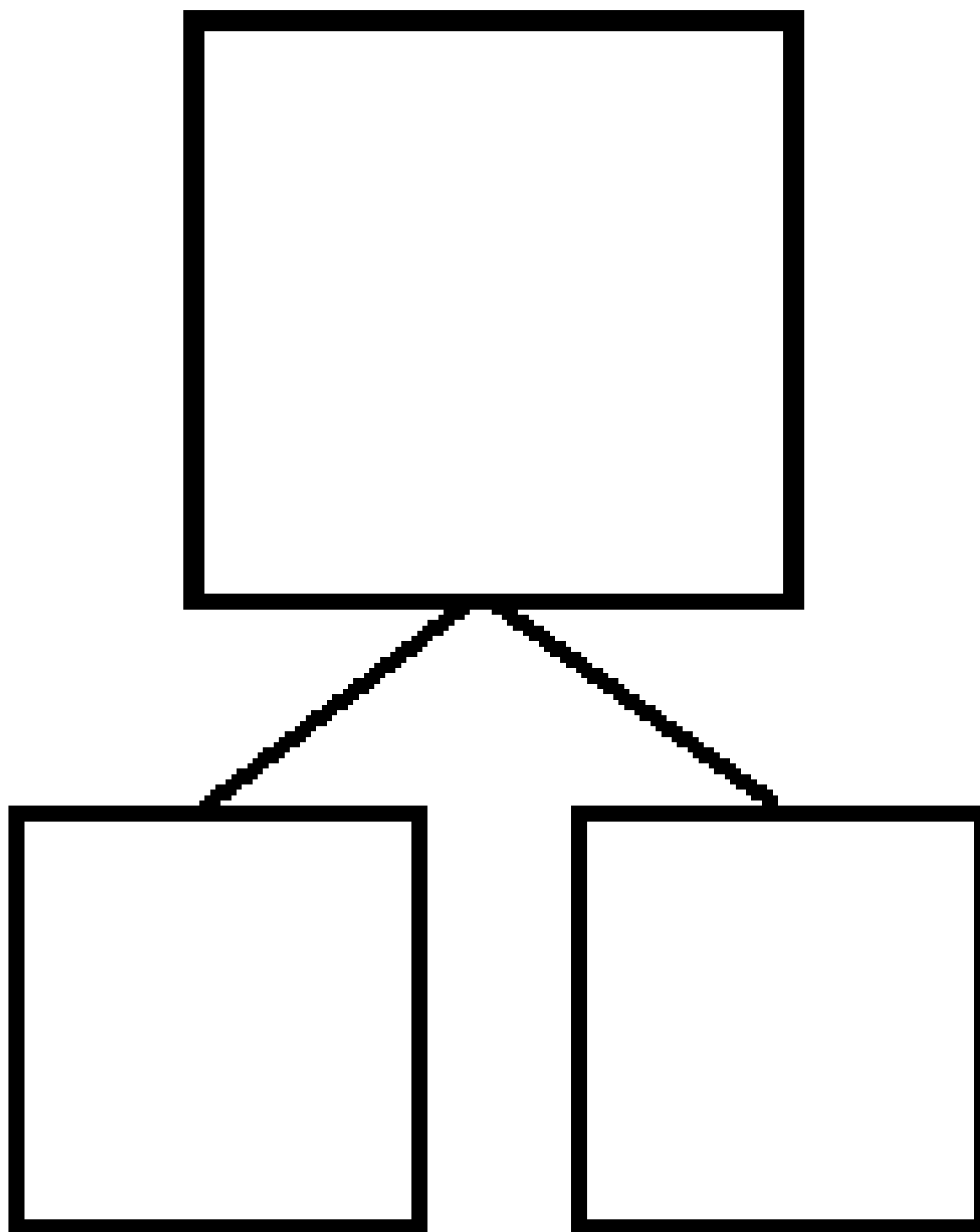
<p>5.</p> 	<p>6.</p> 
<p>7.</p> 	<p>8.</p> 

Make a number bond for the dominoes.



Circle 5 and count. Then make a number bond.

<p>13.</p>	<p>14.</p>
<p>15.</p>	<p>16.</p>

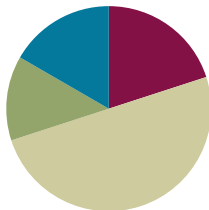


## Lesson 2

**Objective:** Reason about embedded numbers in varied configurations using number bonds.

### Suggested Lesson Structure

■ Fluency Practice	(12 minutes)
■ Application Problem	(8 minutes)
■ Concept Development	(30 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (12 minutes)

- Finger Counting from Left to Right **K.CC.2, K.OA.5** (2 minutes)
- Show Me Your Math Fingers: Partners to 5 and 5 More **K.CC.2, K.OA.3** (5 minutes)
- Number Bond Dash: 5 **1.OA.6** (5 minutes)

### Finger Counting from Left to Right (2 minutes)

Note: Counting from left to right with their fingers allows students an organized way to use their most readily-available tool: their fingers! This type of counting also mimics the number path, used in later lessons.

Instruct students to count with their “piano fingers.” Count by ones within 10 on the fingers from left to right, from pinky on the left hand as 1 to pinky on the right hand as 10.

Hover the fingers as if playing the piano. Drop the finger as it is counted and leave it down. Start and end at different numbers. (For example, in counting from 5 to 7, the five fingers of the left hand have played, and the student says, “6, 7” while playing the thumb and pointer finger of the right hand.)

### Show Me Your Math Fingers: Partners to 5 and 5 More (5 minutes)

Note: This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

Teacher calls out numbers within 5 and students hold up their fingers the Math Way. Each time students hold up their fingers, ask how many more fingers are needed to make 5. As students say the partner to 5, affirm their answers aloud, “Yes. 3 and 2 make 5.”

Move on to numbers 6–10. For each number, use the example below to reinforce the embedded 5 within each number.

- T: Show me 6 the Math Way.  
 S: (Students hold up all fingers on their left hand and their right thumb).  
 T: Now hold your 5 up high. How many fingers are on your other hand?  
 S: 1!  
 T: Yes. 5 and 1 make 6.

## Number Bond Dash: 5 (5 minutes)

Materials: (T) Stopwatch or timer (S) Number Bond Dash: 5 (save a master for use in later lessons), marker to correct work

Note: The Number Bond Dash is a new routine that will be used throughout Module 1. By using the same system, students focus on the mathematics, rather than figuring out the routine.

Distribute Dash, face down, to students. Instruct students to flip over their papers when you say, “Go!” and complete as many number bonds as they can in 90 seconds. Assure them that it is okay if they run out of time before they finish. Tell them if anyone finishes before time, they can practice counting to 20 on the back of their papers, starting with the number 5. Change counting sequence to meet the needs of your students in later lessons.

- T: (Set the timer for 90 seconds.) On your marks, get set, GO! (Press start.)  
 T: (When the timer goes off, tell students to put down their pencils and grab a marker to correct their work.)  
 T: When you get an answer correct, put a checkmark on the problem number. If you make a mix-up, fix it up with your marker.  
 T: (Read the number bonds aloud, starting with Problem 1. When the answers to all problems have been provided, tell students to write the number they got correct in the star-like shape on top. Encourage them to remember their scores because they are going to try to do even better tomorrow.)

Tell students to remember how many problems they get correct so they can try to improve their scores tomorrow.



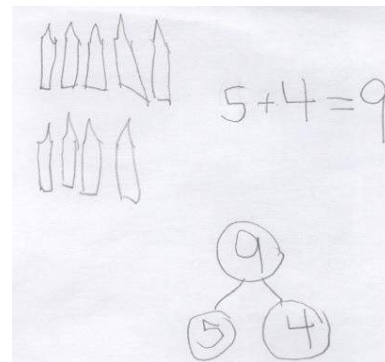
### Application Problem (8 minutes)

T: (Read the story aloud to the students.)

Bella spilled some pencils on the carpet. Geno came over to help her pick them up. Geno found 5 pencils under the desk and Bella found 4 by the door. How many pencils did they find together? Draw a math picture and write a number bond and a number sentence, or equation, that tells about the story.

(Bonus: Have early finishers draw the 9 pencils in a different arrangement to show two parts.)

Note: Use the terms number sentence and equation interchangeably. This application problem is designed as a bridge from the previous lesson, which focused on seeing and counting on from 5. Students again work with 5 and another number to encourage this counting on.



### Concept Development (30 minutes)

Materials: (T) Dot cards of 6–9 (S) Dot cards of 6–9, personal white boards

T: (Point to the 7 apples.) How many apples are there?

S: (Pause. When all are ready, give the signal.) 7!

T: Talk to your partner about the different groups of apples you see hiding inside of 7. (Circulate and listen to student discussion.) What two different groups or number partners do you see?

S: (Answers may vary.) I saw 4 and 3.

T: (Group 4 and 3 apples by drawing a circle around them.)

T: **Count on** to find the total. Start with 4. (Point to each apple in the 3 group.)

T/S: Foooouuur, 5, 6, 7. What is the total?

S: 7.

T: What are the parts?

S: 4 and 3.

T: Let's make a number bond to match this picture. (Draw the bond. Ask students to name the parts and the whole.)

T: What other number partners do you see? (Elicit other ways that students see two embedded numbers within 7 and make corresponding number bonds.)

Configuration of 7 to show or draw:



#### NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Provide challenging extensions for some students. While holding a dot card, cover some of the dots. Tell them the whole and see if the student can figure out the two parts without seeing what you are hiding.

- T: (Continue modeling, decomposing 6, 8, or 9 and filling in the two-part number bond by counting on to find the total.)
- T: Let's play Parts and Bonds.
- T: Show a dot card inside your personal board to your partner. He circles 2 parts. You write a number bond to match his parts. Switch roles using the same dot card (change cards after 2 turns).

As students work, circulate and encourage active counting on.

### 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 solve these problems using the RDW approach used for Application Problems.

Note: Once students have circled the parts, encourage them to count on from one quantity to determine the total (at this point it doesn't matter if it's the larger or smaller quantity). If a student is reluctant, hide one part with a paper or your hand. Ask, "How many are under my hand?" Let the student recount if necessary and hide the part again. Then have them count on from the hidden part once they are confident.

### Student Debrief (10 minutes)

**Lesson Objective:** Reason about embedded numbers in varied configurations using number bonds.

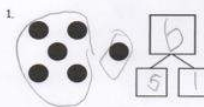
The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

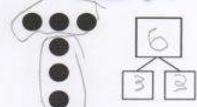
Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner, discussing how they found embedded numbers and counted on to determine the total, before going over answers as a class. Look for misconceptions or


NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 2 1•1

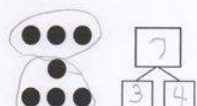
Name: Maria Date: \_\_\_\_\_


Circle 2 parts you see. Make a number bond to match.

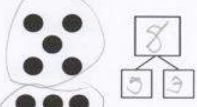
1. 

2. 

3. 

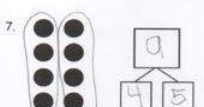
4. 


5. 

6. 


COMMON CORE Lesson 2: Reason About Embedded Numbers in Varied Configurations Using Number Bonds  
Date: 3/24/13 engage<sup>ny</sup> 1.A.1

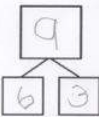
NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 2 1•1

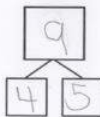
7. 

8. 

9. How many pieces of fruit do you see? Write at least 2 different number bonds to show different ways to break apart the total.







COMMON CORE Lesson 2: Reason About Embedded Numbers in Varied Configurations Using Number Bonds  
Date: 3/24/13 engage<sup>ny</sup> 1.A.2

misunderstandings that can be addressed in the Debrief.

Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

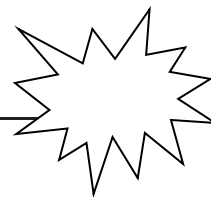
- Talk to your partner about how you found the total in Problem 6. Did you count all of the dots or did you **count on** from a part you saw?
- Pick one question where you and your partner came up with a different way to make the total. How is the total the same when you came up with different parts?
- Is there always more than one way to make the total?
- Look at Problem 9. How were your solutions different or similar to your partner's solutions?
- (Show examples of student work from the application problem.) What were the two parts in our story problem? What does that have in common with today's lesson? Can you see another way to arrange these pencils?
- Turn to your partner and share what you learned in today's lesson. What did you get better at doing today?

### Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

Name \_\_\_\_\_

Date \_\_\_\_\_



### Number Bond Dash!

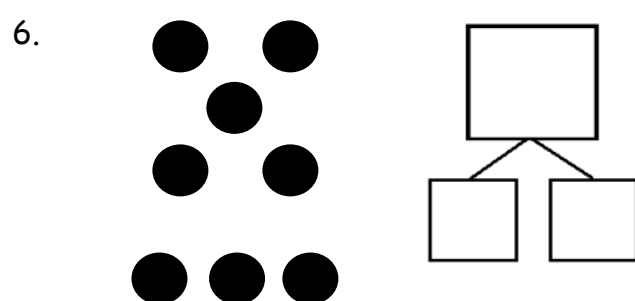
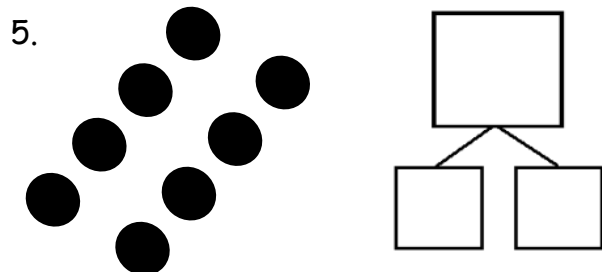
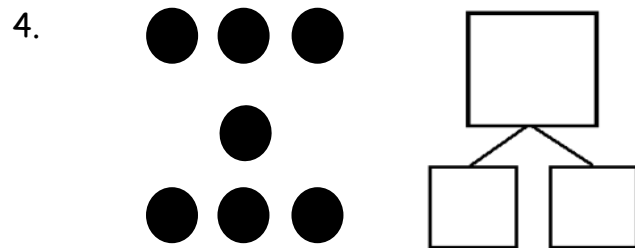
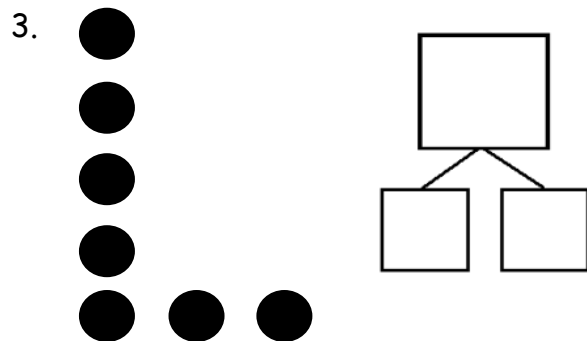
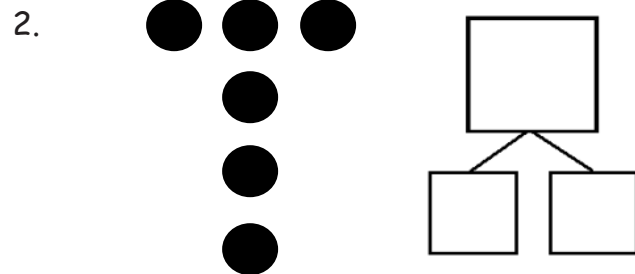
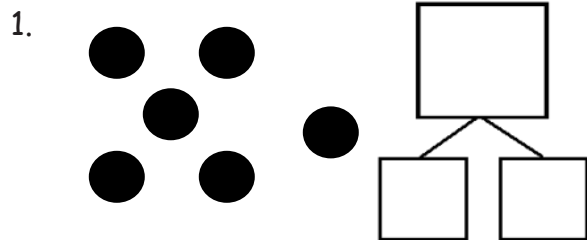
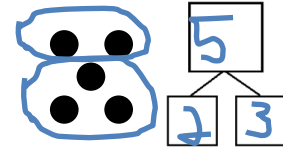
Directions: Do as many as you can in 60 seconds. Write the amount you finished here:

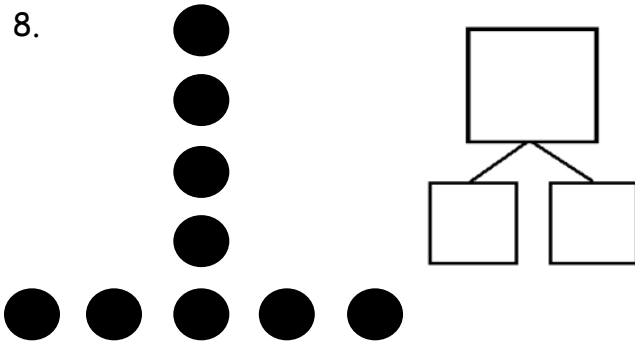
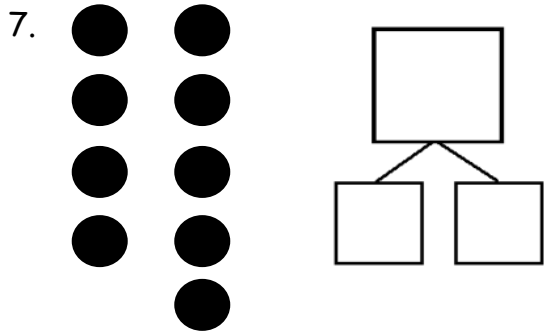
1.	2.	3.	4.	5.
6.	7.	8.	9.	10.
11.	12.	13.	14.	15.
16.	17.	18.	19.	20.
21.	22.	23.	24.	25.

Name \_\_\_\_\_

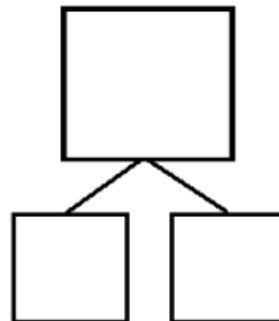
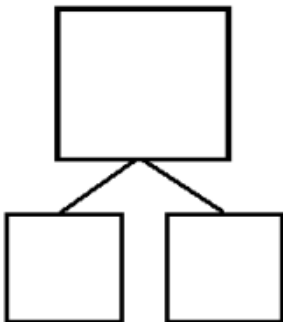
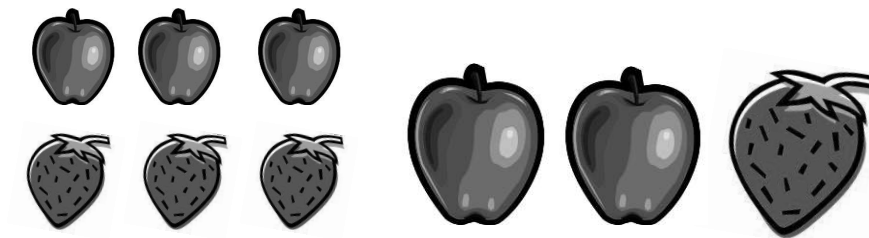
Date \_\_\_\_\_

Circle 2 parts you see. Make a number bond to match.





9. How many pieces of fruit do you see? Write at least 2 different number bonds to show different ways to break apart the total.

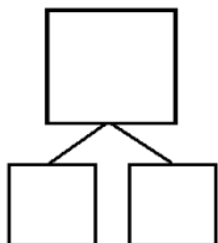
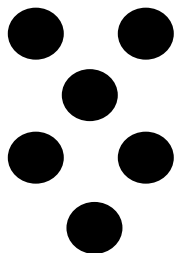


Name \_\_\_\_\_

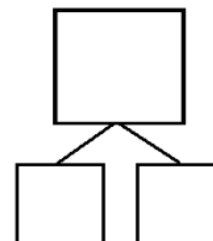
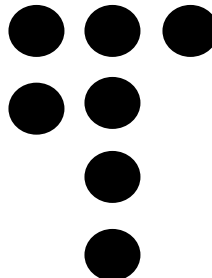
Date \_\_\_\_\_

Circle 2 parts you see. Make a number bond to match.

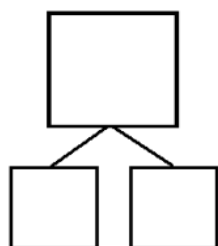
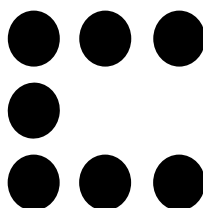
1.



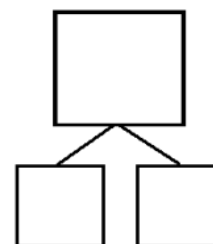
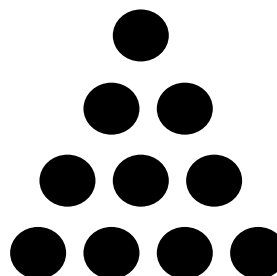
2.



3.



4.

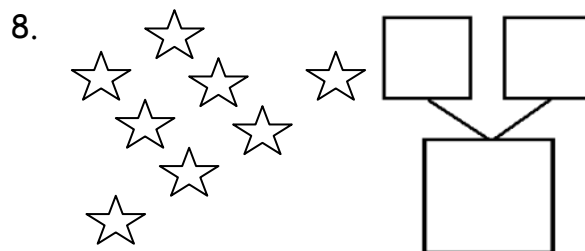
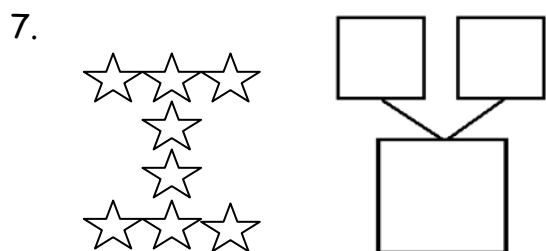
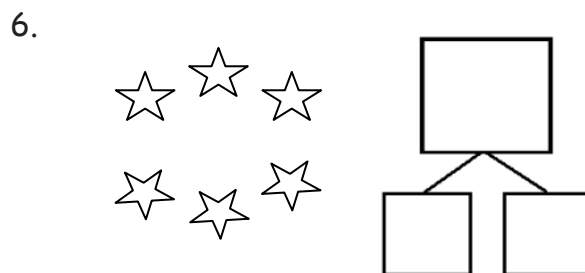
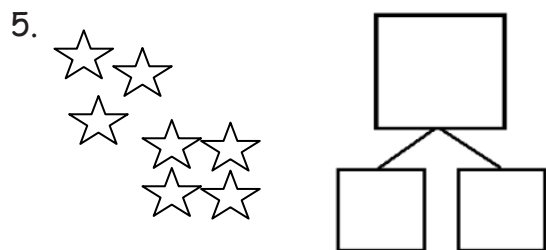
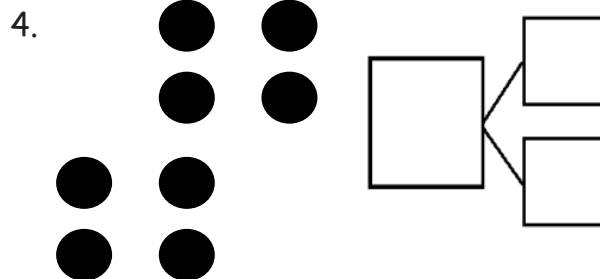
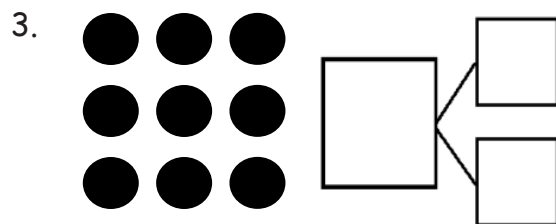
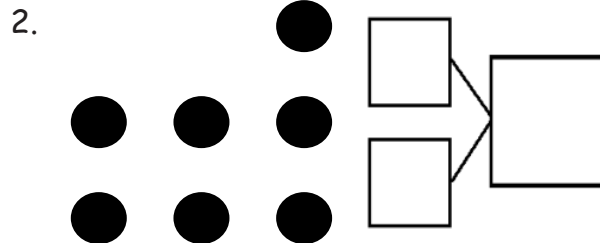
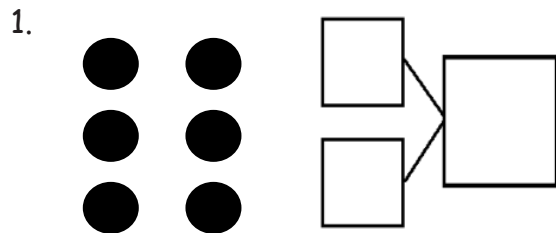




Name \_\_\_\_\_

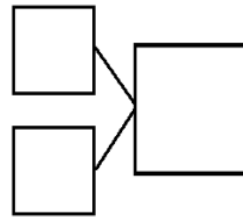
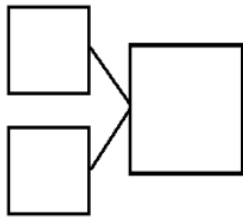
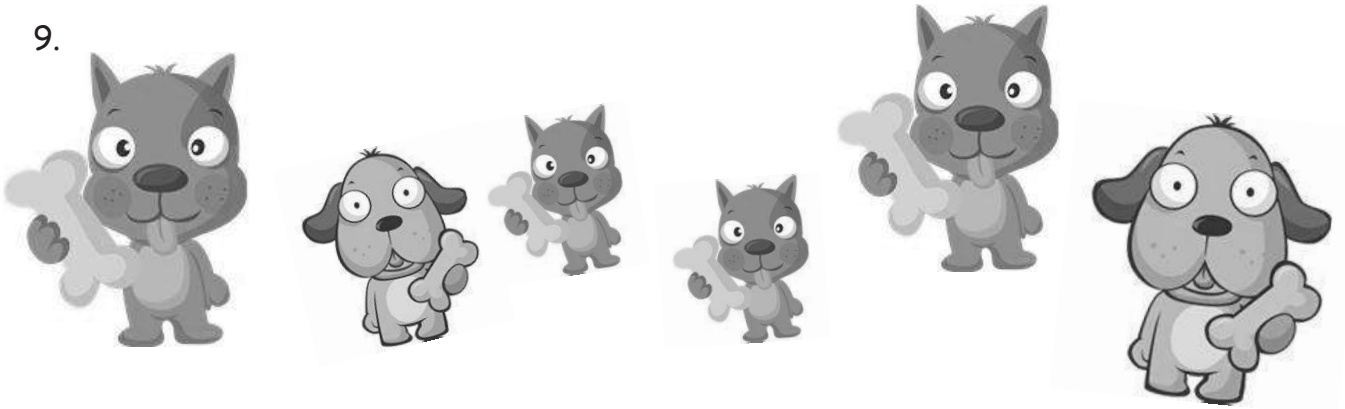
Date \_\_\_\_\_

Circle 2 parts you see. Make a number bond to match.

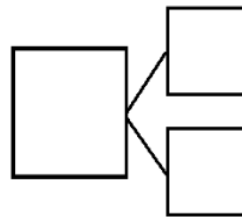
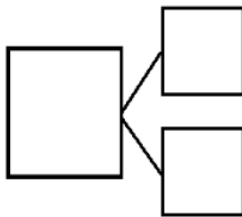
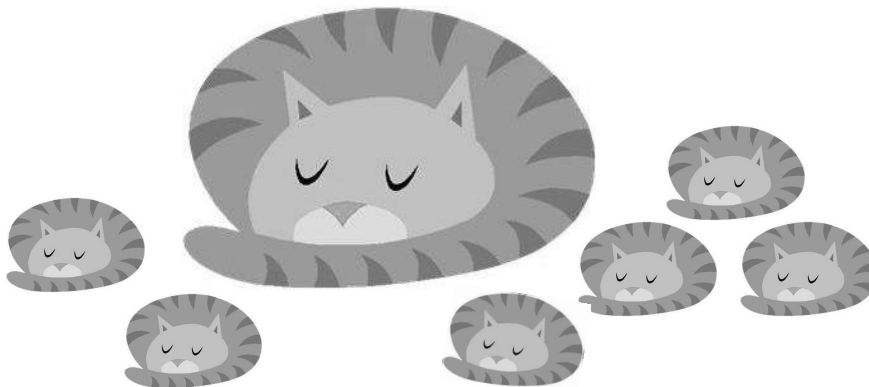


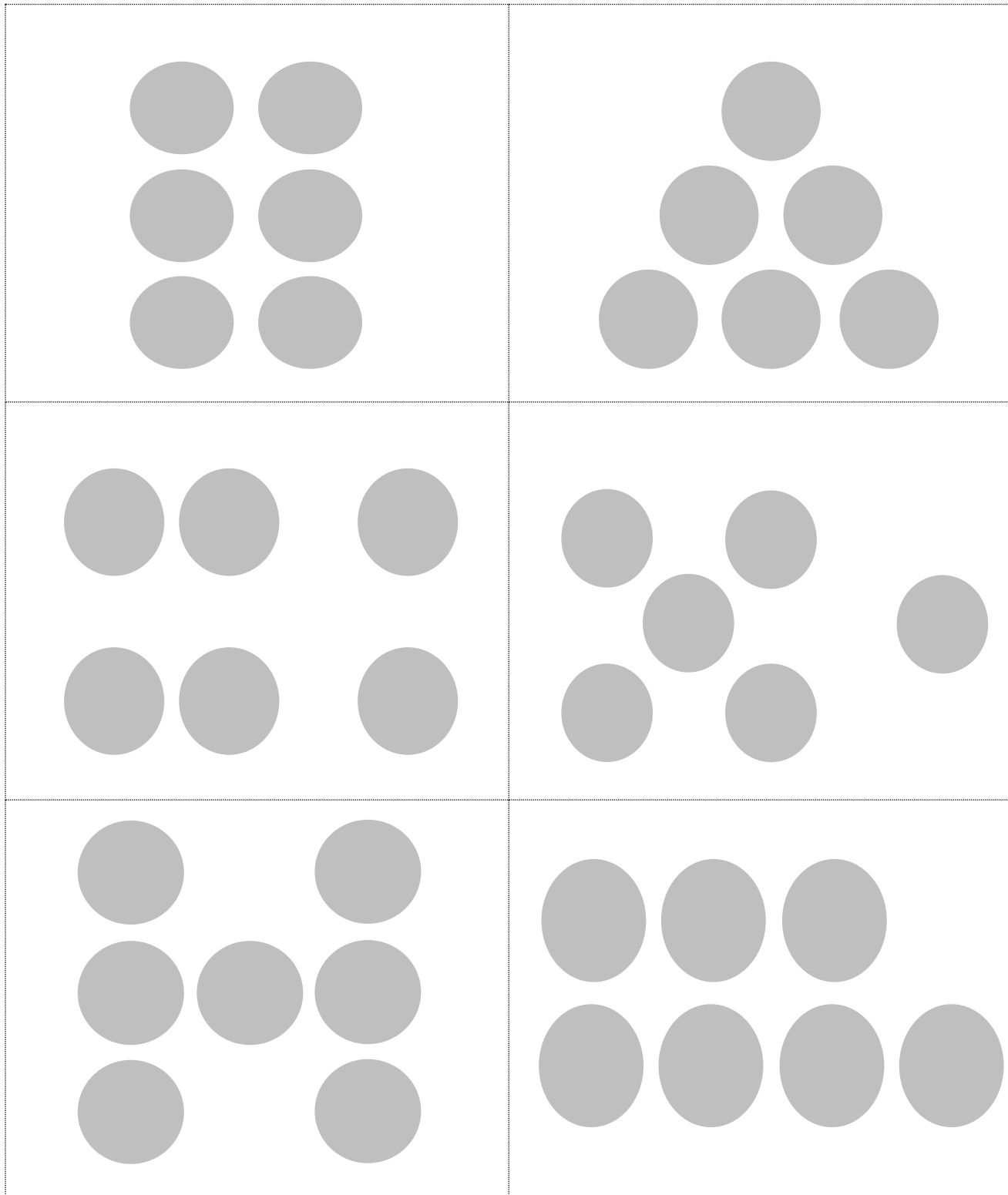
How many animals do you see? Write at least 2 different number bonds to show different ways to break apart the total.

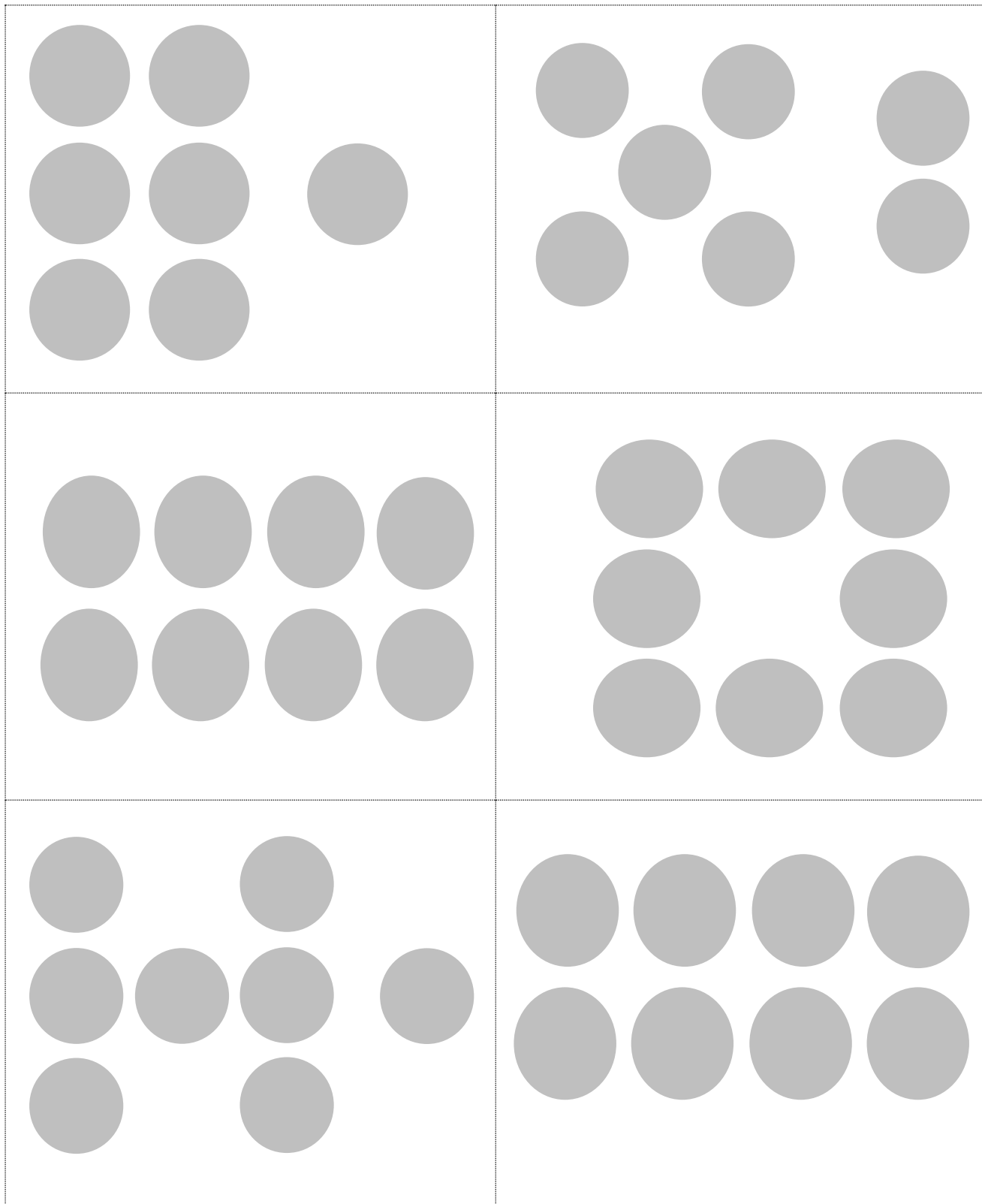
9.

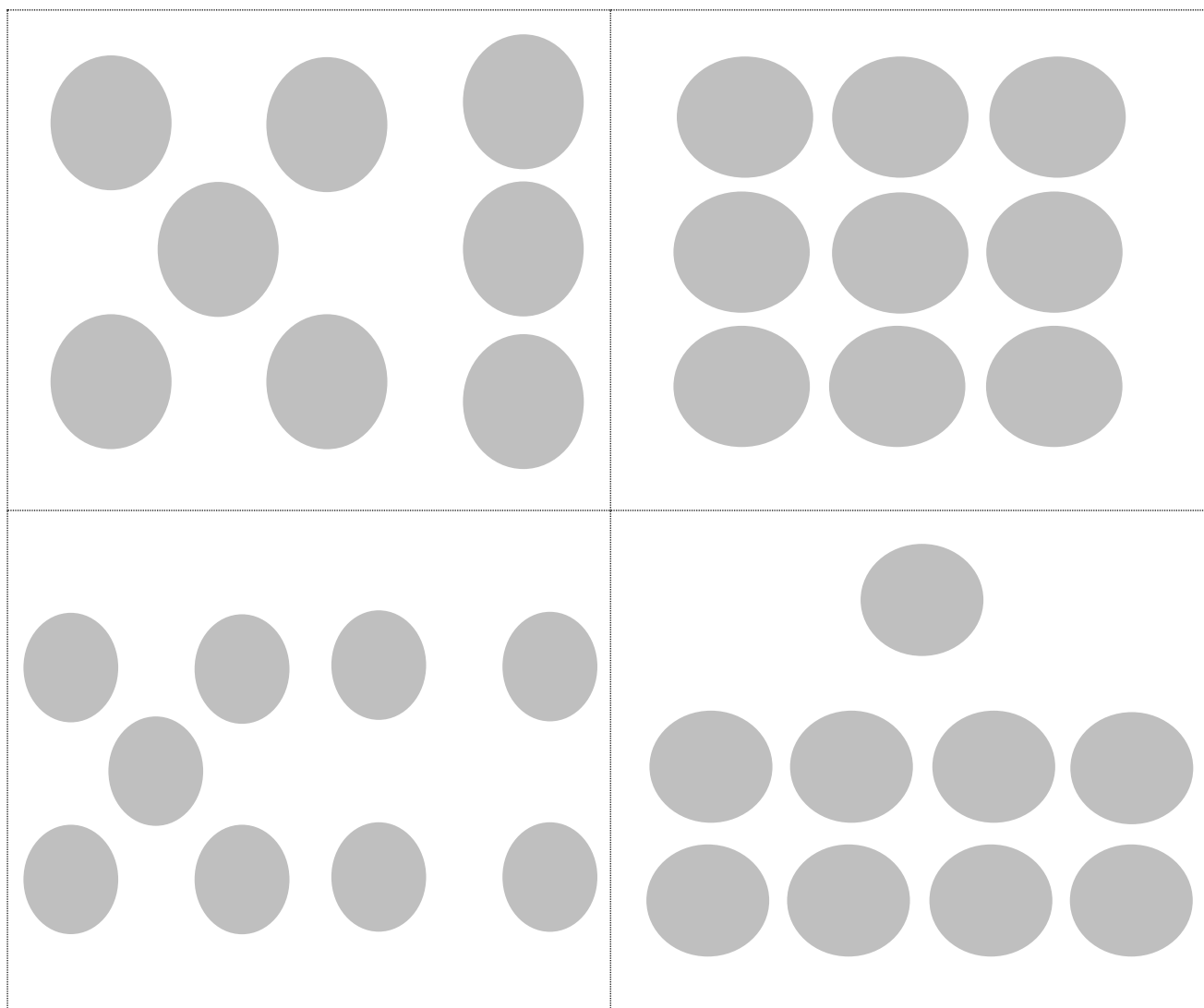


10.







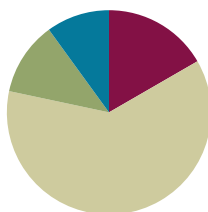


## Lesson 3

**Objective:** See and describe numbers of objects using *1 more* within 5-group configurations.

### Suggested Lesson Structure

■ Fluency Practice	(12 minutes)
■ Application Problem	(7 minutes)
■ Concept Development	(35 minutes)
■ Student Debrief	(6 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



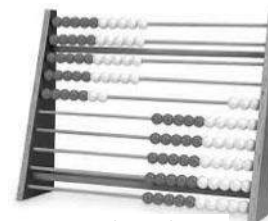
### Fluency Practice (12 minutes)

- Happy Counting by Ones Within 10 **K.CC.1, K.CC.2** (4 minutes)
- 5-Group Flash **K.OA.4, 1.OA.5** (3 minutes)
- Number Bond Dash: 5 **1.OA.6** (5 minutes)

### Happy Counting by Ones Within 10 (4 minutes)

Materials: (T) Rekenrek

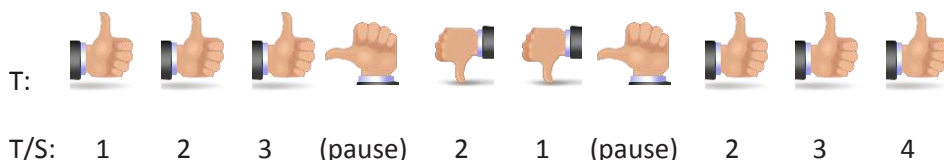
Note: Counting forward and backward by ones affords students review with this strategy, as it relates to addition and subtraction. It also directly relates to the current lesson objective. This game may be challenging for students at first. A Rekenrek helps students visualize numbers and makes it easier for students to change direction as they count. Rekenreks can be made simply and inexpensively with cardboard, elastic, and beads. If this is not available to you, there are also interactive Rekenreks online such as: [http://www.ictgames.com/brilliant\\_beadstring\\_with\\_colour.html](http://www.ictgames.com/brilliant_beadstring_with_colour.html) or <http://maine.edc.org/file.php/1/tools/ArithmeticRack1.html>



Rekenrek

Move the beads on the Rekenrek to model counting forward and backward by ones within ten. Students count along with the beads (e.g., 1, 2, 3, 2, 3, 4, 5, 6, 5, etc.).

When students are ready, put the Rekenrek away and tell students to look at your thumb and count forward and backward by ones. When your thumb points and motions up, students count up. When your thumb is to the side, students stop. When your thumb points and motions down, students count down (see illustration on the next page).



### 5-Group Flash (3 minutes)

Materials: (T) 5-group cards (the dot cards from the 1 More game in this lesson maybe used, as long as they have been enlarged on the copier)

Note: This activity relates to the core fluency objective of Grade 1 of adding and subtracting within 10.

Teacher flashes 5-group cards for 2–3 seconds and instructs students to say the number when teacher snaps. After flashing all the numbers from 0–10 (in a random order), flash the cards again and count on from the number flashed, up to 10.

### Number Bond Dash: 5 (5 Minutes)

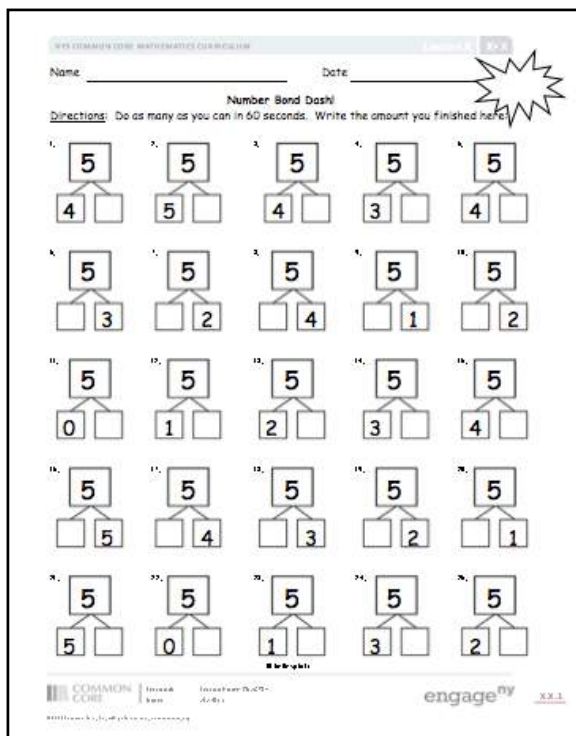
Materials: (T) Stopwatch or timer (S) Number Bond Dash: 5 (use template from **G1-M1-L2**), marker to correct work

Note: Reviewing number bonds allows students to build and maintain fluency with addition and subtraction facts within 10 and gets them ready for the upcoming lesson.

Distribute sheet face down to students. Instruct students to flip over their papers when you say, “Go!” and complete as many number bonds as they can in 90 seconds. Assure them that it is okay if they run out of time before they finish. Tell them that if anyone finishes before time, they can practice counting backwards from 20 on the back of their papers.

- T: Take a second to remember the score you got on yesterday’s Number Bond Dash so you can try to do even better today.
- T: (Set the timer for 90 seconds.) On your marks, get set, GO! (Press start.)
- T: (When the timer goes off, tell students to put down their pencils and grab a marker to correct their work.)
- T: When you get an answer correct, put a checkmark on the problem number. If you make a mix-up, fix it up with your marker.

Read the number bonds aloud, starting with Problem 1. When you are finished checking all the problems, tell



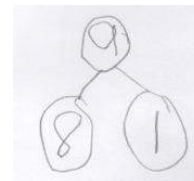


students to write the number they got correct in the star-like shape on the top and show you a big smile if they improved their score from yesterday.

### Application Problem (7 minutes)

Alex had 9 marbles in his hand. He hid his hands behind his back and put some in one hand and some in the other. How many marbles might be in each hand? Use pictures or numbers to draw a number bond to show your idea.

Note: This problem is designed as a bridge to the previous lesson, which focused on reasoning about embedded numbers and finding various decompositions.



### Concept Development (37 minutes)

Materials: (T) Sentence frames 1 more than \_\_\_\_ is \_\_\_\_\_. and \_\_\_\_ is 1 more than \_\_\_\_\_. (S) 5-group mat, bag with 9 linking cubes of same color and 1 linking cube of another color, personal white board, set of 1 More game cards for each pair of students

T: Show me your five fingers on one hand the Math Way.

S: (Students hold up their left hand, showing 5 fingers.)

T: Show me four fingers inside your five.

T: Show me your five.

T: Show me your four.

T: How much does 4 need to make 5?

S: 1!

T: Show me 7 fingers the Math Way.

T: Show me 6.

T: Show me 7.

T: Show me 6.

T: How much does 6 need to make 7?

S: 1.

T: Put 5 cubes that are the same color onto your 5-group mat. How many cubes do you have?

S: 5.

T: Use a different color cube and put 1 more on your mat. Now how many do you have?

S: 6.

T: How did you know that so quickly?

S: (I counted on from 5. → It was just 1 more. → I saw 5 and 1. → I just knew it. → I counted on from 5, it was just 1 more.



#### NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Cultivate excitement by connecting on-level math with higher-math.

For example:

You know 1 more than 6 is 7. What is 1 more than 16?

If 1 more than 18 is 19, then what is 1 more than 28?

See how far you can extend presenting numbers to 100.

- T: What is 1 more than 5?
- S: 6.
- T: Let's say that in a full sentence. (Point to the sentence frame as students speak 1 more than \_\_\_\_ is \_\_\_\_.)
- T/S: 1 more than 5 is 6.
- T: Let's try saying this in a different way. What was the first part we saw?
- S: 5.
- T: How many more did 5 need to make 6?
- S: 1.
- T: So, we can say 6 is 1 more than \_\_\_\_.... (Invite student responses.)
- S: 5.
- T: Say it as a whole sentence. (Point to the sentence frame as students speak \_\_\_\_ is 1 more than \_\_\_\_.)
- S: 6 is 1 more than 5.
- T: Help me write our parts and total in a number sentence, or equation. (As you ask each question, write the components of the number sentence.) What did we start with?
- S: 5.
- T: How many cubes did we add?
- S: 1.
- T: How many cubes do we have altogether?
- S: 6.
- T: Let's read our number sentence together.
- T/S:  $5 + 1 = 6$

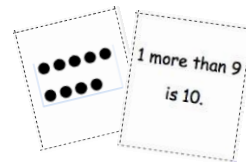


### NOTES ON MULTIPLE MEANS OF EXPRESSION:

For students who may need additional support with the language of 1 more than \_\_\_\_ is \_\_\_\_ and \_\_\_\_ is 1 more than \_\_\_\_, insert a sentence frame into their personal white boards, and allow them to write the numbers into the blanks. Pointing to each word and reading the number can provide a bridge between the concrete and the abstract.

Have students clear their mats, and continue this process with 7, 8, and 9. Have students say both “8 is 1 more than 7,” and “1 more than 7 is 8.” When writing the number sentence, be sure to have the equal sign on either side of the equation (i.e.,  $7 + 1 = 8$  and  $8 = 7 + 1$ ).

- T: Now you'll get to work with a partner to play the 1 More game! The goal is to match a dot card with the card that has 1 more. Here are the directions:
1. Put all of your cards face down, with dot cards on one side and sentence cards on the other.
  2. Flip over a dot card.
  3. Flip over a sentence card.
  4. Keep the pair if the sentence card is one more than the dot card.
  5. Turn both cards over if they do not match.
  6. When you and your partner have made all the pairs, write a number sentence for each pair.



Model how to play this with students. Practice the language of 1 more than \_\_\_\_ is \_\_\_\_ and \_\_\_\_ is 1 more than \_\_\_\_.

# 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 solve these problems using the RDW approach used for Application Problems.

## Student Debrief (6 minutes)

**Lesson Objective:** See and describe numbers of objects using *1 more* within 5-group configurations.

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


Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.


- What is the same and different about Problem 4 and Problem 8?
- Look at Problems 8, 7, 6, and 5. What do you notice about how these are changing?
- If we had to find 2 more, how would today's lesson help us?
- What did you notice about the number sentences in Problems 5 and 6?
- Using what you learned about today, what is 1 more than 13? How do you know?
- Turn and talk to your partner about what we did today. What were we learning about, understanding, and getting good at?


NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 3 1•1


Name Maria Date \_\_\_\_\_

Draw one more in the 5-groups formation. In the box, write the numbers to describe the new picture.

1.   
1 more than 7 is 8  
 $7 + 1 = 8$


2.   
1 more than 9 is 10  
 $9 + 1 = 10$


3.   
1 more than 6 is 7  
 $6 + 1 = 7$

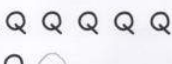
4.   
1 more than 5 is 6  
 $5 + 1 = 6$


COMMON CORE Lesson 3: See and Describe Numbers of Objects using "1 more" within 5-group configurations. E.g., "I see 7 apples. 1 more than 7 is 8" using addition sentences e.g.,  $7 + 1 = 8$ . Date: 2/24/13 engage<sup>ny</sup> 1.A.2

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 3 1•1


5.   
1 more than 8 is 9  
 $8 + 1 = 9$

6.   
8 is 1 more than 7  
 $8 = 7 + 1$

7.   
7 is 1 more than 6  
 $7 = 6 + 1$

8.   
6 is 1 more than 5.  
 $6 = 5 + 1$

9. Imagine adding 1 more backpack to the picture. Then write the numbers to match how many backpacks there will be.

  
1 more than 7 is 8  
 $7 + 1 = 8$

COMMON CORE Lesson 3: See and Describe Numbers of Objects using "1 more" within 5-group configurations. E.g., "I see 7 apples. 1 more than 7 is 8" using addition sentences e.g.,  $7 + 1 = 8$ . Date: 2/24/13 engage<sup>ny</sup> 1.A.3

**Exit Ticket (3 Minutes)**

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

Name \_\_\_\_\_

Date \_\_\_\_\_

### Number Bond Dash!

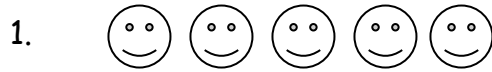
Directions: Do as many as you can in 60 seconds. Write the amount you finished here:

1.	2.	3.	4.	5.
6.	7.	8.	9.	10.
11.	12.	13.	14.	15.
16.	17.	18.	19.	20.
21.	22.	23.	24.	25.

Name \_\_\_\_\_

Date \_\_\_\_\_

Draw one more in the 5-group. In the box, write the numbers to describe the new picture.



1 more than 7 is \_\_\_\_.

$7 + 1 = \underline{\hspace{2cm}}$



1 more than 9 is \_\_\_\_.

$9 + 1 = \underline{\hspace{2cm}}$



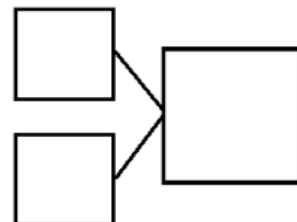
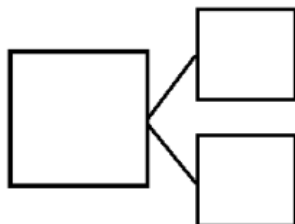
1 more than 6 is \_\_\_\_.

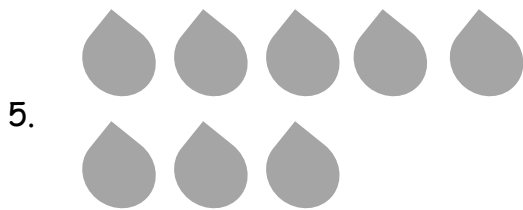
$6 + 1 = \underline{\hspace{2cm}}$



1 more than 5 is \_\_\_\_.

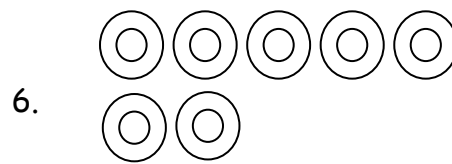
$5 + 1 = \underline{\hspace{2cm}}$





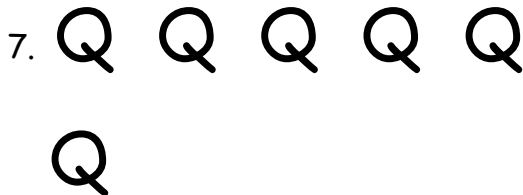
1 more than 8 is \_\_\_\_.

$8 + 1 = \underline{\hspace{2cm}}$



\_\_\_\_ is 1 more than 7

\_\_\_\_ =  $7 + 1$



\_\_\_\_ is 1 more than 6

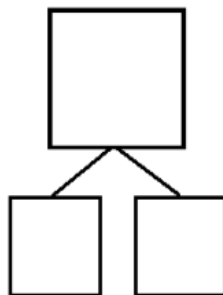
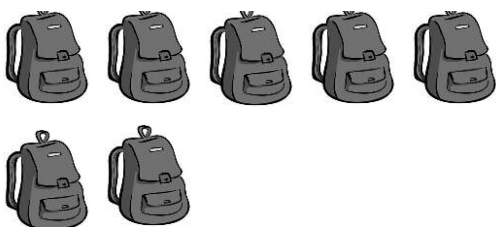
\_\_\_\_ =  $6 + 1$



\_\_\_\_ is 1 more than 5.

\_\_\_\_ =  $5 + 1$

9. Imagine adding 1 more backpack to the picture. Then write the numbers to match how many backpacks there will be.



1 more than 7 is \_\_\_\_.

\_\_\_\_ + 1 = \_\_\_\_

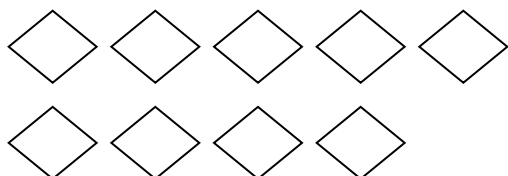


Name \_\_\_\_\_

Date \_\_\_\_\_

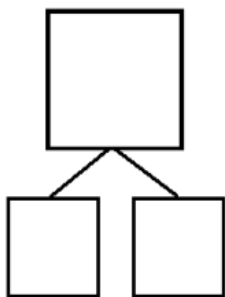
How many objects do you see? Draw one more. How many objects are there now?

1.

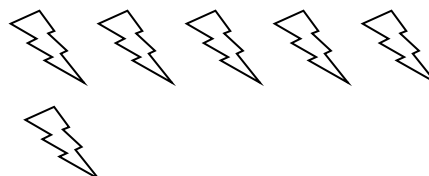


\_\_\_\_\_ is 1 more than 9.

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

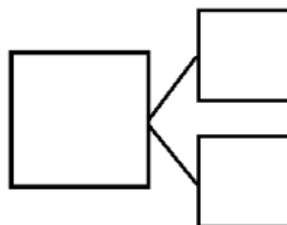


2.



1 more than 6 is \_\_\_\_\_.

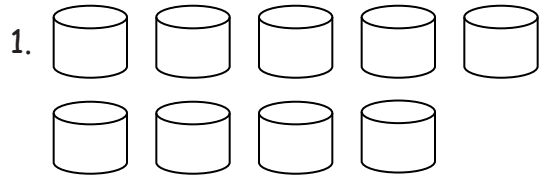
$$\underline{\quad} + 1 = \underline{\quad}$$



Name \_\_\_\_\_

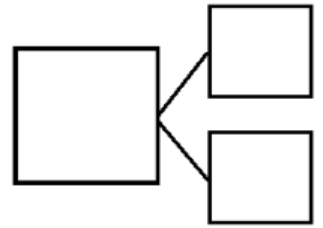
Date \_\_\_\_\_

How many objects do you see? Draw one more. How many objects are there now?



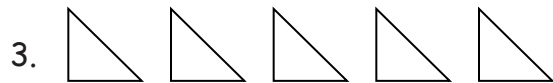
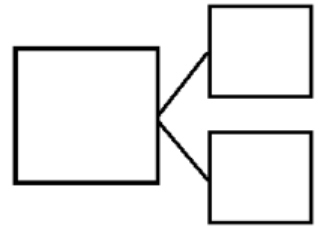
1 more than 9 is \_\_\_\_.

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



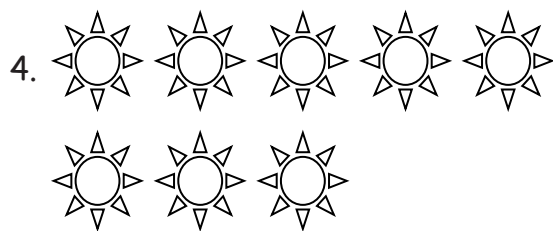
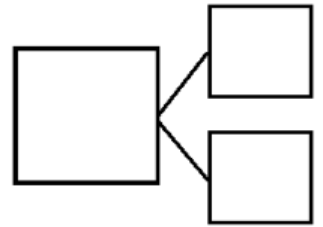
\_\_\_\_ is 1 more than 7.

$$\underline{\quad} = 7 + 1$$



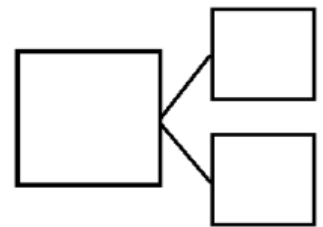
\_\_\_\_ is 1 more than 5.

$$\underline{\quad} = 5 + 1$$



1 more than 8 is \_\_\_\_.

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

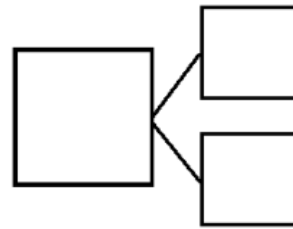


5. Imagine adding 1 more pencil to the picture. Then write the numbers to match how many pencils there will be.



1 more than 5 is \_\_\_\_\_.

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

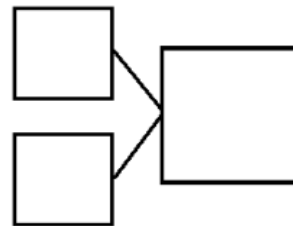


6. Imagine adding 1 more flower to the picture. Then write the numbers to match how many flowers there will be.

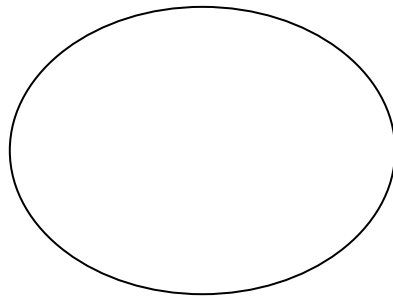
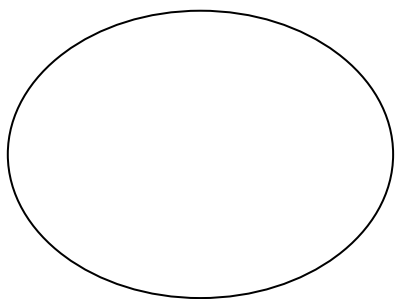
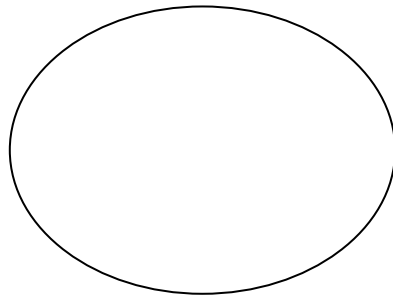
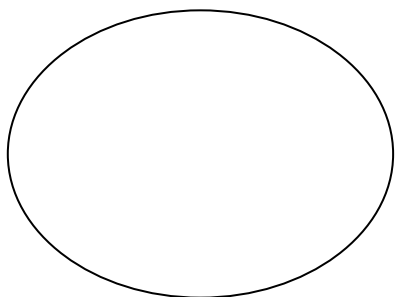
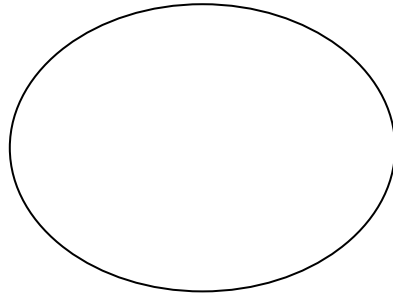
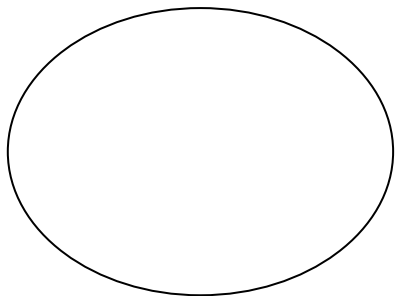
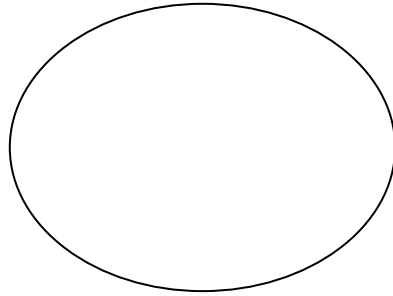
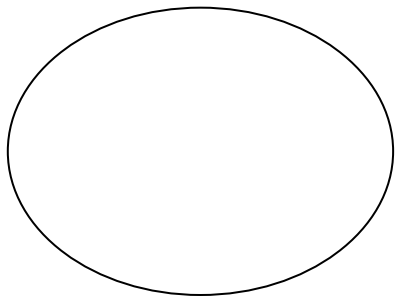
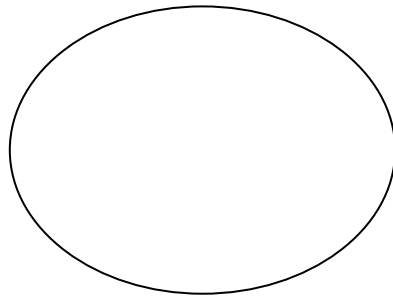
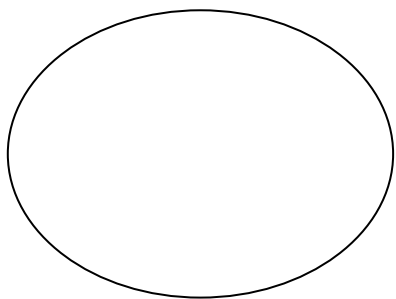








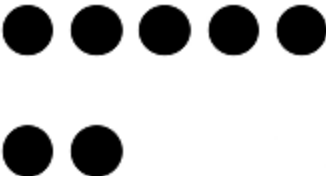
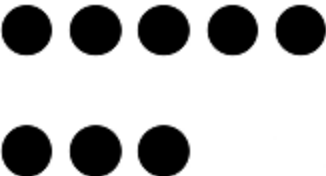
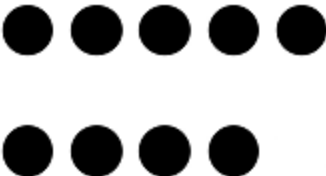
\_\_\_\_\_ is 1 more than 8.

\_\_\_\_\_ + 1 = \_\_\_\_\_



5-group Mat



2 is 1 more than 1.	3 is 1 more than 2.	4 is 1 more than 3.
1 more than 4 is 5.	1 more than 5 is 6.	1 more than 6 is 7.
8 is 1 more than 7.	1 more than 8 is 9.	1 more than 9 is 10.



## Topic B

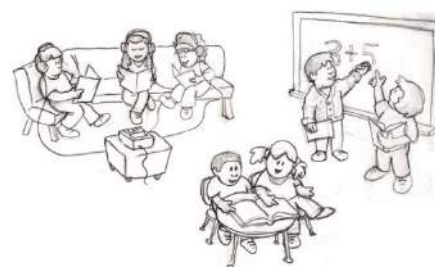
# Counting On from Embedded Numbers

1.OA.1, 1.OA.5, 1.OA.6

<b>Focus Standard:</b>	1.OA.1	Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart and comparing, with unknowns in all positions, e.g., by using objects, drawings and equations with a symbol for the unknown number to represent the problem.
	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 $6 + 6 + 1 = 12 + 1 = 13$ ).
<b>Instructional Days:</b>	5	
<b>Coherence</b>	<b>-Links from:</b> GK–M4	Number Pairs, Addition and Subtraction to 10
	<b>-Links to:</b> G2–M4	Addition and Subtraction Within 200 with Word Problems to 100

As students move into Topic B, they gain momentum with putting together, composing and decomposing, and counting on to determine the total. Students use both concrete and pictorial situations to describe all of the decompositions of 6, 7, 8, 9, and 10 (**1.OA.5**). Lesson 4 begins with six children posed at the front of the class. They will be put together in different ways to show the various combinations of 6, such as 2 boys–4 girls and 3 wearing long sleeves–3 wearing short sleeves. During this process, the *put together* situation will be highlighted, engaging students in counting on from one addend, or part, to find the total (**1.OA.1, 1.OA.5**). As students progress through the lesson, they come to see that 6 is constructed of several different decompositions, by using 2-color counters and recording the decomposition in number bonds and as expressions (**1.OA.1**). They record each decomposition of 6, and reflect upon all of these number partners, “Look at all these ways to make 6! I can see connections between them!”

Lessons 5, 6, 7, and 8 continue this same process of putting together, composing and decomposing. In Lesson 5, students



use an engaging drawing (pictured to the right) to find and show ways to make 7 with 2 groups. “I see 5 kids sitting, and 2 kids standing. There are 7 kids altogether!” They use their 5-group cards in order to represent the partners of 7, and record the decompositions in number bonds and expressions.

Lesson 6 has students exploring and discussing the decompositions of 8, using their 5-group cards, beginning with the numeral side first as a way to encourage counting on. In Lesson 7, students explore the partners of 9 using cubes to help them count on from the first addend. Finally, the topic ends with Lesson 8 with students making Rekenrek bracelets with 10 beads, as a tool for students to use as they show all ways to make 10.



Rekenrek bracelet  
with 5 white beads  
and 5 red beads.

Each lesson in Topic B ends with students creating a shared chart representing all of the decompositions of each number: 6, 7, 8, 9, and 10. These charts provide a foundation for supporting understanding of addition and subtraction facts. Teachers keep the charts hanging in their classrooms, and have students start portfolios. Both of these serve as references throughout the school year as students master these numerical combinations (**1.OA.6**).

#### A Teaching Sequence Towards Mastery of Counting On from Embedded Numbers

- Objective 1:** Represent *put together* situations with number bonds. Count on from one embedded number or part to totals of 6 and 7 and generate all addition expressions for each total. (Lesson 4–5)
- Objective 2:** Represent *put together* situations with number bonds. Count on from one embedded number or part to totals of 8 and 9 and generate all expressions for each total. (Lesson 6–7)
- Objective 3:** Represent all the number pairs of 10 as number bond diagrams from a given scenario and generate all expressions equal to 10. (Lesson 8)

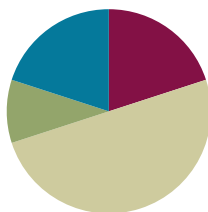


## Lesson 4

**Objective:** Represent *put together* situations with number bonds. Count on from one embedded number or part to totals of 6 and 7 and generate all addition expressions for each total.

### Suggested Lesson Structure

Fluency Practice	(12 minutes)
Application Problem	(6 minutes)
Concept Development	(30 minutes)
Student Debrief	(12 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (12 minutes)

- 1 More with Dots and Numerals **1.OA.6** (10 minutes)
- Happy Counting by Ones, 10–20 **1.NBT.1** (K.CC.1, K.CC.2) (2 minutes)

### Sprint: 1 More with Dots and Numerals (10 Minutes)

Materials: (S) Sprint: 1 More with Dots and Numerals

Note: This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

### Happy Counting by Ones, 10–20 (2 minutes)

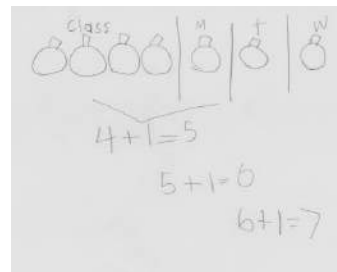
Materials: (S) Rekenrek

Note: Counting forward and backward by ones affords students review with the counting sequence.

Do Happy Counting (see **G1-M1-L3**) from 10 through 20 and back, first the regular way, then the Say Ten way.

### Application Problem (6 minutes)

Our class had 4 pumpkins. On Monday, Marta brought 1 more pumpkin. How many pumpkins did our class have?



On Tuesday, Beto brought 1 more pumpkin. How many pumpkins did our class have on Tuesday?

Then on Wednesday, Shea brought 1 more pumpkin. How many pumpkins did our class have on Wednesday? Draw a picture and write a number sentence to show your thinking. What do you notice about what happened each day?

Early Finishers: If this pattern continues, how many pumpkins will our class have on Friday?

Note: This problem is designed as a bridge from the previous day's lesson, which focused on *1 more*. As students represent decompositions with drawings, they are preparing for the current day's concept development.

### Concept Development (30 minutes)

Materials: (T) Chart to record decompositions of 6 (S) Bag of 10 two-color beans (painted white on one side and red on the other), picture card with 6 apples

Choose a group of students who have different attributes to represent decompositions of 6 (e.g., 4 boys, 2 girls; 5 with shoelaces, 1 without; 3 with short sleeves, 3 with long sleeves). Be sure to encourage the actors themselves to participate in the mathematics of the lesson.

T: How many students do you see?

S: 6!

T: How many boys are there?

S: 4!

T: How many girls are there?

S: 2!

T: Talk to your partner about what would be a good strategy to see how many students there are altogether. (Circulate and listen to student discussion.)

S: We can count on from 4.

T: Point with me to keep **track** as we count on from 4. (Gesture around the group of 4, and then touch the 2 students on the head as you count on with the class.)

S: Fouuuur, 5, 6!

T: What parts did we put together to make 6?

T: Let's write those parts in a number sentence. (Call on students to help you write the equation  $6 = 4 + 2$  on the board.)

T: (Ask the 2 girls to move to the left, and the 4 boys to move to the right.) What would our number sentence look like if we started with the girls first? Talk to your partner about what the number sentence would be.

T: (Circulate and listen to student discussion. Call on students to help you write the equation  $6 = 2 + 4$  on the board.)

T: Now, look at the shoes on these students. I notice shoes that have...

S: (Answers may vary.) Shoelaces!

MP.7

Repeat the earlier process with decomposing according to having shoelaces and not, and again with short sleeves and not, in order to complete decomposing 6.

Bring up the topic of zero and the total as a possible decomposition:

- T: How many students do you see up here?  
 S: 6!  
 T: How many tigers do you see up here?  
 S: 0!  
 T: How many living things do you see up here?  
 S: 6!  
 T: How can we write that story in a number sentence?  
 S:  $6 + 0 = 6$ !  
 T: Think of a different story that shows  $6 + 0 = 6$ . (If necessary ask, “Think of what we can make the zero represent.”) Call on students to share.  
 T: When we add zero, we add nothing to the other part. And this is another way we can make 6! Six and zero makes 6!



### NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

For students who still need to count all of the objects, scaffold their learning and allow them to count all. After they have mastered counting all, be sure to model your counting on so that they have an example of how they should be thinking when counting.

## Problem Set (10 minutes)

Distribute the picture card for 6, the Problem Set, and a bag of 10 two-color beans to each student.

- T: Let's look at the picture of 6 apples and use our beans to find different ways to make 6.  
 T: How many apples do you see?  
 S: 6.  
 T: Let's see how many apples with stems are there. Put a red bean on each apple as we count.  
 S: 1, 2, 3, 4.  
 T: How many apples do not have stems? Let's put a white bean on each stem-less apple and count.  
 S: 1, 2.  
 T: Let's see how many apples there are by counting on from the red beans. As you count, touch each bean.  
 S: Fooooor, 5, 6.  
 T: (Have students write the expressions to match these parts.) When we write the parts like this,  $4 + 2$ , we call it an **expression**. It's not a full number sentence. It shows the two parts without showing what it is equal to.



### NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Look for ways to connect real life experiences in math. Use apples during this lesson as a connection to science curriculum. Cut the apples to explore the parts of the apple connecting to *total* and *part* vocabulary.

Repeat this process to explore the rest of the apple combinations in the picture and to complete the remainder of the problem set. Help students set up a portfolio to save their work with decompositions of 6. In the upcoming lessons they will save decompositions of 7, 8, 9, and 10. You do not need to focus on the commutative property in this lesson.

## Student Debrief (12 minutes)

**Lesson Objective:** Represent *put together* situations with number bonds. Count on from one embedded number or part to totals of 6 and 7 and generate all addition expressions for each total.

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

- T: Why did we keep **track** of the apples as we counted?
- S: So we wouldn't count any twice or miss any!
- T: Talk with your partner about all of the different ways you made 6!
- S: (Students work together to check their work and the numbers' referents in the picture.)
- T: We will write number bonds to show all the different ways you made 6. What was the biggest part you found in your number bond, and what was its partner?
- S: 6! And 0!
- T: (Record this number bond on a chart, and call on students to help you write the expressions.)

Repeat this process in order to record all of the decompositions of 6 ( $5 + 1$ ,  $4 + 2$ ,  $3 + 3$ ). Ask the following question to close the lesson:

- What do you notice about the two parts in the **expressions** that make 6 as we look at them in order from left to right?
- Turn to your partner and talk about what we learned about in today's lesson. What did you get really good at today?

## Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 4 1•1

Name Maria Date \_\_\_\_\_

Ways to Make 6

Use the apple picture to help you write all of the different ways to make 6.

$4 + 2$   $2 + 4$   $6 = 4 + 2$

$5 + 1$   $1 + 5$   $6 = 5 + 1$

$3 + 3$   $6 = 3 + 3$

$6 + 0$   $0 + 6$   $6 = 6 + 0$

COMMON CORE Lesson 4: Represent "Put Together" Situations with Number Bonds Date: 6/24/13 engage<sup>ny</sup> 1.B.6

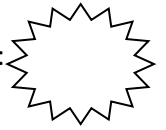


### NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:

Display charts with the number bonds for 6 so students can refer to it if they need to. Creating a place in your classroom for students to access will help those students who are visual learners or students who have trouble

A

Number correct:



Name \_\_\_\_\_

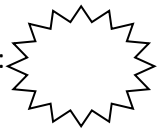
Date \_\_\_\_\_

\*Write the number that is 1 more.

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

**B**

Number correct:



Name \_\_\_\_\_

Date \_\_\_\_\_

\*Write the number that is 1 more.

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

Name \_\_\_\_\_

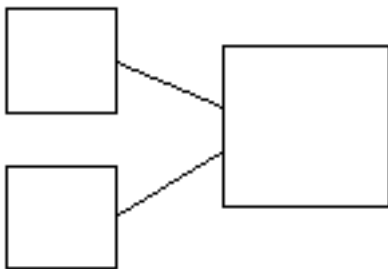
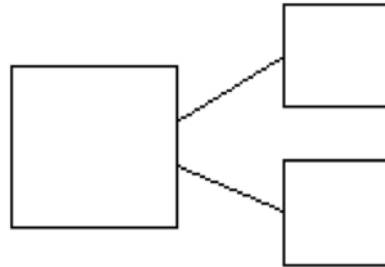
Date \_\_\_\_\_

# Ways to Make 6!

Use the apple picture to help you write all of the different ways to make 6.

$$\square + \square$$

$$\square + \square$$

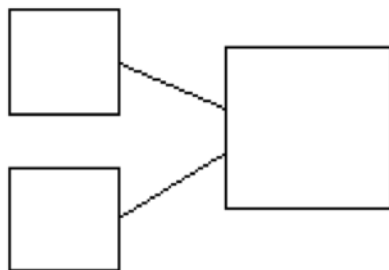
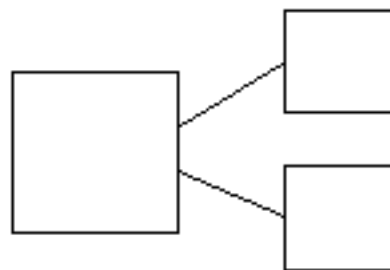


$$\square + \square$$

$$\square + \square$$

$$\square + \square$$

$$\square + \square$$



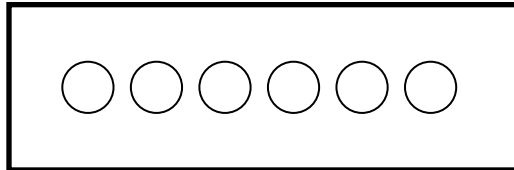
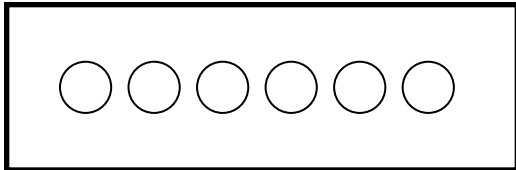
$$\square + \square$$

$$\square + \square$$

Name \_\_\_\_\_

Date \_\_\_\_\_

Show different ways to make 6. In each set, shade some circles and leave the others blank.



Write a number bond to match this picture.

Write a number sentence to match this picture.

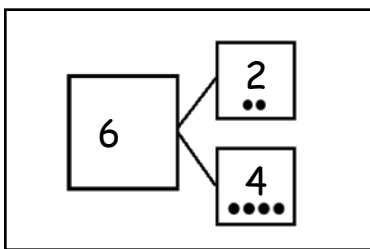


Name \_\_\_\_\_

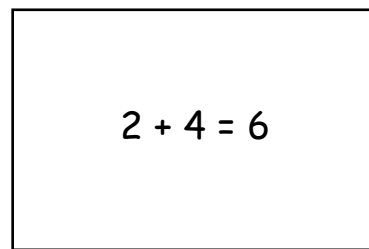
Date \_\_\_\_\_

Today we learned the different combinations that make 6! For homework, cut out the flashcards below and write the number sentences on the back that you learned today. Keep these flashcards in the place where you do your homework to practice ways to make 6 until you know them really well! As we continue to learn different ways to make 7, 8, 9, and 10 in the upcoming week, continue to make new flashcards.

\*Note to families: Be sure students make each of the combinations that make 6. The number bond cards can look something like this:

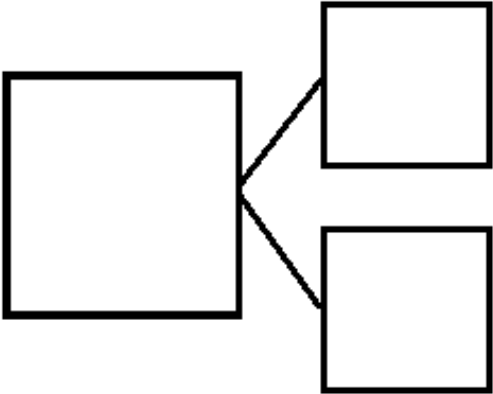
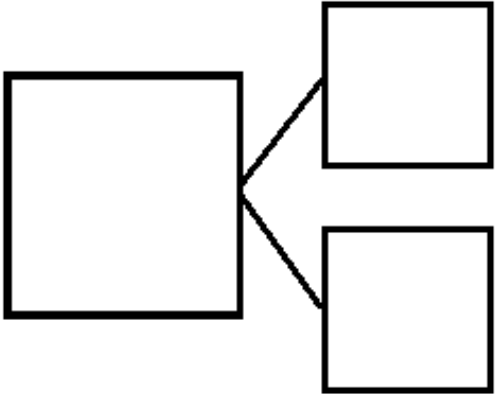
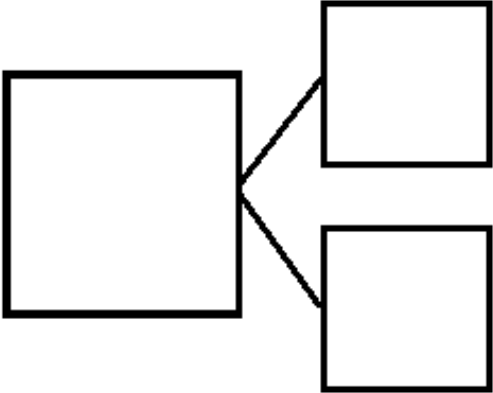
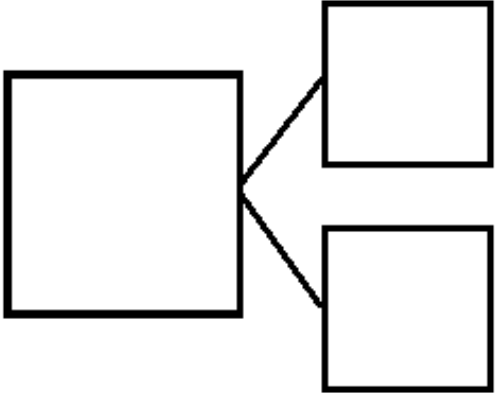
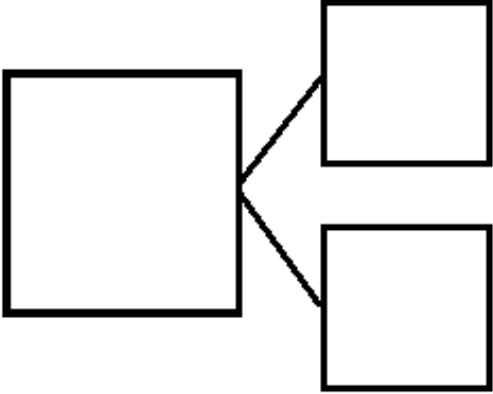
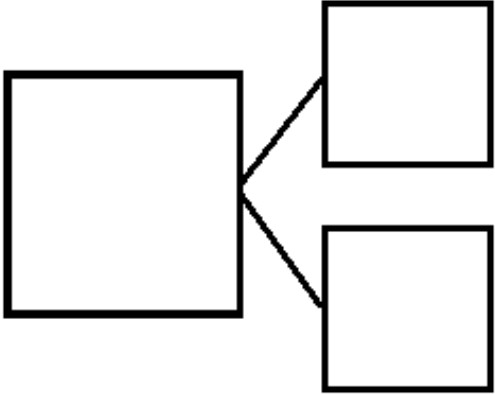


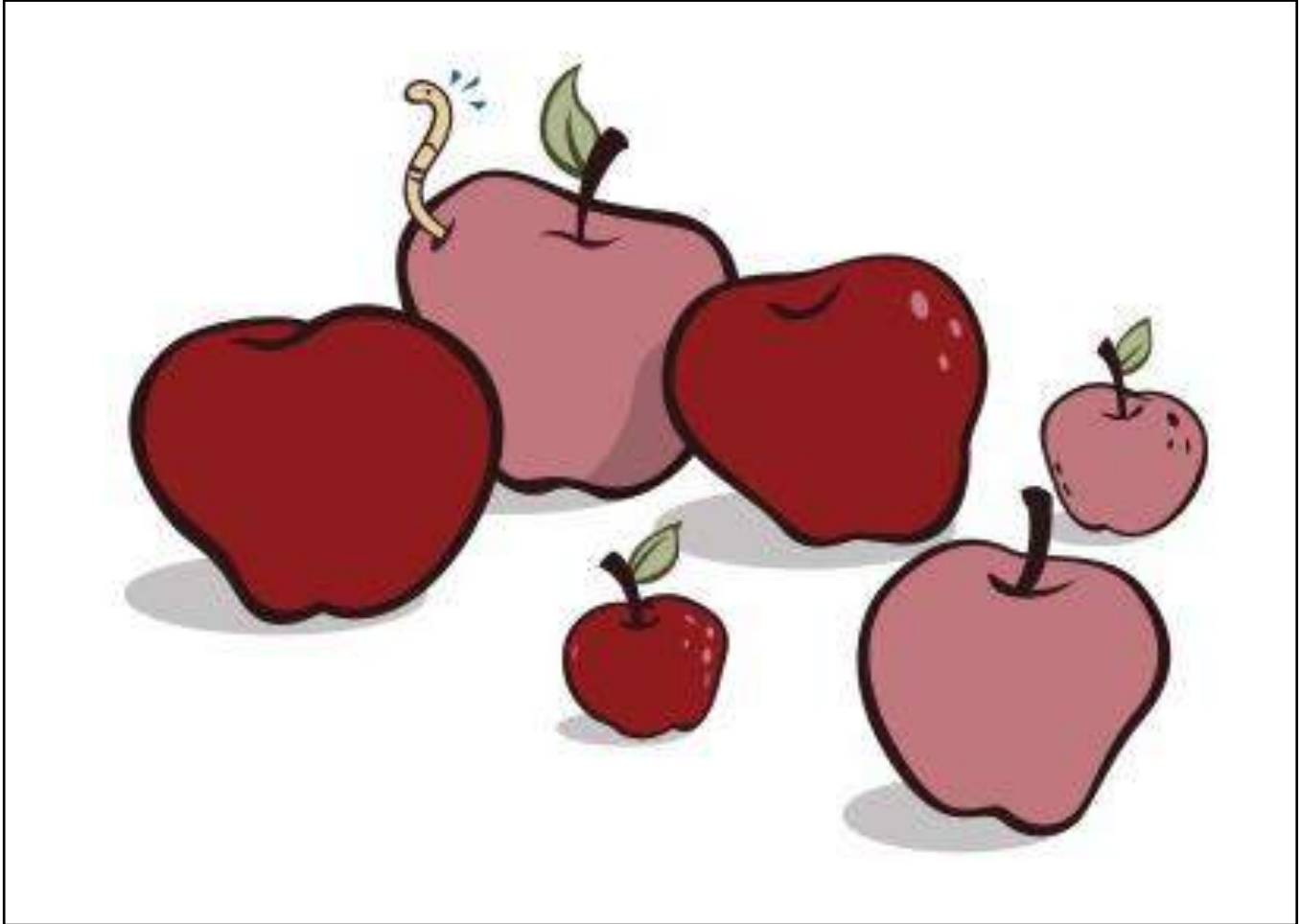
Front of card



Back of card

--	--

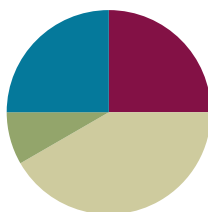


## Lesson 5

**Objective:** Represent *put together* situations with number bonds. Count on from one embedded number or part to totals of 6 and 7 and generate all addition expressions for each total.

### Suggested Lesson Structure

■ Fluency Practice	(15 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(25 minutes)
■ Student Debrief	(15 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (15 minutes)

- Math Finger Flash **1.OA.6** (3 minutes)
- Shake Those Disks: 6 **1.OA.6** (7 minutes)
- Number Bond Dash: 6 **1.OA.6** (5 minutes)

### Math Finger Flash (With Number Sentences) (3 minutes)

Note: This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

Flash fingers within 5 the Math Way for 2–3 seconds. When you hide your fingers, ask students to identify the number of fingers flashed when you snap. Then ask students to say an adding to sentence that shows how to make 5. For example:

T: (Flash 4 fingers, hide them, then snap.)

S: 4.

T: Now use four in an adding sentence to make 5.

S:  $4 + 1 = 5$ .

Continue flashing numbers between 5 and 10. For this portion, ask for a  $5 + \underline{\quad}$  addition sentence for each number.

T: (Flash 8 fingers, hide them, then snap.)

S: 8.

T: Now say a  $5 +$  adding sentence for 8.

S:  $5 + 3 = 8$ .

T: (Hold up the 5 and 3 as students say the equation.)

### Shake Those Disks: 6 (7 minutes)

Materials: (S) 6 two-color beans (disks or pennies are also acceptable) per set of partners, 1 Shake Those Disks boards for each set of partners

Note: This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

Break students into partners. Give each set of partners 6 two-color beans or counters. Instruct them to take turns as the *Shaker* and the *Recorder*. The Shaker shakes the disks and tosses them on the table. The Recorder then records the roll on the Shake Those Disks graph. (For example, if the Shaker rolled 4 red and 2 white, the Recorder would put an X on the graph above the 4 and 2 number bond.)

### Number Bond Dash: 6 (5 minutes)

Materials: (T) Stopwatch or timer (S) Number Bond Dash: 6 (save a master for use in later lessons), marker to correct work

Note: By using the same system, the Number Bond Dash, students focus on the mathematics, rather than figuring out the routine. Unlike most Number Bond Dashes, students will not have a chance to improve their scores on Day 2 during this round, as Topic B progresses through exploration of decompositions of 6, 7, 8, 9, and 10, giving students practice with a new number each day.

Distribute Dash to students, face down. Instruct students to flip over their papers when you say, “Go!” and complete as many number bonds as they can in 90 seconds. Assure them it is okay if they run out of time before they finish. Tell them if anyone finishes, they can practice counting to 20 on the back of their papers, starting with the number 5. Change counting sequence to meet the needs of your students in later lessons. As you choose a counting sequence, consider counting forward or back by different numbers. When counting forward, it is beneficial to change the starting number.

T: (Set the timer for 90 seconds.) On your marks, get set, GO! (Presses start.)

T: (When the timer goes off, tell students to put down their pencils and grab a marker to correct their work.)

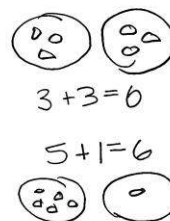
T: When you get an answer correct, put a checkmark on the problem number. If you make a *mix-up*, fix it up with your marker.

T: (Read the number bonds aloud, starting with Problem 1.) When you are finished checking all the problems, tell students to write the number they got correct in the star-like shape on top.

### Application Problem (5 minutes)

Marcus had 6 pieces of candy. He decided to give some to his mother and keep some for himself. Use pictures and numbers to show 2 ways that Marcus could have split up 6 pieces of his candy.

Note: This problem is designed as a bridge from the previous day's focus on decompositions of 6, reminding students that they can break apart numbers in more than one way.



### Concept Development (25 minutes)

Materials: (T) Number bond on the white board, markers, chart to record decompositions of 7 (S) 5-group cards, picture card with seven children in a classroom, scissors, glue stick, a sheet of blank paper for debrief

Have students sit in a big semi-circle facing the giant number bond in the middle. Distribute 5-group cards to each pair of students. Tell them they will be using them to show different ways to make 7. Instruct students to put their cards in order from smallest to largest.

Using your students as actors, choose a group of students who have different attributes that represent decompositions of 7, and have them line up at the board (e.g., 6 with short hair, 1 with long hair).

Note: Be sure to encourage the actors themselves to participate in the mathematics of the lesson.

T: How many students are here?

S: 7!

T: Write 7 in the total box of the number bond.)

T: What does this 7 represent? (Point to the 7.)

S: (Responses may vary.) The kids.

T: The 7 in our *whole* represents the number of students. (Label the whole with the word *students*.)

T: There's 1 student up here who has something different from the rest! What is it?

S: 1 has long hair!

T: (Write 1 in the number bond.)

T: What does this 1 represent? (Point to the 1.)

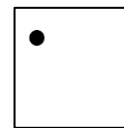
S: Long hair.

T: The 1 represents the *part* of our students with long hair, so I am going to label this part *long hair*. (Write *long hair* next to the part with the number 1.)

T: Show 1 with your 5-group card using the dot side, and put it in front of you.

T: If [Student 1 with long hair] has long hair, what about the rest of these students?

S: They have short hair.



MP.2

T: How many students have short hair?

S: 6!

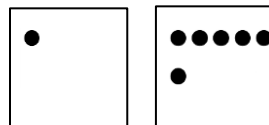
T: (Write 6 in the number bond.)

T: How should I label this part?

S: Short hair.

T: Yes. 6 represents the number of students with short hair. (Teacher writes *short hair* next to the part with the number 6.)

T: Now show 6 with your 5-group card using the dot side, right next to your first card.



T: What's the best strategy to find out how many students there are altogether?

S: (Responses may vary.) Count on from 1!

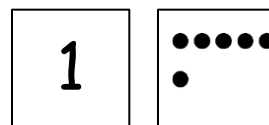
T: Point with me to keep track as we count on from 1. (Gesture around the group of 1, and then touch the 6 students on the head as you count on with the class; have them sit down as you count them.)

T: Now it's your turn to count on. Flip over your 1 dot card to show the number 1. Then count on from 1. Be sure to touch and count!

S: (Count on from 1 to 7, pointing to each dot.)

T: What are the 2 parts that make 7?

S: 1 and 6.



T: Say the number sentence that makes 7. (Point to each box as students respond.)

S:  $1 + 6 = 7$ .

T: (Record this on the chart beneath the number bond.)

T: Say the number sentence starting with the students with short hair.

S:  $6 + 1 = 7$ .

T: Say the number sentence starting with the total.

S:  $7 = 1 + 6$ .

T: Say the number sentence starting with the total but flip the parts this time.

S:  $7 = 6 + 1$ .

Continue this process with the other decompositions of 7. Keep the same actors but rearrange them to show different decompositions of 7 (e.g., 2 sit, 5 stand; 3 smiling, 4 frowning). Review zero if necessary.



### NOTES ON MULTIPLE MEANS FOR ACTION AND EXPRESSION:

Once students have shown how to make 7 with their 5-group cards, call on a volunteer to come fill in the number bond on the board. See if other volunteers can come write the number sentence(s) that go along with the 5-group cards and number bond on the board. Maybe have another volunteer illustrate the number bond. Providing a variety of ways for students to respond allows them to make choices and engage when they know they will be successful at the task.

### Problem Set (10 minutes)

Distribute the picture card with seven students in a classroom, the worksheet, and 5-group cards for each student. Similar to Lesson 4, students record all of the decompositions of 7 (in number bonds and as expressions) on their worksheet as they use the 5-group cards to count on just as they did during the Concept Development lesson. Use your judgment to determine whether students should complete this whole-group, in small groups, or independently.

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 solve these problems using the RDW approach used for Application Problems.

Ways to Make 7

Use the classroom picture to help you write the expressions and number bonds to show all of the different ways to make 7.

3 + 4

4 + 3

2 + 5

5 + 2

7 + 0

0 + 7

1 + 6

6 + 1

COMMON CORE Lesson 5: Date: Day 2 of Lesson 4 3/7/13

engage<sup>ny</sup> 1.A.8

### Student Debrief (15 minutes)

**Lesson Objective:** Represent *put together* situations with number bonds. Count on from one embedded number or part to totals of 6 and 7 and generate all addition expressions for each total.

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

Have students bring their Problem Set to the meeting area. Ask them to cut out their number bonds from the sheet, and place them in an order that is numerical (students may begin with  $7 + 0$ , then  $6 + 1$ ,  $5 + 2$ , etc., or  $0 + 7$ ,  $1 + 6$ ,  $2 + 5$ , etc.).

T: Talk with your partner about how you put your number bonds of 7 in an order based on the numbers. Does your way of ordering look the same as or different from your partners?

S: (Responses may vary.)

T: Let's write all of the number bonds of 7. (Record all of the number bonds of 7 on a chart beginning with 7 and 0, and call on students to help you write the expressions.)

Have the students glue their number bonds in an order, starting with 7 and 0, on a blank sheet of paper. Students will refer to this sheet as they work towards mastering all decompositions of 7.



#### NOTES ON MULTIPLE MEANS FOR ACTION AND EXPRESSION:

Involving students to make the 7 chart is a great way to get them excited about creating displays for the classroom. When students are involved in making these pieces, they are more likely to remember them in the room and use them when needed.



Ask the following questions to close the lesson:

- Look at all the ways we made 7 in this poster. What patterns do you see?
- Let's revisit our poster for 6. What do you see is the same and different about our poster showing ways to make 6, and our poster showing ways to make 7? Talk to your partner.
- What did you get really good at today?

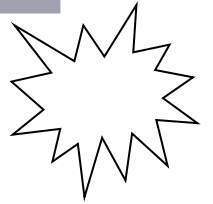


### NOTES ON MATHEMATICAL PRACTICE:

All through this module, students must pay attention to the units they are counting and use precise language to convey their knowledge (MP6). Hold them accountable. 6 tens + 4 tens is 10 tens.

### Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.



Name \_\_\_\_\_

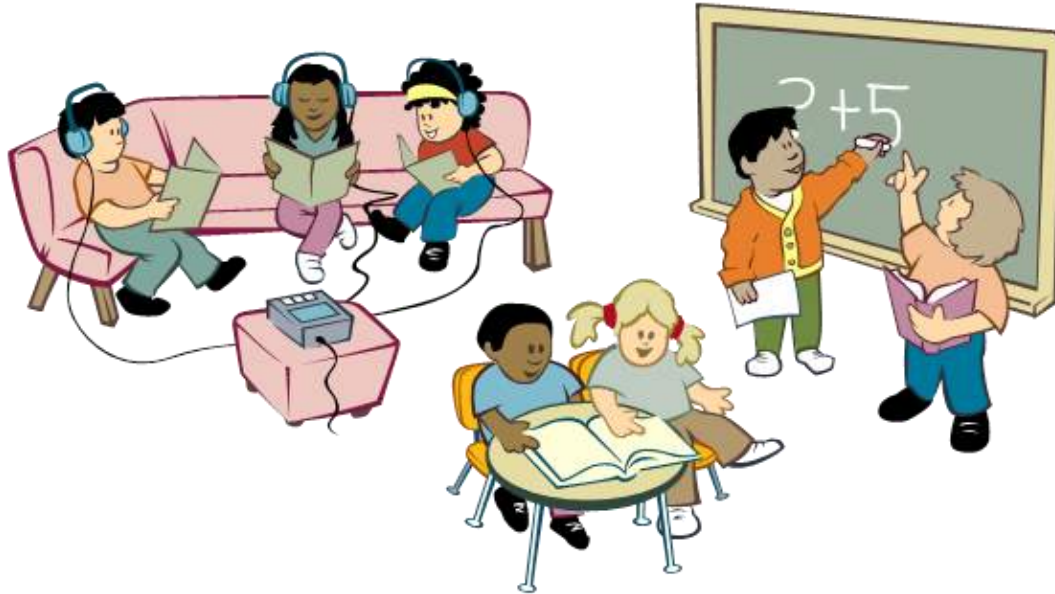
Date \_\_\_\_\_

### Number Bond Dash!

**Directions:** Do as many as you can in 90 seconds. Write the amount you finished here:

1.	2.	3.	4.	5.
6.	7.	8.	9.	10.
11.	12.	13.	14.	15.
16.	17.	18.	19.	20.
21.	22.	23.	24.	25.

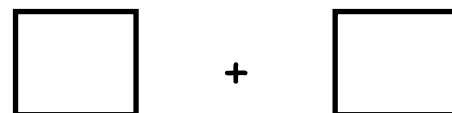
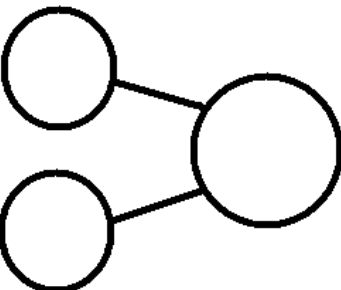
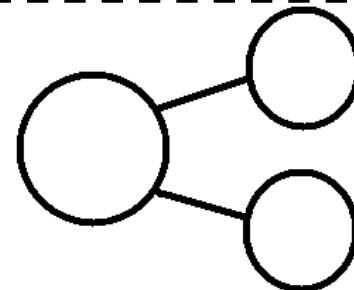
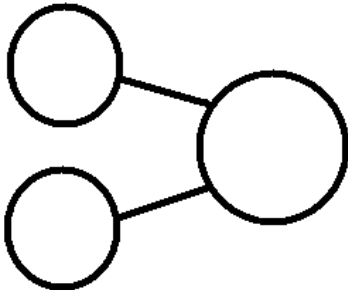
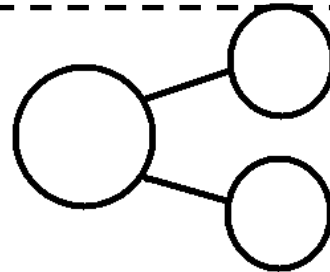
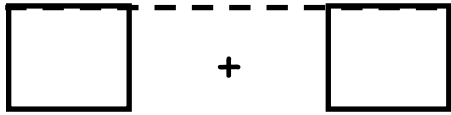
© Kelly Spinks



Name \_\_\_\_\_

Date \_\_\_\_\_

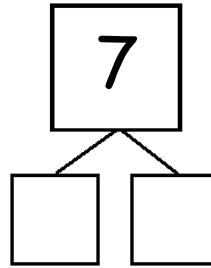
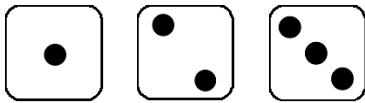
**Ways to Make 7!** Use the classroom picture to help you write the expressions and number bonds to show all of the different ways to make 7.



Name \_\_\_\_\_

Date \_\_\_\_\_

Color in two dice that make 7 together. Then fill in the number bond and number sentences to match the dice you colored.



$$\square \bigcirc \square = \boxed{7}$$

$$\boxed{7} = \square \bigcirc \square$$

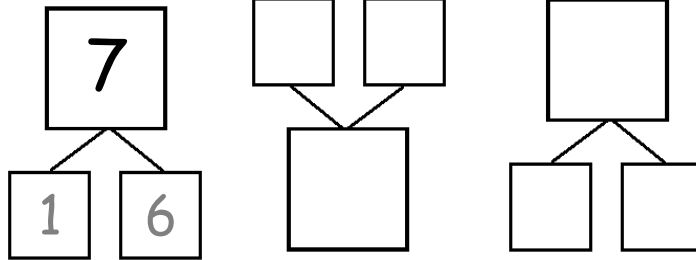
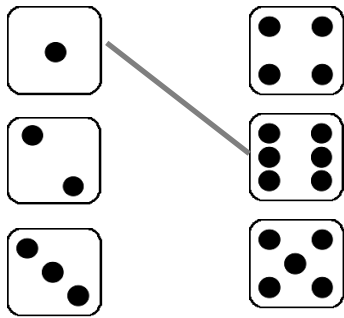
$$\square \bigcirc \square = \boxed{7}$$

$$\boxed{7} = \square \bigcirc \square$$

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Match the dice to show different ways to make 7. Then draw a number bond for each pair of dice.

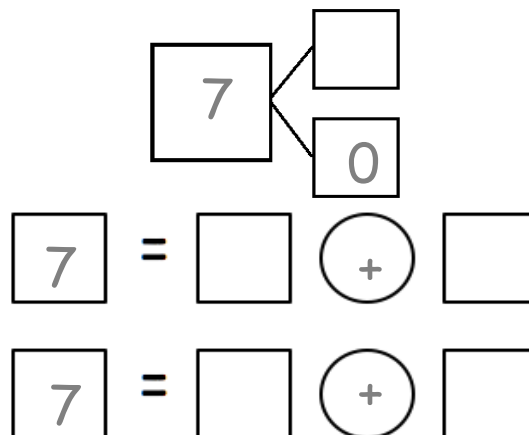


2. Make 2 number sentences. Use the number bonds above for help.

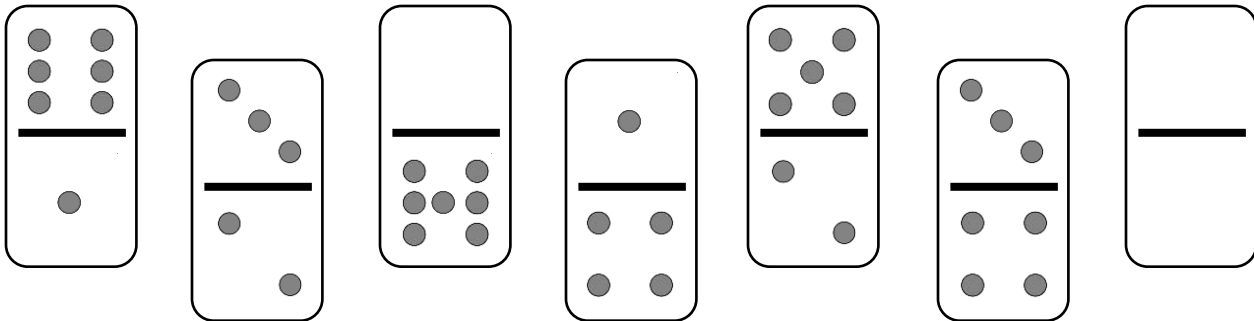
$$\square + \square = 7$$

$$7 = \square + \square$$

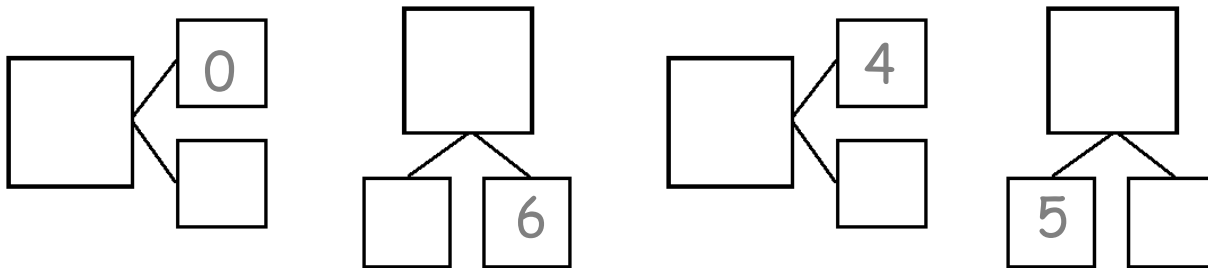
3. Fill in the missing number from the number bond. Then write more addition sentences for the number bond you made.



4. Color the dominoes that make 7.



5. Complete the number bonds for the dominoes you colored.



# Shake Those Disks! - 6

<div style="text-align: center;"> <div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center; font-size: 24px;">6</div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;">0</div> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;">6</div> </div> </div>	<div style="text-align: center;"> <div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center; font-size: 24px;">6</div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;">1</div> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;">5</div> </div> </div>	<div style="text-align: center;"> <div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center; font-size: 24px;">6</div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;">2</div> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;">4</div> </div> </div>	<div style="text-align: center;"> <div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center; font-size: 24px;">6</div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;">3</div> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;">3</div> </div> </div>

© Kelly Spinks






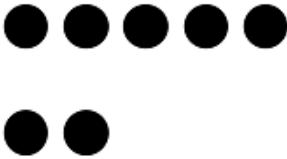
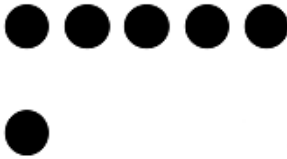


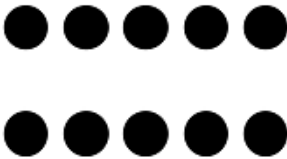
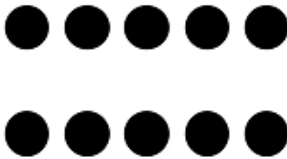
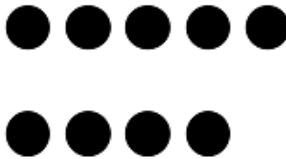
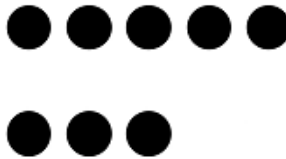


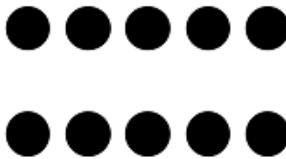
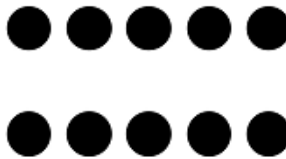
5-group cards. Copy double-sided on card stock to make 5-group cards and single-sided for matching games.

Numerals

0	1	2	3
4	5	<u>6</u>	7
8	<u>9</u>	10	10
10	10	5	5

5-group cards.

5-groups

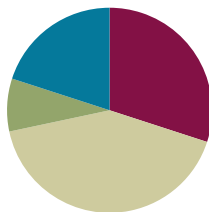
			
			
			
			

## Lesson 6

**Objective:** Represent *put together* situations with number bonds. Count on from one embedded number or part to totals of 8 and 9 and generate all expressions for each total.

### Suggested Lesson Structure

Fluency Practice	(18 minutes)
Application Problem	(5 minutes)
Concept Development	(25 minutes)
Student Debrief	(12 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (18 minutes)

- Red Light/Green Light: Counting by Ones **1.NBT.1** (5 minutes)
- Target Practice: 6 and 7 **1.OA.6** (8 minutes)
- Number Bond Dash: 7 **1.OA.6** (5 minutes)

### Red Light/Green Light: Counting by Ones (5 minutes)

Note: By providing students with ongoing practice with counting throughout the year, they build and maintain their counting skills. This counting work is also foundational for later first grade work with adding and subtracting within 100.

Say a number between 1 and 100. When you say “green light,” students begin running in place and counting aloud together, beginning with the number you said. When you say “red light,” they stop counting and freeze. Any students who are still moving or counting after you say “red light” sit down until the next game. Continue playing with a new starting number every time you say “green light.” Play until only a few students are standing, or when you see fit. Then instruct the whole class to stand and start the game again.

A suggested sequence of start numbers would be: 15, 28, 35, 48, 55, 68....



#### NOTES ON MULTIPLE MEANS OF REPRESENTATION:

For those students who are still developing basic counting skills and until this skill becomes automatic, provide a visual tool such as the hundreds chart in a place where they can easily see it during the game.

**Target Practice: 6 and 7 (8 minutes)**

Materials: (S) 7 counters and a die per partner

Note: This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

Break students into partners. Give each set of partners 6 counters. Instruct them to take turns as the Roller and the Target Finder. The Roller rolls the dice. The Target Finder determines the partner to 6. Students may use counters as needed. First, play with 6 as the target number and then distribute another counter to each set of partners and practice making finding to 7.

**Number Bond Dash: 7 (5 minutes)**

Materials: (T) Stopwatch or timer (S) Number Bond Dash: 7, marker to correct work

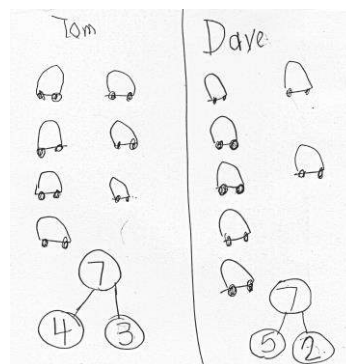
Note: By using the same system, students can focus on the mathematics alone. This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

Follow procedure for Number Bond Dash (see **G1-M1-L5**).

**Application Problem (5 minutes)**

Tom has 4 red cars and 3 green cars. Dave has 5 red cars and 2 green cars. Dave thinks he has more cars than Tom has. Is Dave right? Draw a picture to show how you know. Write a number bond to show each of the boys' sets of cars.

Note: This problem is designed as a bridge from the previous lesson's focus on decompositions of 7, and provides a lead-up to today's concept development as students prove that 8 can be decomposed in many ways.

**Concept Development (25 minutes)**


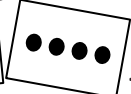
Materials: (T) Picture card with 8 animals in a pond, chart to record decompositions of 8 (S) 5-group cards 0–8 (see **G1-M1-L5**), picture card with fall animal scene, personal white boards with a blank equation template, Ways to Make 8 recording sheet

Assign students partners (A and B), and have them sit on the carpet with their 5-group cards.

- T: Look at the picture. Talk with your partner about the different parts you see.
- S: (Students discuss as the teacher circulates.)

**NOTES ON  
MULTIPLE MEANS OF  
REPRESENTATION:**

Remember to highlight critical vocabulary for students who may need another representation to make the connection. Displaying pictures of the animals talked about in the lesson will help these students. Or have students share what these animals are in their native language to make it more personally meaningful.

- T: What 2 different animals do you see?
- S: Frogs and ducks!
- T: Partner A, show how many frogs there are with your 5-group cards, using the number side.
- S: (Show the numeral 4.)
- T: Partner B, show how many ducks there are with your 5-group cards, using the dot side.
- S: (Show 4 dots.)
- T: Yesterday, what strategy did we use to find how many students were in the classroom?
- S: We counted on.
- T: Let's count on to see how many animals there are altogether, starting with...
- S: 4!
- T/S: Foouuur, 5, 6, 7, 8. (Count, while pointing to  .)
- T: Work with your partner to write a number sentence that matches our frogs and ducks on your personal white board.
- S: (Write  $4 + 4 = 8$  or  $8 = 4 + 4$ .)
- T: How else are these animals different from one another?



### NOTES ON MULTIPLE MEANS FOR ENGAGEMENT:

Adjust lesson structure to suit specific learning needs remembering that some students will need to keep counting all (by flipping the cards to expose all of the dots) versus counting on differentiation.

Repeat this process as children record the decompositions of 8, using their 5-group cards to count on from one part (the numeral) to find the total, and recording the decomposition in an equation on their personal white boards.

- T: Now we're going to play a game called Ways to Make 8! The goal is to find all of the different ways to make 8 with your partner.
1. Put your 5-group cards together in the center. Partner A's cards should all show the dot side. Partner B's cards should all show the number side.
  2. Partner A picks a number card and a dot card that she thinks make 8. Both partners check together, by counting on from the number card.
  3. Partner A writes the number bond and expressions on her sheet, and Partner B checks it, saying, "That's correct!" or "Try again, friend."
  4. Then you take turns until each of you has all of the different ways to make 8!

(Discuss ways to work with  $4 + 4$ , as this combination requires duplicates. Ask students how they might solve this dilemma!)

As students work, circulate and encourage active counting on. As students finish, have them save their recording sheet to add to their portfolio of number bonds for their reference.

## 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 solve these problems using the RDW approach used for Application Problems.

## Student Debrief (12 minutes)

**Lesson Objective:** Represent *put together* situations with number bonds. Count on from one embedded number or part to totals of 8 and 9 and generate all expressions for each total.

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

Ask students to come to the meeting area.

- T: We're going to write all of the number bonds of 8 in an order based on the numbers. Talk with your partner about how we can do this.
- S: (Responses may vary; circulate and listen to discussion.)
- T: I heard someone say to start with  $8 + 0$ . How will that be the same as our other number posters? (Refer to the posters of 6 and 7.)
- S: We started with the biggest part.
- T: Let's write all of the number bonds of 8, starting with 8 and 0. (Record all of the number bonds of 8 on a chart, with the first part decreasing by 1 each time, and call on students to help you write the expressions.)

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 X•X

Name: Maria Date: \_\_\_\_\_

Circle 7. Count on to show 8 with the picture and number bond. Write the expressions.

1. Circle 6. How many more does 6 need to make 8?

2. Circle 5. How many more does 5 need to make 8?

3. Circle 4. How many more does 4 need to make 8?

COMMON CORE Lesson 6: Lesson Name: DOTS (8) and 19 (8) Worksheet Date: 3/4/13 engage<sup>ny</sup> X.X.2

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 6 X•X

4. These number bonds are in an order starting with the biggest part first. Write to show which number bonds are missing.

5. Use the expression to write a number bond and draw a picture that makes 8.

$3 + 5$

6. Use the expression to write a number bond and draw a picture that makes 8.

$8 + 0$

COMMON CORE Lesson 6: Lesson Name: DOTS (8) and 19 (8) Worksheet Date: 3/4/13 engage<sup>ny</sup> X.X.3

You may choose to use any combination of the questions below to lead the discussion.

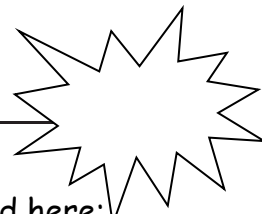
- (Show a blank Problem Set sheet, or re-draw the pictures from the Problem Set on the board.) Look at the smiley faces in Problem 1. What other parts can you see hiding in 8? (Repeat with Problems 2 and 3.)
- Look at Problem 5. What other expression can you write? (Repeat with Problem 6.)
- Look at our poster for all of the different ways to make 8. What patterns do you see?
- Think about our game, Ways to Make 8. Why did we only use our cards 0 through 8 today?
- Talk with your partner about what you learned today.

### Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

Name \_\_\_\_\_

Date \_\_\_\_\_



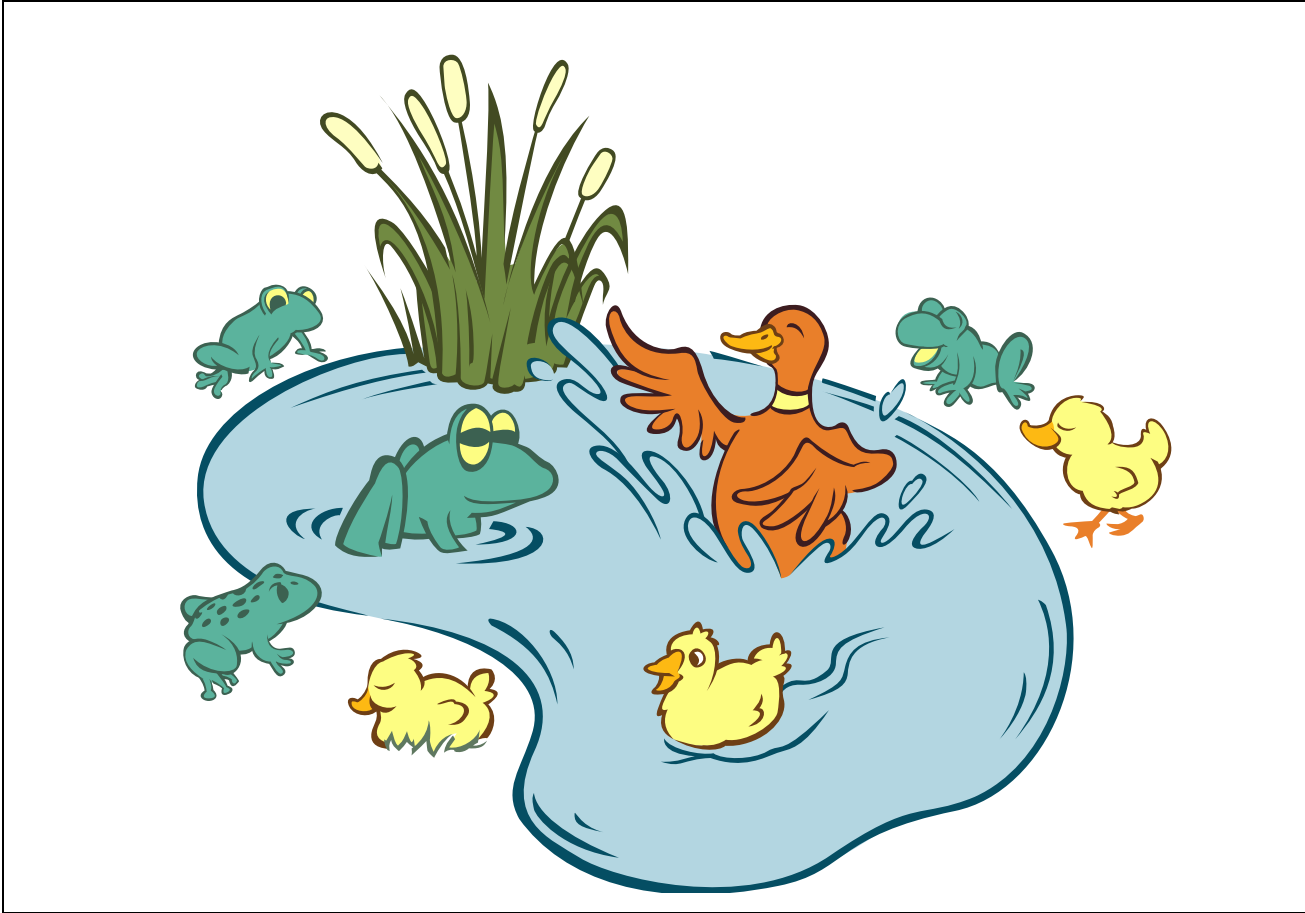
### Number Bond Dash!

Directions: Do as many as you can in 90 seconds. Write the amount you finished here:

1.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">7</div> <div style="display: flex; justify-content: space-around; width: 100px;"><div style="border: 1px solid black; padding: 5px; text-align: center;">6</div><div style="border: 1px solid black; width: 30px; height: 30px;"></div></div>	2.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">7</div> <div style="display: flex; justify-content: space-around; width: 100px;"><div style="border: 1px solid black; padding: 5px; text-align: center;">7</div><div style="border: 1px solid black; width: 30px; height: 30px;"></div></div>	3.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">7</div> <div style="display: flex; justify-content: space-around; width: 100px;"><div style="border: 1px solid black; padding: 5px; text-align: center;">6</div><div style="border: 1px solid black; width: 30px; height: 30px;"></div></div>	4.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">7</div> <div style="display: flex; justify-content: space-around; width: 100px;"><div style="border: 1px solid black; padding: 5px; text-align: center;">5</div><div style="border: 1px solid black; width: 30px; height: 30px;"></div></div>	5.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">7</div> <div style="display: flex; justify-content: space-around; width: 100px;"><div style="border: 1px solid black; padding: 5px; text-align: center;">6</div><div style="border: 1px solid black; width: 30px; height: 30px;"></div></div>
6.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">7</div> <div style="display: flex; justify-content: space-around; width: 100px;"><div style="border: 1px solid black; width: 30px; height: 30px;"></div><div style="border: 1px solid black; padding: 5px; text-align: center;">7</div></div>	7.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">7</div> <div style="display: flex; justify-content: space-around; width: 100px;"><div style="border: 1px solid black; width: 30px; height: 30px;"></div><div style="border: 1px solid black; padding: 5px; text-align: center;">6</div></div>	8.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">7</div> <div style="display: flex; justify-content: space-around; width: 100px;"><div style="border: 1px solid black; width: 30px; height: 30px;"></div><div style="border: 1px solid black; padding: 5px; text-align: center;">5</div></div>	9.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">7</div> <div style="display: flex; justify-content: space-around; width: 100px;"><div style="border: 1px solid black; width: 30px; height: 30px;"></div><div style="border: 1px solid black; padding: 5px; text-align: center;">4</div></div>	10.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">7</div> <div style="display: flex; justify-content: space-around; width: 100px;"><div style="border: 1px solid black; width: 30px; height: 30px;"></div><div style="border: 1px solid black; padding: 5px; text-align: center;">3</div></div>
11.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">7</div> <div style="display: flex; justify-content: space-around; width: 100px;"><div style="border: 1px solid black; padding: 5px; text-align: center;">4</div><div style="border: 1px solid black; width: 30px; height: 30px;"></div></div>	12.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">7</div> <div style="display: flex; justify-content: space-around; width: 100px;"><div style="border: 1px solid black; padding: 5px; text-align: center;">3</div><div style="border: 1px solid black; width: 30px; height: 30px;"></div></div>	13.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">7</div> <div style="display: flex; justify-content: space-around; width: 100px;"><div style="border: 1px solid black; padding: 5px; text-align: center;">2</div><div style="border: 1px solid black; width: 30px; height: 30px;"></div></div>	14.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">7</div> <div style="display: flex; justify-content: space-around; width: 100px;"><div style="border: 1px solid black; padding: 5px; text-align: center;">5</div><div style="border: 1px solid black; width: 30px; height: 30px;"></div></div>	15.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">7</div> <div style="display: flex; justify-content: space-around; width: 100px;"><div style="border: 1px solid black; padding: 5px; text-align: center;">2</div><div style="border: 1px solid black; width: 30px; height: 30px;"></div></div>
16.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">7</div> <div style="display: flex; justify-content: space-around; width: 100px;"><div style="border: 1px solid black; width: 30px; height: 30px;"></div><div style="border: 1px solid black; padding: 5px; text-align: center;">6</div></div>	17.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">7</div> <div style="display: flex; justify-content: space-around; width: 100px;"><div style="border: 1px solid black; width: 30px; height: 30px;"></div><div style="border: 1px solid black; padding: 5px; text-align: center;">1</div></div>	18.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">7</div> <div style="display: flex; justify-content: space-around; width: 100px;"><div style="border: 1px solid black; width: 30px; height: 30px;"></div><div style="border: 1px solid black; padding: 5px; text-align: center;">0</div></div>	19.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">7</div> <div style="display: flex; justify-content: space-around; width: 100px;"><div style="border: 1px solid black; width: 30px; height: 30px;"></div><div style="border: 1px solid black; padding: 5px; text-align: center;">2</div></div>	20.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">7</div> <div style="display: flex; justify-content: space-around; width: 100px;"><div style="border: 1px solid black; width: 30px; height: 30px;"></div><div style="border: 1px solid black; padding: 5px; text-align: center;">5</div></div>
21.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">7</div> <div style="display: flex; justify-content: space-around; width: 100px;"><div style="border: 1px solid black; padding: 5px; text-align: center;">1</div><div style="border: 1px solid black; width: 30px; height: 30px;"></div></div>	22.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">7</div> <div style="display: flex; justify-content: space-around; width: 100px;"><div style="border: 1px solid black; padding: 5px; text-align: center;">5</div><div style="border: 1px solid black; width: 30px; height: 30px;"></div></div>	23.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">7</div> <div style="display: flex; justify-content: space-around; width: 100px;"><div style="border: 1px solid black; padding: 5px; text-align: center;">3</div><div style="border: 1px solid black; width: 30px; height: 30px;"></div></div>	24.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">7</div> <div style="display: flex; justify-content: space-around; width: 100px;"><div style="border: 1px solid black; padding: 5px; text-align: center;">0</div><div style="border: 1px solid black; width: 30px; height: 30px;"></div></div>	25.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">7</div> <div style="display: flex; justify-content: space-around; width: 100px;"><div style="border: 1px solid black; padding: 5px; text-align: center;">6</div><div style="border: 1px solid black; width: 30px; height: 30px;"></div></div>

© Kelly Spinks





Name \_\_\_\_\_ Date \_\_\_\_\_

### Ways to Make 8 Game Recording Sheet

Use your 5-group cards to help you write the expressions and number bonds to show all of the different ways to make 8.

<input type="text"/>	+	<input type="text"/>
<input type="text"/>	+	<input type="text"/>

<input type="text"/>	<input type="text"/>
	<input type="text"/>

<input type="text"/>	<input type="text"/>
<input type="text"/>	

<input type="text"/>	+	<input type="text"/>
<input type="text"/>	+	<input type="text"/>

<input type="text"/>	+	<input type="text"/>
<input type="text"/>	+	<input type="text"/>

<input type="text"/>	<input type="text"/>
	<input type="text"/>

<input type="text"/>	<input type="text"/>
<input type="text"/>	

<input type="text"/>	+	<input type="text"/>
<input type="text"/>	+	<input type="text"/>

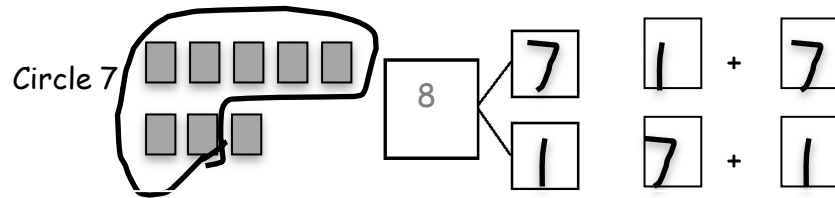
<input type="text"/>	+	<input type="text"/>
<input type="text"/>	+	<input type="text"/>

<input type="text"/>	<input type="text"/>
	<input type="text"/>

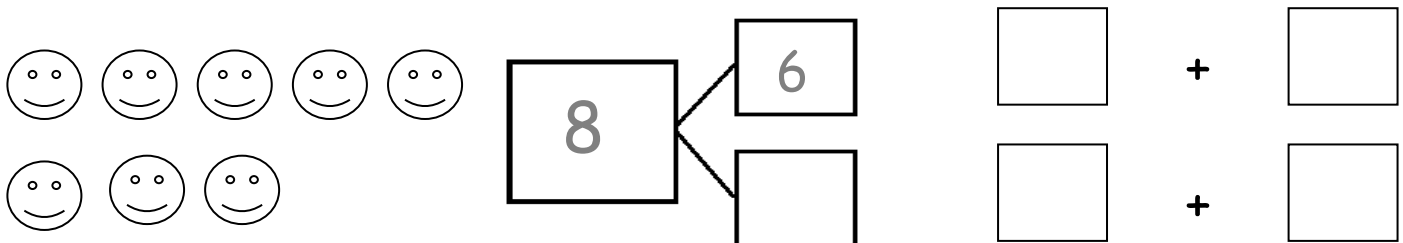
Name \_\_\_\_\_

Date \_\_\_\_\_

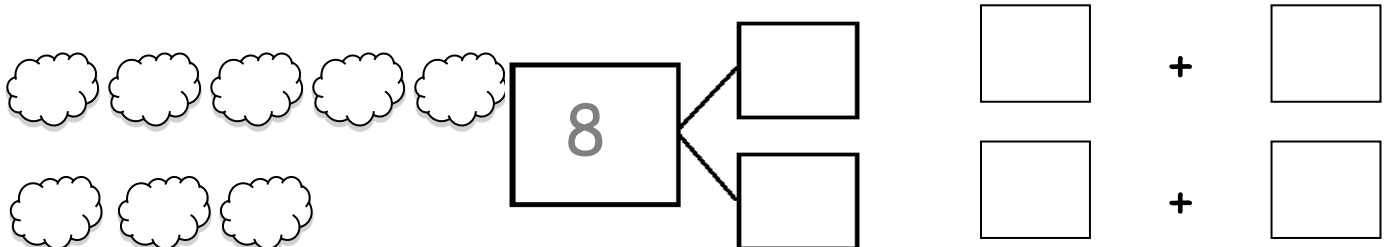
Circle the part. Count on to show 8 with the picture and number bond. Write the expressions.



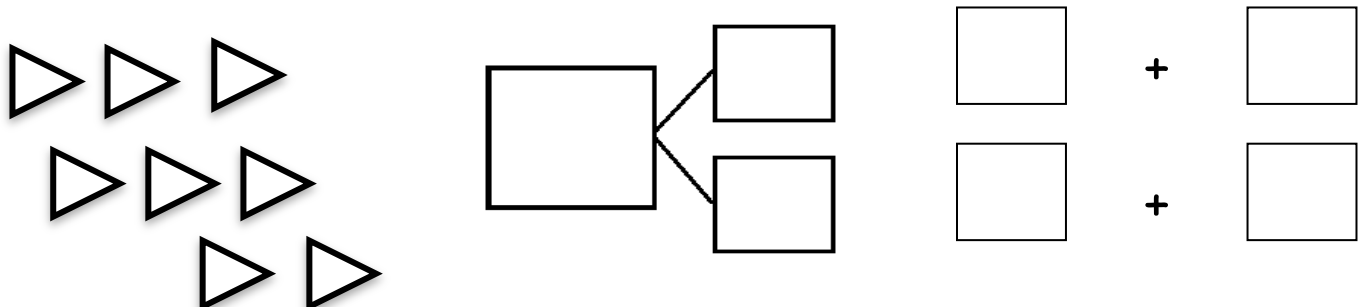
1. Circle 6. How many more does 6 need to make 8?



2. Circle 5. How many more does 5 need to make 8?



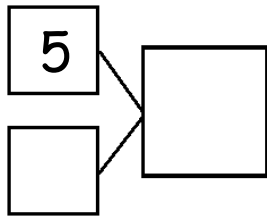
3. Circle 4. How many more does 4 need to make 8?



Name \_\_\_\_\_

Date \_\_\_\_\_

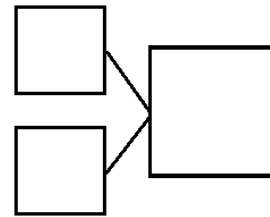
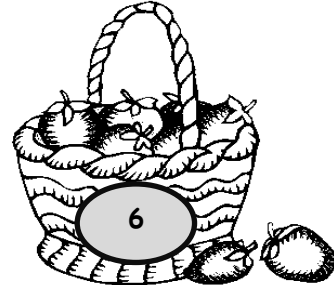
Fill in the missing part of the number bond and count on to find the total. Then write 2 addition sentences for each number bond.



$$\square + \square = \square$$

$$\square + \square = \square$$

2.



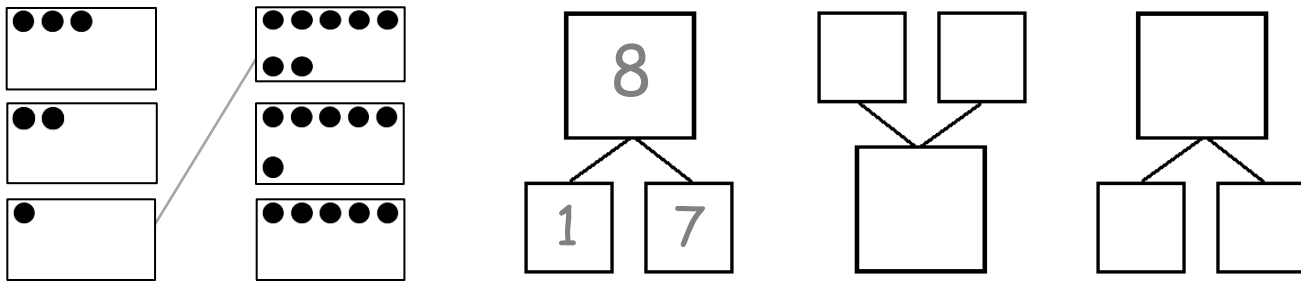
$$\square = \square + \square$$

$$\square = \square + \square$$

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Match the dots to show different ways to make 8. Then draw a number bond for each pair.

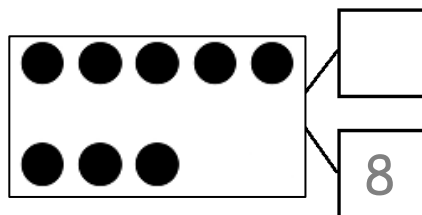


2. Show 2 ways to make 8. Use the number bonds above for help.

$$\boxed{3} \quad \bigcirc + \quad \boxed{\phantom{00}}$$

$$\boxed{\phantom{00}} \quad \bigcirc + \quad \boxed{\phantom{00}}$$

3. Fill in the missing number of the number bond. Write 2 addition sentences for the number bond you made. Notice where the equal sign is to make your sentence true.



$$\boxed{\phantom{00}} \quad \bigcirc + \quad \boxed{\phantom{00}} = \boxed{8}$$

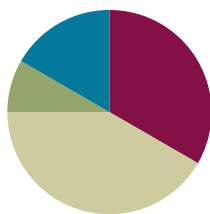
$$\boxed{\phantom{00}} = \boxed{\phantom{00}} \quad \bigcirc + \quad \boxed{\phantom{00}}$$

## Lesson 7

**Objective:** Represent *put together* situations with number bonds. Count on from one embedded number or part to totals of 8 and 9 and generate all expressions for each total.

### Suggested Lesson Structure

■ Fluency Practice	(20 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(25 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (20 minutes)

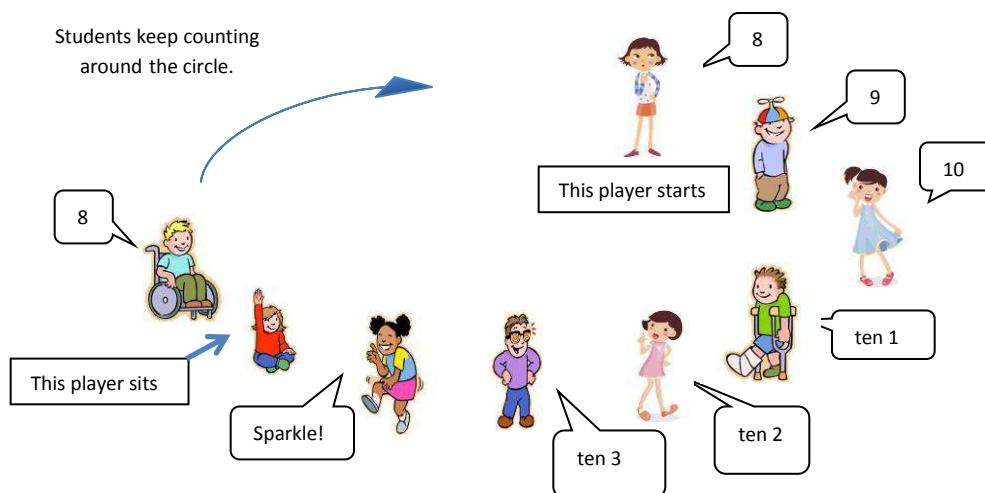
- Sparkle: The Say Ten Way **1.NBT.2** (7 minutes)
- Shake Those Disks: 8 **1.OA.6** (8 minutes)
- Number Bond Dash: 8 **1.OA.6** (5 minutes)

### Sparkle: The Say Ten Way (7 minutes)

**Note:** By providing students with ongoing practice with counting throughout the year, they build and maintain their counting skills. This activity also prepares students for work in later modules, as they explore place value and the importance of 10.

Students stand in a circle. Introduce the counting pattern, start number and end number ("Today we will count the Say Ten way from 8 to 13."). You may adjust the number range to fit the size of your class. Before the game, practice the counting sequence as a group and say, "Sparkle!" after the ending number is said aloud ("Let's practice. Eight, nine, ten, ten 1, ten 2, ten 3, Sparkle!").

Begin the game. Students count around the circle, each student saying one number in the counting sequence. After the ending number is said (ten 3), the next student says, "Sparkle!" and the following player sits. Begin again with the start number and continue counting in the same direction around the circle until only one player is standing.



### Shake Those Disks: 8 (8 minutes)

Materials: (S) 8 two-color beans (disks or pennies are also acceptable), personal white board with Shake Those Disks: 8 Template per set of partners

Note: This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

Break students into partners. Give each set of partners 6 two-color beans. Instruct them to take turns as the Shaker and the Recorder. The Shaker shakes the disks and tosses them on the table. The Recorder then records the roll on the Shake Those Disks graph. (E.g., if the Shaker rolled 6 red and 2 white, the Recorder would put an X on the graph above the 6 and 2 number bond.)

### Number Bond Dash: 8 (5 minutes)

Materials: (T) Stopwatch or timer (S) Number Bond Dash: 8 (save a master for use in later lessons), marker to correct work

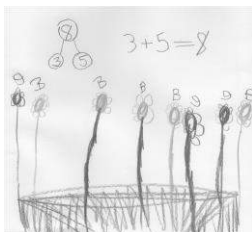
Note: By using the same system, students can focus on the mathematics alone. This activity also addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

Follow procedure for Number Bond Dash (see **G1-M1-L5**).

### Application Problem (5 minutes)

Jenny has 8 flowers in a vase. The flowers come in two different colors. Draw a picture to show what the vase of flowers might look like. Write a number sentence and a number bond to match your picture.

Note: This problem is designed as a bridge from the previous lesson's focus on decompositions of 8, and provides a logical lead-up to the current lesson's concept development as students decompose 9 in various ways.



#### NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Connect learning to areas of interest. Students who enjoy writing can be given the challenge to write their own Application Problem for 9. Practicing their writing skills during math is a great cross-curricular activity. The problem could be used for learning with the whole class during the week.

### Concept Development (25 minutes)

Materials: (T) Picture card with 9 books, 5-group cards (see **G1-M1-L5**), chart to record decompositions of 9  
(S) Bag of 10 linking cubes: 5 of each of 2 colors, personal white board with number bond and expression template

T: (Distribute 5-group cards and a bag of linking cubes to each student. Show the picture card with 9 books.) How many books do you see here?

S: 9.

T: Turn to your partner and share the different ways you see 9 books.

S: (Share ideas as the teacher circulates.)

T: I heard so many students say they saw some books on the top shelf and some on the...

S: Bottom shelf!

T: Using linking cubes that are the same color, show how many books there are on the top shelf and put them together like a stick. Then place it into the part box of your number bond.

S: (Place a stick of 5 in the part box.)

T: How many books are on the top shelf?

S: 5!

T: Use the other color and show how many books are on the bottom shelf into the other part box of your number bond. But this time just put them in a pile, not as a stick.

S: (Place 4 individual cubes in the other part box.)

T: How many books are on the bottom shelf?

S: 4!

T: What is a counting strategy to figure out how many books there are in all?

S: Count on.

T: Start with the stick of 5 and let's count on. Watch me first. (Model.) Your turn!



MP.7

S: Fiiiiiiive, 6, 7, 8, 9.

T: How many books are there in all?

S: 9.

T: What 2 parts made 9?

S: 5 and 4.

T: Put 9 other cubes into the space for the total to make our number bond true.

S: (Students do so.)

T: Do the 2 parts together show the same number as the total?

S: Yes.

T: That means our number bond is true! Write in the parts in your expression boxes.

S: (Write  $5 + 4$ .)

T: Now flip it.

S: (Write  $4 + 5$ .)

Repeat this process with 1 more way to make 9 using the picture.

Although the picture card can stay up, the next part of the lesson focuses on finding the remaining decompositions of 9 using numerals rather than pictures. As the class comes up with all the decompositions of 9 throughout the rest of the lesson, continue recording them on the chart using the number bonds and expressions.

T: Let's see if we can find the rest of the ways to make 9. When I show you a number, you make a stick of that number using the same color and place it on the number bond. Thumbs up if you know what to do.

S: (Show thumbs up.)

T: (Show the numeral 6 using the 5-group card.)

S: (Make sticks of 6 and place them into the part box.)

T: Let's find the other part that goes with 6 to make 9. Use another color to count on until you make 9.

S: Siiiiiiix, 7, 8, 9. (Place 3 individual cubes into the other part box.)

T: How many more does 6 need to get to 9?

S: 3!

T: Great, fill in your expression boxes.

Repeat this process to make all other decompositions of 9. Continue to give students the first number each time. When appropriate, have students work independently or with a partner to count on and find the other part, rather than it being teacher directed.



#### NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Allow students to move forward in small steps and use the 5-group cards to show the partners of 9 if they need more support to transfer the decompositions from above into the number bonds. For those students who are ready for a challenge, give them ways to expand today's lesson to other decompositions they have practiced.

## 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 solve these problems using the RDW approach used for Application Problems.

## Student Debrief (10 minutes)

**Lesson Objective:** Represent *put together* situations with number bonds. Count on from one embedded number or part to totals of 8 and 9 and generate all expressions for each total.

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

- Look at the front page of the Problem Set. Are there two problems that are related? How are they related?
- Talk with a partner about the first number bond you made for Problem 5. How are your number bonds different? How are they the same?
- Let's compare the charts we made for 7, 8, and 9. (Point to the number bond for 5 and 2, 5 and 3, and 5 and 4.) How are these different? Explain why they are different.
- Look at the charts we made for 6, 7, 8, and 9. In what ways is the chart for 9 different? (This chart is not organized in any particular order.) Why might we want to re-write this chart in an order, beginning with the biggest part first? (If students present compelling reasons and wish to have an organized chart, re-write the chart to represent a predetermined order.)

NYS COMMON CORE MATHEMATICS CURRICULUM

Name Maria Date \_\_\_\_\_

Circle the part. Count on to show 9 with the picture and number bond. Write the expressions.

Circle 8.

1. Circle 7. How many more does 7 need to make 9?

2. Circle 4. How many more does 4 need to make 9?

3. Circle 3. How many more does 3 need to make 9?

COMMON CORE Lesson 81 Date: 3/4/13 Lesson Name: EXACTLY 9: 805-75 (1-4) (add-on) engage<sup>ny</sup> X.X.3

NYS COMMON CORE MATHEMATICS CURRICULUM

Lesson 81 X.X.3

4. Draw a line to show partners of 9.

5. Write a number bond for each partner of 9. Use the partners above for help.

Write number sentences to match this number bond.

COMMON CORE Lesson 81 Date: 3/4/13 Lesson Name: EXACTLY 9: 805-75 (1-4) (add-on) engage<sup>ny</sup> X.X.3

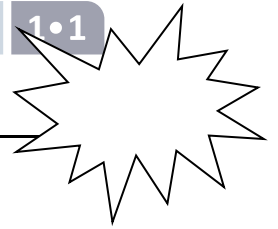
- Turn to your partner and discuss what we did and what we learned during today's lesson. What did you get better at doing today?

**Exit Ticket (3 minutes)**

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

Name \_\_\_\_\_

Date \_\_\_\_\_



### Number Bond Dash!

Directions: Do as many as you can in 90 seconds. Write the amount you finished here:

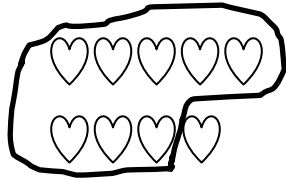
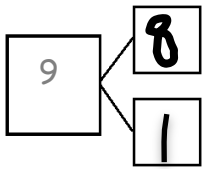
1.	2.	3.	4.	5.
6.	7.	8.	9.	10.
11.	12.	13.	14.	15.
16.	17.	18.	19.	20.
21.	22.	23.	24.	25.

Name \_\_\_\_\_

Date \_\_\_\_\_

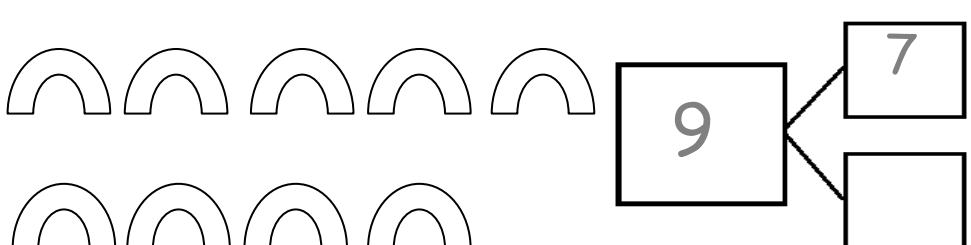
Circle the part. Count on to show 9 with the picture and number bond. Write the expressions.

Circle 8.

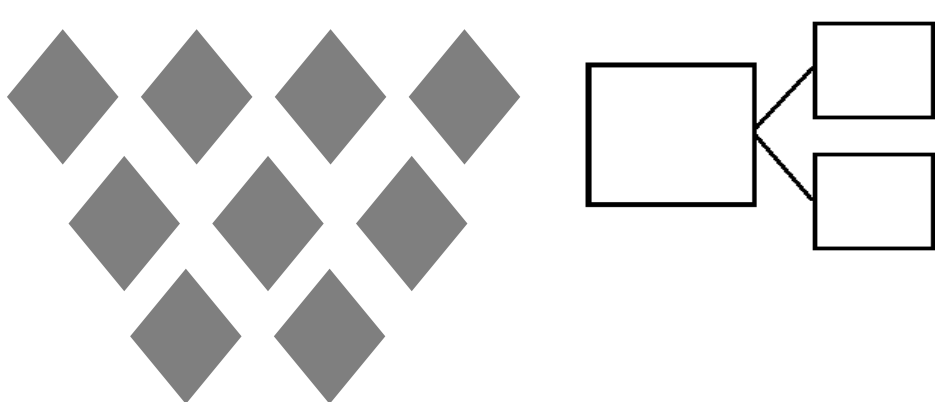
$$\begin{array}{r} 1 + 8 \\ 8 + 1 \end{array}$$

1. Circle 7. How many more does 7 need to make 9?



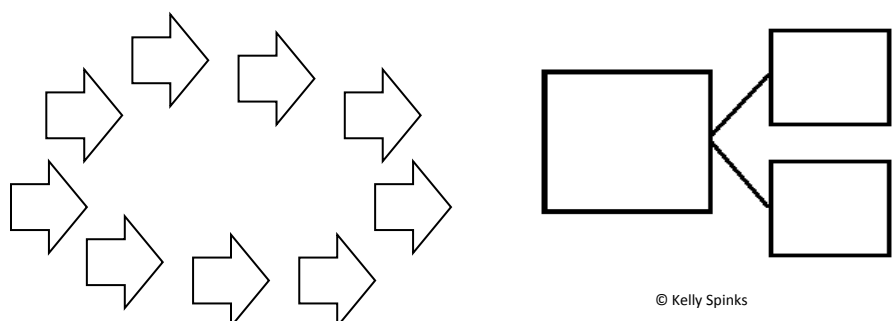
$$\begin{array}{r} \square + \square \\ \square + \square \end{array}$$

2. Circle 4. How many more does 4 need to make 9?



$$\begin{array}{r} \square + \square \\ \square + \square \end{array}$$

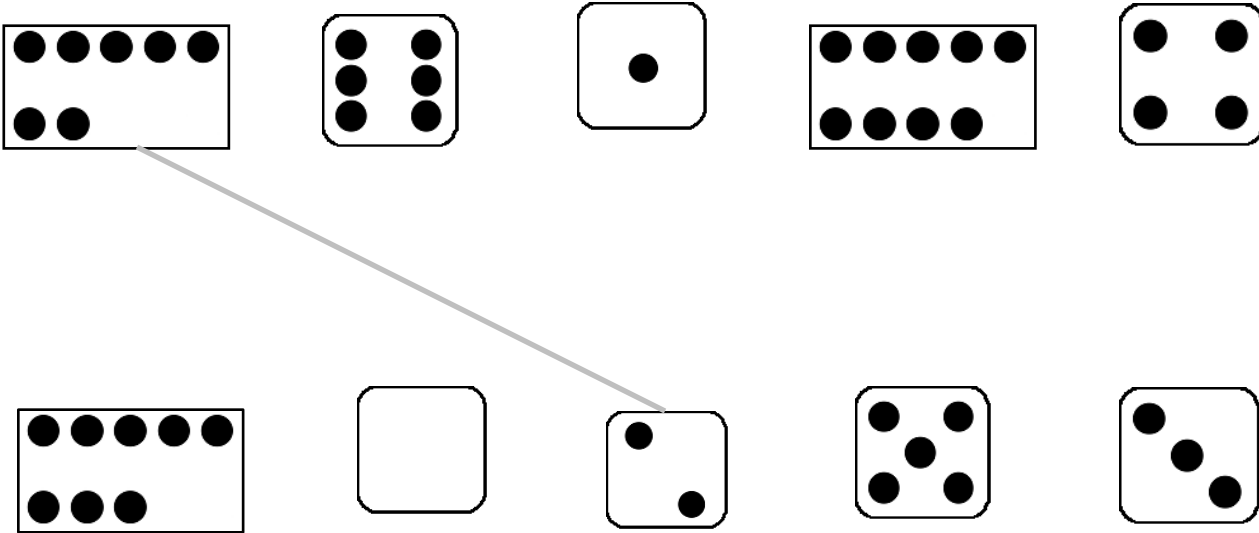
3. Circle 2. How many more does 2 need to make 9?



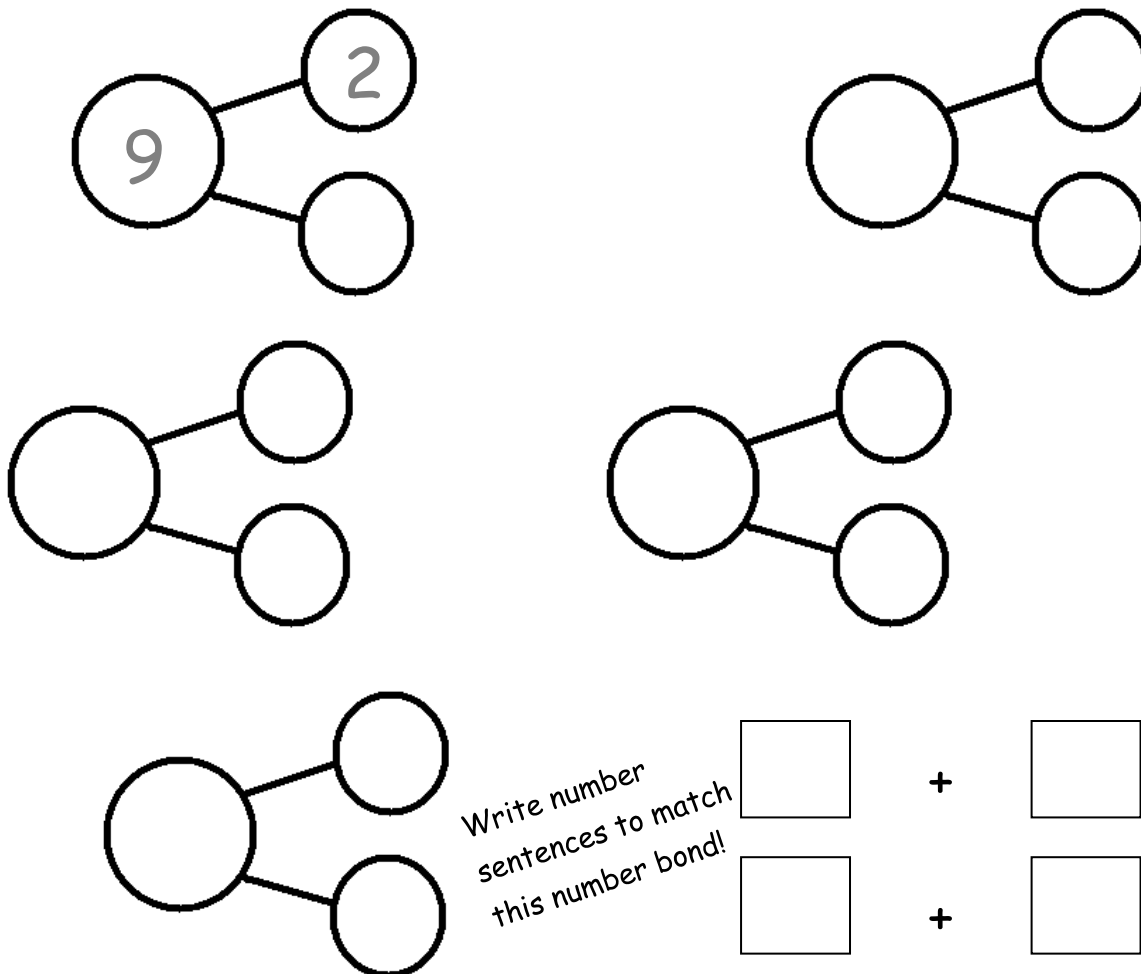
$$\begin{array}{r} \square + \square \\ \square + \square \end{array}$$

© Kelly Spinks

4. Draw a line to show partners of 9.



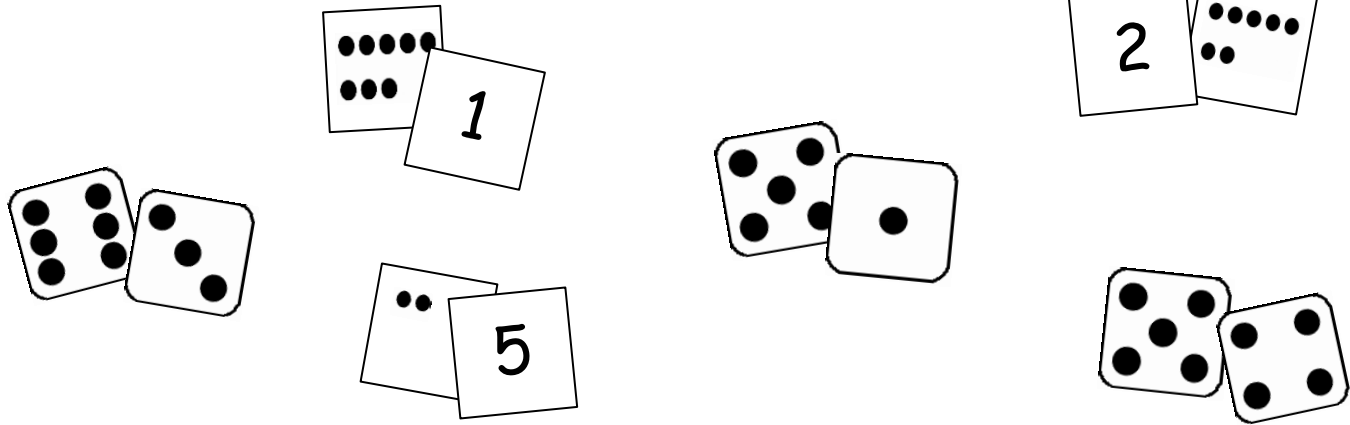
5. Write a number bond for each partner of 9. Use the partners above for help.



Name \_\_\_\_\_

Date \_\_\_\_\_

1. Circle the pairs of numbers that make 9.



2. Complete the number bonds and show 2 different ways to make 9.

<div style="display: flex; align-items: center; gap: 20px;"> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; width: 60px; height: 60px; margin-right: 10px;"></div> <div style="display: flex; flex-direction: column; align-items: center;"> <div style="border: 1px solid black; width: 40px; height: 40px; text-align: center; line-height: 40px;">4</div> <div style="border: 1px solid black; width: 40px; height: 40px; margin-top: 10px;"></div> </div> </div> <div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; width: 60px; height: 60px;"></div> <div style="font-size: 24px;">+</div> <div style="border: 1px solid black; width: 60px; height: 60px;"></div> </div> </div>	<div style="display: flex; align-items: center; gap: 20px;"> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; width: 60px; height: 60px; margin-right: 10px;"></div> <div style="display: flex; flex-direction: column; align-items: center;"> <div style="border: 1px solid black; width: 40px; height: 40px; margin-bottom: 10px;"></div> <div style="display: flex; gap: 10px;"> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> </div> </div> </div> <div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; width: 60px; height: 60px;"></div> <div style="font-size: 24px;">+</div> <div style="border: 1px solid black; width: 60px; height: 60px;"></div> </div> </div>
---	---

Name \_\_\_\_\_

Date \_\_\_\_\_

# Ways to Make 9!

Use the bookshelf picture to help you write the expressions and number bonds to show all of the different ways to make 9.

<input type="text"/>	+	<input type="text"/>
<input type="text"/>	+	<input type="text"/>

<input type="text"/>	<input type="text"/>
	<input type="text"/>

<input type="text"/>	<input type="text"/>
<input type="text"/>	

<input type="text"/>	+	<input type="text"/>
<input type="text"/>	+	<input type="text"/>

<input type="text"/>	+	<input type="text"/>
<input type="text"/>	+	<input type="text"/>

<input type="text"/>	<input type="text"/>
	<input type="text"/>

<input type="text"/>	<input type="text"/>
<input type="text"/>	

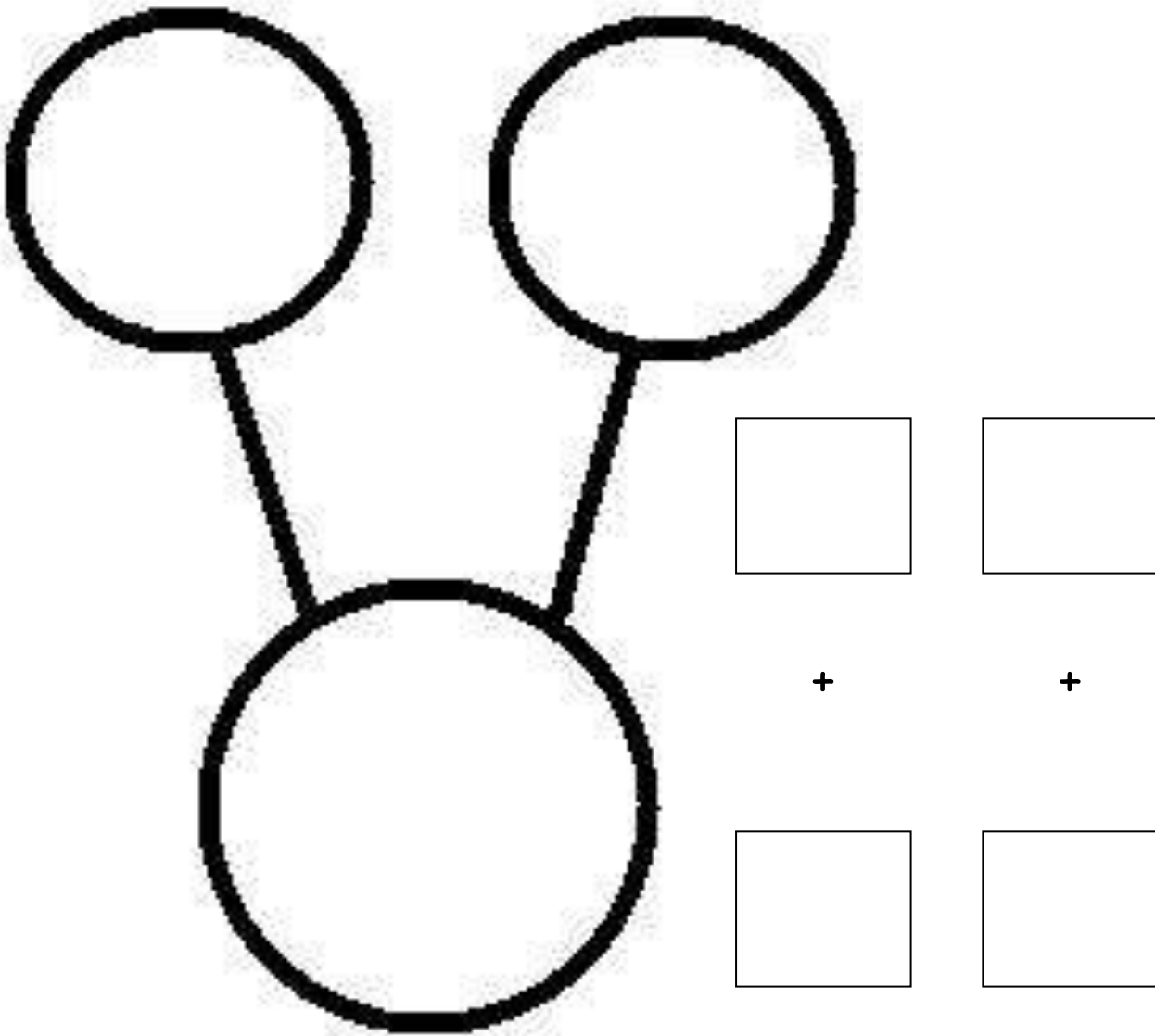
<input type="text"/>	+	<input type="text"/>
<input type="text"/>	+	<input type="text"/>

<input type="text"/>	+	<input type="text"/>
<input type="text"/>	+	<input type="text"/>

<input type="text"/>	<input type="text"/>
	<input type="text"/>



Number Bond and Expression Template



The template consists of three large circles arranged in a triangle, with lines connecting each pair of circles to form a central point. To the right of the circles are four empty square boxes arranged in a 2x2 grid. Between the top two boxes is a plus sign (+), and between the bottom two boxes is another plus sign (+).



# Shake Those Disks! - 8

<div style="text-align: center;"> <div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center; font-size: 24px;">8</div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; font-size: 24px;">0</div> <div style="border: 1px solid black; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; font-size: 24px;">8</div> </div> </div>	<div style="text-align: center;"> <div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center; font-size: 24px;">8</div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; font-size: 24px;">1</div> <div style="border: 1px solid black; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; font-size: 24px;">7</div> </div> </div>	<div style="text-align: center;"> <div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center; font-size: 24px;">8</div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; font-size: 24px;">2</div> <div style="border: 1px solid black; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; font-size: 24px;">6</div> </div> </div>	<div style="text-align: center;"> <div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center; font-size: 24px;">8</div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; font-size: 24px;">3</div> <div style="border: 1px solid black; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; font-size: 24px;">5</div> </div> </div>	<div style="text-align: center;"> <div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center; font-size: 24px;">8</div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; font-size: 24px;">4</div> <div style="border: 1px solid black; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; font-size: 24px;">4</div> </div> </div>

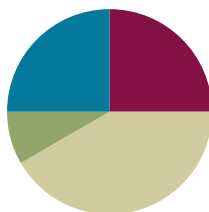
© Kelly Spinks

## Lesson 8

**Objective:** Represent all the number pairs of 10 as number bond diagrams from a given scenario and generate all expressions equal to 10.

### Suggested Lesson Structure

■ Fluency Practice	(15 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(25 minutes)
■ Student Debrief	(15 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (15 minutes)

- Skip-Counting Squats **1.OA.5** (2 minutes)
- Target Practice: 8 and 9 **1.OA.6** (8 minutes)
- Number Bond Dash: 9 **1.OA.6** (5 minutes)

### Skip-Counting Squats (2 minutes)

Note: This activity supports the connection of counting on by 2 and adding 2, and counting back by 2 and subtracting 2.

Have students count up from 0 to 20 and back 2 times, squatting down and touching the floor on odd numbers, and standing up for even numbers.

- For the first count, instruct students to whisper when they squat and talk normally when they stand.
- On the second count, encourage students to try thinking of the numbers in their heads when they squat and whisper when they stand.



#### NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Since not all students will be able to participate in this game, adjust the cues for certain students. Deaf and hard-of-hearing students can participate easily in games with visual signals. Blind and visually impaired students can participate by using audible signals, such as snaps.

### Target Practice: 8 and 9 (8 minutes)

Materials: (S) 9 counters and a die

Note: This activity addresses the core fluency objective for Grade 1.

Break students into partners. Give each set of partners 8 counters. Instruct them to take turns as the Roller and the Target Finder. The Roller rolls the dice. The Target Finder determines the partner to 8. Students may use counters as needed. First, play with 8 as the target number and then distribute another counter to each set of partners, and practice finding numerical partners to 9.

### Number Bond Dash: 9 (5 minutes)

Materials: (T) Stopwatch or timer (S) Number Bond Dash with 9 Sprint (save a master for use in later lessons), marker to correct work

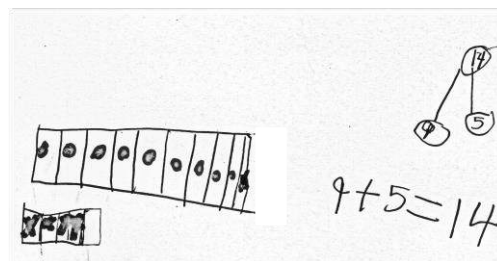
Note: By using the same system, the Number Bond Dash, students focus on the mathematics, rather than figuring out the worksheet.

Follow procedure for Number Bond Dash (see **G1-M1-L5**).

### Application Problem (5 minutes)

Rayden received 9 stickers at school. He received 5 stickers in the morning. How many stickers did he receive in the afternoon? Draw a picture, a number bond, and a number sentence to show how you know.

Note: This problem is designed as a bridge from the previous lesson's focus on decompositions of 9, and provides a lead-up to today's concept development as students prove that 10 can be decomposed in many ways.

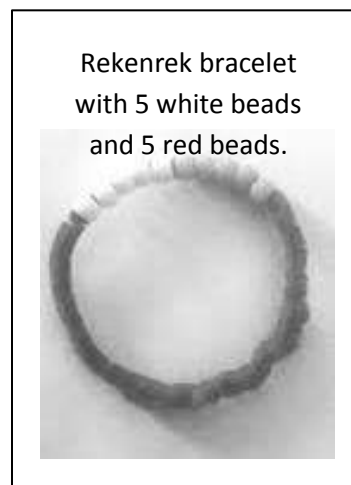


### Concept Development (25 minutes)

Materials: (T) Chart to record decompositions of 10, picture of 10 children on the playground, 2 colors of linking cubes to make number stairs for the Debrief (S) Pipe cleaners, 10 beads (5 of 1 color, 5 of another color)

- T: Talk with your partner. What comes in groups of 10?
- S: (Students discuss as the teacher circulates: 10 fingers, 10 toes, 10 dimes in a dollar, 10 digits in a phone number, 10 hot dogs.)
- T: We remember from Kindergarten that 10 is an important number. We're going to start by making bracelets with 10 beads, to help us show all of the different ways to make 10. We will call these *Rekenrek bracelets* because they have beads organized in rows of 5 and 5, just like a Rekenrek.

Walk students through the process of making a bracelet with 10 beads (5 of 1 color, 5 of another).



- T: Let's use our Rekenrek bracelets to find out all of the different ways to make 10! Look at the picture. Talk with your partner about the different parts you see. (Circulate.)
- S: (Discuss.)
- T: I heard someone say they saw 4 kids on the swing set. Show that on your bracelet.
- S: (Show 4 beads to the side.)
- T: If 4 kids are on the swings, how many kids are not?
- S: 6!
- T: What are the parts?
- S: 6 and 4.
- T: What strategy should we use to find the total?
- S: Count on!
- T: Touch and count, starting from 4.
- S: Fouuuur, 5, 6, 7, 8, 9, 10!
- T: What's our total?
- S: 10.



Write the expressions  $4 + 6$  and  $6 + 4$  on the board. Repeat the above process one or two more times, to get students familiar with showing the decompositions on their Rekenrek bracelets. Have students keep these for use in Topic I.

### Problem Set (10 minutes)

Distribute the Problem Set and have students use their Rekenrek bracelets to move the beads and record all of the decompositions of 10 on their own. Students should save these as part of their number bond portfolios, and should also save the Rekenrek bracelets.

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 solve these problems using the RDW approach used for Application Problems.

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

Name Maria Date \_\_\_\_\_

1. Use your bracelet to show different partners of 10. Then draw the beads. Write an expression to match.

 $3 + 7$	 $1 + 9$
 $7 + 3$	 $9 + 1$
 $5 + 5$	 $2 + 8$
 $8 + 2$	 $0 + 10$
 $4 + 6$	 $6 + 4$
 $10 + 0$	 $0 + 10$

COMMON CORE Lesson 8: Represent all the number pairs of 10 as number bond diagrams from a given scenario and generate all expressions equal to 10. 1.B.6  
© 2013 Common Core, Inc. All rights reserved. [commoncore.org](http://commoncore.org) engage<sup>ny</sup>

## Student Debrief (15 minutes)

**Lesson Objective:** Represent all the number pairs of 10 as number bond diagrams from a given scenario and generate all expressions equal to 10.

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

Have students come to the meeting area and look at the 10 linking cubes showing the decompositions of 10.

- Talk with your partner. What patterns do you see?
- Look from left to right. What is happening each time?
- Are there any sticks that have the same parts?
- How are these sticks different?

## Exit Ticket (3 minutes)

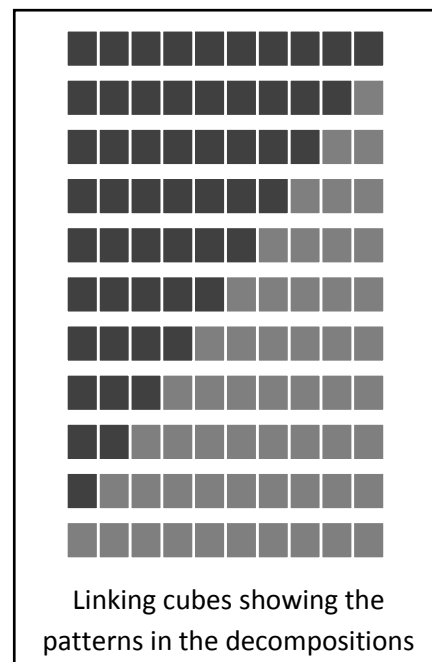
After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

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

2. Match the partners of 10. Then write a number bond for each partner.

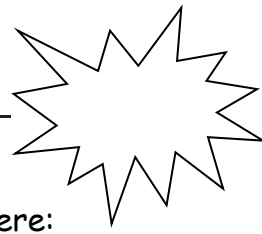
3. Color the number bond that has 2 parts that are the same. Write addition sentences to match that number bond.

COMMON CORE Lesson 8 Date: Represent all the number pairs of 10 as number bond diagrams from a given scenario and generate all expressions equal to 10. engage ny 1.B.7



Name \_\_\_\_\_

Date \_\_\_\_\_



### Number Bond Dash!

Directions: Do as many as you can in 90 seconds. Write the amount you finished here:

1.		2.		3.		4.		5.	
6.		7.		8.		9.		10.	
11.		12.		13.		14.		15.	
16.		17.		18.		19.		20.	
21.		22.		23.		24.		25.	

© Kelly Spinks

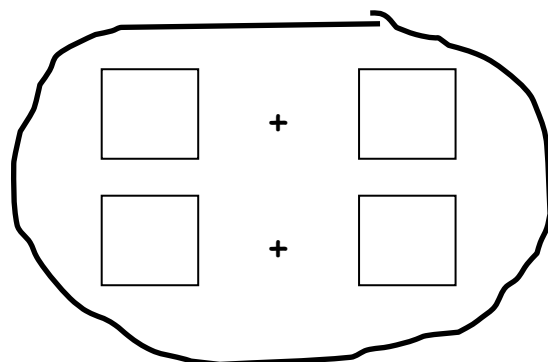
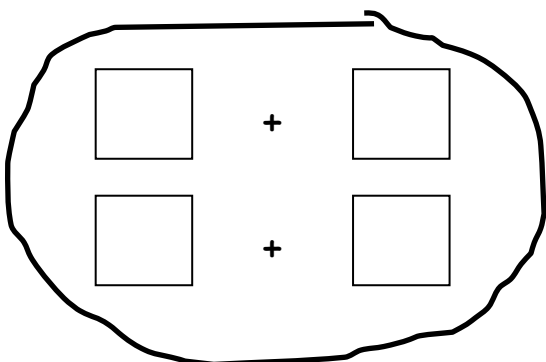
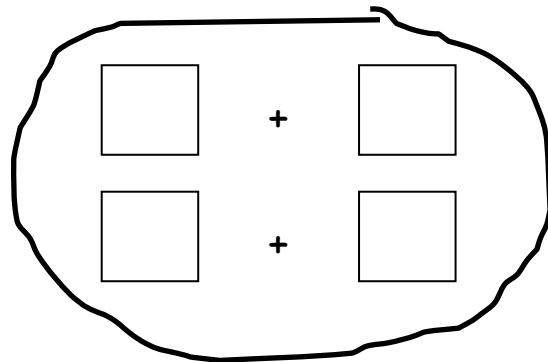
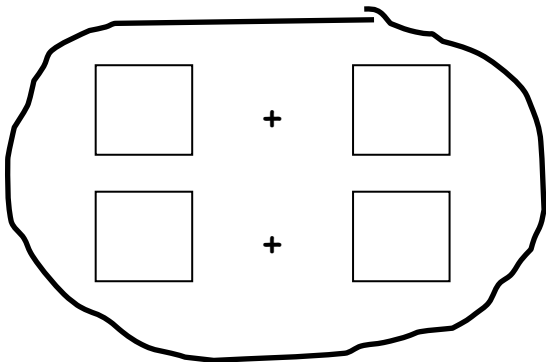
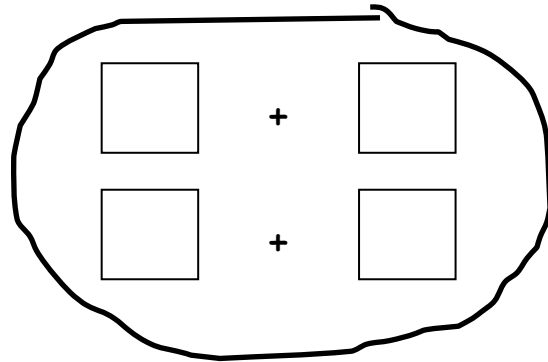
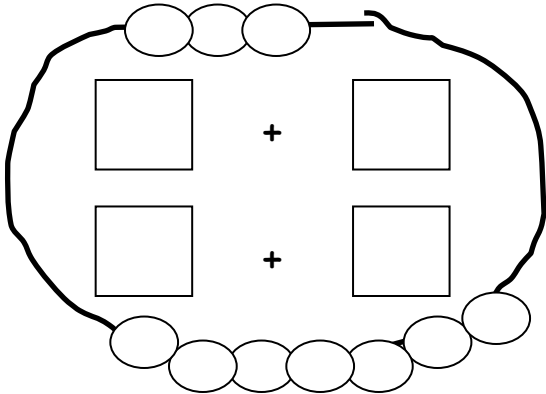


Name \_\_\_\_\_

Date \_\_\_\_\_

1. Use your bracelet to show different partners of 10. Then draw the beads.

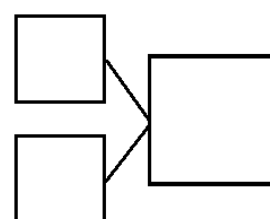
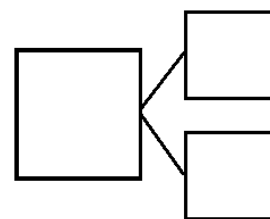
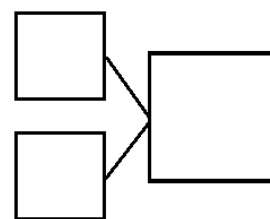
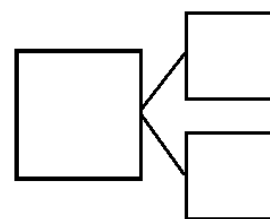
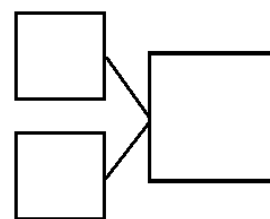
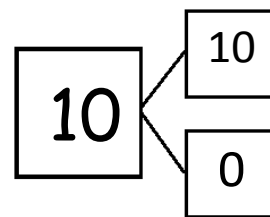
Write an expression to match.



2. Match the partners of 10. Then write a number bond for each partner.

●●●●●● ●●●●●●	10	5	●●●●●●
●●●●●● ●●●●●	9	4	●●●●●
●●●●●● ●●●●●	8	3	●●●●●
●●●●●● ●●●●●	7	2	●●●●●
●●●●●● ●●●●●	6	1	●●●●●
●●●●●● ●●●●●	5	0	●●●●●

A line connects the number 10 to the number 0.



3. Color the number bond that has 2 parts that are the same. Write addition sentences to match that number bond.

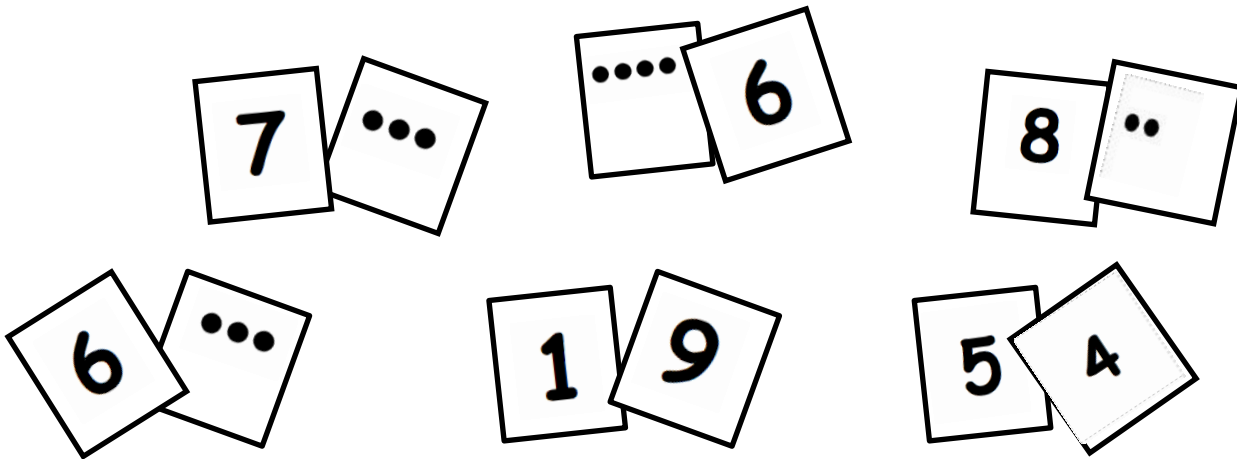
$$\square + \square = \square$$

$$\square = \square + \square$$

Name \_\_\_\_\_

Date \_\_\_\_\_

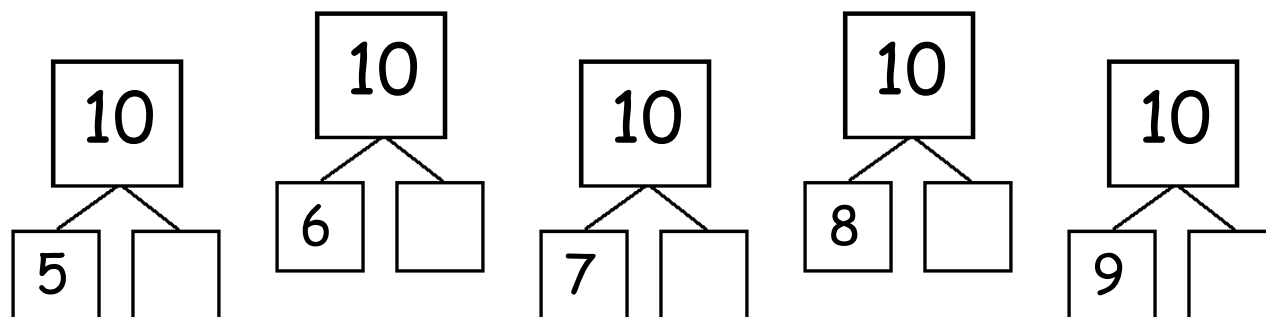
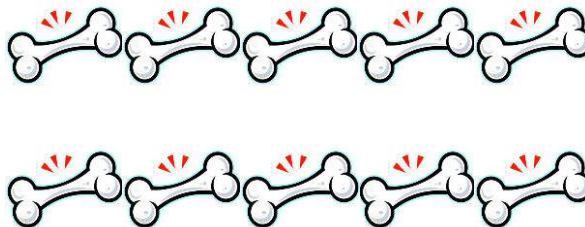
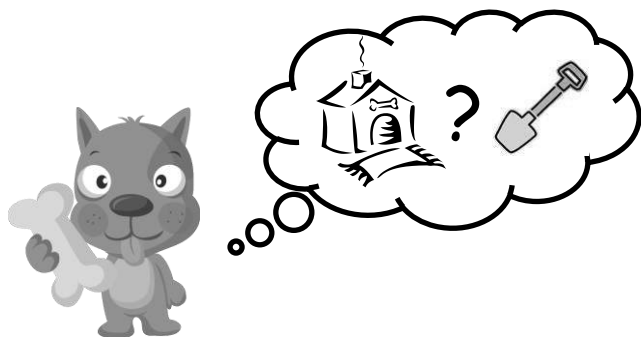
1. Color the partners that make 10.



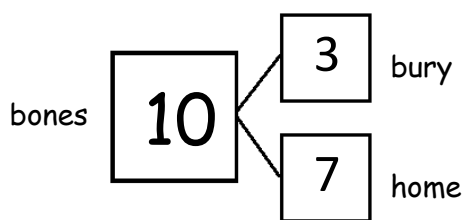
Name \_\_\_\_\_

Date \_\_\_\_\_

1. Rex found 10 bones on his walk. He can't decide which part he wants to bring to his doghouse and which part he should bury. Help show Rex his choices by filling in the missing parts to the number bonds.



2. He decided to bury 3 and bring 7 back home. Write all the adding sentences that match this number bond.



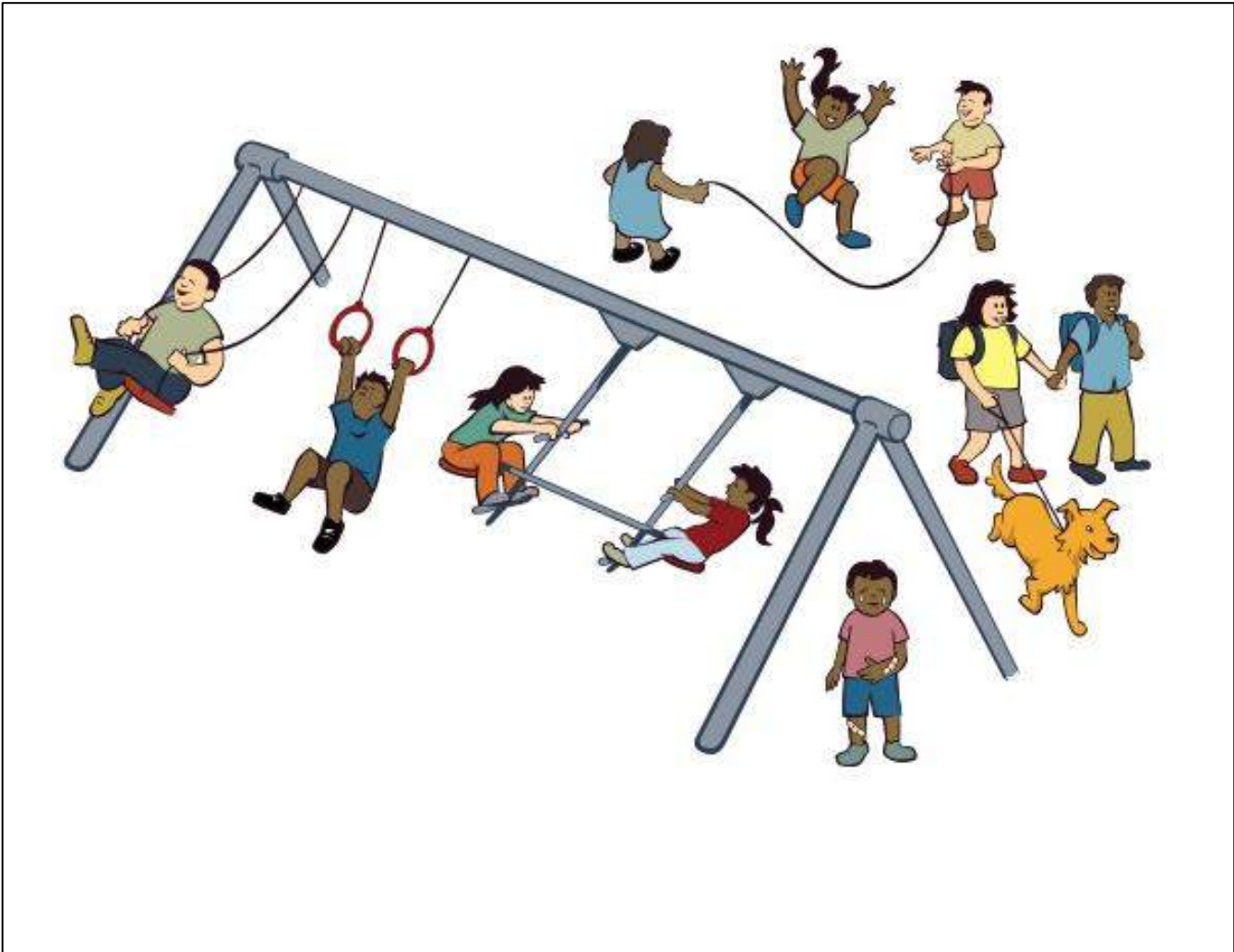
$$\square + \square = \square$$

$$\square + \square = \square$$



$$\square = \square + \square$$

$$\square = \square + \square$$





## Topic C

## Addition Word Problems

1.OA.1, 1.OA.6, 1.OA.5

<b>Focus Standard:</b>	1.OA.1	Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart and comparing, with unknowns in all positions, e.g., by using objects, drawings and equations with a symbol for the unknown number to represent the problem.
	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 $6 + 6 + 1 = 12 + 1 = 13$ ).
<b>Instructional Days:</b>	5	
<b>Coherence</b>	<b>-Links from:</b> GK–M4	Number Pairs, Addition and Subtraction to 10
	<b>-Links to:</b> G2–M4	Addition and Subtraction Within 200 with Word Problems to 100

In Topic C, students develop a more robust understanding of addition word problems, moving beyond the Kindergarten problem types (**K.OA.2**) by reviewing *put together with result unknown* and *add to with result unknown* problems, and then moving to the more complex *change unknown* version of the earlier problem types.

In Lesson 9, students solve both *add to with result unknown* and *put together with result unknown* problems with their classmates. The lesson begins with a cadre of students engaged in a dance party, and then a number of students join them—how fun! Students then record this action-based problem as an equation, and move on to the *put together with result unknown* problem type where they are faced with a set of students whose characteristics invite decomposition, much like in Topic B. Students end with a debrief where they explore the connections between these two problem types, ultimately understanding that they used the operation of addition to solve both problem types.

Lesson 10 has students using 5-group cards to solve *put together with result unknown* problems that are represented by stories stemming from pictures. The 5-group cards again make the expectation clear that students will be practicing *counting on* (Level 2 strategy), but may use the strategy of *counting all* (Level 1 strategy) if necessary.

The introduction of the *add to with change unknown* problem type (**1.OA.6**) occurs in Lesson 11. This lesson allows students explorations with problems where the *action*, which represents the *change*, is unknown. For

example, “Ben has 5 pencils. He got some more from his mother. Now he has 9 pencils. How many pencils did Ben get from his mother?” Students physically add more to the starting quantity, counting on until they reach the total; for the first time in Module 1, students simply must use the valuable Level 2 strategy of *counting on* in order to determine the unknown part.

Lesson 12 continues with solving *add to with change unknown* problems, as students use their 5-group cards to count on to find the unknown change in quantity. Throughout these two lessons, students explore the symbol for the unknown (**1.OA.1**) as both a question mark and an open box. The topic ends with students creating their own *put together with result unknown*, *add to with result unknown*, and *add to with change unknown* problems from equations, and having their peers solve them through drawings and discussions. These problems set the foundation early in the module for relating addition to subtraction in Topic G (**1.OA.4**).<sup>1</sup>

### A Teaching Sequence Towards Mastery of Addition Word Problems

**Objective 1:** Solve *add to with result unknown* and *put together with result unknown* math stories by drawing, writing equations, and making statements of the solution.  
(Lesson 9)

**Objective 2:** Solve *put together with result unknown* math stories by drawing and using 5-group cards.  
(Lesson 10)

**Objective 3:** Solve *add to with change unknown* math stories as a context for counting on by drawing, writing equations, and making statements of the solution.  
(Lesson 11)

**Objective 4:** Solve *add to with change unknown* math stories using 5-groups.  
(Lesson 12)

**Objective 5:** Tell *put together with result unknown*, *add to with result unknown*, and *add to with change unknown* stories from equations.  
(Lesson 13)

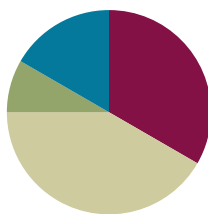
<sup>1</sup> For an analysis of addition and subtraction word problem types used in Grades K–2 please refer to the Counting and Cardinality Progression, pages 7 and 9 and the Common Core State Standards, page 88.

## Lesson 9

**Objective:** Solve *add to with result unknown* and *put together with result unknown* math stories by drawing, writing equations, and making statements of the solution.

### Suggested Lesson Structure

■ Fluency Practice	(20 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(25 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (20 minutes)

- Sparkle: The Say Ten Way **1.NBT.2** (5 minutes)
- 5-Group Flash: Partners to 10 **1.OA.6** (5 minutes)
- X-Ray Vision: Partners to 10 **1.OA.6** (5 minutes)
- Number Bond Dash: 10 **1.OA.6** (5 minutes)

### Sparkle: The Say Ten Way (5 minutes)

**Note:** By providing students with ongoing practice with counting throughout the year, they build and maintain their counting skills, which are foundational for later first grade work on using the Level 3 strategies of making ten and taking from ten when adding and subtracting.

See instructions in Lesson 7.

### 5-Group Flash: Partners to 10 (5 minutes)

**Materials:** (T/S) 5-group cards (see **G1-M1-L5**)

**Note:** This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

Teacher flashes 5-group cards for 2–3 seconds and instructs students to say the number when the teacher snaps. On the second snap, ask students to identify the partner to 10. Remind students they can use their fingers to help. Flash higher numbers first to facilitate finding the partner to 10 so that all students can feel successful.



Next, break students into partners and instruct them to take turns flashing their 5-group cards with each other.

### X-Ray Vision: Partners to 10 (5 minutes)

Materials: (T) 10 counters, container

Note: This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

1. Tell students you heard a rumor that some of the children in your class are superheroes and you are wondering if any of them have x-ray vision. Place 10 counters on the floor next to a container.
2. Tell the students to close their eyes.
3. Put 1 of the items into the container
4. Tell students to open their eyes and identify how many counters you put inside it.
5. When a student figures it out, deem her a superhero with x-ray vision!
6. Continue the game, eliciting all partners to 10.

### Number Bond Dash: 10 (5 minutes)

Materials: (T) Stopwatch or timer (S) Number Bond Dash: 10 (save a master for use in later lessons), marker to correct work.

Note: By using the same system, students can focus on the mathematics alone. The activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

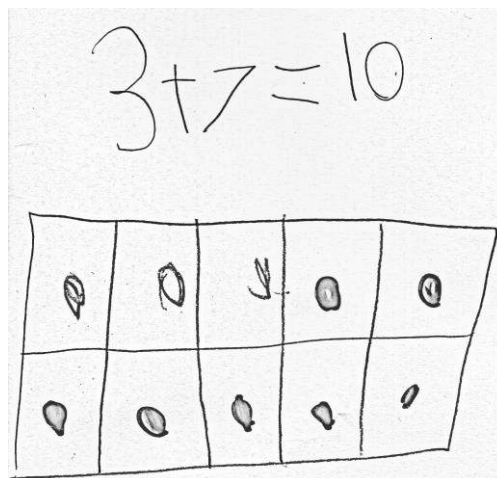
Follow procedure for Number Bond Dash (see **G1-M1-L5**).

### Application Problem (5 minutes)

Kira was making a number bracelet with a total of 10 beads on it. She put on 3 red beads so far. How many more beads does she need to add to the bracelet? Explain your thinking in a picture and number sentence.

Early Finishers: If Kira wants to use 5 red beads and 5 yellow beads for her bracelet, how many red beads and how many yellow beads will she need to add?

Note: This problem is designed as a bridge from the previous lesson's focus on decompositions of 10.



## Concept Development (25 minutes)

Materials: (S) Personal white boards with number bond and equation boxes template

Have students sit in a big semi-circle facing front. The teacher will be using students to act out math stories. Begin the lesson with *add to* story problems.

- T: Good morning, boys and girls. Welcome to Math Stories Theater! You will be watching some math stories and have a hand at solving them. First, close your eyes. When I tap you on the shoulder, quietly come up to the front.
- S: (Close eyes.)
- T: (Tap 5 students to come up. Have 1 of the students hide behind the bookcase.)
- T: Open your eyes. How many students do you see?
- S: 4 students.
- T: There are 4 students dancing at a party. After a little while, along came their dancing friend, [name of the hiding student]. How many students are dancing at the dance party now?
- S: 5 students.
- T: How many students were dancing at first?
- S: 4 students.
- T: (Records on the number bond.) How many more students came over to dance?
- S: 1 more student.
- T: (Records on the number bond.) Think about the math story you just watched. Turn and tell your partner the number sentence that tells how many students were dancing in all.
- S: (Turn and talk.)
- T: Say the number sentence.
- S:  $4 + 1 = 5$ .
- T: (Write on the board.) What is the total?
- S: 5.
- T: What does 5 equal? What are the 2 parts that make 5?
- S: 4 and 1.



### NOTES ON MULTIPLE MEANS FOR ACTION AND EXPRESSION:

When choosing numbers to use in a story, start at a simple level and change the choice of numbers after students have solved it with easy numbers to harder numbers. Here is a suggested sequence starting from simple to more complex:

add within 5 (e.g.,  $4 + 1 = 5$ ),  
 add adding 1 (e.g.,  $8 + 1 = 9$ ),  
 add using 5 (e.g.,  $5 + 2 = 7$ ),  
 add with the smaller addend first (e.g.,  $3 + 5 = 8$ ),  
 add to 9 and 10 (e.g.,  $7 + 3 = 10$ ),  
 add to 9 and 10 with smaller addend first, (e.g.,  $3 + 7 = 10$ ),  
 add including 0,  
 (e.g.,  $0 + 8 = 8$  or  $8 + 0 = 8$ ).



### NOTES ON MULTIPLE MEANS FOR ACTION AND EXPRESSION:

For those students who have moved into abstract thinking, ask them to solve the subsequent problems without drawing. Ensure that they're still making sense of the problems by having them write or talk about how they solved each one.

T: Say the number sentence starting with 5 equals.

S:  $5 = 4 + 1$ . (Teacher writes on the board.)

Analyze the referents for each number ensuring that students understand what each number represents in the story. You might continue with  $8 + 1 = 9$ , but without writing in the number bond on the board.

Choose a group of new actors to act out *put together* math stories (e.g., 5 students sitting, 2 students standing:  $5 + 2 = 7$ ; 3 students facing sideways, 5 students facing forward:  $3 + 5 = 8$ .)

T: We will now make math drawings. (Distribute personal white boards.)

T: I will tell you a story and you draw. There are 4 inch-worms on a giant leaf.

S: (Draw 4 worms on a leaf.)

T: 3 more inch-worms crawled onto the leaf.

S: (Draw 3 more worms.)

T: Does your drawing show the two parts of our story clearly? (Have students share how to make their drawings match the story by drawing two distinct groups.)

T: Write a number sentence to show what happened in your picture and find the total.

T: Turn and talk to your partner about what each number tells about the story.

S: (Share with their partners.)

T: Write the rest of the number sentences that go with your story.

You might continue with the following suggested sequence:  $7 + 3 = 10$ ,  $3 + 6 = 9$ ,  $0 + 2 = 2$ .

T: This time, I will only write the number sentence on the board. Your job is to draw a picture with math drawings to match the number sentence and to find the total. (Write  $5 + 2 = 7$ .)

S: (Draw 5 circles with one color and 2 circles with another color and write  $5 + 2 = 7$ .)

Repeat the process for  $6 + 4 = 10$ ,  $2 + 7 = 9$  and  $4 + 0 = 4$ .

## 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 solve these problems using the RDW approach used for Application Problems.


## Student Debrief (10 minutes)

**Lesson Objective:** Solve *add to with result unknown* and *put together with result unknown* math stories by drawing, writing equations, and making statements of the solution.

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 9 Problem Set 1•1

Name: Marcia Date: \_\_\_\_\_

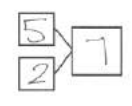
1.




$5 + 2 = 7$

5 balls are here. 2 more roll over. Now, there are 7 balls.

Make a number bond to match the story.



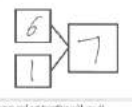
2.



$6 + 1 = 7$

6 frogs are here. 1 more hops over. Now, there are 7 frogs.

Make a number bond to match the story.



COMMON CORE Lesson 9: Solve add to with result unknown and put together with result unknown math stories by drawing, writing equations, and making statements of the solution. engage<sup>ny</sup> 1.C.7

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


Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

- How are the problem set stories the same? What did we do to solve them? How are the ball and frog examples different from the flag and flower examples?
- Which of our Math Story Theater situations was like the ball and frog examples? Which situations were like the flag and flower examples?
- Use your picture from your personal white board, or think of your own story for us to act out for Math Stories Theater!
- How was today's lesson related to our lesson on ways to make 9? (You may also cite the lessons on ways to make 6, 7, 8, or 10.)

### Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

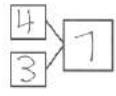
NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 9 Problem Set 1•1

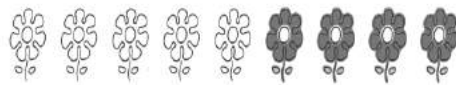
3. 

$$\boxed{4} + \boxed{3} = \boxed{7}$$

There are 4 dark flags. There are 3 white flags.  
 Altogether, there are 7 flags.

Make a number bond to match the story.

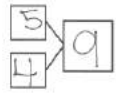


4. 

$$\boxed{5} + \boxed{4} = \boxed{9}$$

There are 5 white flowers. There are 4 dark flowers.  
 Altogether, there are 9 flowers.

Make a number bond to match the story.

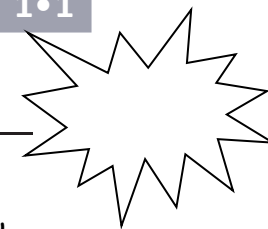


COMMON CORE Lesson 9: Solve *add to with result unknown* and *put together with result unknown* math stories by drawing, writing equations, and making statements of the solution. 6/24/13

engage<sup>ny</sup> 1.C.7

Name \_\_\_\_\_

Date \_\_\_\_\_

**Number Bond Dash!**

Directions: Do as many as you can in 90 seconds. Write the amount you finished here:

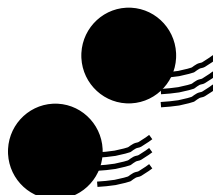
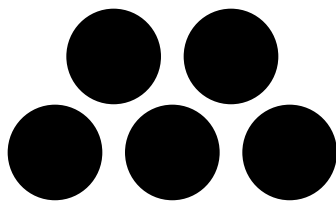
1.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">10</div> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">10</div> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> </div>	2.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">10</div> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">9</div> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> </div>	3.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">10</div> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">8</div> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> </div>	4.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">10</div> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">9</div> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> </div>	5.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">10</div> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">10</div> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> </div>
6.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">10</div> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">9</div> </div>	7.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">10</div> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">8</div> </div>	8.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">10</div> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">7</div> </div>	9.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">10</div> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">8</div> </div>	10.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">10</div> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">7</div> </div>
11.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">10</div> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">6</div> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> </div>	12.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">10</div> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">7</div> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> </div>	13.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">10</div> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">6</div> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> </div>	14.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">10</div> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">5</div> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> </div>	15.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">10</div> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">4</div> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> </div>
16.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">10</div> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">6</div> </div>	17.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">10</div> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">4</div> </div>	18.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">10</div> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">3</div> </div>	19.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">10</div> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">4</div> </div>	20.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">10</div> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">3</div> </div>
21.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">10</div> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">0</div> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> </div>	22.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">10</div> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">1</div> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> </div>	23.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">10</div> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">2</div> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> </div>	24.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">10</div> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">4</div> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> </div>	25.	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">10</div> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">2</div> <div style="border: 1px solid black; width: 40px; height: 40px;"></div> </div>

© Kelly Spinks

Name \_\_\_\_\_

Date \_\_\_\_\_

1.




+

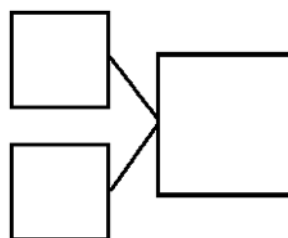
=

\_\_\_\_\_ balls are here.

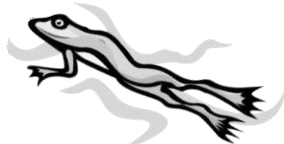
\_\_\_\_\_ more roll over.

Now, there are \_\_\_\_\_ balls.

Make a number bond to match the story.



2.




+

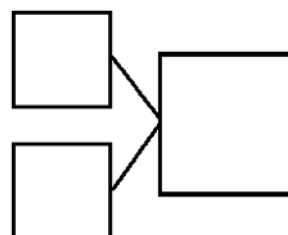
=

\_\_\_\_\_ frogs are here.

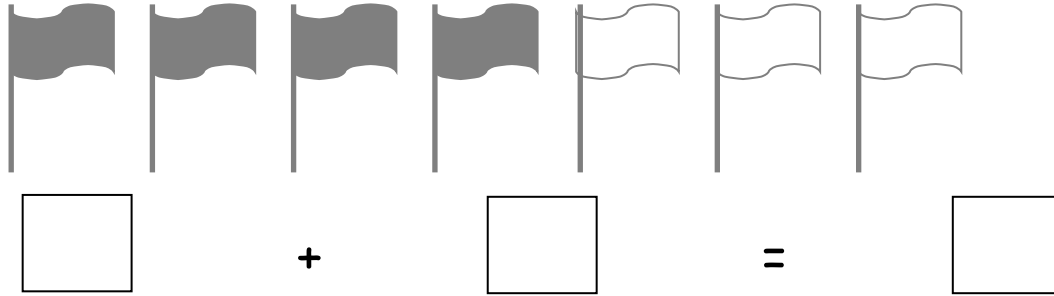
\_\_\_\_\_ more hops over.

Now, there are \_\_\_\_\_ frogs.

Make a number bond to match the story.



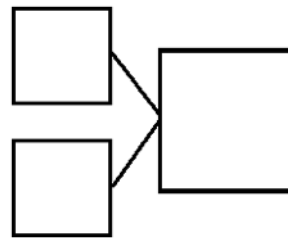
3.



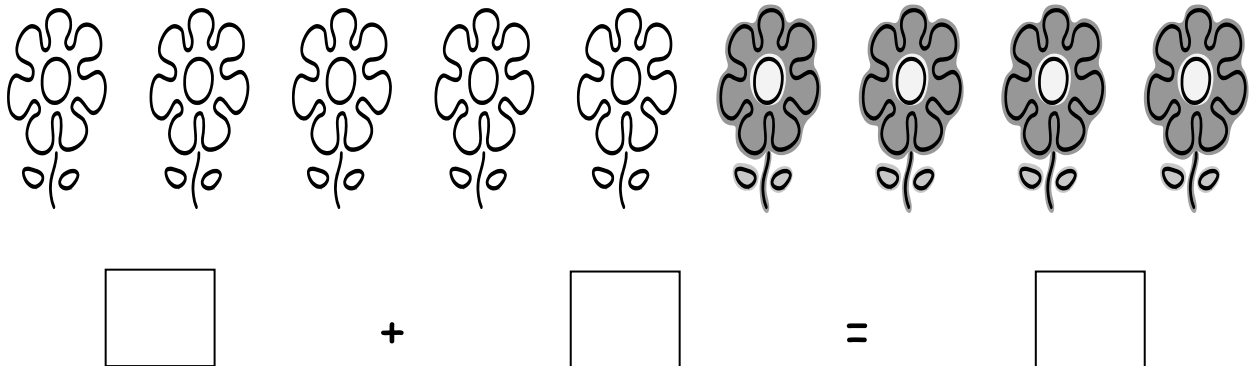
There are \_\_\_\_\_ dark flags. There are \_\_\_\_ white flags.

Altogether, there are \_\_\_\_\_ flags.

Make a number bond to match the story.



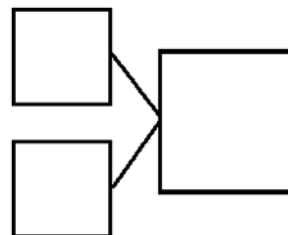
4.



There are \_\_\_\_\_ white flowers. There are \_\_\_\_ dark flowers.

Altogether, there are \_\_\_\_\_ flowers.

Make a number bond to match the story.



Name \_\_\_\_\_ Date \_\_\_\_\_

Draw a picture and write a number sentence to match the story.



1. Ben has 3 red balls and gets 5 green balls. How many balls does he have now?

+

=

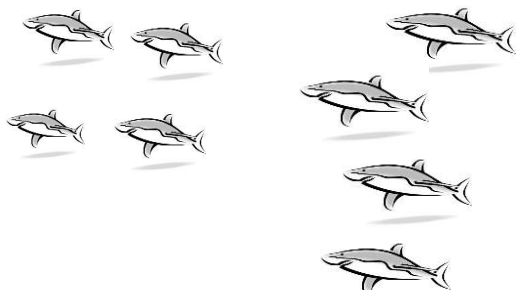
Ben has \_\_\_\_\_ balls.



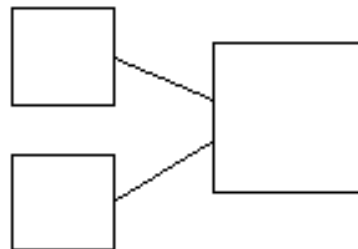
Name \_\_\_\_\_

Date \_\_\_\_\_

1. Use the picture to tell a math story.



Write a number bond to match your story.

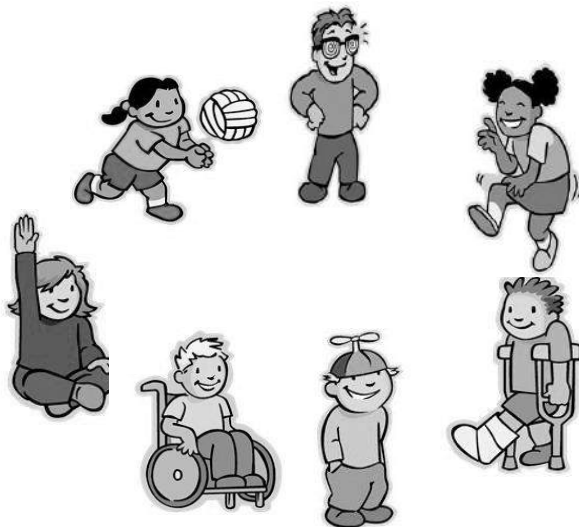


Write a number sentence to tell the story.

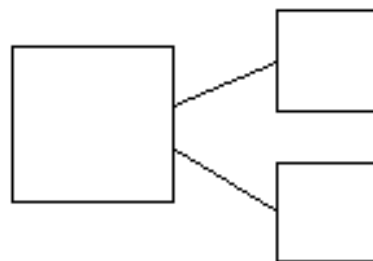
$$\square + \square = \square$$

There are \_\_\_\_\_ sharks.

2. Use the picture to tell a math story.



Write a number bond to match your story.



There are \_\_\_\_\_ students.

Write a number sentence to tell the story.

$$\square = \square + \square$$

3. Jim has 4 big dogs and 3 small dogs. How many dogs does Jim have?

$$\square + \square = \square$$

Jim has \_\_\_\_\_ dogs.

4. Liv plays at the park. She plays with 3 girls and 6 boys. How many kids does she play with at the park?

$$\square = \square + \square$$

Liv plays with \_\_\_\_\_ kids.

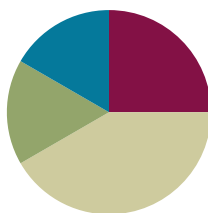


## Lesson 10

**Objective:** Solve *put together with result unknown* math stories by drawing and using 5-group cards.

### Suggested Lesson Structure

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



### Fluency Practice (15 minutes)

- Happy Counting the Say Ten Way **1.NBT.2** (2 minutes)
- Cold Call: 1 More **1.OA.5** (2 minutes)
- Target Practice: 5 and 6 **1.OA.6** (11 minutes)

### Happy Counting the Say Ten Way (2 minutes)

Note: By providing students with ongoing practice with counting throughout the year, they build and maintain their counting skills, which are foundational for later first grade work of using the Level 3 strategy of making ten and taking from ten to add and subtract.

Do Happy Counting activity from **G1-M1-L3**, counting from 15 to 25 and back the Say Ten way.

### Cold Call: 1 More (2 minutes)

Note: This activity supports the connection of counting on 1 and adding 1.

Tell students you are going to say a number aloud and instruct them to think about the number that is one more. Let them know you will cold call one student to say the number aloud as quickly as possible.

### Target Practice: 5 and 6 (11 minutes)

Materials: (S) Personal white board with Target Practice template per set of partners (save for use with future lessons), 6 counters and a die

Note: This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

See directions on Target Practice board. First, use 5 as the target number, and then distribute 1 more counter

and use 6 as the target number.

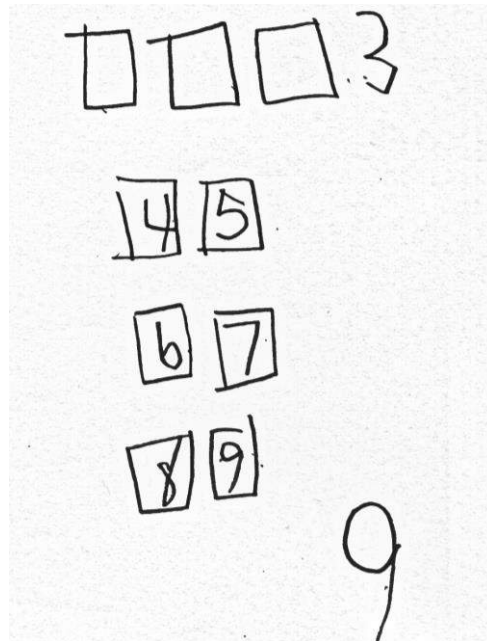
### Application Problem (10 minutes)

The class is collecting canned food to help those in need. The teacher brings in 3 cans to start the collection. On Monday, Becky brings in 2 cans. On Tuesday, Talia brings in 2 cans. On Wednesday, Brendan brings in 2 cans. How many cans were there after each day?

Draw a picture to show your thinking. What do you notice about what happened each day?

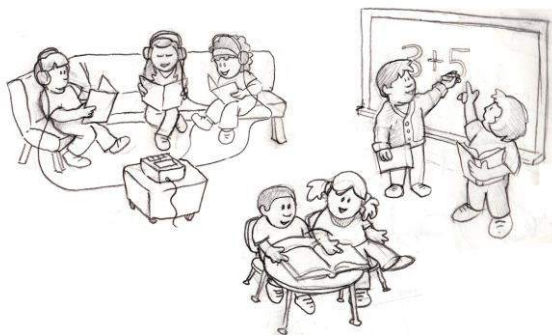
Early Finishers: If this pattern continues, how many cans will our class have on Friday?

Note: This problem serves as a bridge from the previous lesson as students solved *add to* problems. Students will discuss their strategies during the Debrief and connect the work with today's lesson of using drawing and 5-group cards to solve.



### Concept Development (25 minutes)

Materials: (T) Picture card of the classroom (see **G1-M1-L5**) and the playground (see **G1-M1-L8**) (S) 5-group cards (see **G1-M1-L5**), personal white boards with equation boxes template, picture card of the playground per pair



- T: When I tell the math story from the picture, you draw a picture to match it. In a first grade classroom, some students are sitting down and learning. Use simple math drawings like circles to draw how many students are sitting down.
- S: (Draw 5 circles.)
- T: Some students are standing up and learning. Draw this part of the story.



#### NOTES ON MULTIPLE MEANS OF REPRESENTATION:

As you tell the math story, make sure to have it written on the board or hand out a piece of paper for students who need information presented visually. Presenting material in more than one way helps different styles of learners. In this part of the lesson, auditory and visual learners will benefit.

S: (Draw 2 circles.)

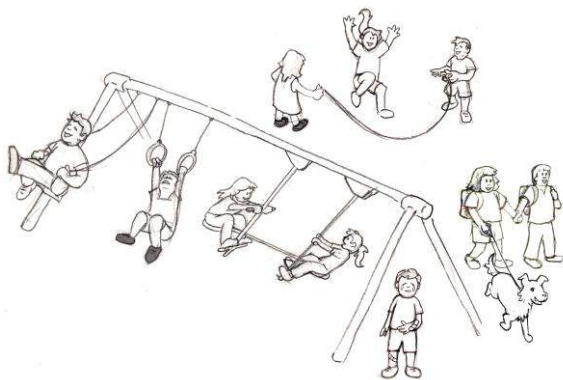
T: How many students are there in all? (Give time for students to count on.)

S: 7 students!

T: Write the number sentence to match your drawing.

T: (Have students identify what each number represents.)

Using the same picture, generate one or two story problems for students to draw and solve (e.g.,  $3 + 4 = 7$ ,  $1 + 6 = 7$ ).



T: (Distribute 5-group cards to each student.) Let's look at the picture of children playing in the playground. I'll make up a math story and you use your 5-group cards to match the story. At recess, 3 students are having fun on the swings. Show me with your 5-group card, using the numeral side.

S: (Show the number 3.)

T: Three students are having fun playing with the jump rope. Show me with your 5-group card, using the dot side.

S: (Show 3 dots.)

T: Count on to find out how many students are playing on the swing and how many students are playing with the jump rope. (Give time for students to solve.)

T: Write the number sentence using numbers to match your drawing.

S: (Write  $3 + 3 = 6$ .)

T: (Have students identify what each number represents.)

Using the same picture, generate one or two story problems for students to solve using their 5-group cards. You might continue with the following suggested examples:  $5 + 5 = 10$  (children in the air, children on the ground),  $3 + 7 = 10$  (sitting kids and standing kids).

T: (Project  $8 + 2$  on the board.) Now it's your turn to be the storyteller. Study the picture card carefully! Work with your partner to come up with a story that matches my number sentence.

Circulate and choose pairs to share their stories. There are multiple ways to represent  $8 + 2$  in the picture. Distribute a picture of the playground to each pair of students. Have them work together to



### NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Circulate around the room as students are telling their story problems and solving using 5-group cards. Guide and encourage students to use math vocabulary in discussion. When you hear these words being used, you know students are applying what they are learning.

make up story problems and solve them by using 5-group cards. Circulate and choose a pair of students to share their story for the class to solve at the end of this lesson.

### 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 solve these problems using the RDW approach used for Application Problems.

### Student Debrief (10 minutes)

**Lesson Objective:** Solve *put together with result unknown* math stories by drawing and using 5-group cards.

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


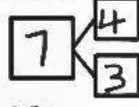
Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

- In our lesson, we used simple math drawings like circles to draw the students in our problem. Why would we use circles instead of drawing out the students?
- Look at your Problem Set and your Application Problem. What strategies have you been using to tell and solve our stories today?
- What patterns do you see in your Application Problem?
- Share with a partner how you solved it. In what ways did you solve it differently? In what ways did you solve it similarly?
- What do you think was an efficient strategy to use to solve this problem? What made that strategy efficient?


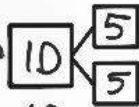
Lesson 10 Worksheet

Name Maria Date \_\_\_\_\_


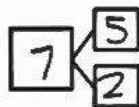
1. Use the picture to write the number sentence and the number bond.

4 little turtles + 3 big turtles = 7 turtles

2.  

5 dogs that are awake + 5 sleeping dogs = 10 dogs



3.  



5 pigs + 2 pigs in mud = 7 pigs



COMMON CORE Lesson 10 Solve "Put Together with Result Unknown" Math Stories Using 5-Group Cards  
engage<sup>ny</sup> 1.6.2



Lesson 10 Worksheet

4. Draw a line from the picture to the matching 5-group cards.

COMMON CORE Lesson 10 Solve "Put Together with Result Unknown" Math Stories Using 5-Group Cards  
engage<sup>ny</sup> 1.6.2



- I heard many of you say that you counted on 2 each time. Help me write a number sentence that shows what happened on Monday. ( $3 + 2 = 5$ .) Let's circle the part that shows that we counted on 2.
- How could we use 5-group cards to show how to solve this?
- Was counting on the same as adding today? How do you know? (The numbers were increasing; we were counting up, etc.)

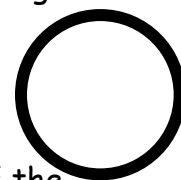
### Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

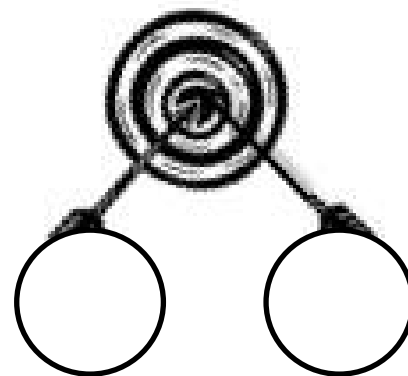
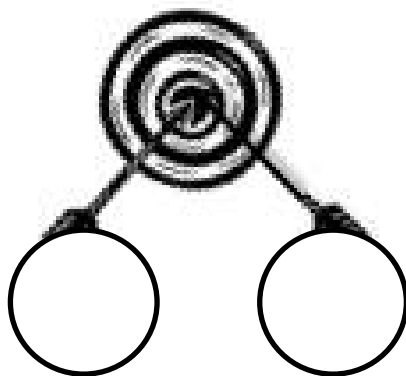
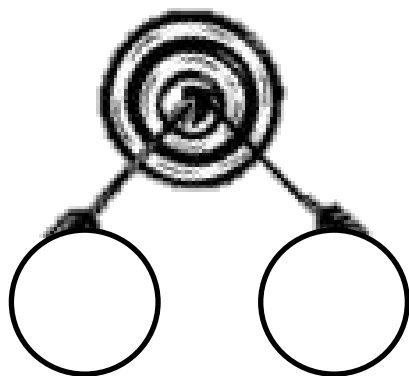
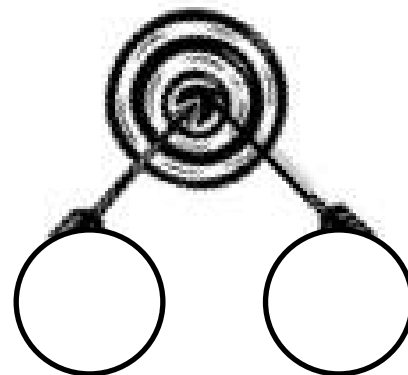
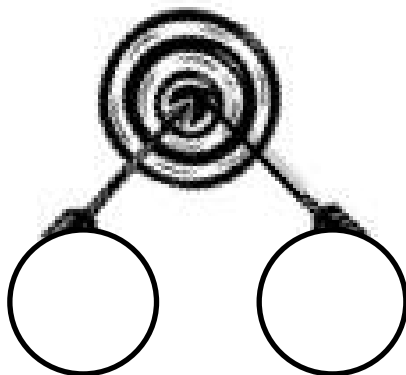
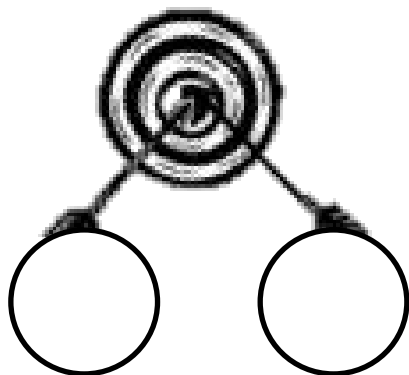
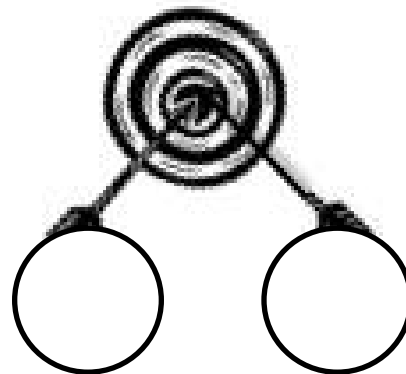
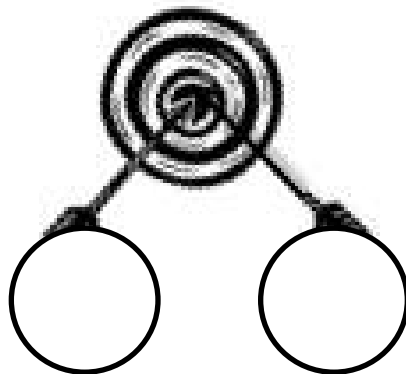
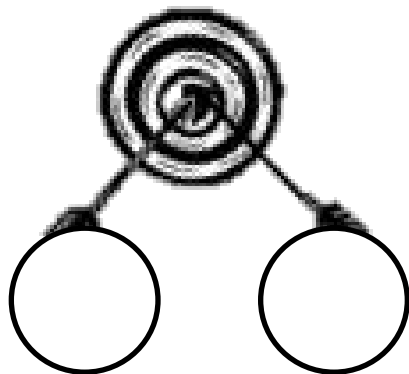


Target Number:

# Target Practice



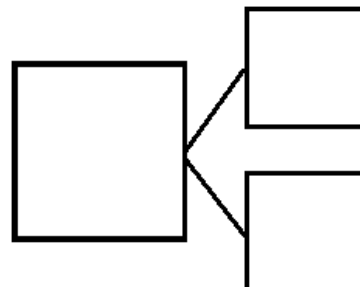
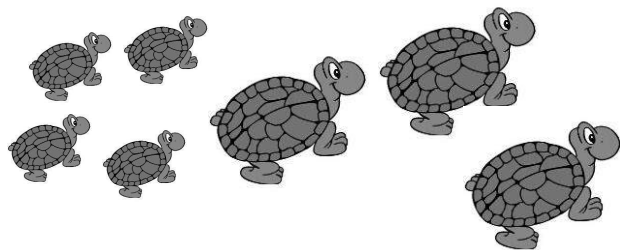
**Directions:** Choose a *target number* between 6 and 10 and write it in the middle of the circle on the top of the page. Roll a die. Write the number rolled in the circle at the end one of the arrows. Then, make a bull's-eye by writing the number needed to make your target in the other circle.



Name \_\_\_\_\_

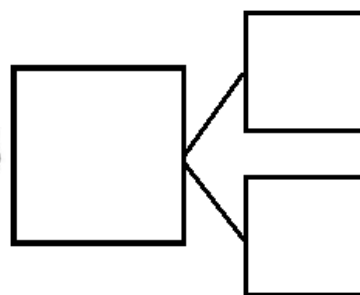
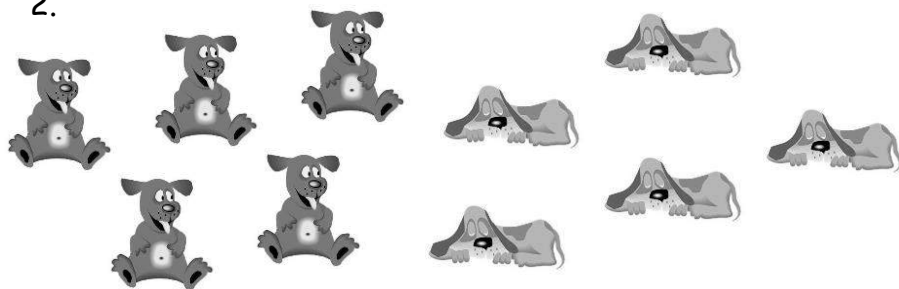
Date \_\_\_\_\_

1. Use the picture to write the number sentence and the number bond.



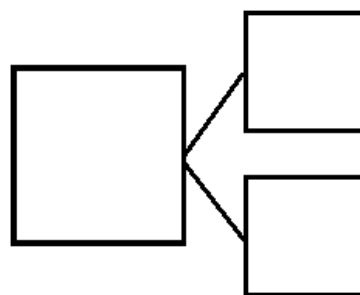
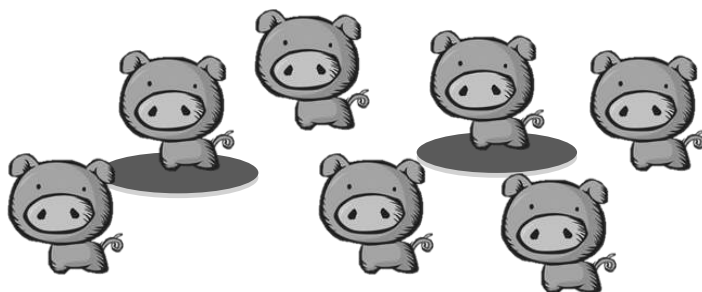
\_\_\_\_\_ little turtles + \_\_\_\_\_ big turtles = \_\_\_\_\_ turtles

2.



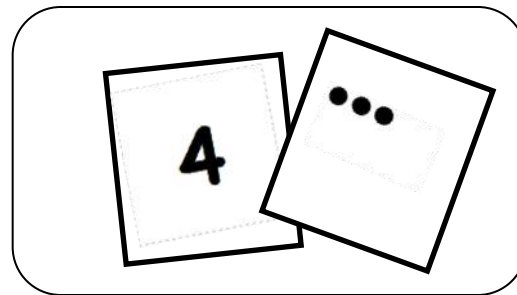
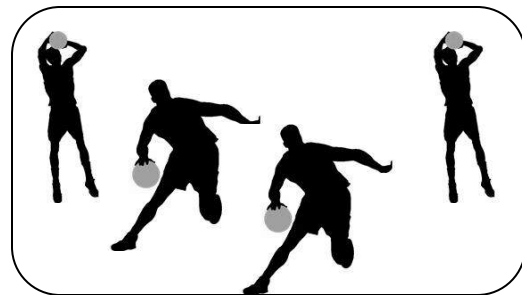
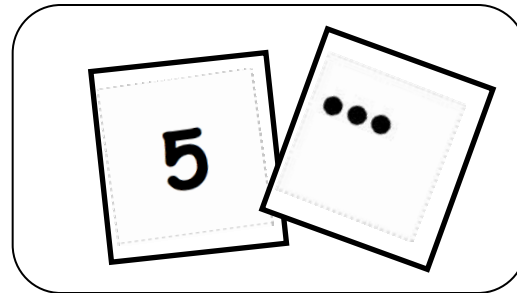
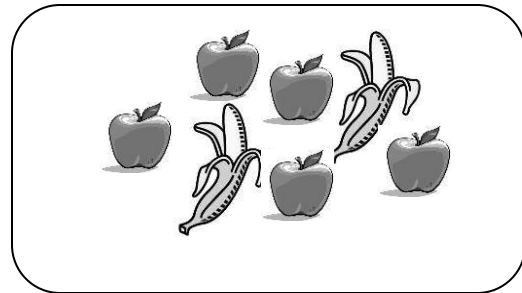
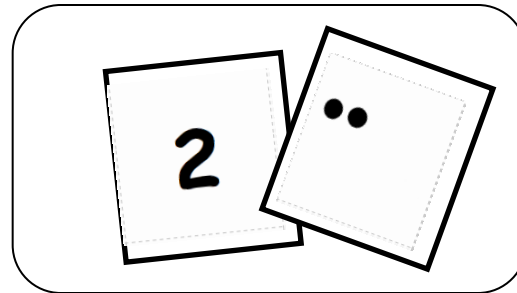
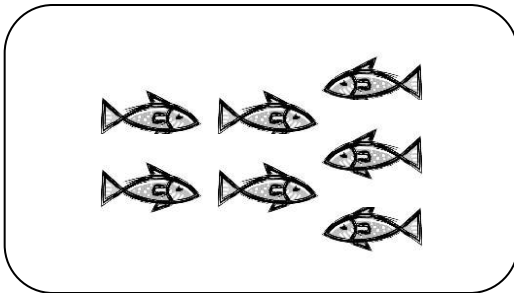
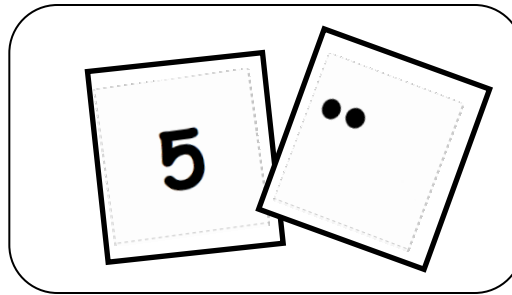
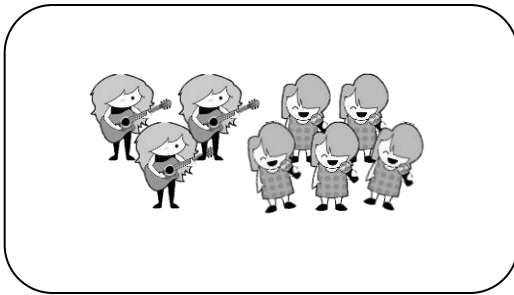
\_\_\_\_\_ dogs that are awake + \_\_\_\_\_ sleeping dogs = \_\_\_\_\_ dogs

3.



\_\_\_\_\_ pigs + \_\_\_\_\_ pigs in mud = \_\_\_\_\_ pigs

4. Draw a line from the picture to the matching 5-group cards.



Name \_\_\_\_\_

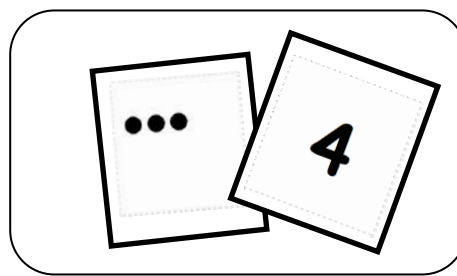
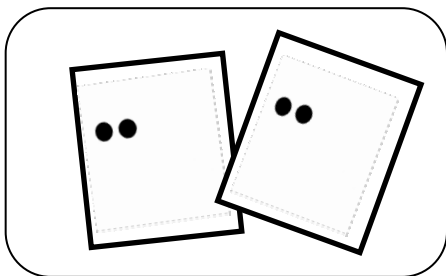
Date \_\_\_\_\_

Draw to show the story. There are 3 large balls and 4 small balls.

$$\square + \square = \square$$

How many balls are there? There are \_\_\_\_\_ balls.

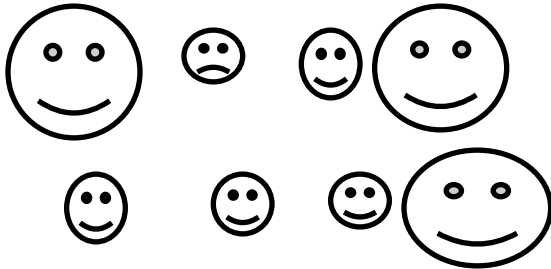
Circle the set of numeral tiles that match your picture.



Name \_\_\_\_\_

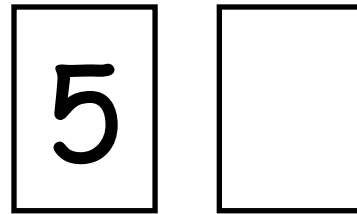
Date \_\_\_\_\_

1. Use your 5-group cards to solve.

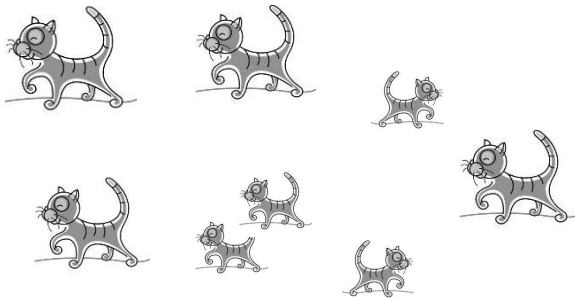


$$\square + \square = \square$$

Draw the other 5-group card to show what you did.

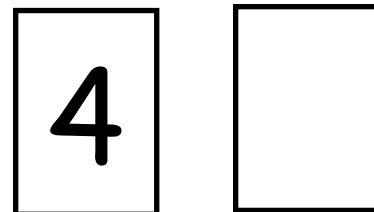


2. Use your 5-group cards to solve.



$$\square = \square + \square$$

Draw the other 5-group card to show what you did.



9

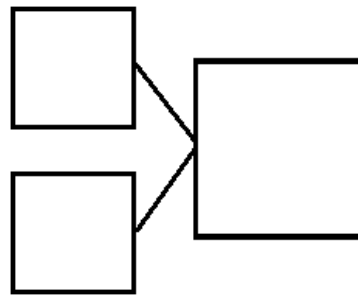
3. There are 4 tall boys and 5 short boys. Draw to show how many boys there are in all.

There are \_\_\_\_\_ boys in all.

Write a number sentence to show what you did.

$$\square + \square = \square$$

Write a number bond to match the story.



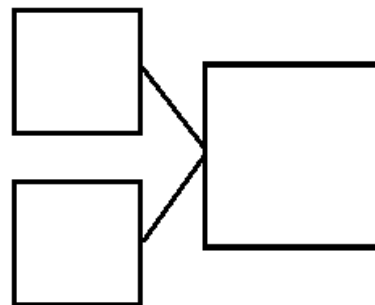
- 
4. There are 3 girls and 5 boys. Draw to show how many children there are altogether.

There are \_\_\_\_\_ children altogether.

Write a number sentence to show what you did.

$$\square + \square = \square$$

Write a number bond to match the story.

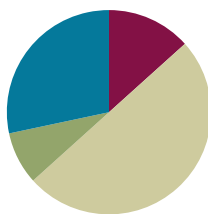


## Lesson 11

**Objective:** Solve *add to with change unknown* math stories as a context for counting on by drawing, writing equations, and making statements of the solution.

### Suggested Lesson Structure

■ Fluency Practice	(8 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(30 minutes)
■ Student Debrief	(17 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (8 minutes)

- Count On Cheers: 2 More **1.OA.5** (3 minutes)
- Number Bond Dash: 6 **1.OA.5** (5 minutes)

### Count On Cheers: 2 More (3 minutes)

Note: This activity supports the connection of counting on by 2 and adding 2.

Teacher says the number aloud. Students repeat the number, touching their heads and counting on as they put their fists in the air, one at a time. Alternately, students can count on with boxing punches.



fiiiive

six

seven

### Number Bond Dash: 6 (5 minutes)

Materials: (T) Stopwatch or timer (S) Number Bond Dash: 6 (see **G1-M1-L5**), marker to correct work

Note: By using the same system, students can focus on the mathematics alone. The activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

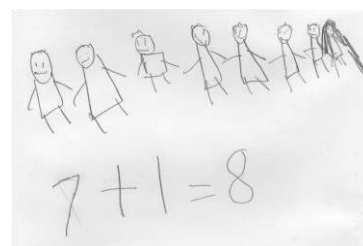
Follow the procedures for Number Bond Dash. Tell students to remember how many problems they get correct so they can try to improve their scores tomorrow.

### Application Problem (5 minutes)

There are 8 children in the afterschool cooking club. How many boys and how many girls might be in the class? Draw a picture and write a number sentence to explain your thinking.

Early Finishers: How many other combinations of boys and girls could be made? Write a number bond for each combination you can think of.

Note: This problem serves as a bridge from the previous lesson's focus on solving *put together* stories. The problem serves as a context for counting on during the Debrief.



### Concept Development (30 minutes)

Materials: (T) Mystery box (shoe box or other available box with a question mark on it), counting bears (or another engaging classroom material that allows you to tell stories), large blank equation template, number sentence cards and 2" x 2" sticky notes labeled with question mark (S) Personal white board with number sentence template, sets of bear counters and paper bags with question marks labeled on the front per pair, a yellow colored pencil or a crayon

Before the lesson, privately place 2 counting bears in the mystery box so that students can't see. Set the box out of sight. Have students bring their personal white boards and sit in a semi-circle. Display 3 counting bears before you.

T: Once upon a time, 3 little bears went to play tag in the forest. (Place 3 bear counters on the template on the floor.) Then, some more bears came over. (Place the box with the question mark next to the bears.) In the end, there were 5 little bears playing tag in the woods altogether.

T: How many bears do you think came to play (point to the box)? Turn and talk to a partner.

S: (As students discuss, circulate and listen.)

T: How many bears joined the group to play tag? (Have students share ideas.) What strategy did you use to decide? (Ask a few students to share varying ideas.) Let's use counting on to test our ideas.

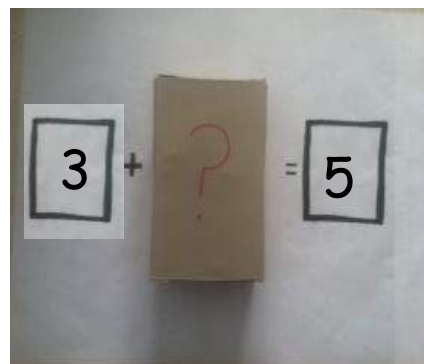
S/T: (Gestures over the 3.) Threeeee, (taps the box while drawing dots below the box for each count) 4, 5!

T: How many more bears came to play?

S: 2 bears!

T: Let's find out if we were right. (Opens up the box and reveals 2 bears.) You were right! There were 2 more bears that came to play tag. (Closes the box and places the 2 bears on top of the box.)

T: Write the number sentence and number bond for the story. If you need a hint, look here (point to the teacher number sentence template).



MP.2



S: (Write the number sentence while the teacher circulates.)

Analyze the referents for each number ensuring that students understand what each number represents in the story. Emphasize the unknown in the number sentence and number bond as being the change.

Repeat this process with a decomposition number sentence such as  $9 = 6 + ?$ . 9 bears were playing tag. At first, there had been 6 bears playing. How many more bears joined in?

Provide sets of bears and a paper bag to each pair. Then distribute one to two number sentence cards with a question mark sticky note covering the second addend. Have students use the bears and the paper bag to tell a story that matches their number sentence card and figure out the mystery number. Circulate and listen to students sharing strategies, solutions, and writing the corresponding number sentence on their template. Encourage students to talk about what's happening in each story so that they can contextualize the numbers in the action of the story.



### NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

The mystery number game that you play today would be a good game to send to parents to play at home. This game provides a challenging extension for students to practice counting on to find the missing addend. For those students who are able to work with larger numbers, let them count on from a two-digit number.

## 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 solve these problems using the RDW approach used for Application Problems.

## Student Debrief (17 minutes)

**Lesson Objective:** Solve *add to with change unknown* math stories as a context for counting on by drawing, writing equations, and making statements of the solution.

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

The worksheet shows a student named Maria solving two problems. Problem 1: Jill was given a total of 5 flowers for her birthday. She drew 3 flowers in a vase and wrote the equation  $5 = 3 + 2$  and a number bond with 5 in the center, 3 in one part, and 2 in the other. Problem 2: Kate and Nana were baking cookies. They made 2 heart cookies and then made some square cookies. They made 8 cookies altogether. She drew 2 heart cookies and 6 square cookies in a circle, wrote the equation  $2 + 6 = 8$ , and a number bond with 8 in the center, 2 in one part, and 6 in the other. The worksheet includes Common Core and EngageNY logos at the bottom.

Have students bring their Problem Sets with a yellow colored pencil or a crayon to the meeting area.

- Look at Problem 1. Where was the mystery number in your number sentence? (Have students color in the box with a yellow crayon.) Repeat the process for the rest of the Problem Set.
- What other strategy did you use to solve these problems?
- Look at Problem 3. How can you show the starting part and the mystery part in the picture?
- How are Problem 1 and Problem 3 different and similar?
- How are these number stories different from other number stories we've solved?
- Select student application problem samples that represent all decompositions of 8. There are so many different answers. Are these all correct? How can we figure out if we came up with all of the ways to make 8 boys and girls?
- There were 8 boys and girls in our application problem, 2 more boys join the cooking club. How can we count on to find out how many students are in the club now? How would you change your number sentence?
- What if there were still 8 students in the afterschool cooking club, and we knew that there were 5 boys, but we didn't know how many girls? How can you write that as a new number sentence?

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 11 X•X

Show the parts. Write a number bond to match the story.

2 + 1 = 3

3. Bill has 2 trucks. His friend, James came over with some more. Together they had 5 trucks. How many trucks did James bring over?

James brought over 3 trucks.

Write a number sentence to explain the story.

2 + 3 = 5

---

4. Jane caught 7 fish before she stopped to eat lunch. After lunch she caught some more. At the end of the day she had 9 fish. How many fish did she catch after lunch?

Jane caught 2 fish after lunch.

Write a number sentence to explain the story.

7 + 2 = 9

COMMON CORE Lesson 11 Date: \_\_\_\_\_ Lesson Name: EXACTLY 2/3/13

engage<sup>ny</sup> X.X.2

### Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

Name \_\_\_\_\_

Date \_\_\_\_\_

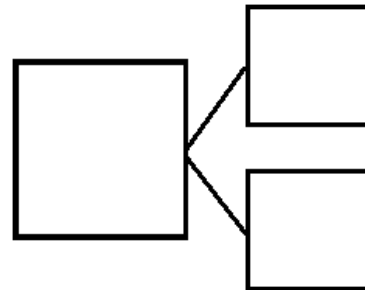
1. Jill was given a total of 5 flowers for her birthday. Draw more flowers in the vase to show Jill's birthday flowers.



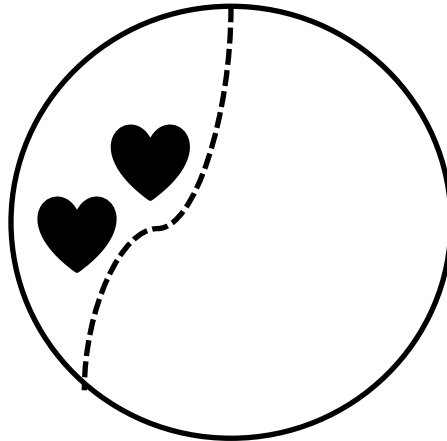
How many flowers did you have to draw? \_\_\_\_ flowers

Write a number sentence and a number bond to match the story.

$$\square = \square + \square$$

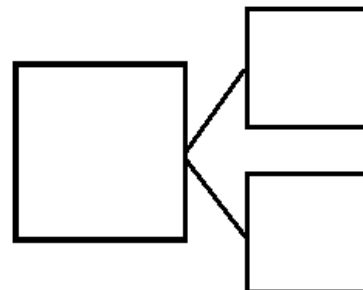


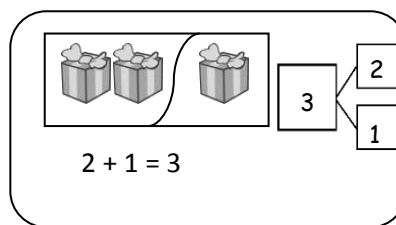
2. Kate and Nana were baking cookies. They made 2 heart cookies and then made some square cookies. They made 8 cookies altogether. How many square cookies did they make? Draw and count on to show the story.



Write a number sentence and a number bond to match the story.

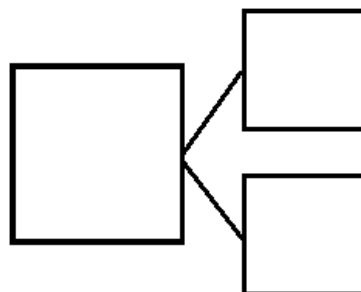
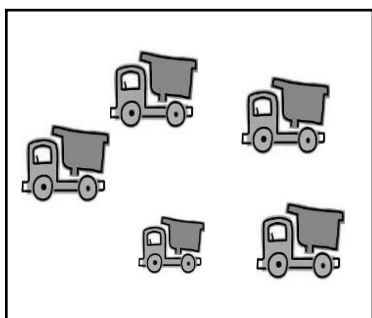
$$\boxed{2} + \square = \boxed{8}$$





Show the parts. Write a number bond to match the story.

3. Bill has 2 trucks. His friend, James came over with some more. Together they had 5 trucks. How many trucks did James bring over?

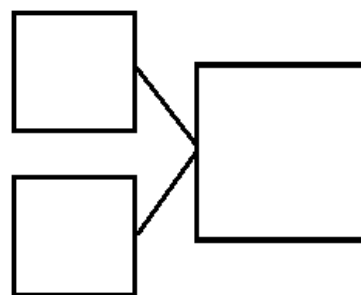
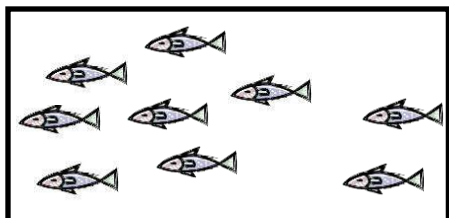


James brought over \_\_\_\_\_ trucks.

Write a number sentence to explain the story.

$$\boxed{2} + \boxed{\phantom{0}} = \boxed{5}$$

4. Jane caught 7 fish before she stopped to eat lunch. After lunch she caught some more. At the end of the day she had 9 fish. How many fish did she catch after lunch?



Jane caught \_\_\_\_\_ fish after lunch.

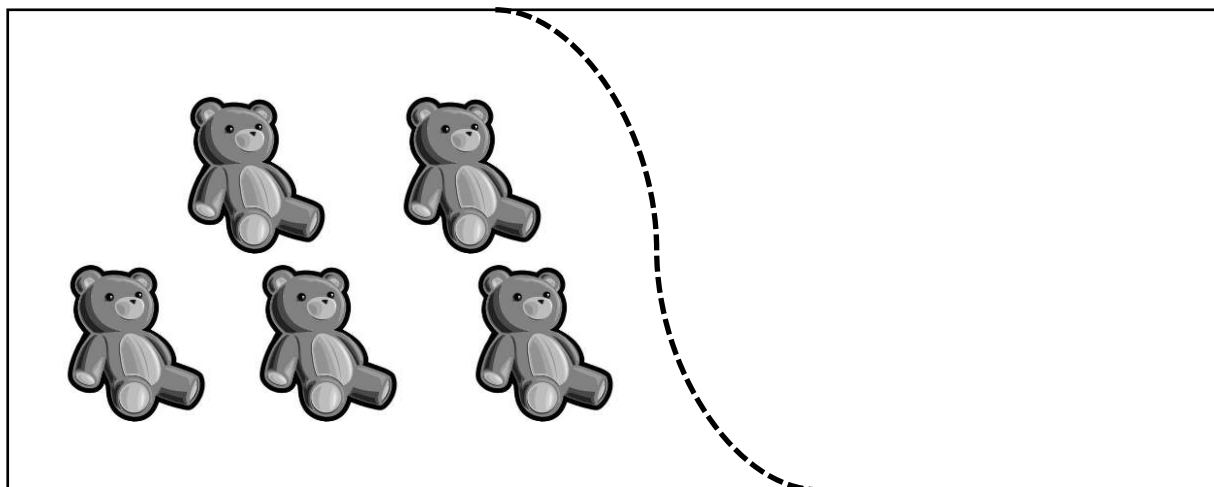
Write a number sentence to explain the story.

$$\boxed{\phantom{0}} + \boxed{\phantom{0}} = \boxed{\phantom{0}}$$

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Draw more bears to show that Jen has 8 bears total.



I added \_\_\_\_\_ more bears.

Write a number sentence to show how many bears you drew.

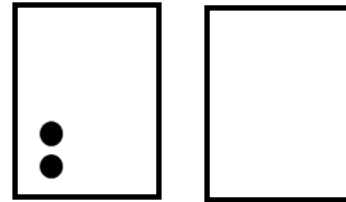
$$\square + \bigcirc = \square$$

Name \_\_\_\_\_

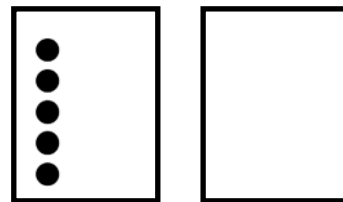
Date \_\_\_\_\_

1. Use the 5-group cards to count on to find the missing number in the number sentences.

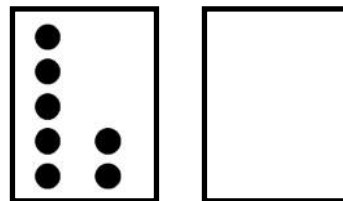
$$\boxed{2} + \boxed{\phantom{00}} = \boxed{7}$$



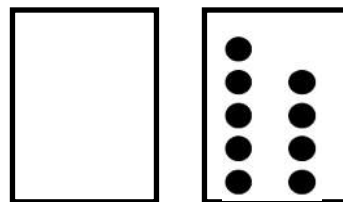
$$\boxed{8} = \boxed{5} + \boxed{\phantom{00}}$$



$$\boxed{9} = \boxed{7} + \boxed{\phantom{00}}$$



$$\boxed{9} = \boxed{\phantom{00}} + \boxed{9}$$



Match the number sentence to the math story. Draw a picture or use your 5-group cards to solve.

Scott has 3 cookies. His mom gives him some more. Now he has 8 cookies. How many cookies did his mom give him?

Now Scott has \_\_\_\_\_ cookies.

$$\boxed{6} + \boxed{?} = \boxed{9}$$

$$\boxed{3} + \boxed{?} = \boxed{8}$$

Kim sees 6 birds in the tree.

Some more birds fly in.

Kim sees 9 birds in the tree. How many birds fly to the tree?

\_\_\_\_\_ birds fly to the tree.

$$\boxed{4} + \boxed{?} = \boxed{8}$$

## Number Sentence Cards

$$3 + 2 = 5$$

$$7 + 1 = 8$$

$$6 + 1 = 7$$

$$4 + 2 = 6$$

$$6 = 5 + 1$$

$$10 = 7 + 3$$

$$8 = 6 + 2$$

$$7 = 5 + 2$$

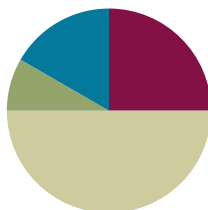


## Lesson 12

**Objective:** Solve *add to with change unknown* math stories using 5-group cards.

### Suggested Lesson Structure

■ Fluency Practice	(15 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(30 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (15 minutes)

- Slam: Partners to 6 **1.OA.6** (10 minutes)
- Number Bond Dash: 6 (Day 2) **1.OA.6** (5 minutes)

### Slam: Partners to 6 (10 minutes)

Materials: (T/S) 5-group cards (see **G1-M1-L5**)

Note: This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10. In this engaging context, be sure to help students focus on the mathematics of this activity.

Tell students to order cards 0–6 on their desks, beginning with 0. Flash a 5-group card and instruct students to *slam* the card with the partner to 6 (students carefully slap the card on the table). Tell students to say the partners they found when you snap, beginning with the card they just slammed (5 and 1 make 6). Then tell them to say it again, beginning with the card you flashed (1 and 5 make 6). Continue playing until students have found all possible partners to 6. Then give them time to play the game with partners.



#### NOTES ON MULTIPLE MEANS FOR ACTION AND EXPRESSION:

When playing games with your students, provide a variety of ways to respond. Oral fluency games should be adjusted for students who are deaf or students with hearing impairments. This can be done in many ways including showing the answer with fingers, using student boards to write answers, or using a visual signal or vibration.

**Number Bond Dash: 6 (5 minutes)**

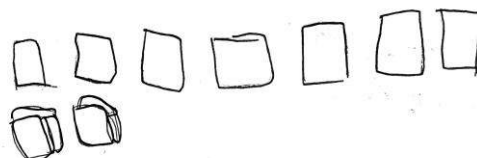
Materials: (T) Stopwatch or timer (S) Number Bond Dash: 6 (see **G1-M1-L5**), marker to correct work

Note: Reviewing number bonds allows students to build and maintain fluency with addition and subtraction facts within 10.

Follow procedure for Number Bond Dash. Remember that today is the second day with making 6. Students should recall their scores from yesterday to see and celebrate improvement.

**Application Problem (5 minutes)**

Tanya has 7 books on her shelf. She borrowed some books from the library and now there are 9 books on her shelf. How many books did she get at the library? Explain your thinking in pictures, words, or with a number sentence. Draw a box around the mystery number in your number sentence.



Note: This problem is designed both as a bridge and a lead-up in that it focuses students on solving a *change unknown* problem. Students come back to the problem in the debrief, applying the use of 5-group cards as another resource for supporting problem solving as they count on to solve.

$$7 + 2 = 9$$

**Concept Development (30 minutes)**

Materials: (T) Mystery box (see **G1-M1-L11**), counting bears (or another engaging classroom material that allows you to tell stories), large blank equation template (S) Personal white board with number sentence template, white board marker and eraser, 5-group cards plus a blank card, number sentence cards with sticky notes labeled with ? for pairs of students

Before the lesson, privately place 3 counting bears in the mystery box. Have students sit in a semi-circle with their 5-group cards and number sentence template.

- T: Use the number side of your 5-group cards to help me solve a story. Once upon a time, 5 little bears came out of hibernation. (Place 5 bear counters above the first addend space on the teacher number sentence template.)
- S: (Place the numeral 5 card on their number sentence.)
- T: Then, some more bears came out of hibernation. (Bring out mystery box.)
- T: What should we do in our number sentence here? Turn and talk to your partner, and show it on your number sentence.
- S: (Discuss. Acceptable responses are leaving second square blank or inserting a question mark.)

- T: Here's a blank card for everyone. (Distribute a blank card.) Place it in your number sentence to show that this part is a mystery.
- T: At the end, there were 8 little bears out of hibernation. Where should we show that number of bears in our number sentence? (Give students time to discuss and place 8-card in the final box. Then place numeral 8 in the teacher equation template.)
- T: How can we use the 5-group cards to figure out how many more bears came out of hibernation? With your partner, use your cards to show how many bears are in the box.
- S: (As students discuss and solve, circulate and listen. For example, students may turn over the 8 to the dot-side, gesture to the five and count on, "Fiiiive, 6, 7, 8".)
- T: How many bears joined the group? (Students share ideas.) How did you use your 5-group cards to figure this out? (Ask students with dot-side up to demonstrate. Some students may use the cards to check their solution by creating the number sentence  $5 + 3 = 8$  with the numeral cards and then flipping the 3 to the dot-side to count on.)
- T: Let's count on as we point to each dot.
- S/T: Fiiiive, 6, 7, 8!
- T: How many more bears came out of hibernation?
- S: 3 bears!
- T: Let's open the box and see how many more bears came out of hibernation! Write the number sentence using the 5-group cards in front of you to help.

Explain to the students that this type of a story problem is a "mystery change" problem since the change that results in the total is a mystery (the unknown).

- T: (Show  $4 + ? = 7$ .) This time I want you to think of a mystery change story with your partner. Try to solve the mystery using your 5-group cards.

Choose a number sentence card with a sticky note covering the second addend, such as  $9 = 5 + ?$ . Have the students create a mystery change story to go with the number sentence. When the students are ready to work more independently, give partners 2 or 3 number sentence cards with sticky notes already covering the second addend to continue telling stories and solving.

### 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 solve these problems using the RDW approach used for Application Problems.

NAME: Merica Date: \_\_\_\_\_

Use your 5-group cards. Fill in the missing numbers.

1.  $3 + \underline{2} = 5$

2.  $5 + \underline{4} = 9$

3.  $4 + \underline{6} = 10$

COMMON CORE Lesson 12: Solve add to with change unknown math stories using 5-group cards. engage<sup>ny</sup> 1.C.5

## Student Debrief (10 minutes)

**Lesson Objective:** Solve *add to with change unknown* math stories using 5-group cards.

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

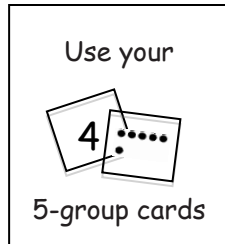
- How did the 5-group cards help you with today's work?
- Were some problems faster to solve than others? Why? Share an example.
- Compare the different strategies we used yesterday and today. Which strategy was easier for you, and why?
- On your problem set, how are Problem 3 and Problem 5 different? How are they the same?
- Look at your application problem. How can you use 5-group cards to solve this problem?
- Share with your partner an *I can* statement, based on something you can now do on your own. For example, "I can.....make up mystery change problems and write number sentences with sticky notes," or "I can...use 5-group cards to help me solve mystery change problems."

## Exit Ticket (3 minutes)

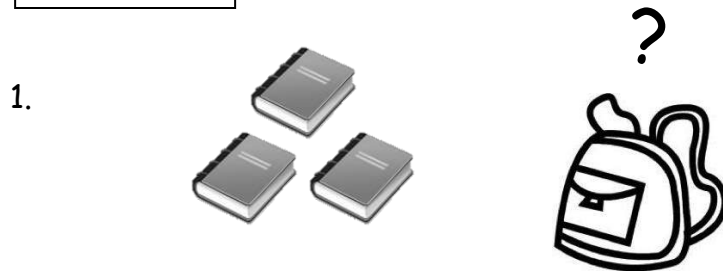
After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

Name \_\_\_\_\_

Date \_\_\_\_\_



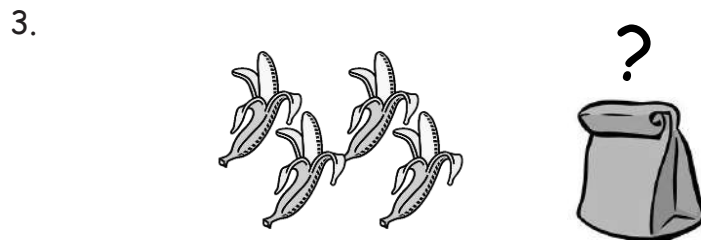
Fill in the missing numbers.



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



$$5 + \underline{\quad} = 9$$



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

4. Kate and Bob had 6  balls at the park. Kate had 2 of the  balls.


  
How many balls did Bob have?

\_\_\_\_\_ balls = \_\_\_\_\_ balls + \_\_\_\_\_ balls

Bob had \_\_\_\_\_ balls at the park.

---

5. I had 3  apples. My mom gave me some more. Then I had 10  apples.

  
How many apples did my mom give me?

\_\_\_\_\_ apples + \_\_\_\_\_ apples = \_\_\_\_\_ apples

Mom gave me \_\_\_\_\_ apples.

---

Name \_\_\_\_\_

Date \_\_\_\_\_

Draw a picture and count on to solve the math story.

Bob caught 5 fish. John caught some more fish. They had 7 fish in all. How many fish did John catch?



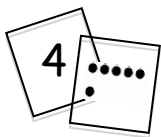
Write a number sentence to match your picture.

$$\square = \square + \square$$

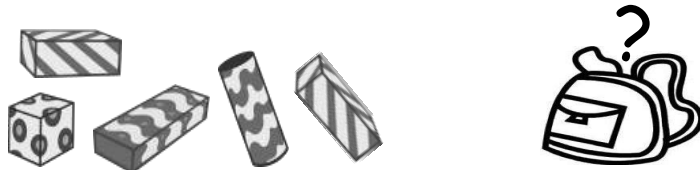
John caught \_\_\_\_\_ fish.

Name \_\_\_\_\_

Date \_\_\_\_\_



Use your 5-group cards to count on to find the missing number in the number sentences.



1.  $\boxed{5} + \boxed{?} = \boxed{7}$

The mystery number is

5	
---	--

2.  $\boxed{2} + \boxed{?} = \boxed{8}$

The mystery number is

2	
---	--

3.  $\boxed{6} + \boxed{?} = \boxed{9}$

The mystery number is

6	
---	--

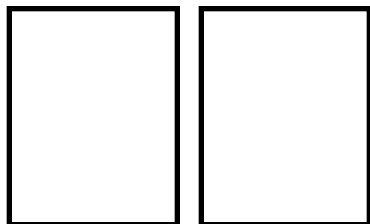


Use your 5-group cards to count on and solve the math stories. Use the boxes to show your 5-group



cards.

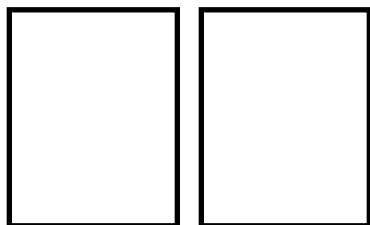
4. Jack read 4 books on Monday. He reads some more on Tuesday. He reads 7 books total. How many books does Jack read on Tuesday?



$$\square + \square = \square$$

Jack reads \_\_\_\_\_ books on Tuesday.

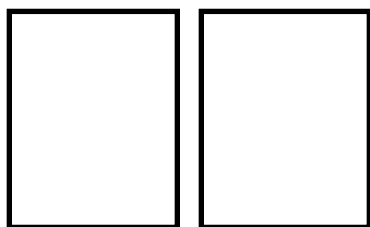
5. Kate has 1 sister and some brothers. She has 7 brothers and sisters in all. How many brothers does Kate have?



$$\square + \square = \square$$

Kate has \_\_\_\_\_ brothers.

6. There are 6 dogs in the park and some cats. There are 9 dogs and cats in the park altogether. How many cats are in the park?



$$\square + \square = \square$$

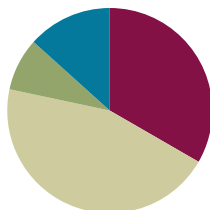
There are \_\_\_\_\_ cats total.

## Lesson 13

**Objective:** Tell *put together with result unknown*, *add to with result unknown*, and *add to with change unknown* stories from equations.

### Suggested Lesson Structure

Fluency Practice	(20 minutes)
Application Problem	(5 minutes)
Concept Development	(27 minutes)
Student Debrief	(8 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (20 minutes)

- Count By Tens **1.NBT.2** (5 minutes)
- Ten and Tuck **1.OA.6, 1.OA.3** (5 minutes)
- Memory: Partners to 10 **1.OA.6** (10 minutes)

### Count By Tens (5 minutes)

Materials: (T) 5-group cards (see **G1-M1-L5**)

Note: By providing students with ongoing counting practice throughout the year, they build and maintain their counting skills, which are foundational for later first grade work with adding and subtracting tens.

Use the tens from your 5-group cards as a visual while students count by tens, first the regular way and then the Say Ten way.

Next, show students a 3 card and add 10 cards to count on by tens the Say Ten way, starting at three (three, ten 3, 2 tens 3, 3 tens 3 ...).

Repeat, starting at various numbers between 1 and 9.

### Ten and Tuck (5 minutes)

Note: This activity addresses the core fluency objective for Grade 1.

Tell students to show 10 fingers. Instruct them to tuck 3 (students put down the pinky, ring finger and middle finger on their right hands). Ask them how many fingers are up (7) and how many are tucked (3). Then ask them to say the number sentence aloud, beginning with the larger part ( $7 + 3 = 10$ ), beginning with the smaller part ( $3 + 7 = 10$ ) and beginning with the whole ( $10 = 3 + 7$  or  $10 = 7 + 3$ ).

**Memory: Partners to 10 (10 minutes)**

Materials: (S) 1 set of single-sided 5-group cards and single-sided numeral cards per partner group. (Use 5-group cards template from **G1-M1-L5**. Copy single-sided.)

Note: This activity addresses the core fluency objective for Grade 1.

Give Partner A a set of single-sided 5-group cards and Partner B a set of single-sided numeral cards. Tell students to sit facing each other and line up their cards in front of them, face down. Instruct students to take turns flipping over 1 of their cards and 1 of their partner's cards and trying to make a ten. When they make a ten, they place the cards in a separate pile and keep them until the end of the game. The player with the most cards at the end of the game wins.

**Application Problem (5 minutes)**

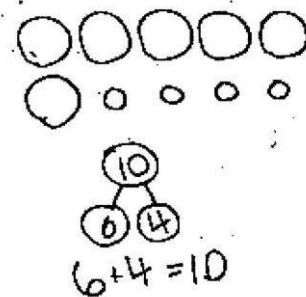
Sammi had 6 bunnies. One of them had babies. Now she has 10 bunnies. How many babies were born? Draw a picture to show how you know. Write a number bond and a number sentence to match your picture.

Note: This problem is designed both as a bridge and a lead-up, in that it focuses students on solving a *change unknown* problem.

**Concept Development (27 minutes)**

Materials: (S) Number sentence cards with sticky notes labeled with a question mark per pair, personal white boards with equation box template

- T: (Project  $5 + 1 = 6$  number sentence card with the 6 covered with a sticky note.) What do we need to find in this number sentence?
- S: The total!
- T: With your partner, make up a math story using this number sentence. As you make up the story, draw a picture to help you solve for the number that hides under the question mark.
- S: (Make up math stories and illustrate while the teacher circulates.)
- T: (Choose 2 to 3 pairs to share their stories. After each pair tells the story, invite the class to say the answer and the number sentence. Emphasize the importance of naming the unit: 5 lions + 1 lion = 6 lions.)

**NOTES ON  
MULTIPLE MEANS OF  
REPRESENTATION:**

When asking students to draw an object, check for understanding that they know what it is. You might need to provide a picture of the object for ELL students. At the same time, remind your students they are always to do *math drawings* and not spend time on their illustrations.

**NOTES ON  
MULTIPLE MEANS OF  
REPRESENTATION:**

Never underestimate the use of manipulatives when students are learning a new skill. Students should use their 5-group cards or other manipulative such as counting bears when they need extra support. Allow students to use the extra support as long as they need it.

T: (Project  $6 + 2 = 8$  number sentence card with the 2 covered with a sticky note.) What do we need to find in this number sentence?

S: The missing part! It's like finding what's in the mystery box.

Repeat the earlier sequence to allow students to share and solve their *change unknown* story problems.

Distribute a set of number sentence cards to each pair of students and assign each student to be A or B.

T: You and your partner will take turns being math storytellers. Partners will each pick their own number sentence card and make it special by placing a sticky note either on the total or on the second part of the number sentence. (Model the two different types as they are being presented.) Then, come up with a story that matches your number sentence creation. Tell your partner your story as you show your number sentence. The partner will have to draw a math picture to show what is happening in the story and to solve the problem.

S: (Participate in creating their own math story problems and take turns solving the partner's problem by drawing a picture.)

MP.6

### Problem Set (12 minutes)

Distribute the Problem Set and allow students to work independently or in small groups. While students are working, the teacher circulates and listens. Some students may need encouragement to vary between *add to* and *put together* stories.

Students should do their personal best to complete the Problem Set within the allotted 12 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 solve these problems using the RDW approach used for Application Problems.

### Student Debrief (8 minutes)

**Lesson Objective:** Tell *put together with result unknown*, *add to with result unknown*, and *add to with change unknown* stories from equations.

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 13 Problem Set 1•1

Name Maria Date \_\_\_\_\_

With a partner, create a story for each of the number sentences below. Draw a picture to show. Write the number bond to match the story.

1.  $6 + 2 = 8$

2.  $5 + 5 = 10$

COMMON CORE Lesson 13: Tell *put together with result unknown*, *add to with result unknown*, and *add to with change unknown* stories from equations. 6/11/13 engage<sup>ny</sup> 1.C.5

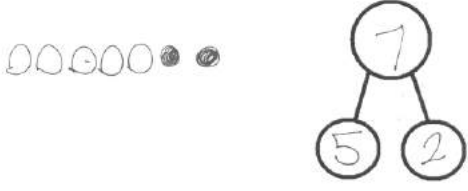
- Which two problems from your Problem Set did you think were similar? Why?
- Which two problems from your Problem Set did you think were different? Why?
- Which of your stories was the most difficult for you to make? Which story was the easiest for you? Why?
- (Project a sample of a student Application Problem on the board.) Which problem was our Application Problem similar to? In what way(s) are they similar?

### Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.


NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 13 Problem Set 1•1

3.  $5 + \boxed{2} = 7$




---

4.  $6 + \boxed{4} = 10$



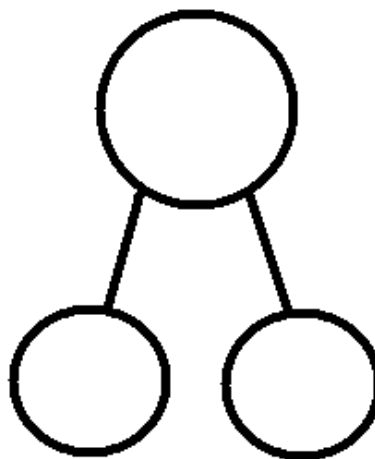
COMMON CORE Lesson 13: Tell put together with result unknown, add to with result unknown, and add to with change unknown stories from equations.  
 © 2013 Common Core, Inc. All rights reserved. [commoncore.org](http://commoncore.org) engage<sup>ny</sup> i.c.8

Name \_\_\_\_\_

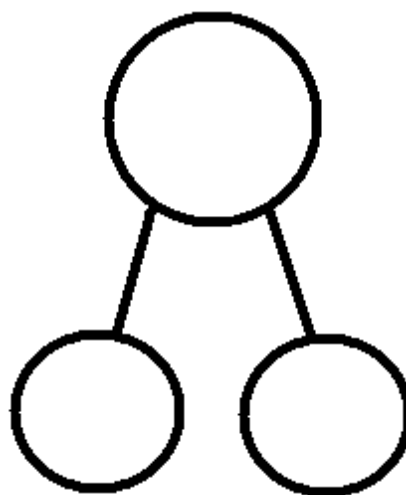
Date \_\_\_\_\_

With a partner, create a story for each of the number sentences below. Draw a picture to show. Write the number bond to match the story.

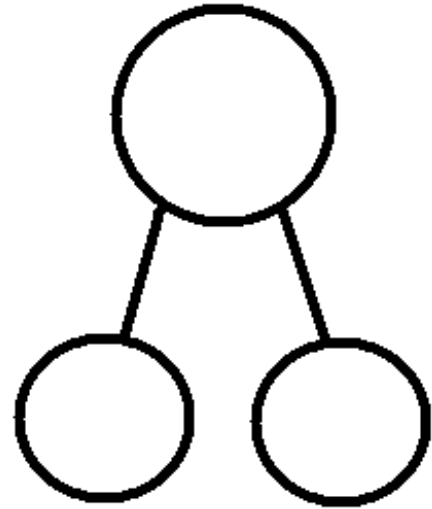
1.  $6 + 2 = \square$



2.  $5 + 5 = \square$

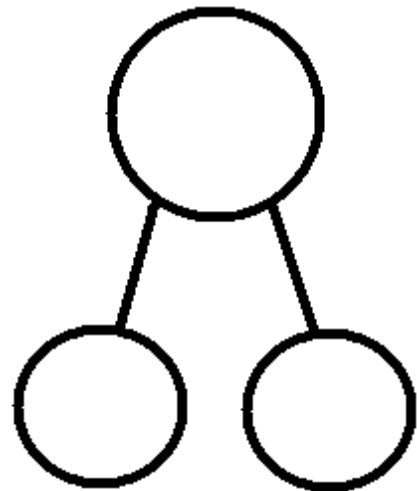


3.  $5 + \square = 7$



---

4.  $6 + \square = 10$



Name \_\_\_\_\_

Date \_\_\_\_\_

Tell a math story for each number sentence by drawing a picture.

1.  $5 + 1 = 6$

2.  $3 + ? = 8$

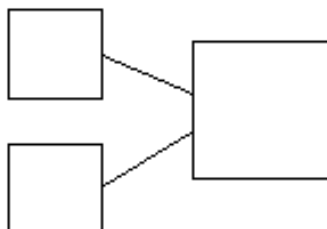


Name \_\_\_\_\_

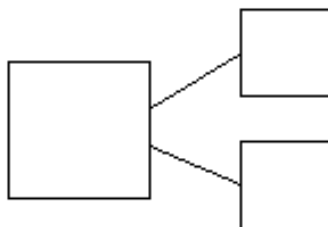
Date \_\_\_\_\_

Use the number sentences to draw a picture, and fill in the number bond to tell a math story.

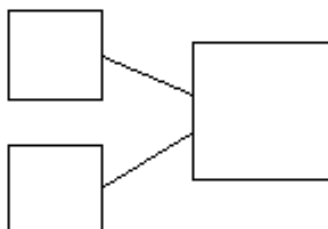
1.  $5 + 2 = 7$



2.  $3 + 6 = 9$



3.  $7 + ? = 9$





## Topic D

## Strategies for Counting On

1.OA.5, 1.OA.8, 1.OA.6

<b>Focus Standard:</b>	1.OA.5	Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
	1.OA.8	Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. <i>For example, determine the unknown number that makes the equation true in each of the equations <math>8 + ? = 11</math>, <math>5 = \square - 3</math>, <math>6 + 6 = \square</math>.</i>
<b>Instructional Days:</b>	3	
<b>Coherence</b>	<b>-Links from:</b> GK–M4	Number Pairs, Addition and Subtraction to 10
	<b>-Links to:</b> G2–M4	Addition and Subtraction Within 200 with Word Problems to 100

Topic D affords students the opportunity to solve problems within the simplicity of equations, moving on from the context of story problems. Continuing on the momentum gained with counting on as it relates to addition in Topic C, students begin Topic D with tracking the number of counts on from a given number by using their fingers and 5-group cards (**1.OA.5**).

In Lessons 14 and 15, students begin with an embedded quantity represented by both a picture and a numeral, and then tap pictures, tap the dots on their 5-group cards, draw more, and finally, replace these pictorial strategies to extending their fingers as an effective strategy for keeping track of the change. They apply these strategies to track changes of 0, 1, 2, and 3, thus limiting their use of tracking to quantities that will maintain efficiency. Students use these same strategies in Lesson 16, in both *result unknown* and the more complex *change unknown* equations, solving problems such as  $4 + \underline{\quad} = 7$  as they say, “5, 6, 7” (**1.OA.8**).

## A Teaching Sequence Towards Mastery of Strategies for Counting On

**Objective 1:** Count on up to 3 more using numeral and 5-group cards and fingers to track the change. (Lesson 14–15)

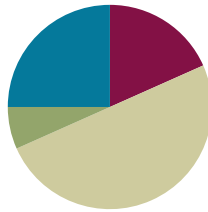
**Objective 2:** Count on to find the unknown part in missing addend equations such as  $6 + \underline{\quad} = 9$ . Answer, “How many more to make 6, 7, 8, 9, and 10?” (Lesson 16)

## Lesson 14

**Objective:** *Count on* up to 3 more using numeral and 5-group cards and fingers to track the change.

### Suggested Lesson Structure

■ Fluency Practice	(11 minutes)
■ Application Problem	(4 minutes)
■ Concept Development	(30 minutes)
■ Student Debrief	(15 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (11 minutes)

- Skip-Counting Squats: Forward and Back to 20 **1.OA.5** (2 minutes)
- Count On Cheers: 2 More **1.OA.5** (3 minutes)
- Missing Part: Partners to 10 **1.OA.6** (6 minutes)

### Skip-Counting Squats: Forward and Back to 20 (2 minutes)

Note: This activity supports the connection of counting on by 2 and adding 2, and counting back by 2 and subtracting 2.

Have students count from 0-20 and back two times, squatting down and touching the floor on odd numbers, and standing up for even numbers.

- For the first count, instruct students to whisper when they squat and talk normally when they stand.
- On the second count, encourage students to try thinking of the numbers in their heads when they squat and whisper when they stand.

### Count On Cheers: 2 More (3 minutes)

Note: This activity supports the connection of counting on by 2 and adding 2, and counting back by 2 and subtracting 2.

Teacher says number aloud. Students repeat the number, touching their heads and counting on as they put their fists in the air, one at a time. Alternately, students can count on with boxing punches. Extend the game by counting back 2.



fiiiive

six

seven

**Missing Part: Make 10 (6 minutes)**

Materials: (S) 5-group cards (see **G1-M1-L5**)

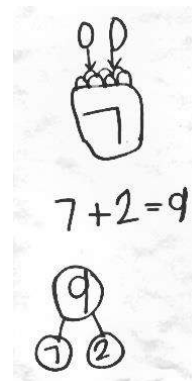
Note: This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

Students work with a partner, using 5-group cards. Each student puts a card on his or her forehead. The partner tells how many more to make 10. Students must guess the cards on their foreheads. Partners can play simultaneously, each putting a card to his or her forehead. If appropriate, remind students that they may use their fingers to help.

**Application Problem (4 minutes)**

Beth went apple picking. She picked 7 apples and put them in her basket. 2 more apples fell out of the tree right into her basket! How many apples does she have in her basket now? Draw a math picture and write a number bond and number sentence to match the story.

Note: This serves as a bridge from the *change unknown* stories of the previous topic, into the concept development of this lesson, which focuses on strategies for counting on.

**Concept Development (30 minutes)**

Materials: (T) Pictures of crayon and hot dog problems (S) 5-group cards (see **G1-M1-L5**), personal white boards

- T: Today, let's try some of those same great strategies to help us solve missing numbers in math sentences. What are some of the ways we figured out the mystery number in our bear stories? Turn and talk with a partner.
- T: (Give time for partner sharing, then call on students to share strategies such as counting on, using 5-group cards, and drawing.)
- T: Let's use those strategies with this situation. (Project a picture of a box of crayons, labeled 4 on the outside, and 2 more crayons.) Look at this picture. How many crayons are outside of the box?
- S: 2!
- T: Let's use our fingers to keep track of these. As I point, put out your fingers to follow along.
- S/T: (Touch crayons on projection.) Oooneeee (put out one finger), 2 (put out another finger).
- T: How many fingers do you have out?
- S: 2!

**NOTES ON  
MULTIPLE MEANS OF  
REPRESENTATION:**

As the class is counting, support those students who may need visual or auditory help. Using physical cues such as body movements (pointing, nodding the head, eye blinking, or foot tapping) will help students who need visual help. Using auditory cues such as a snap, clap, or stomp will help those students who need auditory support.

- T: Those 2 fingers match these 2 crayons.
- T: Let's count on to find out how many crayons are in the picture. We'll start with the box first. Use your fingers and count with me.
- S/T: Fourrrrr (gesture to box), 5, 6. (Put out fingers while counting.)
- T: How many crayons are on the board?
- S: 6 crayons!
- T: Take out your 5-group cards and build the number sentence using the numeral side.
- S: (Share number sentences, such  $4 + 2 = 6$ ,  $2 + 4 = 6$ ,  $6 = 4 + 2$ , or  $6 = 2 + 4$ .)
- T: Turn over your 2 to show the dot side. We will use the 5-group cards to check our solution.
- S/T: Fourrrr (Touch 4.), 5, 6. (Touch dots while counting.)
- T: What is the total when we use the cards?
- S: 6!
- T: What is the total when we counted the crayons with our fingers?
- S: 6 crayons!
- T: Great job! Let's try another. (Repeat the process with a picture of a package of 6 hot dogs and 2 more hot dogs.)
- T: Turn and talk with your partner about the two strategies we just used. How are they similar?
- S: When we count on using our fingers, it's just like when we touch the dots. Each finger is like a dot.
- T: (Project number sentence on the board:  $4 + 3 = \square$ .) Let's try to solve one more with a partner. Talk quietly with your partner to decide what number belongs in the box. Remember that you can count on using your fingers or your 5-group cards to help you.

MP.7



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

When students are having difficulty counting on with fingers or 5-group cards, continue with more examples together on the carpet. Some students need to move forward in small steps and regular opportunities to practice what they are learning will eventually get them to abstract level thinking.

## 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 solve these problems using the RDW approach used for Application Problems.

NYS COMMON CORE MATHEMATICS CURRICULUM

Lesson 14 1•1

4. Use your 5-group cards to count on to add. Try to use as few dot cards as you can.

$6 + 1 = 7$

$6 + 3 = 9$

$7 + 2 = 9$

$8 = 5 + 3$

5. Use your 5-group cards or your fingers to count on to add.

$8 + 2 = 10$

$5 = 4 + 1$

$4 + 3 = 7$

$9 = 6 + 3$

COMMON CORE Lesson 14: Count on up to 3 more using numeral and 5-group tiles and fingers to track the change. 3/12/13

engage<sup>ny</sup> X.X.2

## Student Debrief (15 minutes)

**Lesson Objective:** Count on up to 3 more using numeral and 5-group cards and fingers to track the change.

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

- For which problems did you need to add one? Let's list those number sentences.
- What do you notice about these problems? Is there a pattern you can find?
- Look at the first three problems. What do you notice about what we are adding each time? Why might we be only counting on 1, 2, or 3 more with our fingers?
- Are there any problems that have the same total? Let's list those number sentences.
- How can the totals be the same if we counted on different amounts?

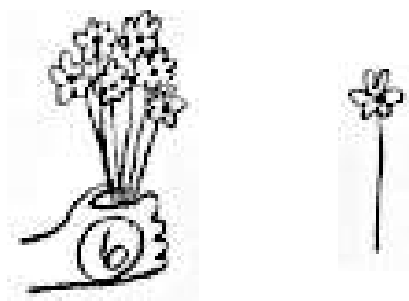
## Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Count on to add.



$$\square + \square = \square$$

There are \_\_\_\_ flowers altogether.

2.



$$\square = \square + \square$$

There are \_\_\_\_ oranges in all.

3.



$$\square = \square + \square$$

There is a total of \_\_\_\_ crayons.



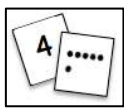
4. Use your 5-group cards to count on to add. Try to use as few dot cards as you can.

$$\boxed{6} \bigcirc + \boxed{1} = \boxed{\phantom{00}}$$

$$\boxed{6} \bigcirc + \boxed{3} = \boxed{\phantom{00}}$$

$$\boxed{7} \bigcirc + \boxed{2} = \boxed{\phantom{00}}$$

$$\boxed{\phantom{00}} = \boxed{5} \bigcirc + \boxed{3}$$



5. Use your 5-group cards, your fingers or your known facts to count on to add.

$$\boxed{8} \bigcirc + \boxed{2} = \boxed{\phantom{00}}$$

$$\boxed{\phantom{00}} = \boxed{4} \bigcirc + \boxed{1}$$

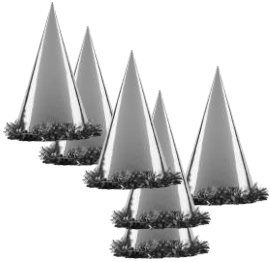
$$\boxed{4} \bigcirc + \boxed{3} = \boxed{\phantom{00}}$$

$$\boxed{\phantom{00}} = \boxed{6} \bigcirc + \boxed{3}$$



Name \_\_\_\_\_

Date \_\_\_\_\_



6



$$\boxed{6} + \boxed{2} = \boxed{\phantom{00}}$$

I counted \_\_\_\_\_ more hats.

Count on to solve the number sentences.

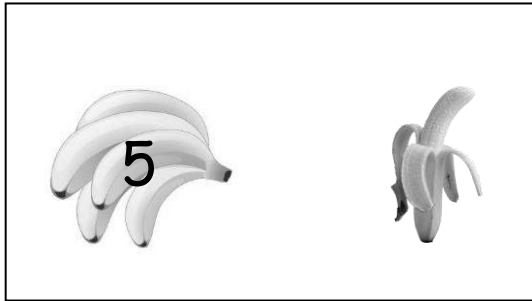
$$\boxed{7} + \boxed{3} = \boxed{\phantom{00}}$$

$$\boxed{8} + \boxed{2} = \boxed{\phantom{00}}$$

Name \_\_\_\_\_

Date \_\_\_\_\_

Count on to add.



$$\boxed{5} + \boxed{1} = \boxed{\phantom{00}}$$



Write what you say  
when you count on.

$$\boxed{5} + \boxed{2} = \boxed{\phantom{00}}$$



$$\boxed{7} + \boxed{2} = \boxed{\phantom{00}}$$

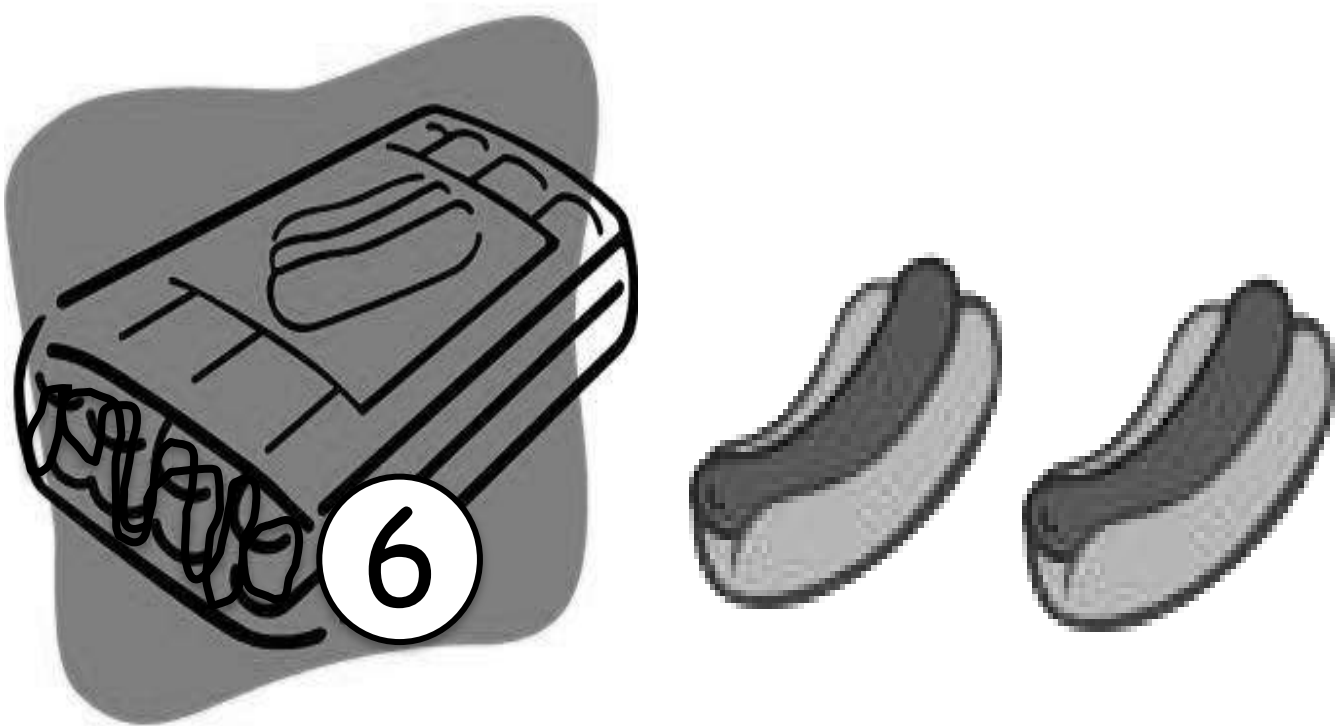
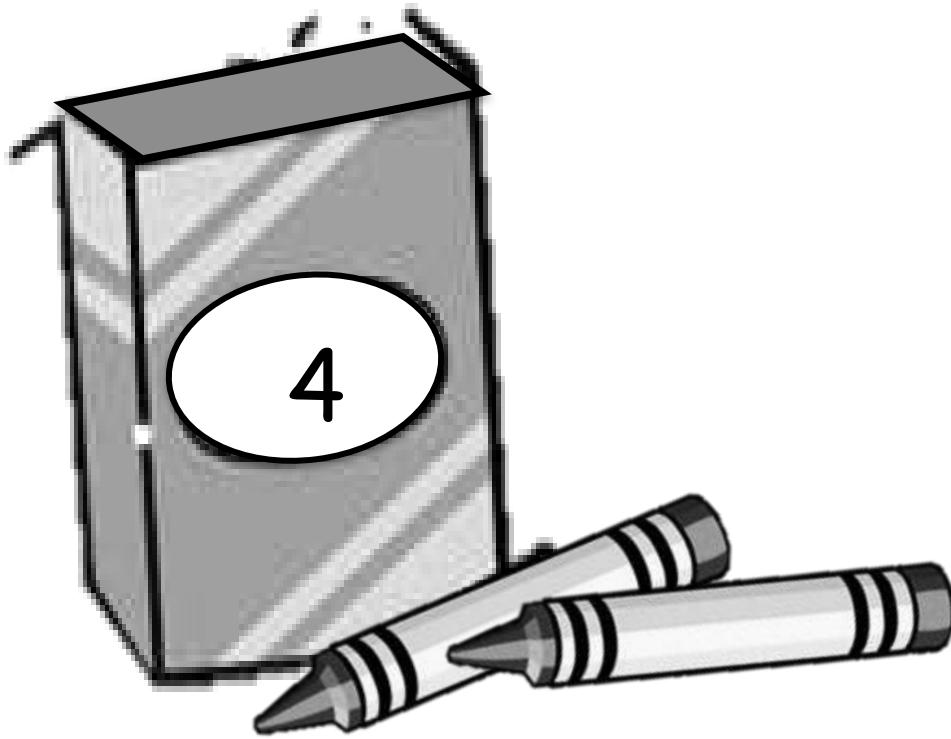


$$\boxed{\phantom{00}} = \boxed{6} + \boxed{3}$$



$$\boxed{\phantom{00}} = \boxed{7} + \boxed{\phantom{00}}$$



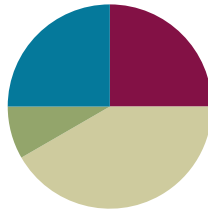


## Lesson 15

**Objective:** Count on up to 3 more using numeral and 5-group cards and fingers to track the change.

### Suggested Lesson Structure

Fluency Practice	(15 minutes)
Application Problem	(5 minutes)
Concept Development	(25 minutes)
Student Debrief	(15 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (15 minutes)

- Happy Counting the Say Ten Way **1.OA.5** (2 minutes)
- Sprint: Count On **1.OA.5** (13 minutes)

### Happy Counting the Say Ten Way (2 minutes)

Note: By providing students with ongoing counting practice throughout the year, they build and maintain their counting skills, which are foundational for later first grade work with adding and subtracting tens.

Do Happy Counting activity from **G1-M1-L3**, counting by tens the Say Ten way. First count from 0 to 50 and back. Then count from 7 to 77 and back.

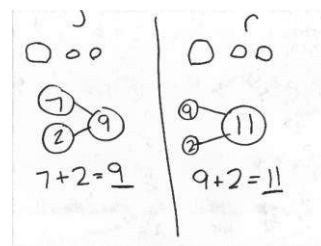
### Sprint: Count On (13 minutes)

Materials: (S) Count On Sprint

Note: This activity provides continued practice relating counting to addition.

### Application Problem (5 minutes)

Joshua and Rebecca were eating raisins. Joshua had 7 raisins and took 2 more from the box. Rebecca had 9 raisins and took 2 more from the box. Who had a greater number of raisins, Joshua or Rebecca? Draw math drawings, write number bonds or number sentences to show how you know.



Note: This problem provides a bridge from the previous day's lesson to today's as students solve problems by using the Level 2 strategy of counting on.

### Concept Development (25 minutes)

Materials: (S) 5-group cards (**G1-M1-L5**), a set of number sentence cards from **G1-M1-L11** (with sticky note covering the total) per pair, personal white boards

- T: Today, let's use our strategies for counting on to play the partner game Count On! We will need to use counting on with our fingers and counting with 5-group cards to play.
- T: (Project  $6 + 3 = \square$  on the board.) Show how we use counting on with our fingers to solve this.
- S: Siiiix, 7, 8, 9. (Extend fingers as they count on.)
- T: Show how to use our 5-group cards to solve this.
- S: Siiiix, 7, 8, 9. (Put out 5-group cards with 6 on numeral side and 3 on dot side. Touch as they count.)
- T: Why did they get the same answer?
- S: Both are ways to keep track of the part we are counting on.
- T: This is a type of a *shortcut*. It is a fast or efficient strategy. Today, you will work with a partner to practice using these shortcuts or strategies to play Count On!
- T: Here are the directions:
1. Partners A and B, lay all of the number sentence cards in front of you.
  2. Partner A, you touch the card you want to take.
  3. Count on or use the 5-group cards to solve for the total under the sticky note.
  4. When you do, your partner lifts the sticky. If you are right, your partner says, "Go ahead and take it!"
  5. Partner B takes a turn. Continue until all the cards are taken.
- S: (Play Count On! with their partners.)
- T: (Circulate, listen, and observe, providing support as necessary.)



#### NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Reading aloud word problems facilitates problem solving for those students who have difficulty reading the text they are presented with. Hearing the word problem also helps students who are auditory learners.



#### NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

For students who are ready for more challenging numbers, alter the number sentence cards as you see fit. For example,  $23 + 2 = ?$  may be more appropriate for some students, as they track the change.



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

When a skill is not automatic, provide support so students can practice and refine their skill. Repeated practice with 5-group cards and fingers will help students develop automaticity of their addition facts.

## 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 solve these problems using the RDW approach used for Application Problems.

Review the term *shortcut* with students, if necessary, explaining that this is simply a fast or efficient strategy. If the second page seems overwhelming for the students, have them fold the paper in half. This way, they will only see seven number sentences at a time.

## Student Debrief (15 minutes)

**Lesson Objective:** Count on up to 3 more using numeral and 5-group cards and fingers to track the change.

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


Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.


- How are Problems 1 and 2 similar? How are they different? Can one of these help you solve the other? How?
- What shortcuts did you find to add from Page 2 of the Problem Set? Explain your thinking.
- How do shortcuts or strategies help us?
- Look at  $7 + 1$  and  $6 + 2$ . Why is the total the same? How does counting on 1 relate to counting on 2?


NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 15 Problem Set 1•1

Name Maria Date \_\_\_\_\_

1. Count on to add.

  
 $5 + 1 = 6$  There are 6 crayons altogether.

  
 $5 + 2 = 7$  There are a total of 7 balloons.

  
 $7 = 4 + 3$  In all, there are 7 pencils.

COMMON CORE Lesson 15: Count on up to 3 more using numeral and 5-group cards and fingers to track the change. 5/1/13 engage<sup>ny</sup> 1.0.7

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 15 Problem Set 1•1

3. What shortcut can you find to add?

$4 + 1 = 5$	$2 + 5 = 7$
$4 + 3 = 7$	$7 + 2 = 9$
$7 + 1 = 6$	$7 + 3 = 10$
$8 = 6 + 2$	$6 = 4 + 2$
$8 = 5 + 3$	$7 = 2 + 5$
$9 = 3 + 6$	$8 = 6 + 2$
$10 = 3 + 7$	$10 = 2 + 8$

COMMON CORE Lesson 15: Lesson Name: EXACTLY 8/16/2011 2:00 PM engage<sup>ny</sup> 1.0.7

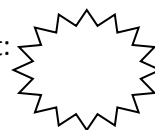
- Which method do you prefer to use to keep track when you are counting on? Demonstrate what you do, using a number sentence from the Problem Set.
- Is there another way to solve these problems besides counting on? (E.g., visualizing, knowing related facts, just knowing the fact.)

### Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

A

Number correct:



Name \_\_\_\_\_

Date \_\_\_\_\_

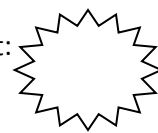
\*Count on to add.

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



B

Number correct:



Name \_\_\_\_\_

Date \_\_\_\_\_

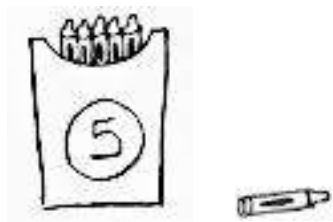
\*Count and write the number.

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

Name \_\_\_\_\_

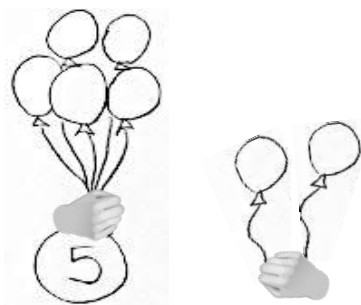
Date \_\_\_\_\_

1. Count on to add.



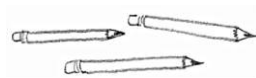
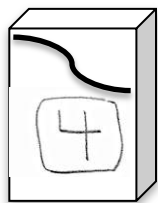
$$\square + \square = \square$$

There are \_\_\_\_ crayons altogether.



$$\square + \square = \square$$

There are a total of \_\_\_\_ balloons.



$$\square = \square + \square$$

In all, there are \_\_\_\_ pencils.

2. What shortcut or efficient strategy can you find to add?

$$\boxed{4} \bigcirc + \boxed{1} = \boxed{\phantom{00}}$$

$$\boxed{4} \bigcirc + \boxed{3} = \boxed{\phantom{00}}$$

$$\boxed{7} \bigcirc + \boxed{1} = \boxed{\phantom{00}}$$

$$\boxed{\phantom{00}} = \boxed{6} \bigcirc + \boxed{2}$$

$$\boxed{\phantom{00}} = \boxed{5} \bigcirc + \boxed{3}$$

$$\boxed{\phantom{00}} = \boxed{3} \bigcirc + \boxed{6}$$

$$\boxed{\phantom{00}} = \boxed{3} \bigcirc + \boxed{7}$$

$$\boxed{2} \bigcirc + \boxed{5} = \boxed{\phantom{00}}$$

$$\boxed{7} \bigcirc + \boxed{2} = \boxed{\phantom{00}}$$

$$\boxed{7} \bigcirc + \boxed{3} = \boxed{\phantom{00}}$$

$$\boxed{\phantom{00}} = \boxed{4} \bigcirc + \boxed{2}$$

$$\boxed{\phantom{00}} = \boxed{2} \bigcirc + \boxed{5}$$

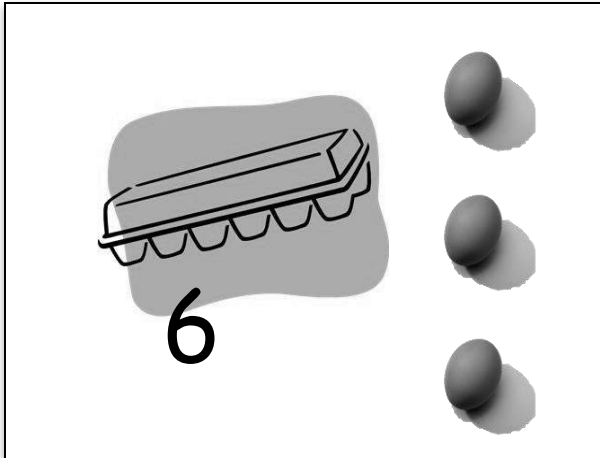
$$\boxed{\phantom{00}} = \boxed{6} \bigcirc + \boxed{2}$$

$$\boxed{\phantom{00}} = \boxed{2} \bigcirc + \boxed{8}$$

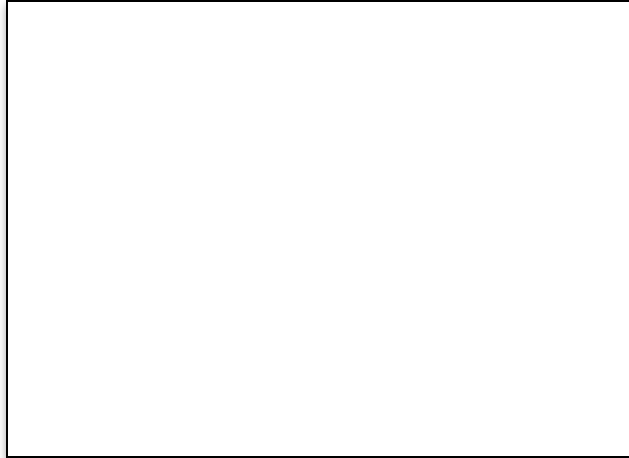
Name \_\_\_\_\_

Date \_\_\_\_\_

Use the picture to add.



Show the shortcut you used to add.

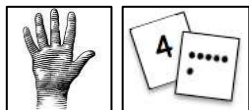


$$\square + \square = \square$$

There are \_\_\_\_\_ eggs total.

Name \_\_\_\_\_

Date \_\_\_\_\_



Use your 5-group cards or your fingers to count on to solve.

Show the shortcut you used to add.

$$\boxed{5} \bigcirc + \boxed{3} = \boxed{\phantom{00}}$$

$$\boxed{6} \bigcirc + \boxed{2} = \boxed{\phantom{00}}$$

$$\boxed{7} \bigcirc + \boxed{3} = \boxed{\phantom{00}}$$

$$\boxed{6} \bigcirc + \boxed{2} = \boxed{\phantom{00}}$$

Show the strategy you used to add.

$$\boxed{\phantom{00}} = \boxed{8} \bigcirc + \boxed{2}$$

$$\boxed{\phantom{00}} = \boxed{6} \bigcirc + \boxed{3}$$

$$\boxed{\phantom{00}} = \boxed{7} \bigcirc + \boxed{2}$$

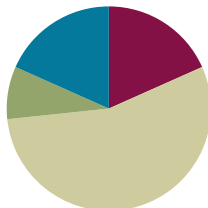
$$\boxed{\phantom{00}} = \boxed{7} \bigcirc + \boxed{2}$$

## Lesson 16

**Objective:** Count on to find the unknown part in missing addend equations such as  $6 + \underline{\quad} = 9$ . Answer, “How many more to make 6, 7, 8, 9, and 10?”

### Suggested Lesson Structure

■ Fluency Practice	(11 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(33 minutes)
■ Student Debrief	(11 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (11 minutes)

- Shake Those Disks: 7 **1.OA.6** (6 minutes)
- Count On Drums: 3 More **1.NBT.1** (3 minutes)
- 10 Bowling Pins **1.NBT.1** (2 minutes)

### Shake Those Disks: 7 (6 minutes)

**Materials:** (S) 7 two-color beans (disks or pennies are also acceptable) per set of partners, personal white board with Shake Those Disks template

**Note:** This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

Break students into partners. Give each set of partners 7 two-color beans. Instruct them to take turns as the *Shaker* and the *Recorder*. The Shaker shakes the disks and tosses them on the table. The Recorder then records the roll on the Shake Those Disks graph. (For example, if the Shaker rolled 3 red and 4 white the Recorder would put an X on the graph above the 3 and 4 number bond.)



#### NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

For students who are ready to explore place value, encourage them to imagine each disk has a value of 10. Adjust the recording sheet so that students can complete the number bonds as they initially identify the combinations of 70 created as they play.

### Count On Drums: 3 More (3 minutes)

Note: This activity supports the connection of counting on to addition, and counting back to subtraction.

The teacher says a number aloud. Students repeat the number, drumming on the table to count on 3 and matching one drum tap with each consecutive number counted on. Extend the game by counting back 3.

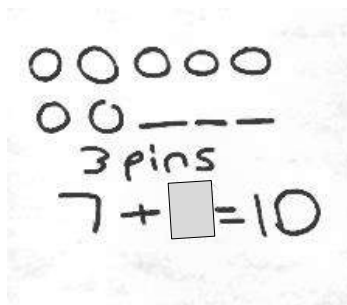
### 10 Bowling Pins (2 minutes)

A prepared set of bowling pins is a wonderful configuration of 10 (4 in the back then 3, then 2, then 1). Show a bird's eye picture of the configuration. Have students look at the arrangement and discuss with a partner how many pins they see and how they know. Share different ways of knowing it is ten.

### Application Problem (5 minutes)

Finn knocked over some bowling pins and 7 were still standing. How many did he knock over? Use a simple math drawing to show what you did to solve. Write a number sentence with a box to show the mystery or unknown number.

Note: This problem prepares students for this lesson's focus on solving for a missing addend.



### Concept Development (33 minutes)

Materials: (T) 5-group cards (see **G1-M1-L5**), mystery box, large number sentence template, set of 7 beans from Shake Those Disks (S) Personal white board with number sentence template, 5-group cards, number sentence cards from previous lesson, sticky notes with question marks

While students are putting away fluency materials take one set of the 7 beans from Shake Those Disks and bring it to the carpet. Hide 2 of the beans under the carpet without students noticing. Gather students on the carpet with the personal white boards.

MP.7

- T: While we were cleaning up some of the beans fell on the carpet. I picked most of them up but I think I am still missing some. We had 7 beans in total right?
- S: Right!
- T: Now I have 5 beans. (Show beans to class.)
- T: How many am I missing? Talk with your partner and try to solve this. (Discuss.)
- T: Let's try to count on to check how many I'm missing.
- S/T: Fivvvv (gesture to beans in hand), 6, 7! (Track on fingers.)



#### NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

When using words that may complicate language acquisition in ELL students be sure to model as much as possible. Hearing teacher-talk along with math-they-can-see helps these students comprehend the skills they are learning. Teaching in multiple modalities will also help other learners in your class.

- T: How many did we count on to get up to 7? (Keep fingers out to show the two that were used to track.)
- S: Two!
- T: So how many beans am I missing?
- S: Two beans!
- T: (Lift edge of carpet and shows the 2 beans.)
- T: Use your 5-group cards to make the number sentence on your number sentence place the numeral side up. If you want to double check your number sentence turn cards to the dot-side. Remember try to turn over the fewest cards you can and count on.
- S: (Create  $5 + 2 = 7$  on white boards with 5-group cards. Some students flip to dot-side to count on and check. Teacher circulates and checks accuracy.)

Repeat the process using the mystery box concealing 3 of the 7 beans in the box so that students only see 4 beans. Encourage them to use their 5-group cards or track on their fingers to decide how many beans are in the mystery box. Students use the cards to make a corresponding number sentence.

- T: How many beans did I place in the box?
- S: 3 beans!
- T: What is the number sentence you recorded?
- S:  $4 + 3 = 7$ .
- T: Circle the part that was the mystery or unknown part.
- T: (Projects  $5 + \square = 8$ .) Use your cards to make and solve this number sentence.
- S: (Students discuss and solve using cards or finger tracking to confirm.)
- T: What is the mystery or unknown part of this number sentence?
- S: 3!

Repeat the process with the following sequence:

- |                                 |                              |                              |
|---------------------------------|------------------------------|------------------------------|
| a) $5 + \underline{\quad} = 6$  | $4 + \underline{\quad} = 6$  | $3 + \underline{\quad} = 6$  |
| b) $6 + \underline{\quad} = 7$  | $5 + \underline{\quad} = 7$  | $4 + \underline{\quad} = 7$  |
| c) $7 + \underline{\quad} = 8$  | $6 + \underline{\quad} = 8$  | $5 + \underline{\quad} = 8$  |
| d) $8 + \underline{\quad} = 9$  | $7 + \underline{\quad} = 9$  | $6 + \underline{\quad} = 9$  |
| e) $9 + \underline{\quad} = 10$ | $8 + \underline{\quad} = 10$ | $7 + \underline{\quad} = 10$ |

Leave the sets of number sentences on the board so that students can notice the patterns within the sequence. Explore the resulting patterns.

- What do you notice is happening?
- Imagine there is a fourth column (point.) What number sentence do you think I'll add next in each row?
- How do the parts change from one number sentence to the next?
- What strategies did you use?



## Problem Set (10 minutes)

Distribute Problem Set and allow students to work independently or in small groups.

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 solve these problems using the RDW approach used for Application Problems.

## Student Debrief (11 minutes)

**Lesson Objective:** Count on to find the unknown part in missing addend equations such as  $6 + \underline{\quad} = 9$ .

Answer, “How many more to make 6, 7, 8, 9 and 10?”

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

Have students bring their Problem Set and Application Problems to the carpet. Have them go over their Problem Set with their partner. Review the problems as a class at a rapid pace.

The following is a suggested list of questions to invite reflection and active processing of the total lesson experience. Use those that resonate for you as you consider what will best support your students’ ability to articulate the focus of the lesson.

- Look at Problems 3 and 4 on the Problem Set. What do you notice is the same about these problems? (One of the parts is the same.) What do you notice is different? (The parts are in different places in the equation.)
- How can it be true that all the unknown numbers, the mystery numbers are the same on the first page?

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 16: Problem Set 1•1

Name: Maria Date: \_\_\_\_\_

1. Draw more apples to solve  $4 + \underline{\quad} = 6$ .

$4 + 2 = 6$

I added 2 apples to the tree.

2. How many more to make 7?

$5 + 2 = 7$

3. How many more to make 8?

$6 + 2 = 8$

4. How many more to make 9?

$7 + 2 = 9$

5. Count on to add. Circle the strategy you used to keep track.

$3 + 1 = 4$

$4 + 1 = 5$

$4 + 3 = 7$

$8 = 5 + 3$

$10 = 2 + 8$

$7 + 1 = 8$

$2 + 5 = 7$

$8 = 6 + 2$

$10 = 3 + 7$

engage<sup>ny</sup> 1.D.26

Have students look at their work from the Application Problem with Finn's rings and the last problem on their Problem Set.

- What strategies did you use to solve them? How are these problems the same? How are they different? How can the parts from the rings problem help you solve the last Problem Set problem?
- On the Problem Set you could pick from lots of tools or strategies. You could have kept track on your fingers, used 5-group cards, or known it in your head. Share with your partner: What do you notice about how you solved most of your problems? Why did you pick that tool or strategy the most?

### Exit Ticket (3 minutes)

After the Student Debrief instruct students to complete the Exit Ticket. A quick review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today. Students have two minutes to complete the Exit Ticket. You may read the questions aloud to the students.

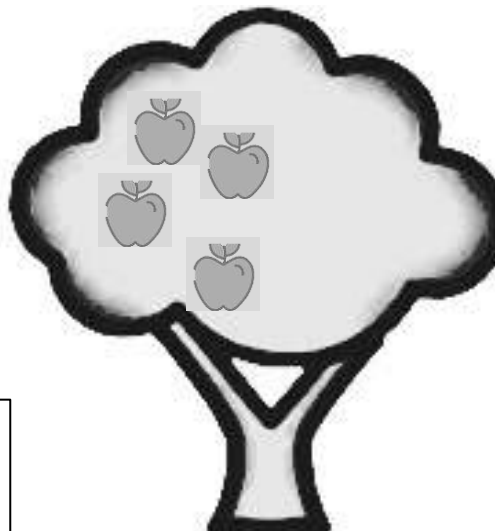
Name \_\_\_\_\_

Date \_\_\_\_\_

1. Draw more apples to solve  $4 + ? = 6$ .

$$\boxed{4} + \boxed{\phantom{0}} = \boxed{6}$$

I added \_\_\_\_\_ apples to the tree.



2. How many more to make 7?

$$\boxed{5} + \boxed{\phantom{0}} = \boxed{7}$$

3. How many more to make 8?

$$\boxed{6} + \boxed{\phantom{0}} = \boxed{8}$$

4. How many more to make 9?

$$\boxed{7} + \boxed{\phantom{0}} = \boxed{9}$$

$$\boxed{3} + \boxed{1} = \boxed{4}$$


5. Count on to add. Circle the strategy you used to keep track.

$$\boxed{4} + \boxed{\phantom{0}} = \boxed{5}$$



$$\boxed{4} + \boxed{\phantom{0}} = \boxed{7}$$



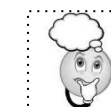
$$\boxed{8} = \boxed{5} + \boxed{\phantom{0}}$$



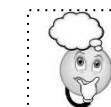
$$\boxed{10} = \boxed{\phantom{0}} + \boxed{8}$$



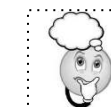
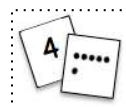
$$\boxed{7} + \boxed{\phantom{0}} = \boxed{8}$$



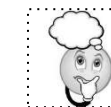
$$\boxed{\phantom{0}} + \boxed{5} = \boxed{7}$$



$$\boxed{8} = \boxed{6} + \boxed{\phantom{0}}$$



$$\boxed{10} = \boxed{\phantom{0}} + \boxed{7}$$



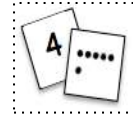
Name \_\_\_\_\_

Date \_\_\_\_\_

Solve the number sentences. Circle the tool or strategy you used.

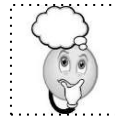
$$5 + \square = \square 7$$

I counted on \_\_\_\_\_ using



Or

I just knew



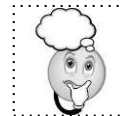
$$6 + \square = \square 9$$

I counted on \_\_\_\_\_ using



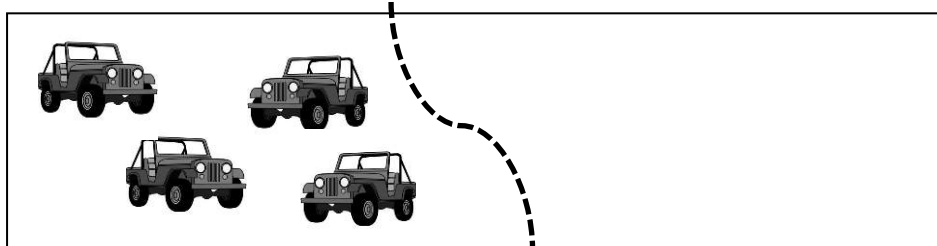
Or

I just knew



Name \_\_\_\_\_

Date \_\_\_\_\_

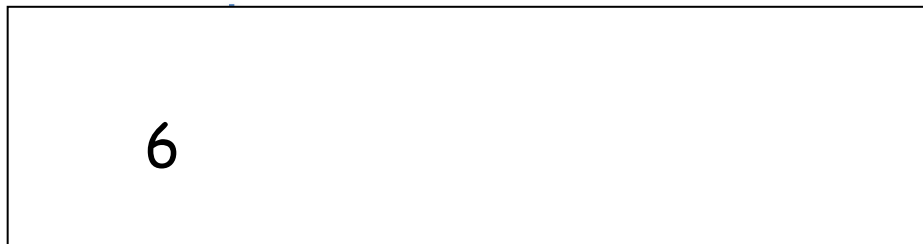
1. Use simple math drawings. Draw more to solve  $4 + ? = 6$ .

$$= \boxed{6}$$

4

+

=

 $\boxed{6}$ 2. Use your 5-group cards to solve  $6 + ? = 8$ 

=

 $\boxed{8}$ 

6

+

=

 $\boxed{8}$ 3. Use counting on to solve  $7 + ? = 10$ 

7

+

=

 $\boxed{10}$

# Shake Those Disks! - 7

<div style="text-align: center;"> <div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center; font-size: 24px;">7</div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;">0</div> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;">7</div> </div> </div>	<div style="text-align: center;"> <div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center; font-size: 24px;">7</div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;">1</div> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;">6</div> </div> </div>	<div style="text-align: center;"> <div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center; font-size: 24px;">7</div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;">2</div> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;">5</div> </div> </div>	<div style="text-align: center;"> <div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center; font-size: 24px;">7</div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;">3</div> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;">4</div> </div> </div>

© Kelly Spinks



## Topic E

# The Commutative Property of Addition and the Equal Sign

## 1.OA.3, 1.OA.7

<b>Focus Standard:</b>	1.OA.3	Apply properties of operations as strategies to add and subtract. <i>Examples: If <math>8 + 3 = 11</math> is known, then <math>3 + 8 = 11</math> is also known. (Commutative property of addition.) To add <math>2 + 6 + 4</math>, the second two numbers can be added to make a ten, so <math>2 + 6 + 4 = 2 + 10 = 12</math>. (Associative property of addition.)</i>
	1.OA.7	Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. <i>For example, which of the following equations are true and which are false? <math>6 = 6</math>, <math>7 = 8 - 1</math>, <math>5 + 2 = 2 + 5</math>, <math>4 + 1 = 5 + 2</math>.</i>
<b>Instructional Days:</b>	4	
<b>Coherence</b>	<b>-Links from:</b>	GK–M4 Number Pairs, Addition and Subtraction to 10
	<b>-Links to:</b>	G2–M4 Addition and Subtraction Within 200 with Word Problems to 100

Topic E leads students to a very intentional understanding and application of the equal sign and the commutative property of addition (**1.OA.3** and **1.OA.7**). Lessons 17 and 18 ask students to use pictorial representations (pictures and 5-groups) to write expressions, and demonstrate that they are equivalent by using the equal sign.

This work with the equal sign precedes the lessons on commutativity in order to allow students to construct true number sentences such as  $4 + 3 = 3 + 4$  without misunderstanding the equal sign to mean that the numbers are the same. Students understand that when added together, two numbers make a the same total, regardless of whether one of the numbers appears first or second in equations and expressions.

The topic ends with Lesson 20, where students directly apply their understanding of commutativity by starting with the larger quantity and *counting on* (a Level 2 strategy) as a matter of efficiency, “I can count on 2 from 7 when I solve  $2 + 7$ !”



**A Teaching Sequence Towards Mastery of the Commutative Property of Addition and the Equal Sign**

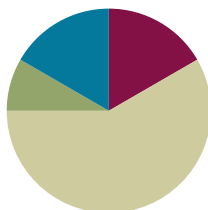
- Objective 1:** Understand the meaning of the equal sign by pairing equivalent expressions and constructing true number sentences.  
(Lesson 17–18)
- Objective 2:** Represent the same story scenario with addends repositioned (the commutative property).  
(Lesson 19)
- Objective 3:** Apply the commutative property to *count on* from a larger addend.  
(Lesson 20)

## Lesson 17

**Objective:** Understand the meaning of the equal sign by pairing equivalent expressions and constructing true number sentences.

### Suggested Lesson Structure

■ Fluency Practice	(10 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(35 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (10 minutes)

- Penny Drop: 7 **1.OA.6** (5 minutes)
- Number Bond Dash: 7 **1.OA.6** (5 minutes)

### Penny Drop: 7 (5 minutes)

Materials: (T) 7 pennies, a can

Note: This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

Show students 7 pennies. Have students close their eyes and listen. Drop some of the pennies in a can, one at a time. Ask students to open their eyes and guess how many pennies you still have in your hand. Then have students say how many pennies they heard drop and count on to 7, using the remaining pennies in your hand.



#### NOTES ON MULTIPLE MEANS FOR ACTION AND EXPRESSION:

Provide a variety of ways to respond with fluency practice when students are not able to complete it the way it is intended. They can be given extra time or allowed to complete the activity orally. The goal of the task is for students to show you what they know.

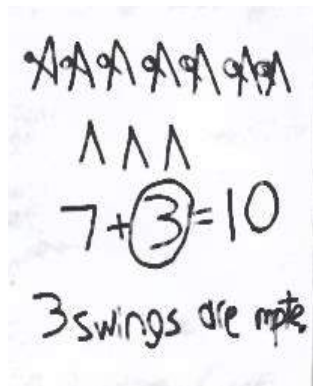
### Number Bond Dash: 7 (5 minutes)

Materials: (T) Stopwatch or timer (S) Number Bond Dash: 7 (see **G1-M1-L6**), marker to correct work

Note: By using the same system, students can focus on the mathematics alone. Follow procedure for Number Bond Dash. Tell students to remember how many problems they get correct so they can try to improve their scores tomorrow.

**Application Problem (5 minutes)**

There are 10 swings on the playground, and 7 students are using the swings. How many swings are empty? Draw or write a number sentence to show your thinking. Use a sentence at the end to answer today's question: How many swings are empty?

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

When asking ELL students to answer a question, support their response with a sentence frame. Write the statement on the board:

\_\_\_\_\_ swings are empty.

This will also help other students organize their thoughts.

Note: This problem serves as a bridge from the previous lesson's focus on solving for a missing addend.

**Concept Development (35 minutes)**

Materials: (S) Bag of 20 linking cubes, 10 red and 10 yellow, expression template, personal white boards

Have students sit next to their math partners at their tables.

- T: Let's play a game called Make it Equal. Partner B, close your eyes. Partner A, make your linking cubes look exactly like mine. (Show 4 red and 1 yellow cubes as a stick.) Hide your stick behind you and close your eyes.
- T: Partner B, open your eyes. Make your linking cubes look exactly like mine. (Show 3 red and 2 yellow cubes as a stick.)
- T: Partner A, open your eyes. Everyone, write the expression that shows how many cubes you have.
- S: (Partner A writes  $4 + 1$ ; Partner B writes  $3 + 2$ .)
- T: Show each other your linker cube stick. How are they the same? How are they different?
- S: (Discuss as teacher circulates.)
- T: How are they different?
- S: I had 4 red and 1 yellow cubes, but my partner had 3 red and 2 yellow cubes.
- T: How are they the same?
- S: We both have 5 cubes.

- T: Even though you have different parts, do you have the same total?
- S: Yes.
- T: Put your expressions next to each other. Now, put your sticks in between the expressions by putting them one above the other. What do the 2 sticks look like now?
- S: An equal sign!
- T: Hmm....does this make sense? How many cubes do you have on the left side of the equal sign?
- S: 5.
- T: How many cubes do you have on the right side of the equal sign?
- S: 5.
- T: Does 5 equal 5?
- S: Yes!
- T: Does  $4 + 1$  equal  $3 + 2$ ?
- S: Yes!
- T: Let's say the number sentence.
- T/S:  $4 + 1 = 3 + 2$ .
- T: This is called a true number sentence.

Repeat this process. You might use the following suggested sequence:  $5 + 2$  and  $6 + 1$ ;  $7 + 2$  and  $6 + 3$ .

Next, project 3 red and 3 yellow linking cubes and have partners use one board to write the expression. Then project 1 red and 5 yellow linking cubes. Partners write the expression on the second board. Ask students to give thumbs up if these expressions are equal. If yes, have them draw an imaginary equal sign between the two boards and say the true number sentence. Repeat this process but be sure to include some expressions that are not equivalent (such as  $3 + 5$  and  $4 + 2$ ).

- T: (Project a stick of 6 red and 2 yellow cubes.) Write an expression to match these cubes on one of your white boards.
- S: (Write  $6 + 2$ .)
- T: With your partner, use your linking cubes to make another stick to show the same total in a different way. Write the expression to match your stick. Then use your sticks to make the equal sign to help you say the true number sentence.

If students finish early, encourage them to make up as many equivalent expressions as they can. Repeat this process. You may use the following suggested sequence:  $3 + 4$ ,  $4 + 5$ , and  $3 + 7$ .

## Problem Set (10 minutes)

Distribute Problem Set to students, and allow them to work independently or in small groups.

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 solve these problems using the RDW approach used for Application Problems.

## Student Debrief (10 minutes)

**Lesson Objective:** Understand the meaning of the equal sign by pairing equivalent expressions and constructing true number sentences.

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


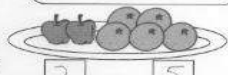
Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.



- Look at Problems 1–4. In Problem 1, we have apples plus oranges, and that equals fruit. What about Problem 2? What about Problem 3? What about Problem 4? How is Problem 3 different from the others? (They are like units.)
- Look at Problem 5. Share what you wrote as your true number sentence. What is the total represented by each side of this true number sentence? (Ten.)
- If both sides equal 10, is  $6 + 4 = 5 + 5$  the same as  $10 = 10$ ? (Write this on the board.) Talk with your partner about why or why not.
- Look at Problem 6, and the true number sentence you just wrote. Think about what we just decided about Problem 5. What's another way you can write the true number sentence? ( $8 = 8$ .)
- Think about the goal of today's lesson. What does the equal sign tell us?

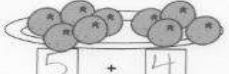

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 17 1•1



Name: Maria Date: \_\_\_\_\_

Write an expression that matches the groups on each plate. If the plates have the same amount of fruit, write the equal sign between the expressions.

1.   $3 + 4 =$    $2 + 5$

2.   $4 + 4 =$    $6 + 2$

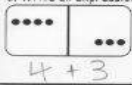

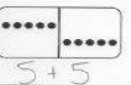
3.   $5 + 4 =$    $6 + 3$

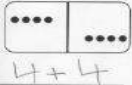

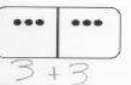
4.   $5 + 3 =$    $6 + 2$

COMMON CORE Lesson 17: Understand the Meaning of the Equal Sign by Pairing Equivalent Expressions and Constructing True Number Sentences (e.g.,  $2 + 3 = 5$ ,  $7 = 7$ ,  $6 + 4 = 10$ )  
Grade: 1/2/3/4/5  
© 2013 Common Core, Inc. All rights reserved. **engage<sup>ny</sup>** 1.A.5

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 17 1•1


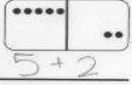
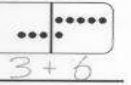
5. Write an expression to match each domino.

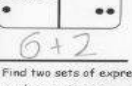

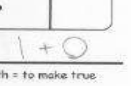
  $4 + 3 =$    $0 + 9 =$    $5 + 5 =$

  $4 + 4 =$    $6 + 4 =$    $3 + 3 =$

Find two sets of expressions that are equal. Connect them below with = to make true number sentences.

$6 + 4 = 5 + 5$

6.   $10 + 0 =$    $5 + 2 =$    $3 + 6 =$

  $6 + 2 =$    $1 + 7 =$    $1 + 0 =$

Find two sets of expressions that are equal. Connect them below with = to make true number sentences.

$6 + 2 = 1 + 7$

COMMON CORE Lesson 17: Understand the Meaning of the Equal Sign by Pairing Equivalent Expressions and Constructing True Number Sentences (e.g.,  $2 + 3 = 5$ ,  $7 = 7$ ,  $6 + 4 = 10$ )  
Grade: 1/2/3/4/5  
© 2013 Common Core, Inc. All rights reserved. **engage<sup>ny</sup>** 1.A.6

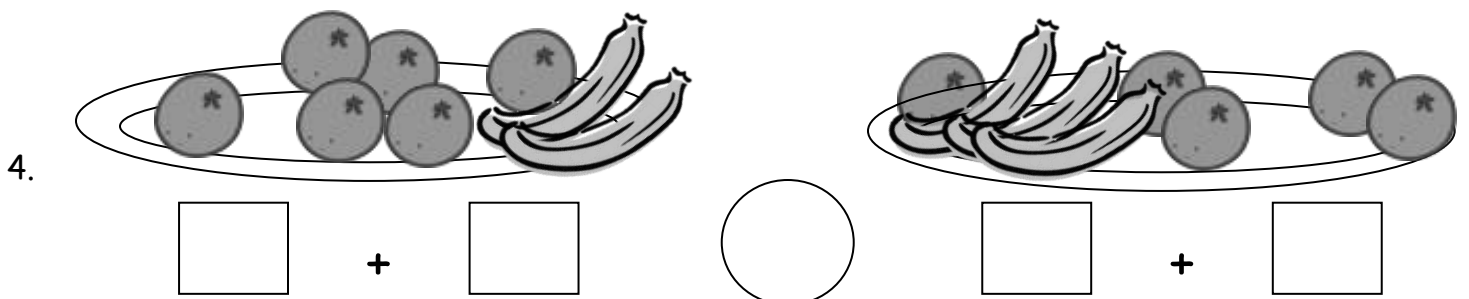
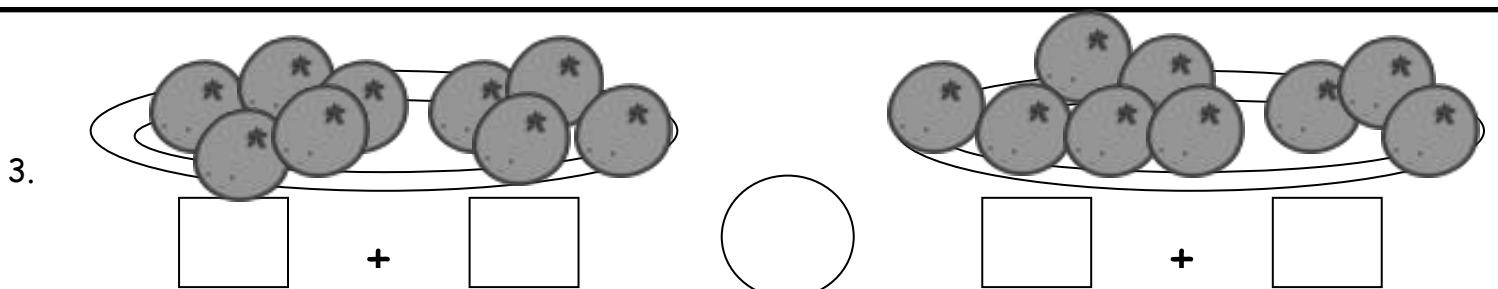
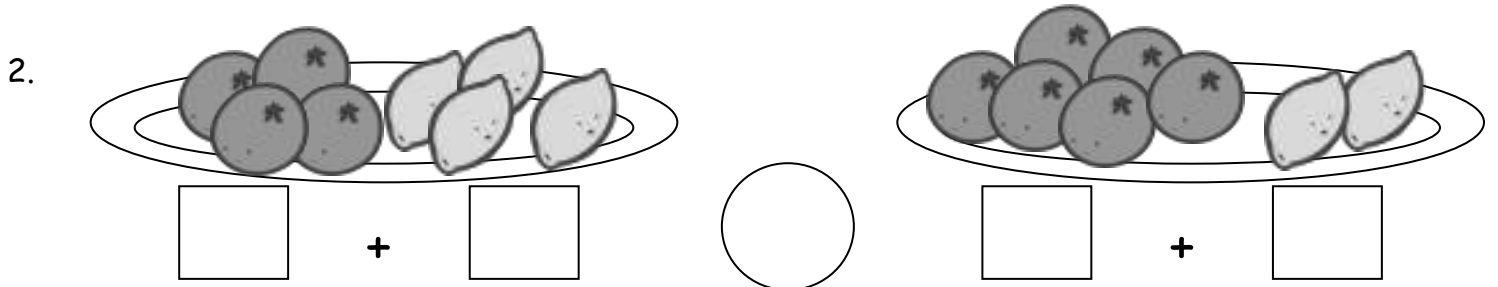
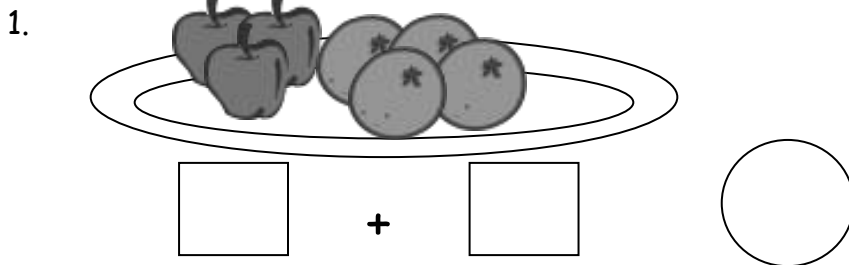
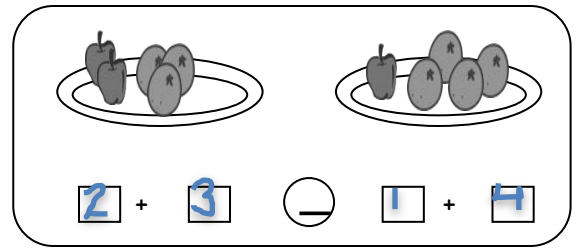
**Exit Ticket (3 minutes)**

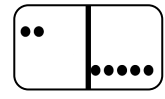
After the Student Debrief, instruct students to complete the Exit Ticket. A quick review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today. Students have two minutes to complete the Exit Ticket. You may read the questions aloud to the students.

Name \_\_\_\_\_

Date \_\_\_\_\_

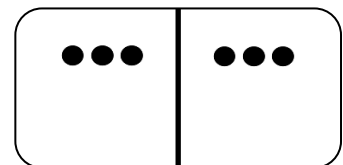
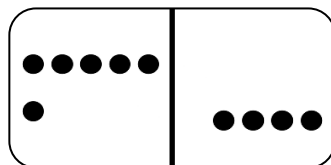
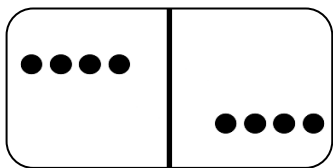
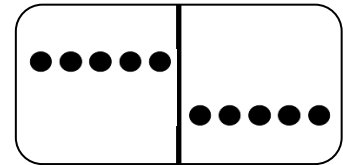
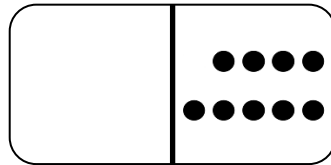
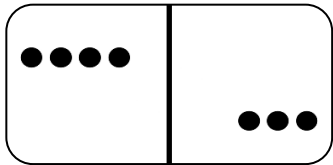
Write an expression that matches the groups on each plate. If the plates have the same amount of fruit, write the equal sign between the expressions.





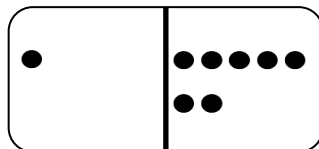
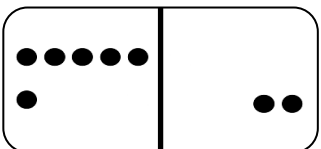
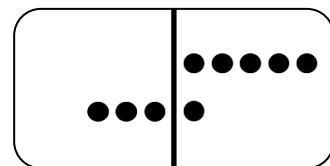
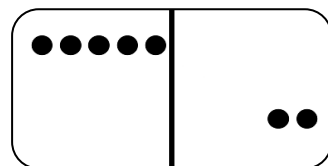
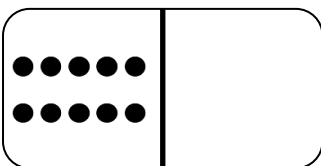
$2+5$

5. Write an expression to match each domino.



Find two sets of expressions that are equal. Connect them below with = to make true number sentences.

6.



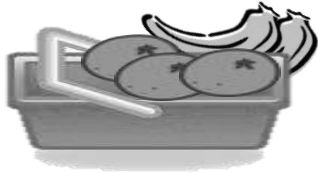
Find two sets of expressions that are equal. Connect them below with = to make true number sentences.



Name \_\_\_\_\_

Date \_\_\_\_\_

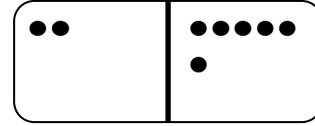
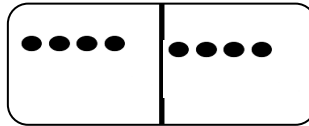
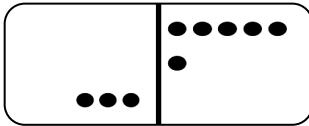
Use math drawings to make the pictures equal. Connect them below with = to make true number sentences.



\_\_\_\_\_

\_\_\_\_\_

Shade the equal dominoes. Write a true number sentence.



\_\_\_\_\_

\_\_\_\_\_

Name \_\_\_\_\_

Date \_\_\_\_\_

Match the equal dominoes then write true number sentences.



1.

		_____	_____
		_____	_____
		_____	_____

Find the expressions that are equal. Use the equal expressions to write true number sentences.

--	--	--	--

2. \_\_\_\_\_

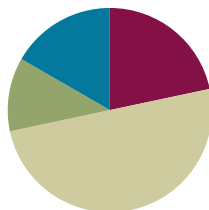
3. \_\_\_\_\_

## Lesson 18

**Objective:** Understand the meaning of the equal sign by pairing equivalent expressions and constructing true number sentences.

### Suggested Lesson Structure

Fluency Practice	(13 minutes)
Application Problem	(7 minutes)
Concept Development	(30 minutes)
Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (13 minutes)

- Red Light/Green Light: Counting by Tens **K.CC.2** (5 minutes)
- Missing Part: Make 7 **1.OA.6** (3 minutes)
- Number Bond Dash: 7 **1.OA.6** (5 minutes)

### Red Light/Green Light: Counting by Tens (5 minutes)

Note: By providing students with ongoing practice with counting throughout the year, they build and maintain their counting skills.

Begin with 0. When you say “green light,” students begin running in place and counting aloud together by 10s, until they reach 100. When you say “red light,” they stop counting and freeze. Students who are still moving or counting after you say “red light” sit down until the next game. Once students reach 100, continue to play, counting back by 10s until students arrive at 0. The last student (or few students) standing wins.

For the first game, start at 0 to ensure every child feels success. Then, try playing the game again beginning with 4 and 8, respectively.

### Missing Part: Make 7 (3 minutes)

Materials: (S) 5-group cards (0–7 only) from **G1-M1-L5**

Note: This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

Students work with a partner, using 5-group cards. Each student puts a card his or her forehead. The partner tells how many more to make 7. Students must guess the cards on their foreheads. Partners can play simultaneously.

## Number Bond Dash: 7 (5 minutes)

Materials: (T) Stopwatch or timer, (S) Number Bond Dash: 7 (see **G1-M1-L6**), marker to correct work

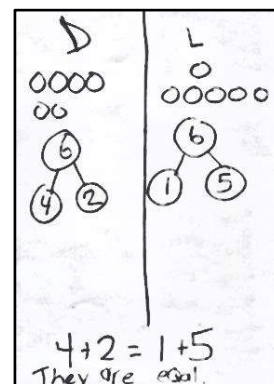
Note: Reviewing number bonds allows students to build and maintain fluency with addition and subtraction facts within 10.

Follow procedure for Number Bond Dash. Remember today is the second day with making 7. Students should recall their scores from yesterday to see and celebrate improvement.

## Application Problem (7 minutes)

Dylan has 4 cats and 2 dogs at home. Laura has 1 dog and 5 fish at home. Laura says she and Dylan have an equal number of pets. Dylan thinks he has more pets than Laura. Who is right? Draw a picture, write 2 number bonds, and use a number sentence to show if Dylan and Laura have an equal amount of pets.

Note: This problem serves as both a bridge and as a lead-up to the current lesson's concept development, focusing students on using the equal sign to create true number sentences.



## Concept Development (30 minutes)

Materials: (S) 5-group cards (see **G1-M1-L5**), personal white board, true and false number sentence cards, red and green markers per pair

Have students sit next to their math partners on the carpet or at their tables.

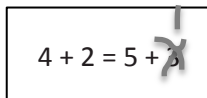
- T: (Project  $7 + 1 = \underline{\quad} + \underline{\quad}$ . Read the number sentence aloud with students.) Talk with your partner, and use this incomplete number sentence to finish writing a true number sentence.
- S: (Write any combination that makes 8. For example,  $6 + 2$ ,  $5 + 3$ , etc.)
- T: Hold up your true number sentences. Look around the class. Did everyone use the same numbers to make 8 on both sides?
- S: No!
- T: They don't all use the same numbers, but are all of them equal to 8?
- S: Yes!
- T: Yesterday, you made lots of true number sentences. Use your 5-group cards to tell me why this number sentence is NOT true. (Project  $4 + 2 = 5 + 3$ .)



### NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Connect calculations to 5-group cards to encourage counting on. Students use one numeral side and one dot side and touch the dots with their fingers as they count on. Some students will be able to do the calculations in their head while others will use the 5-group cards for as long as needed.

- S: (Build  $4 + 2 = 5 + 3$  with 5-group cards, and solve for each side.)
- T: Is  $4 + 2 = 5 + 3$  true or false?
- S: False!
- T: Talk with your partner. How do you know that  $4 + 2 = 5 + 3$  is *not* equal, or false?  
(As students share, circulate and listen. Then call on one student.)
- S:  $4 + 2$  is 6, and  $5 + 3$  is 8, so they are not equal because 6 is not the same as 8!
- T: Talk with your partner. How can you fix this number sentence to make it equal or true?  
(As students share, circulate and listen. Then call on a couple of students.)
- S: Change  $4 + 2$  to  $4 + 4$  to make it equal 8. → Change  $5 + 3$  to  $5 + 1$  to make it equal 6.



$$4 + 2 = 5 + 3$$

- T: Is there more than 1 way to fix this number sentence to make it true?
- S: Yes!
- T: Today, you will be playing True or False Number Sentences, just like we did, with a partner. Here are the directions:
1. Read the number sentence together.
  2. Use your 5-group cards to solve each side of the number sentence together.
  3. If the sentence is true, use your green marker and Partner A puts a check on it.
  4. If the sentence is false, work together to use your 5-group cards to change one number to fix the number sentence and make it equal, using your red marker.
  5. Then Partner B checks it, and it becomes her turn to pick a card.



### NOTES ON MULTIPLE MEANS FOR ENGAGEMENT:

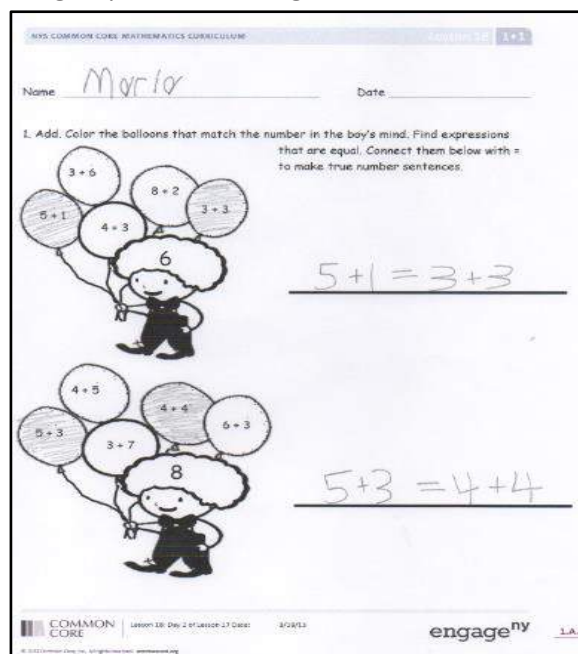
Some students will really enjoy playing True or False Number Sentences. Provide challenging extensions and give these students more problems to figure out and solve.

Allow students to play, as you circulate and support students.

### Problem Set (10 minutes)

Distribute the Problem Set and allow students to work independently or in small groups.

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 solve these problems using the RDW approach used for Application Problems.



## Student Debrief (10 minutes)

**Lesson Objective:** Understand the meaning of the equal sign by pairing equivalent expressions and constructing true number sentences.

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

- Look at Part (b) on the back page. How did you and your partner re-write this to make a true number sentence? How were your number sentences the same and different?
- Look at Part (f) on the back page. Can we re-write this to be  $10 = 10$ ? Why or why not? (If appropriate, ask the same about Part (g) re-written as  $9 = 9$ .)
- Think about the goal of today's lesson, and the work we've been doing with the equal sign. Imagine an alien came down from outer space and asked you what the equal sign is. Tell your partner what you would say to that alien to describe it! Be sure to use examples.
- Look at your application problem. Dylan and Laura have a friend Simon who has the same number of pets they have. If Simon has 6 guinea pigs, how many other pets does he have? Show with a number sentence or number bond to prove your answer.

2. Are these number sentences true? ✓ if it is true. X if it is false. If it's false, re-write the number sentence to make it true.

(a)  $3 + 1 = 2 + 2$  ✓

(b)  $9 + 1 = 1 + 2$  X  
 $9 + 1 = 8 + 2$

(c)  $2 + 3 = 1 + 4$  ✓

(d)  $5 + 1 = 4 + 2$  ✓

(e)  $4 + 3 = 3 + 5$  X  
 $4 + 4 = 3 + 5$

(f)  $0 + 10 = 2 + 8$  ✓

(g)  $6 + 3 = 4 + 5$  ✓

(h)  $3 + 7 = 2 + 6$  X  
 $3 + 5 = 2 + 6$

3. Write the unknown number in the expression and solve. ✓ if it is true. X if it is false.

$1 + 4 = 3 + 2$  ✓

$2 + 4 = 2 + 5$  X

$1 + 5 = 6 + 9$  ✓

$7 + 3 = 8 + 2$  ✓

COMMON CORE Lesson 18 (Day 2 of Lesson 17 Date: 6/24/13) engage<sup>ny</sup> 1.0.6

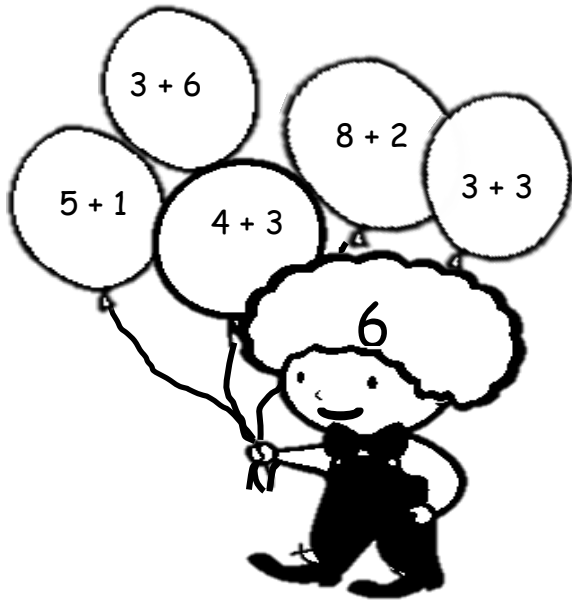
## Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

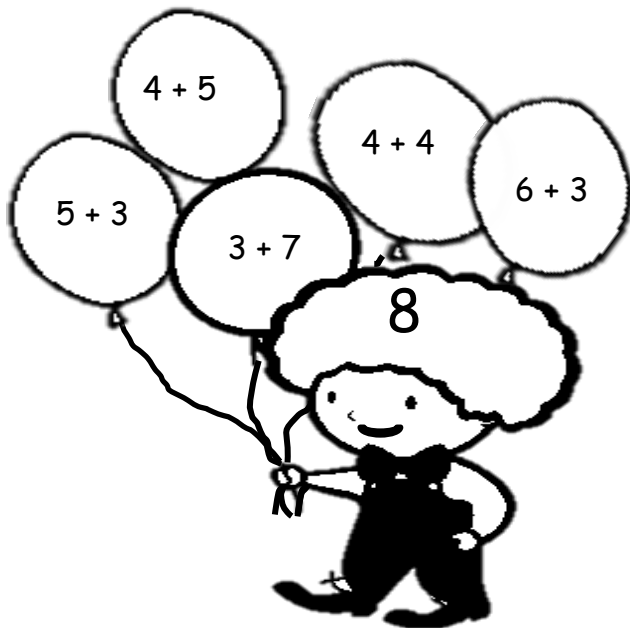
Name \_\_\_\_\_

Date \_\_\_\_\_

1. Add. Color the balloons that match the number in the boy's mind. Find expressions that are equal. Connect them below with = to make true number sentences.



\_\_\_\_\_



\_\_\_\_\_

2. Are these number sentences true?



if ~~it~~ is true.

if it is false.

If it's false, re-write the number sentence to make it true.

(a)  $3 + 1 = 2 + 2$

☐

(b)  $9 + 1 = 1 + 2$

☐

(c)  $2 + 3 = 1 + 4$

☐

(d)  $5 + 1 = 4 + 2$

☐

(e)  $4 + 3 = 3 + 5$

☐

(f)  $0 + 10 = 2 + 8$

☐

(g)  $6 + 3 = 4 + 5$

☐

(h)  $3 + 7 = 2 + 6$

☐

3. Write a number in the expression and solve.  
is false.



if it ~~is~~ true.

if it

$1 + \underline{\quad} = 3 + 2$

☐

$\underline{\quad} + 4 = 2 + 5$

☐



$$\underline{\quad} + 5 = 6 + \underline{\quad} \quad \square$$

$$7 + \underline{\quad} = 8 + \underline{\quad} \quad \square$$

Name \_\_\_\_\_

Date \_\_\_\_\_

Find two ways to fix each number sentence to make it true.

$$7 + 3 = 6 + 2$$

$$\underline{7 + 3} = \underline{6 + 4}$$
  
$$\underline{\quad} = \underline{\quad}$$
  
$$\underline{\quad} = \underline{\quad}$$

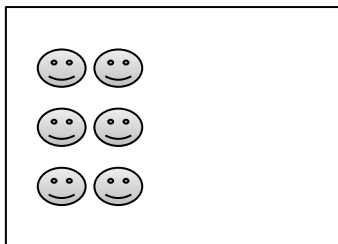
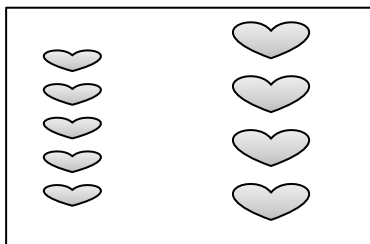
$$8 + 1 = 3 + 5$$

$$\underline{\quad} = \underline{\quad}$$
  
$$\underline{\quad} = \underline{\quad}$$

Name \_\_\_\_\_

Date \_\_\_\_\_

The pictures below are not equal. Make the pictures equal and write a true number sentence.



\_\_\_\_\_

\_\_\_\_\_

Circle the true number sentences and rewrite the false sentences to make them true.

$4 = 4$

$5 + 1 = 6 + 1$

$3 + 2 = 5 + 0$

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

$6 + 2 = 4 + 4$

$3 + 3 = 6 + 2$

$9 + 0 = 7 + 2$

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

$4 + 3 = 2 + 4$

$8 = 8 + 0$

$6 + 3 = 5 + 4$

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Find the missing part to make the number sentences true.

$8 + 0 = \underline{\quad} + 4$

$7 + 2 = 9 + \underline{\quad}$

$5 + 2 = 4 + \underline{\quad}$

$5 + \underline{\quad} = 6 + 0$

$6 + \underline{\quad} = 4 + 3$

$5 + 4 = \underline{\quad} +$

## True and False Number Sentence Cards

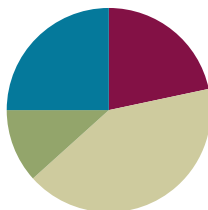
$4 + 1 = 2 + 2$	$2 + 5 = 8 + 2$
$3 + 2 = 4 + 1$	$9 + 1 = 4 + 6$
$6 + 2 = 3 + 3$	$3 + 4 = 6 + 3$
$1 + 7 = 4 + 4$	$5 + 4 = 3 + 7$
$2 + 5 = 4 + 3$	$5 + 5 = 6 + 3$
$5 + 1 = 4 + 2$	$8 + 2 = 3 + 7$

## Lesson 19

**Objective:** Represent the same story scenario with addends repositioned (the commutative property).

### Suggested Lesson Structure

■ Fluency Practice	(13 minutes)
■ Application Problem	(7 minutes)
■ Concept Development	(25 minutes)
■ Student Debrief	(15 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (13 minutes)

- 5-Group Addition **1.OA.3** (3 minutes)
- Sprint: +1, 2, 3 **1.OA.6** (10 minutes)

### 5-Group Addition (3 minutes)

Materials: (T) 5-group cards 1, 2, 3, 4, and 5 (all others removed) (see **G1-M1-L5**)

Note: This activity prepares students for working with the commutative property in today's lessons. It also addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

Teacher holds up a 5-group card and asks students to identify the quantity. Teacher holds up a second 5-group card and asks students to identify that quantity. Teacher holds cards side by side and asks students a series of addition questions: "What is the total?" "What is the number sentence, starting with the bigger part?" "What is the number sentence, starting with the smaller part?" Continue game with various number combinations.



### NOTES ON MULTIPLE MEANS OF REPRESENTATION:

While using vocabulary words such as *total* and *part* is important for students' understanding of a concept, you need to make sure your students understand them. This is particularly important for ELLs. As you are using the words, point, gesture, or label these parts of the number sentence. Encourage students to use these words when talking about number sentences too. When they use them correctly, this will show you their level of understanding.

### Sprint: +1, 2, 3 (10 minutes)

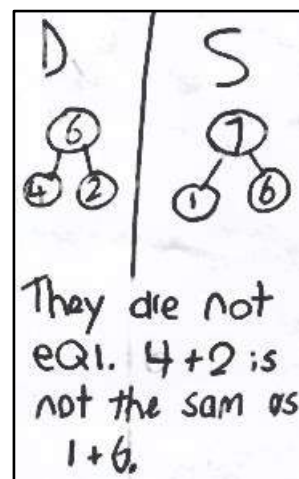
Materials: (S) +1, 2, 3 Sprint

Note: This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

**Application Problem (7 minutes)**

Dylan has 4 cats and 2 dogs at home. Sammy has 1 mama bunny and 6 baby bunnies at home. Draw a number bond showing the total number of pets of each household. Write a statement to tell if the two households have an equal number of pets.

Note: This problem serves as a bridge from the previous lesson's focus on using the equal sign to write true number sentences.

**Concept Development (25 minutes)**

Materials: (S) personal white boards, bag of 7 counters (4 red, 3 white)

Invite students to sit on the carpet with their personal white boards, facing the front of the room. Choose 5 girls and 3 boys (or 3 girls and 5 boys) to stand in a row in front of the class.

T: How many girls are standing here?

S: 5 girls!

T: How many boys are standing here?

S: 3 boys!

T: Write a number sentence on your board to show 5 girls plus 3 boys.

S: (Write  $5 + 3 = 8$  on their boards.)

T: Starting with the boys, write the number sentence on your boards.

S: (Write  $3 + 5 = 8$ .)

T: How many children do we have when we add 3 boys and 5 girls?

S: 8 children!

T: Is that the same total or a different total of children as we had the last time we added the boys and girls?

S: The same!

T: Take 4 red and 3 white counters out of your bag. Put them in a line starting with the red counters.

T: Tell your friend 2 number sentences that match your materials.

S:  $4 + 3 = 7$  and  $3 + 4 = 7$ .

T: Can you also start with the whole amount?

S:  $7 = 4 + 3$  and  $7 = 3 + 4$ .

T: Now switch the red and white counters, putting the white first in your line. Tell your partner 4 number sentences that match your new arrangement.

S: (Do so.)



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

Though we like to think of the commutative property as “switch arounds,” it is the addends that switch not the referents. When we change the placement of the materials when adding, we find that the exact same four number sentences also describe the materials in different positions.

MP.7

- T: Is this the same set of number sentences?
- S: Yes!
- T: Why? Turn and talk with your partner.
- S: (Talk with partner. Teacher circulates and listens.) The number of reds and whites did not change. We can add them in any order, as long as we include them all.
- T: On your board, write a number sentence showing that 4 plus 3 is the same as 3 plus 4.
- S: (Write  $3 + 4 = 4 + 3$ .)
- T: On your board, draw 6 circles and 3 hearts in a line. Write 4 number sentences to match your picture. Share your work with a partner. What are you noticing?

### Problem Set (10 minutes)

Distribute the Problem Set and allow students to work independently or in small groups.

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 solve these problems using the RDW approach used for Application Problems.

### Student Debrief (15 minutes)

**Lesson Objective:** Represent the same story scenario with addends repositioned (the commutative property).

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

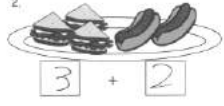

- Does this happen every time we add the same amounts but switch the order in which we add? With your partner, try to figure it out. Try adding two amounts in different orders. See if you get the same total each time. You can draw and use number sentences as you try it.
- Why does the total stay the same, even though you are adding in a different order?
- Look at Problem 7. Which number sentence represents the easier way for you to add 2 and 8? How does choosing a certain order make adding easier?
- How will this strategy help you add more quickly next time, especially during a Number Bond Dash or a Sprint?

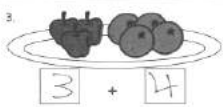
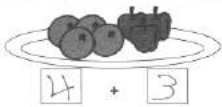
**Exit Ticket (3 minutes)**


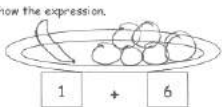
After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 19 Problem Set 1•1

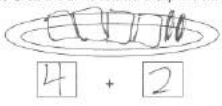
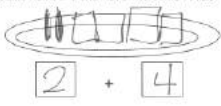
Write the expression under each plate. Add the equal sign to show they are the same amount.

2.   $3 + 2 =$    $2 + 3$

3.   $3 + 4 =$    $4 + 3$

4.   $6 + 1 =$    $1 + 6$

5. Draw and write to show 2 expressions that use the same numbers and have the same total.

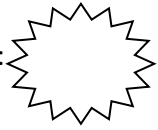
  $4 + 2 =$    $2 + 4$

COMMON CORE Lesson 19: Represent the same story scenario with addends repositioned (the commutative property). Date: 5/10/13 engage<sup>ny</sup> 1.E.8



**A**

Number correct:



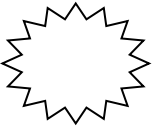
Name \_\_\_\_\_

Date \_\_\_\_\_

\*Count On to Add

1	$1 + 1$		16	$4 + 3$	
2	$2 + 1$		17	$3 + 3$	
3	$3 + 1$		18	$4 + 3$	
4	$3 + 2$		19	$3 + 4$	
5	$2 + 2$		20	$2 + 4$	
6	$3 + 2$		21	$4 + 2$	
7	$2 + 2$		22	$5 + 2$	
8	$3 + 0$		23	$2 + 5$	
9	$3 + 1$		24	$2 + 6$	
10	$3 + 2$		25	$6 + 3$	
11	$5 + 2$		26	$3 + 6$	
12	$5 + 3$		27	$2 + 7$	
13	$5 + 2$		28	$3 + 7$	
14	$5 + 3$		29	$2 + 8$	
15	$6 + 3$		30	$3 + 6$	

Number correct:

**B**

Name \_\_\_\_\_

Date \_\_\_\_\_

\*Count On to Add.

1	$2 + 1$		16	$4 + 3$	
2	$1 + 1$		17	$3 + 3$	
3	$2 + 1$		18	$2 + 3$	
4	$2 + 2$		19	$1 + 3$	
5	$3 + 2$		20	$0 + 3$	
6	$2 + 2$		21	$1 + 3$	
7	$3 + 2$		22	$2 + 5$	
8	$3 + 1$		23	$5 + 2$	
9	$5 + 1$		24	$2 + 6$	
10	$6 + 1$		25	$6 + 2$	
11	$6 + 2$		26	$3 + 6$	
12	$5 + 2$		27	$3 + 7$	
13	$6 + 2$		28	$2 + 7$	
14	$6 + 3$		29	$2 + 6$	
15	$5 + 3$		30	$3 + 6$	

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Write the number bond to match the picture. Then complete the number sentences.

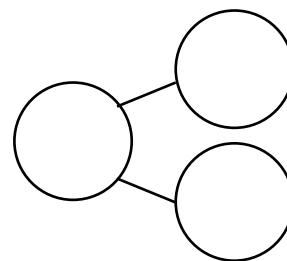


$$\square + \square = 5$$

$$\square + \square = 5$$

$$5 = \square + \square$$

$$\square = \square + \square$$

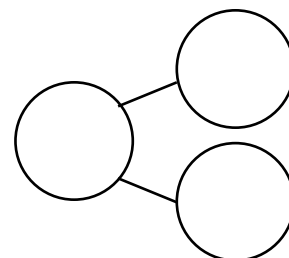


$$\square + \square = 8$$

$$\square + \square = \square$$

$$8 = \square + \square$$

$$\square = \square + \square$$

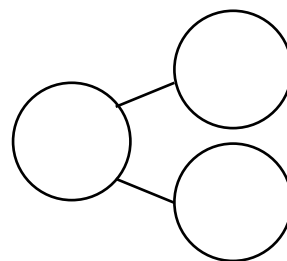


$$\square + \square = \square$$

$$\square + \square = \square$$

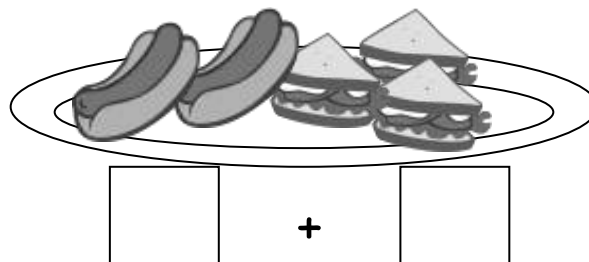
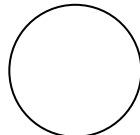
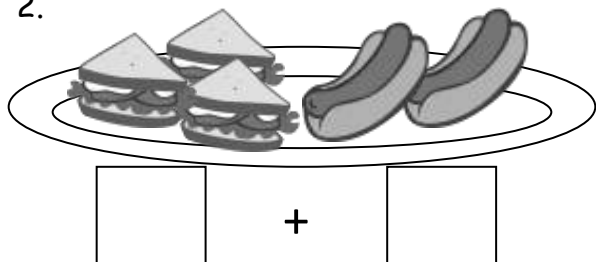
$$\square = \square + \square$$

$$\square = \square + \square$$

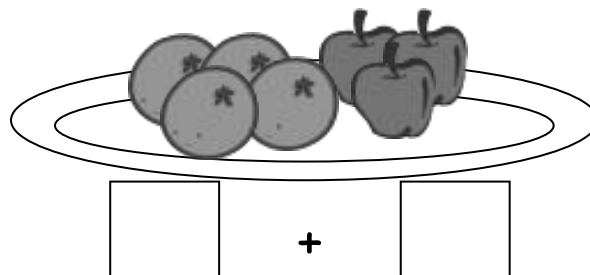
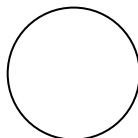
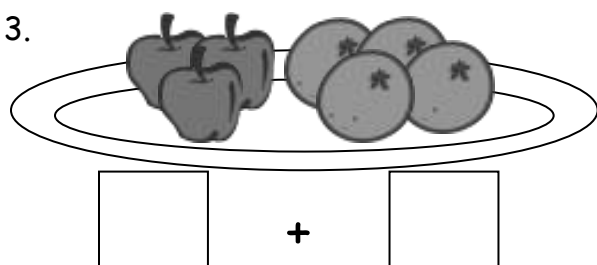


Write the expression under each plate. Add the equal sign to show they are the same amount

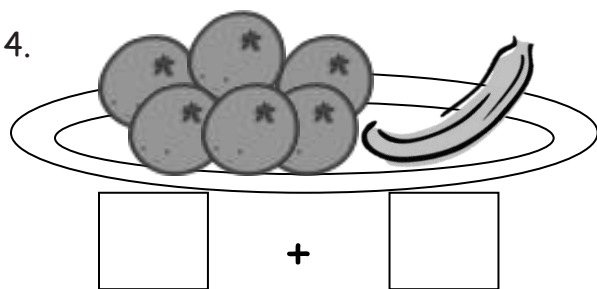
2.



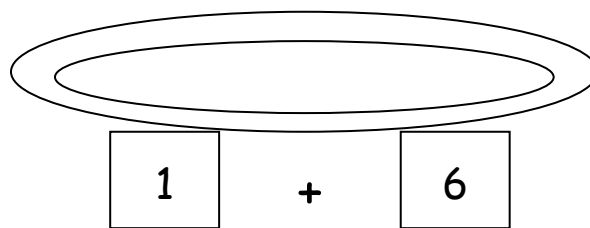
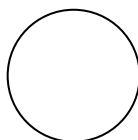
3.



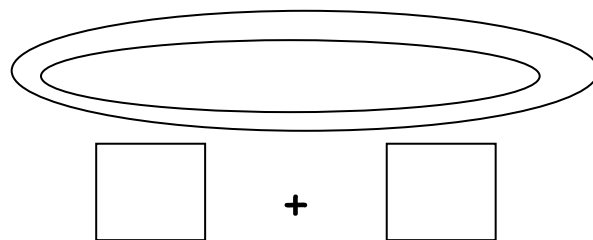
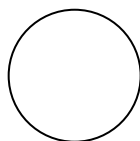
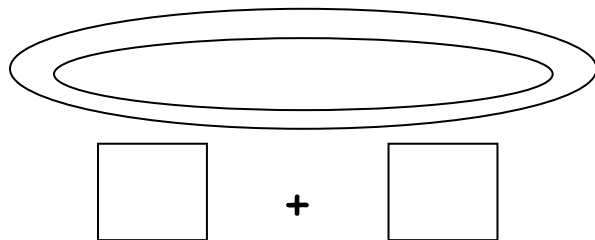
4.



Draw to show the expression.



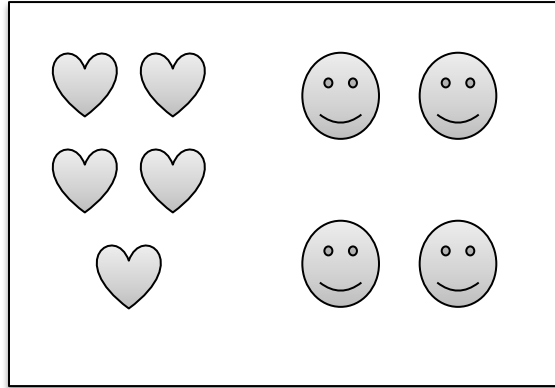
5. Draw and write to show 2 expressions that use the same numbers and have the same total.



Name \_\_\_\_\_

Date \_\_\_\_\_

Draw a picture and write the number sentences to show the parts in a different order.



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

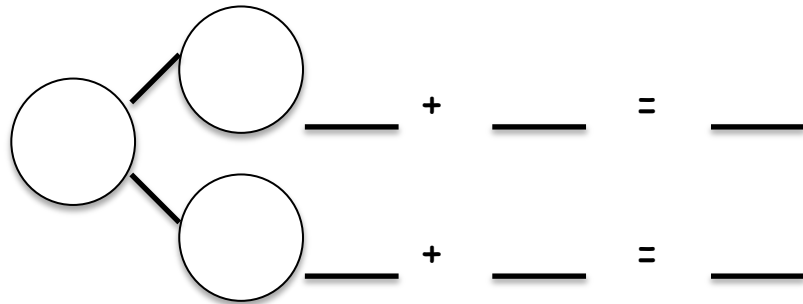
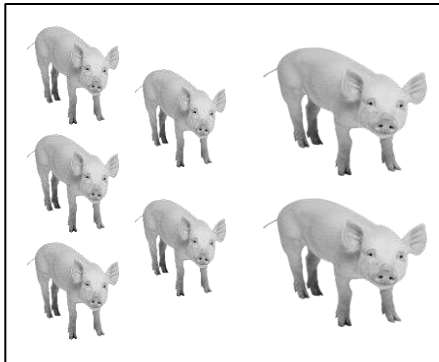
$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

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

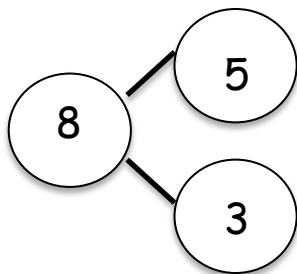
$$\underline{\quad} = \underline{\quad} + \underline{\quad}$$

Name \_\_\_\_\_ Date \_\_\_\_\_

Use the picture to write a number bond and then write the matching number sentences.

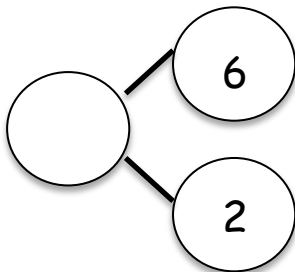


Write the number sentences to match the number bonds.



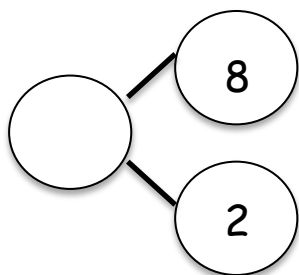
$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$



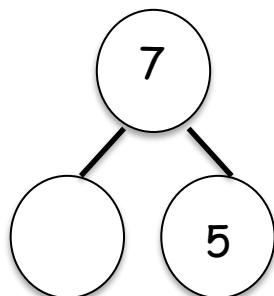
$$\underline{\hspace{1cm}} = \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$$

$$\underline{\hspace{1cm}} = \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$$



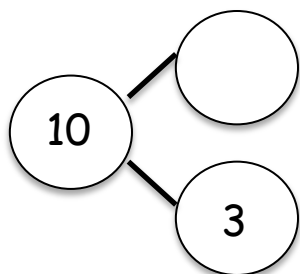
$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

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



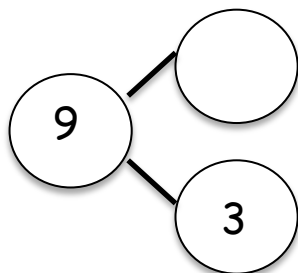
$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

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



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

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



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

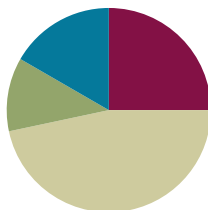
$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

## Lesson 20

**Objective:** Apply the commutative property to count on from a larger addend.

### Suggested Lesson Structure

■ Fluency Practice	(15 minutes)
■ Application Problems	(7 minutes)
■ Concept Development	(28 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (15 minutes)

- Sparkle: Count by Tens, Starting at 5 **K.CC.5** (5 minutes)
- Linking Cube Partners: 10 **1.OA.6** (10 minutes)

### Sparkle: Count By Tens, Starting at 5 (5 minutes)

Note: By providing students with ongoing counting practice throughout the year, they build and maintain their counting skills, which are foundational for later first grade work with adding and subtracting tens.

Play two games of Sparkle, counting by 10s, starting at 5. For the first game, count the regular way: 5, 15, 25, 35.... For the second game, count by tens the Say Ten way: 5, 1 ten 5, 2 tens 5, 3 tens 5....

### Linking Cube Partners: 10 (10 minutes)

Materials: (S) 10 linking cubes (5 cubes one color, 5 cubes another color) per pair, personal white boards

Note: This activity provides continued practice with the commutative property and prepares students for today's objective. It also addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

Show students 10 linking cubes in a stick with a color change at the 5 and hide behind back. Break off a part and show the part to students. Students make a number bond and two number sentences to match the part shown and the part hidden (commutative property).

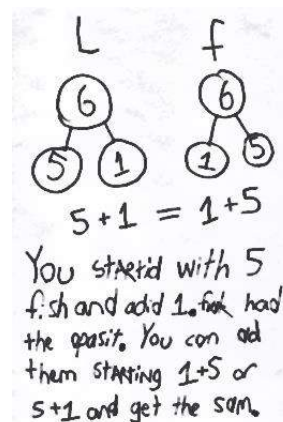


### Application Problem (7 minutes)

Laura had 5 fish. Her mother gave her 1 more. Laura's brother Frank had 1 fish. Their mother gave Frank 5 more. Laura cried, "That's not fair! He has more fish than I do!"

Use number bonds and a number sentence to show Laura the truth so she will calm down. If you can, write a sentence with words that would help Laura understand.

Note: This problem is designed to support student understanding of the commutative property as they will begin to apply this property for the sake of efficiency in the upcoming concept development.



### Concept Development (28 minutes)

Materials: (S) Expression cards, equal signs per pair

Note: There are enough expression cards for 34 students. You will need to make multiple copies of the equal sign sheet to accommodate the number of students in your class.

While students are still at their seats, give students expression cards, and ask them to hold the card so the class cannot see it.

- T: Find someone who has an expression card with a total equal to yours. When you find your partner, take an equal sign from the pile in front of the room, sit with your partner, and write a number sentence with your expression cards.
- S: (Students look for a partner, take an equal sign, sit on the carpet, and make a number sentence such as  $3 + 2 = 2 + 3$ .)
- T: Great job finding your partner. Here is one of the number sentences a partnership made. (Write  $1 + 7 = 7 + 1$  on the board.)
- T: Does everyone agree that 1 plus 7 is the same amount as 7 plus 1?
- S: Yes!
- T: (Write the two expressions underneath each other:  
 $1 + 7$  and  $7 + 1$ )
- T: If I wanted to count on to solve this, which would be faster, starting with 1 and counting on 7 or starting with 7 and counting on 1? Talk with a partner.
- S: (Discuss.)
- T: Let's try counting on with both to decide together.
- S/T: Onnnnnne (gesture to first addend), 2, 3, 4, 5, 6, 7, 8. (Keep track on fingers.)



#### NOTES ON MULTIPLE MEANS FOR ACTION AND EXPRESSION:

Some students may still be developing their ability to decide which number is bigger within a number sentence. Offer student choice to respond by first circling or coloring the bigger number. Then have them write the number sentence using the circled or colored number first.

T: Now let's try the second expression.

S/T: Seveeeennnnn (gesture to first addend), 8. (Keep track on fingers.)

Repeat the process with  $3 + 5$  and  $5 + 3$ . Collect the expressions, redistribute them, and allow students to play again.

T: Which way was the faster way to count on?

S:  $5 + 3$ .

T: Why?

S: When you start with the bigger number, you don't have to count on as much.

T: What about when we solved  $7 + 1$  and  $1 + 7$ . Discuss which was faster and why with your partner.

S: (Discuss with partner.)



### NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Adjust lesson structure to suit specific learning needs remembering that some students will need to keep counting all (by using objects or their 5-group cards to expose all of the dots).

## Problem Set (10 minutes)

Distribute Problem Set to students, and allow them to work independently or in small groups.

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 solve these problems using the RDW approach used for Application Problems.

## Student Debrief (10 minutes)

**Lesson Objective:** Apply the commutative property to count on from a larger addend.

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

- Look at your Application Problem. How does it relate to today's lesson? (The parts were the same, but in different orders. You could start with 5 for both of them and just count on 1.)

- Which number examples on your Problem Set required you to rewrite the number sentence to count on from the larger number?
- When does switching the order to count on from the larger number help you the most? (When one number is very small and the other is big, like Problem 5, with 2 and 7.)
- If I gave you a really challenging expression like  $1 + 51$ , how could you use what you learned today to make it an easier expression to solve? (We can change the order and add  $51 + 1$ . That would just be the next counting number, 52.)

### Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

NYS COMMON CORE MATHEMATICS CURRICULUM

Circle the larger amount and fill in the number bond. Rewrite the number sentence to start with the larger number.

5.

$2 + 7 = 9$

$7 + 2 = 9$

6.

$3 + 6 = 9$

$6 + 3 = 9$

Circle the larger number and count on to solve.

7.  $1 + 5 = 6$

8.  $2 + 6 = 8$

9.  $4 + 3 = 7$

10.  $3 + 6 = 9$

COMMON CORE Lesson # Date: Lesson Name: E.M2.OA.1.10.12.13.14.15.16.17.18.19.20.21.22.23.24.25.26.27.28.29.30.31.32.33.34.35.36.37.38.39.40.41.42.43.44.45.46.47.48.49.50.51.52.53.54.55.56.57.58.59.60.61.62.63.64.65.66.67.68.69.70.71.72.73.74.75.76.77.78.79.80.81.82.83.84.85.86.87.88.89.90.91.92.93.94.95.96.97.98.99.100.101.102.103.104.105.106.107.108.109.110.111.112.113.114.115.116.117.118.119.120.121.122.123.124.125.126.127.128.129.130.131.132.133.134.135.136.137.138.139.140.141.142.143.144.145.146.147.148.149.150.151.152.153.154.155.156.157.158.159.160.161.162.163.164.165.166.167.168.169.170.171.172.173.174.175.176.177.178.179.180.181.182.183.184.185.186.187.188.189.190.191.192.193.194.195.196.197.198.199.200.201.202.203.204.205.206.207.208.209.210.211.212.213.214.215.216.217.218.219.220.221.222.223.224.225.226.227.228.229.230.231.232.233.234.235.236.237.238.239.240.241.242.243.244.245.246.247.248.249.250.251.252.253.254.255.256.257.258.259.260.261.262.263.264.265.266.267.268.269.270.271.272.273.274.275.276.277.278.279.280.281.282.283.284.285.286.287.288.289.290.291.292.293.294.295.296.297.298.299.300.301.302.303.304.305.306.307.308.309.310.311.312.313.314.315.316.317.318.319.320.321.322.323.324.325.326.327.328.329.330.331.332.333.334.335.336.337.338.339.340.341.342.343.344.345.346.347.348.349.350.351.352.353.354.355.356.357.358.359.360.361.362.363.364.365.366.367.368.369.370.371.372.373.374.375.376.377.378.379.380.381.382.383.384.385.386.387.388.389.390.391.392.393.394.395.396.397.398.399.400.401.402.403.404.405.406.407.408.409.410.411.412.413.414.415.416.417.418.419.420.421.422.423.424.425.426.427.428.429.430.431.432.433.434.435.436.437.438.439.440.441.442.443.444.445.446.447.448.449.450.451.452.453.454.455.456.457.458.459.460.461.462.463.464.465.466.467.468.469.470.471.472.473.474.475.476.477.478.479.480.481.482.483.484.485.486.487.488.489.490.491.492.493.494.495.496.497.498.499.500.501.502.503.504.505.506.507.508.509.510.511.512.513.514.515.516.517.518.519.520.521.522.523.524.525.526.527.528.529.530.531.532.533.534.535.536.537.538.539.540.541.542.543.544.545.546.547.548.549.550.551.552.553.554.555.556.557.558.559.560.561.562.563.564.565.566.567.568.569.570.571.572.573.574.575.576.577.578.579.580.581.582.583.584.585.586.587.588.589.590.591.592.593.594.595.596.597.598.599.600.601.602.603.604.605.606.607.608.609.610.611.612.613.614.615.616.617.618.619.620.621.622.623.624.625.626.627.628.629.630.631.632.633.634.635.636.637.638.639.640.641.642.643.644.645.646.647.648.649.650.651.652.653.654.655.656.657.658.659.660.661.662.663.664.665.666.667.668.669.670.671.672.673.674.675.676.677.678.679.680.681.682.683.684.685.686.687.688.689.690.691.692.693.694.695.696.697.698.699.700.701.702.703.704.705.706.707.708.709.710.711.712.713.714.715.716.717.718.719.720.721.722.723.724.725.726.727.728.729.730.731.732.733.734.735.736.737.738.739.740.741.742.743.744.745.746.747.748.749.750.751.752.753.754.755.756.757.758.759.760.761.762.763.764.765.766.767.768.769.770.771.772.773.774.775.776.777.778.779.780.781.782.783.784.785.786.787.788.789.790.791.792.793.794.795.796.797.798.799.800.801.802.803.804.805.806.807.808.809.810.811.812.813.814.815.816.817.818.819.820.821.822.823.824.825.826.827.828.829.830.831.832.833.834.835.836.837.838.839.840.841.842.843.844.845.846.847.848.849.850.851.852.853.854.855.856.857.858.859.860.861.862.863.864.865.866.867.868.869.870.871.872.873.874.875.876.877.878.879.880.881.882.883.884.885.886.887.888.889.890.891.892.893.894.895.896.897.898.899.900.901.902.903.904.905.906.907.908.909.910.911.912.913.914.915.916.917.918.919.920.921.922.923.924.925.926.927.928.929.930.931.932.933.934.935.936.937.938.939.940.941.942.943.944.945.946.947.948.949.950.951.952.953.954.955.956.957.958.959.960.961.962.963.964.965.966.967.968.969.970.971.972.973.974.975.976.977.978.979.980.981.982.983.984.985.986.987.988.989.990.991.992.993.994.995.996.997.998.999.1000.1001.1002.1003.1004.1005.1006.1007.1008.1009.1010.1011.1012.1013.1014.1015.1016.1017.1018.1019.1020.1021.1022.1023.1024.1025.1026.1027.1028.1029.1030.1031.1032.1033.1034.1035.1036.1037.1038.1039.1040.1041.1042.1043.1044.1045.1046.1047.1048.1049.1050.1051.1052.1053.1054.1055.1056.1057.1058.1059.1060.1061.1062.1063.1064.1065.1066.1067.1068.1069.1070.1071.1072.1073.1074.1075.1076.1077.1078.1079.1080.1081.1082.1083.1084.1085.1086.1087.1088.1089.1090.1091.1092.1093.1094.1095.1096.1097.1098.1099.1100.1101.1102.1103.1104.1105.1106.1107.1108.1109.1110.1111.1112.1113.1114.1115.1116.1117.1118.1119.1120.1121.1122.1123.1124.1125.1126.1127.1128.1129.1130.1131.1132.1133.1134.1135.1136.1137.1138.1139.1140.1141.1142.1143.1144.1145.1146.1147.1148.1149.1150.1151.1152.1153.1154.1155.1156.1157.1158.1159.1160.1161.1162.1163.1164.1165.1166.1167.1168.1169.1170.1171.1172.1173.1174.1175.1176.1177.1178.1179.1180.1181.1182.1183.1184.1185.1186.1187.1188.1189.1190.1191.1192.1193.1194.1195.1196.1197.1198.1199.1200.1201.1202.1203.1204.1205.1206.1207.1208.1209.1210.1211.1212.1213.1214.1215.1216.1217.1218.1219.1220.1221.1222.1223.1224.1225.1226.1227.1228.1229.1230.1231.1232.1233.1234.1235.1236.1237.1238.1239.1240.1241.1242.1243.1244.1245.1246.1247.1248.1249.1250.1251.1252.1253.1254.1255.1256.1257.1258.1259.1260.1261.1262.1263.1264.1265.1266.1267.1268.1269.1270.1271.1272.1273.1274.1275.1276.1277.1278.1279.1280.1281.1282.1283.1284.1285.1286.1287.1288.1289.1290.1291.1292.1293.1294.1295.1296.1297.1298.1299.1300.1301.1302.1303.1304.1305.1306.1307.1308.1309.1310.1311.1312.1313.1314.1315.1316.1317.1318.1319.1320.1321.1322.1323.1324.1325.1326.1327.1328.1329.1330.1331.1332.1333.1334.1335.1336.1337.1338.1339.1340.1341.1342.1343.1344.1345.1346.1347.1348.1349.1350.1351.1352.1353.1354.1355.1356.1357.1358.1359.1360.1361.1362.1363.1364.1365.1366.1367.1368.1369.1370.1371.1372.1373.1374.1375.1376.1377.1378.1379.1380.1381.1382.1383.1384.1385.1386.1387.1388.1389.1390.1391.1392.1393.1394.1395.1396.1397.1398.1399.1400.1401.1402.1403.1404.1405.1406.1407.1408.1409.1410.1411.1412.1413.1414.1415.1416.1417.1418.1419.1420.1421.1422.1423.1424.1425.1426.1427.1428.1429.1430.1431.1432.1433.1434.1435.1436.1437.1438.1439.1440.1441.1442.1443.1444.1445.1446.1447.1448.1449.1450.1451.1452.1453.1454.1455.1456.1457.1458.1459.1460.1461.1462.1463.1464.1465.1466.1467.1468.1469.1470.1471.1472.1473.1474.1475.1476.1477.1478.1479.1480.1481.1482.1483.1484.1485.1486.1487.1488.1489.1490.1491.1492.1493.1494.1495.1496.1497.1498.1499.1500.1501.1502.1503.1504.1505.1506.1507.1508.1509.1510.1511.1512.1513.1514.1515.1516.1517.1518.1519.1520.1521.1522.1523.1524.1525.1526.1527.1528.1529.1530.1531.1532.1533.1534.1535.1536.1537.1538.1539.1540.1541.1542.1543.1544.1545.1546.1547.1548.1549.1550.1551.1552.1553.1554.1555.1556.1557.1558.1559.1560.1561.1562.1563.1564.1565.1566.1567.1568.1569.1570.1571.1572.1573.1574.1575.1576.1577.1578.1579.1580.1581.1582.1583.1584.1585.1586.1587.1588.1589.1590.1591.1592.1593.1594.1595.1596.1597.1598.1599.1600.1601.1602.1603.1604.1605.1606.1607.1608.1609.1610.1611.1612.1613.1614.1615.1616.1617.1618.1619.1620.1621.1622.1623.1624.1625.1626.1627.1628.1629.1630.1631.1632.1633.1634.1635.1636.1637.1638.1639.1640.1641.1642.1643.1644.1645.1646.1647.1648.1649.1650.1651.1652.1653.1654.1655.1656.1657.1658.1659.1660.1661.1662.1663.1664.1665.1666.1667.1668.1669.1670.1671.1672.1673.1674.1675.1676.1677.1678.1679.1680.1681.1682.1683.1684.1685.1686.1687.1688.1689.1690.1691.1692.1693.1694.1695.1696.1697.1698.1699.1700.1701.1702.1703.1704.1705.1706.1707.1708.1709.1710.1711.1712.1713.1714.1715.1716.1717.1718.1719.1720.1721.1722.1723.1724.1725.1726.1727.1728.1729.1730.1731.1732.1733.1734.1735.1736.1737.1738.1739.1740.1741.1742.1743.1744.1745.1746.1747.1748.1749.1750.1751.1752.1753.1754.1755.1756.1757.1758.1759.1760.1761.1762.1763.1764.1765.1766.1767.1768.1769.1770.1771.1772.1773.1774.1775.1776.1777.1778.1779.1780.1781.1782.1783.1784.1785.1786.1787.1788.1789.1790.1791.1792.1793.1794.1795.1796.1797.1798.1799.1800.1801.1802.1803.1804.1805.1806.1807.1808.1809.1810.1811.1812.1813.1814.1815.1816.1817.1818.1819.1820.1821.1822.1823.1824.1825.1826.1827.1828.1829.1830.1831.1832.1833.1834.1835.1836.1837.1838.1839.1840.1841.1842.1843.1844.1845.1846.1847.1848.1849.1850.1851.1852.1853.1854.1855.1856.1857.1858.1859.1860.1861.1862.1863.1864.1865.1866.1867.1868.1869.1870.1871.1872.1873.1874.1875.1876.1877.1878.1879.1880.1881.1882.1883.1884.1885.1886.1887.1888.1889.1890.1891.1892.1893.1894.1895.1896.1897.1898.1899.1900.1901.1902.1903.1904.1905.1906.1907.1908.1909.1910.1911.1912.1913.1914.1915.1916.1917.1918.1919.1920.1921.1922.1923.1924.1925.1926.1927.1928.1929.1930.1931.1932.1933.1934.1935.1936.1937.1938.1939.1940.1941.1942.1943.1944.1945.1946.1947.1948.1949.1950.1951.1952.1953.1954.1955.1956.1957.1958.1959.1960.1961.1962.1963.1964.1965.1966.1967.1968.1969.1970.1971.1972.1973.1974.1975.1976.1977.1978.1979.1980.1981.1982.1983.1984.1985.1986.1987.1988.1989.1990.1991.1992.1993.1994.1995.1996.1997.1998.1999.2000.2001.2002.2003.2004.2005.2006.2007.2008.2009.2010.2011.2012.2013.2014.2015.2016.2017.2018.2019.2020.2021.2022.2023.2024.2025.2026.2027.2028.2029.2030.2031.2032.2033.2034.2035.2036.2037.2038.2039.2040.2041.2042.2043.2044.2045.2046.2047.2048.2049.2050.2051.2052.2053.2054.2055.2056.2057.2058.2059.2060.2061.2062.2063.2064.2065.2066.2067.2068.2069.2070.2071.2072.2073.2074.2075.2076.2077.2078.2079.2080.2081.2082.2083.2084.2085.2086.2087.2088.2089.2090.2091.2092.2093.2094.2095.2096.2097.2098.2099.2100.2101.2102.2103.2104.2105.2106.2107.2108.2109.2110.2111.2112.2113.2114.2115.2116.2117.2118.2119.2120.2121.2122.2123.2124.2125.2126.2127.2128.2129.2130.2131.2132.2133.2134.2135.2136.2137.2138.2139.2140.2141.2142.2143.2144.2145.2146.2147.2148.2149.2150.2151.2152.2153.2154.2155.2156.2157.2158.2159.2160.2161.2162.2163.2164.2165.2166.2167.2168.2169.2170.2171.2172.2173.2174.2175.2176.2177.2178.2179.2180.2181.2182.2183.2184.2185.2186.2187.2188.2189.2190.2191.2192.2193.2194.2195.2196.2197.2198.2199.2200.2201.2202.2203.2204.2205.2206.2207.2208.2209.2210.2211.2212.2213.2214.2215.2216.2217.2218.2219.2220.2221.2222.2223.2224.2225.2226.2227.2228.2229.2230.2231.2232.2233.2234.2235.2236.2237.2238.2239.2240.2241.2242.2243.2244.2245.2246.2247.2248.2249.2250.2251.2252.2253.2254.2255.2256.2257.2258.2259.2260.2261.2262.2263.2264.2265.2266.2267.2268.2269.2270.2271.2272.2273.2274.2275.2276.2277.2278.2279.2280.2281.2282.2283.2284.2285.2286.2287.2288.2289.2290.2291.2292.2293.2294.2295.2296.2297.2298.2299.2300.2301.2302.2303.2304.2305.2306.2307.2308.2309.2310.2311.2312.2313.2314.2315.2316.2317.2318.2319.2320.2321.2322.2323.2324.2325.2326.2327.2328.2329.2330.2331.2332.2333.2334.2335.2336.2337.2338.2339.2340.2341.2342.2343.2344.2345.2346.2347.2348.2349.2350.2351.2352.2353.2354.2355.2356.2357.2358.2359.2360.2361.2362.2363.2364.2365.2366.2367.2368.2369.2370.2371.2372.2373.2374.2375.2376.2377.2378.2379.2380.2381.2382.2383.2384.2385.2386.2387.2388.2389.2390.2391.2392.2393.2394.2395.2396.2397.2398.2399.2400.2401.2402.2403.2404.2405.2406.2407.2408.2409.2410.2411.2412.2413.2414.2415.2416.2417.2418.2419.2420.2421.2422.2423.2424.2425.2426.2427.2428.2429.2430.2431.2432.2433.2434.2435.2436.2437.2438.2439.2440.2441.2442.2443.2444.2445.2446.2447.2448.2449.2450.2451.2452.2453.2454.2455.2456.2457.2458.2459.2460.2461.2462.2463.2464.2465.2466.2467.2468.2469.2470.2471.2472.2473.2474.2475.2476.2477.2478.2479.2480.2481.2482.2483.2484.2485.2486.2487.2488.2489.2490.2491.2492.2493.2494.2495.2496.2497.2498.2499.2500.2501.2502.2503.2504.2505.2506.2507.2508.2509.2510.2511.2512.2513.2514.2515.2516.2517.2518.2519.2520.2521.2522.2523.2524.2525.2526.2527.2528.2529.2530.2531.2532.2533.2534.2535.2536.2537.2538.2539.2540.2541.2542.2543.2544.2545.2546.2547.25

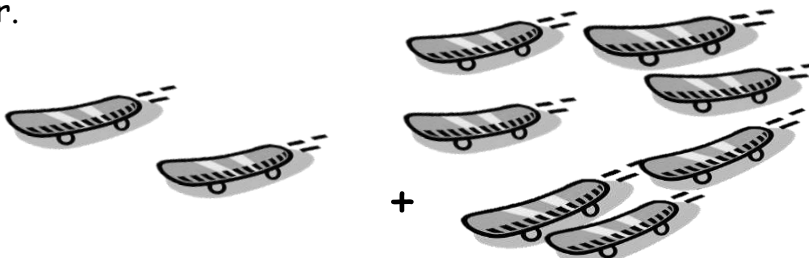
Name \_\_\_\_\_

Date \_\_\_\_\_



Circle the larger amount and count on. Write the number sentence starting with the larger number.

1.

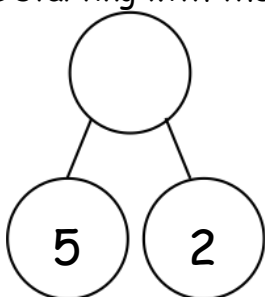


$$\square + \square = \square$$

Color the larger part in the number bond. Write the number sentence starting with the larger number.

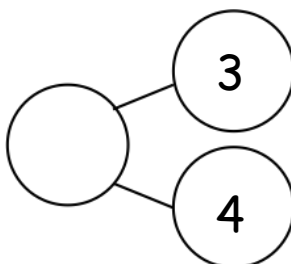


2.



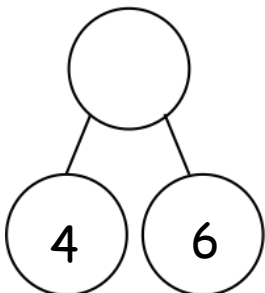
$$\square + \square = \square$$

3.



$$\square = \square + \square$$

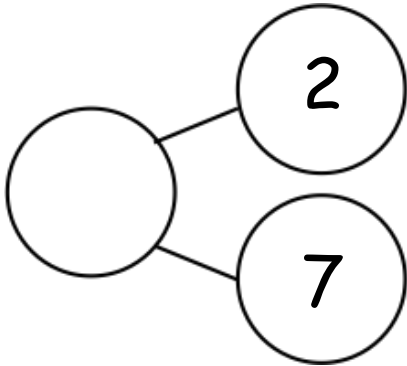
4.



$$\square = \square + \square$$

Shade in the larger part of the bond. Count on from that part to find the total.  
Rewrite the number sentence to start with the larger number.

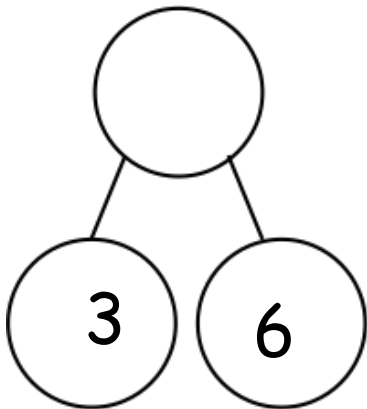
5.



$$\boxed{2} + \boxed{\phantom{00}} = \boxed{\phantom{00}}$$

$$\boxed{\phantom{00}} + \boxed{\phantom{00}} = \boxed{\phantom{00}}$$

6.



$$\boxed{3} + \boxed{\phantom{00}} = \boxed{\phantom{00}}$$

$$\boxed{\phantom{00}} + \boxed{\phantom{00}} = \boxed{\phantom{00}}$$

Circle the larger number and count on to solve.

7.  $1 + 5 = \underline{\hspace{2cm}}$

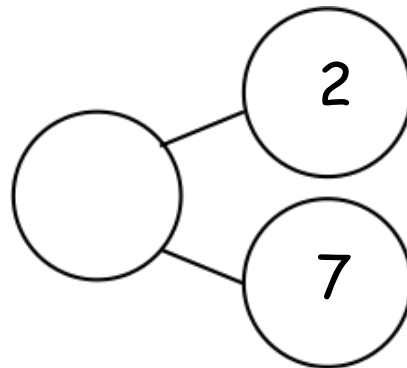
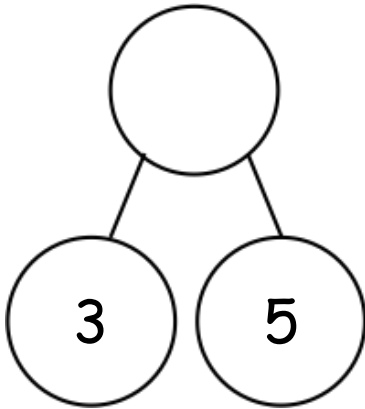
8.  $2 + 6 = \underline{\hspace{2cm}}$

9.  $4 + 3 = \underline{\hspace{2cm}}$

10.  $3 + 6 = \underline{\hspace{2cm}}$

Name \_\_\_\_\_ Date \_\_\_\_\_

Circle the larger part, and complete the number bond. Write the number sentence starting with the larger part.

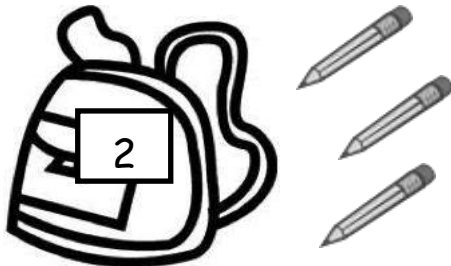
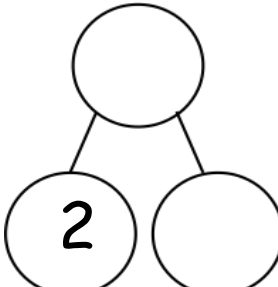




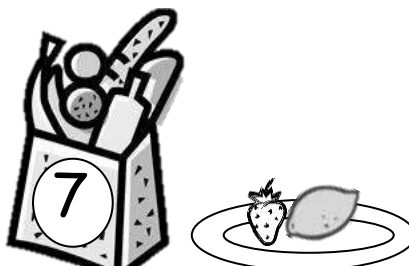
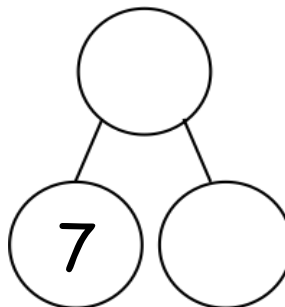
$$\square + \square = \square$$

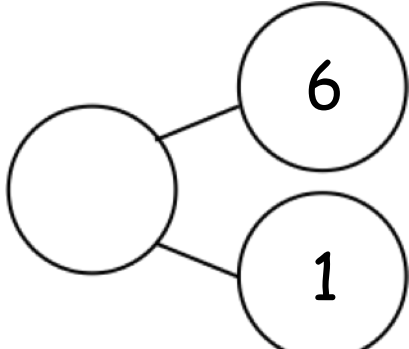
$$\square = \square + \square$$

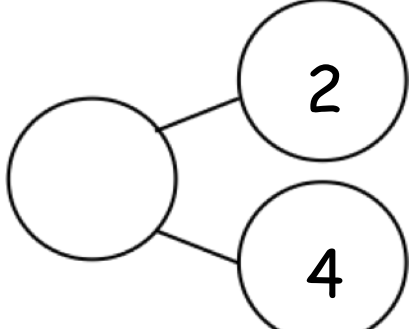
Name \_\_\_\_\_ Date \_\_\_\_\_

Color the larger part and complete the number bond. Write the number sentence starting with the larger part.

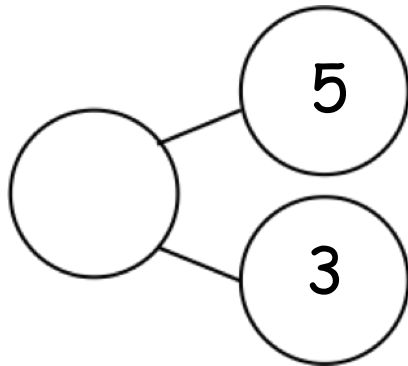
1.   

2.   

3.  \_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_

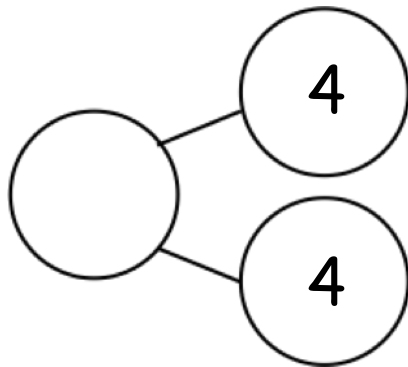
4.  \_\_\_\_\_ = \_\_\_\_\_ + \_\_\_\_\_

5.



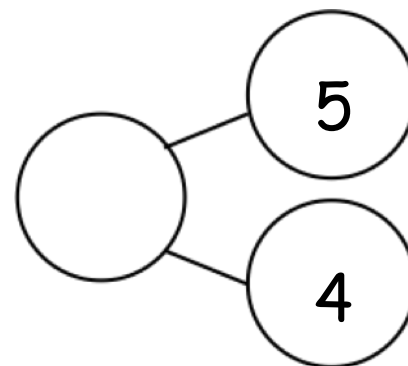
$$\underline{\hspace{2cm}} = \underline{\hspace{2cm}} + \underline{\hspace{2cm}}$$

6.



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

7.



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



## Expression Cards

$$7 + 3$$

$$3 + 7$$

$$8 + 2$$

$$2 + 8$$

$$9 + 0$$

$$0 + 9$$

$$8 + 1$$

$$1 + 8$$

$$6 + 3$$

$$3 + 6$$

$$7 + 1$$

$$1 + 7$$

$$6 + 2$$

$$2 + 6$$

$$5 + 3$$

$$3 + 5$$

$$4 + 3$$

$$3 + 4$$

$$5 + 2$$

$$2 + 5$$

$$5 + 1$$

$$1 + 5$$

$$4 + 2$$

$$2 + 4$$

$$4 + 1$$

$$1 + 4$$

$$2 + 3$$

$$3 + 2$$

$$4 + 0$$

$$0 + 4$$

$$3 + 1$$

$$1 + 3$$

$$2 + 1$$

$$1 + 2$$

$\begin{array}{r} \text{—} \\ \text{—} \end{array}$	$\begin{array}{r} \text{—} \\ \text{—} \end{array}$
$\begin{array}{r} \text{—} \\ \text{—} \end{array}$	$\begin{array}{r} \text{—} \\ \text{—} \end{array}$
$\begin{array}{r} \text{—} \\ \text{—} \end{array}$	$\begin{array}{r} \text{—} \\ \text{—} \end{array}$
$\begin{array}{r} \text{—} \\ \text{—} \end{array}$	$\begin{array}{r} \text{—} \\ \text{—} \end{array}$
$\begin{array}{r} \text{—} \\ \text{—} \end{array}$	$\begin{array}{r} \text{—} \\ \text{—} \end{array}$
$\begin{array}{r} \text{—} \\ \text{—} \end{array}$	$\begin{array}{r} \text{—} \\ \text{—} \end{array}$



## Topic F

# Development of Addition Fluency Within 10

## 1.OA.3, 1.OA.6

<b>Focus Standard:</b>	1.OA.3	Apply properties of operations as strategies to add and subtract. <i>Examples: If <math>8 + 3 = 11</math> is known, then <math>3 + 8 = 11</math> is also known. (Commutative property of addition.) To add <math>2 + 6 + 4</math>, the second two numbers can be added to make a ten, so <math>2 + 6 + 4 = 2 + 10 = 12</math>. (Associative property of addition.)</i>
	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 $6 + 6 + 1 = 12 + 1 = 13$ ).
<b>Instructional Days:</b>	4	
<b>Coherence</b>	<b>-Links from:</b> GK–M4	Number Pairs, Addition and Subtraction to 10
	<b>-Links to:</b> G2–M4	Addition and Subtraction Within 200 with Word Problems to 100

Topic F continues with the theme of more efficient strategies coupled with deep understanding to solve addition problems within 10. In Lesson 21, students begin to internalize doubles and doubles plus 1 as they work with visual representations of these problems (1.OA.6).

As students almost take a mental picture of these doubles and doubles plus 1 dot configurations, they can call on these images to quickly assist them when faced with these problems in the future. Students explore patterns on the addition chart within the context of familiar facts in Lessons 22 and 23 (MP.7, MP.8).

1+0	1+1	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+9
2+0	2+1	2+2	2+3	2+4	2+5	2+6	2+7	2+8	
3+0	3+1	3+2	3+3	3+4	3+5	3+6	3+7		
4+0	4+1	4+2	4+3	4+4	4+5	4+6			
5+0	5+1	5+2	5+3	5+4	5+5				
6+0	6+1	6+2	6+3	6+4					
7+0	7+1	7+2	7+3						
8+0	8+1	8+2							
9+0	9+1								
10+0									

Lesson 22 focuses on having students look for common addends and discuss how those addends affect the total in systematic ways. For example, “I see  $3 + 2 = 5$ ,  $4 + 2 = 6$ ,  $5 + 2 = 7$  and  $6 + 2 = 8$ ! Even though we’re adding 2 each time and that stays the same, the totals are increasing by 1, because we’re adding a number that’s 1 more each time!” Building upon this, Lesson 23 has students using the facts they know, such as those from Topic B’s decomposition posters to explore patterns in problems where the totals are the same. The topic closes with Lesson 24’s addition fact practice where students actually get to practice their facts in an engaging, supportive environment with their peers (**1.OA.6**).

### A Teaching Sequence Towards Mastery of Development of Addition Fluency Within 10

**Objective 1: Visualize and solve doubles and doubles plus 1 with 5-group cards.**  
(Lesson 21)

**Objective 2: Look for and make use of repeated reasoning on the addition chart by solving and analyzing problems with common addends.**  
(Lesson 22)

**Objective 3: Look for and make use of structure on the addition chart by looking for and coloring problems with the same total.**  
(Lesson 23)

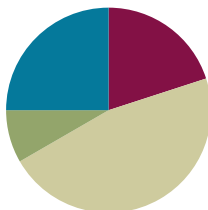
**Objective 4: Practice to build fluency with facts to 10.**  
(Lesson 24)

## Lesson 21

**Objective:** Visualize and solve doubles and doubles plus 1 with 5-group cards.

### Suggested Lesson Structure

■ Fluency Practice	(12 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(28 minutes)
■ Student Debrief	(15 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (12 minutes)

- Stand on Even Numbers **1.OA.5** (3 minutes)
- Target Practice: 8 **1.OA.6** (9 minutes)

### Stand on Even Numbers (3 minutes)

Note: Counting on allows students to maintain fluency with this strategy as they solve addition problems.

Students sit in a circle and count by ones, each student saying one number to count up. When a student says an even number, she stands, 1, 2 (student stands), 3, 4 (student stands).... Go around the circle until all students are standing. Students who are standing do not continue counting. Then, continuing in the same direction around the circle, students count backwards, beginning with the last number said and sitting on even numbers.

Play the game a second time, instructing students who stay still to whisper their numbers and students who stand or sit to use a normal voice.

### Target Practice: 8 (9 minutes)

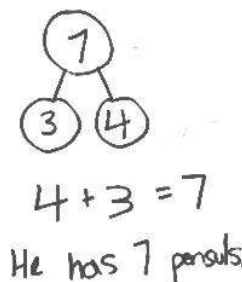
Materials: (S) Each set of partners needs a personal white board with a Target Practice template (see **G1-M1-L10**), 8 counters and a die

Note: This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10. Follow the directions on the Target Practice template. Use 8 as the target number.

### Application Problem (5 minutes)

Jordan is holding a container with 3 pencils. His teacher gives him 4 more pencils for the container. How many pencils will be in the container? Write a number bond, number sentence, and statement to show the solution.

Note: This problem is an application of the commutative property to *count on* from the larger addend from Lesson 20. It is also relevant to the concept development of the current lesson as a doubles plus one problem.



### Concept Development (28 minutes)

Materials: (T) 5-group cards (1–6 only) (see **G1-M1-L5**), addition chart, yellow and orange colored pencil for debrief (S) personal white board

Have students sit next to their math partners on the carpet or at their tables.

T: Let's count by twos using our fingers. Watch me first.

T/S: 2, 4, 6, 8, 10, 10, 8, 6, 4, 2. (Show fingers.)

T: Show me 1 and 1 with your pinkies like me. How many fingers are you holding up?

S: 2.

T: What is the number sentence?

S:  $1 + 1 = 2$ .

T: Show me 2 and 2 fingers, your pinkies and ring fingers. Say the number sentence to tell how many fingers you're holding up.

S:  $2 + 2 = 4$ .

Continue with  $3 + 3$ ,  $4 + 4$ ,  $5 + 5$ , and back down to  $1 + 1$ .

T: What did you notice about the numbers we added each time?

S: We added the same number two times.

T: We call those **doubles**.



#### NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Some students may not be able to count by twos without numerical visual cues at this point in the year. Use a tool such as a number line or the hundreds chart. Students can color the pattern counting by twos on the number line or hundreds chart so they have a visual representation as they are counting with the class.





Give 2 minutes for students to work with their partners and practice making doubles number sentences. Partner A flashes doubles fingers; Partner B says the number sentence. They switch roles after 1 minute.

T: (Show two 5-group cards showing 3 dots.) Without counting all, tell how many dots there are.

S: 6.

T: How did you know?

S: I saw doubles. 3 and 3. That makes 6.

Continue with  $2 + 2$ ,  $4 + 4$ , and  $5 + 5$ , ensuring the students use the term *doubles* to explain what they see and eventually naming it as a strategy. Congratulate them on getting better at mastering their doubles facts.

T: (Show 3 dots card and 4 dots card.) Without counting all, tell how many dots there are.

S: 7.

T: How did you know so quickly? Turn and talk to your partner. (Circulate and listen.)

T: Bobbie said she saw 3 and 3 plus another dot! Give a thumbs-up if you see 3 dots hiding inside these 4 dots.

S: (Show thumbs.)

T: She used her doubles fact to help. 3 plus 3 (circles 3 dots and 3 dots), that's....

S: 6.

T: Plus another dot?

S: 7.

T: How is  $3 + 4$  related to  $3 + 3$ ?

S: It's making doubles and adding 1 more.

T: This is called **doubles plus 1**. Let's see if we can find more doubles facts hiding inside another expression.

Continue with  $1 + 2$ ,  $3 + 2$ , and  $4 + 5$ .

MP.8

T: (Project the numerals 4 and 5.) How would you solve  $4 + 5$  using today's lesson? Turn and talk to your partner and solve on your personal board.

S: (Write  $4 + 5 = 9$ .) Use our doubles facts.  $4 + 4 = 8$ . Add 1 more and you get 9.

T: (Project  $3 + \underline{\quad} = 6$ .) What number is missing here? Talk with your partner to decide. Tell each other how you know.

S: (Discuss with partner.)

T: What is the missing number in  $3 + \underline{\quad} = 6$ ?

S: 3!

T: How do you know?

S: I know that  $3 + 3 = 6$ . I thought of the doubles. If I have 3 (holds up three fingers on one hand), I need 3 more to make 6.



### NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Help students connect calculations to body parts by counting with their fingers. When solving  $3 + 3$ , students should hold up 3 and 3 fingers, and count by 2s. They wriggle their pinkies and say 2, wriggle pinkies and ring fingers and say 4, wriggle pinkies, ring and middle fingers and say 6.

- T: (Project  $3 + \underline{\quad} = 7$ .) What number is missing here? Discuss with your partner. Remember to use words or your personal white boards to explain your thinking.
- S: (Discuss with partner.)
- T: What is the missing number in  $3 + \underline{\quad} = 7$ ?
- S: 4!
- T: How could the last problem,  $3 + 3 = 6$ , help you with this one?
- S: If you know  $3 + 3$  is 6, and now you need to have 7, then you know you need 1 more than last time, so now it's  $3 + 4$ .

Continue with  $4 + 4$  and  $4 + 5$ .

### 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 solve these problems using the RDW approach used for Application Problems.

In this Problem Set, students should begin with Problem 1, Problem 2, Problem 5, Problem 6 and possibly leave Problem 7 (d) and (e), Problem 8 and Problem 9 to the end if there is still time.

### Student Debrief (15 minutes)

**Lesson Objective:** Visualize and solve doubles and doubles plus 1 with 5-group cards.

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

NYS COMMON CORE MATHEMATICS CURRICULUM 1•1

Name: Maria Date: \_\_\_\_\_

Add the numbers on the pairs of cards. Write the number sentences. Color doubles red. Color doubles plus 1 blue.

1.  $3 + 3 = 6$

2.  $4 + 4 = 8$

3.  $3 + 4 = 7$

4.  $5 + 4 = 9$

Solve. Use your doubles to help. Draw and write the double that helped.

5.  $5 + 4 = \boxed{9}$   $4 + 4 = 8$

6.  $4 + 3 = \boxed{7}$   $3 + 3 = 6$

COMMON CORE Lesson 21: Represent the Same Story Scenario with Addition Equations (the Commutative Property) 4•2+3=6+3, 4+3=7+3 Date: 3/15/13 engage<sup>ny</sup> 1.A.5

NYS COMMON CORE MATHEMATICS CURRICULUM LESSON 21 Worksheet 1•1

7. Solve the doubles and the doubles plus one number sentences.

(a)  $0 + 0 = \boxed{0}$  (a)  $0 + 1 = \boxed{1}$

(b)  $2 + 2 = \boxed{4}$  (b)  $2 + 3 = \boxed{5}$

(c)  $3 + 3 = \boxed{6}$  (c)  $3 + 4 = \boxed{7}$

(d)  $4 + 4 = \boxed{8}$  (d)  $4 + 5 = \boxed{9}$

(e)  $3 + \boxed{3} = 6$  (e)  $3 + \boxed{4} = 7$

(f)  $5 + \boxed{5} = 10$  (f)  $4 + \boxed{5} = 9$

8. Show how this strategy can help you solve:  $5 + 6 = \boxed{11}$

$5 + 5 = 10$   $5 + 6$  is one more.

9. Write a set of 4 related addition facts for letter (d).

$4 + 4 = 8$   $8 = 4 + 4$

$4 + 5 = 9$   $9 = 4 + 5$

COMMON CORE Lesson 21: Visualize and solve doubles and doubles plus 1. 4•2+3=6+3 Date: 4/10/13 engage<sup>ny</sup> 1.F.8

- (Post the addition chart.) Can you find all the **doubles** facts? (Color them red.) What do you notice about these numbers?
- Can you find all the **doubles plus 1** facts? (Color them using blue.) What do you notice about the two parts in doubles plus 1 facts? (They are the numbers next to each other when we count.)
- Is  $4 + 3$  a doubles plus 1? Why? How is this related to another math lesson from before? Can you find any more doubles plus 1 facts like this one? (Color them blue if you find any more.)
- Look at Problem 7 in your Problem Set. What do you notice about all the answers to the doubles facts? (They are all even numbers.) What do you notice about all the answers to the doubles plus 1 facts? (They are all odd numbers.) Is this always true? Explain your thinking.
- Look at Problem 7 (e) and (f) in your Problem Set. How could you use the pictures in your mind, or your knowledge of doubles facts, to help you solve these problems?
- Look at your Application Problem. If you used counting on to solve this, which number did you start with in your number sentence? Can you use the strategy from today's lesson to solve this? How?

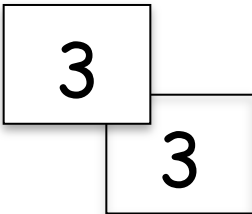
### Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

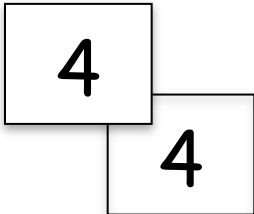
Name \_\_\_\_\_

Date \_\_\_\_\_

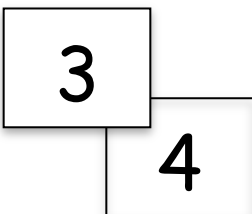
Add the numbers on the pairs of cards. Write the number sentences. Color doubles red. Color doubles plus 1 blue.

1. 

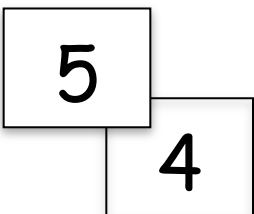
\_\_\_\_\_

2. 

\_\_\_\_\_

3. 

\_\_\_\_\_

4. 

\_\_\_\_\_

Solve. Use your doubles to help. Draw and write the double that helped.

5.  $5 + 4 = \square$

○○○○○  
○○○○○

\_\_\_\_\_

6.  $4 + 3 = \square$

○○○○○  
○○○○○

\_\_\_\_\_

7. Solve the doubles and the doubles plus 1 number sentences.

$$(a) 0 + 0 = \square$$

$$(a) 0 + 1 = \square$$

$$(b) 2 + 2 = \square$$

$$(b) 2 + 3 = \square$$

$$(c) 3 + 3 = \square$$

$$(c) 3 + 4 = \square$$

$$(d) 4 + 4 = \square$$

$$(d) 4 + 5 = \square$$

$$(e) 3 + \square = 6$$

$$(e) 3 + \square = 7$$

$$(f) 5 + \square = 10$$

$$(f) 4 + \square = 9$$

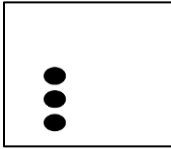
8. Show how this strategy can help you solve:  $5 + 6 = \square$

9. Write a set of 4 related addition facts for letter (d).

Name \_\_\_\_\_

Date \_\_\_\_\_

Write the double and double plus 1 number sentence for the 5-group card.



\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Name \_\_\_\_\_

Date \_\_\_\_\_

2
2

$$2+2=4$$

Draw the 5-group card to show a double. Write the number sentence to match the cards.

4
---

--

5
---

--

--

4
---

Fill in the 5-group cards in order from least to greatest, double the number, and write the number sentences.

1	1
---	---

2	
---	--

--	--

4	
---	--

--	--

Solve the number sentences.

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

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

$$1 + \underline{\quad} = 2$$

$$4 = \underline{\quad} + 2$$

$$8 = 4 + \underline{\quad}$$

Match the top cards to the bottom cards to show doubles plus 1.

1

4

3

2

5

2

3

4

Solve the number sentences. Write the double fact that helped you solve the double plus 1.

$$2 + 3 = \underline{\quad}$$

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

$$4 + \underline{\quad} = 9$$



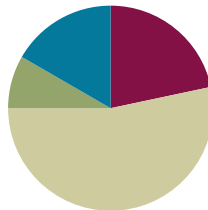
$1 + 0$	$1 + 1$	$1 + 2$	$1 + 3$	$1 + 4$	$1 + 5$	$1 + 6$	$1 + 7$	$1 + 8$	$1 + 9$
$2 + 0$	$2 + 1$	$2 + 2$	$2 + 3$	$2 + 4$	$2 + 5$	$2 + 6$	$2 + 7$	$2 + 8$	
$3 + 0$	$3 + 1$	$3 + 2$	$3 + 3$	$3 + 4$	$3 + 5$	$3 + 6$	$3 + 7$		
$4 + 0$	$4 + 1$	$4 + 2$	$4 + 3$	$4 + 4$	$4 + 5$	$4 + 6$			
$5 + 0$	$5 + 1$	$5 + 2$	$5 + 3$	$5 + 4$	$5 + 5$				
$6 + 0$	$6 + 1$	$6 + 2$	$6 + 3$	$6 + 4$					
$7 + 0$	$7 + 1$	$7 + 2$	$7 + 3$						
$8 + 0$	$8 + 1$	$8 + 2$							
$9 + 0$	$9 + 1$								
$10 + 0$									

## Lesson 22

**Objective:** Look for and make use of repeated reasoning on the addition chart by solving and analyzing problems with common addends.

### Suggested Lesson Structure

■ Fluency Practice	(13 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(32 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (13 minutes)

- Sparkle: Counting by Twos **1.OA.5** (5 minutes)
- Penny Drop: 8 **1.OA.5, 1.OA.6** (3 minutes)
- Number Bond Dash: 8 **1.OA.6** (5 minutes)

### Sparkle: Counting by Twos (5 minutes)

**Note:** Practicing counting up allows students to maintain fluency with the strategy as it relates to addition.

**Play Sparkle:** Counting by twos from 0 to 20 (refer to game directions in **G1-M1-L7**). As you practice the counting sequence before the game, model the say–think–say skip-counting strategy (say 0, think 1, say 2, think 3...).

### Penny Drop: 8 (3 minutes)

**Materials:** (T) 8 pennies, a can.

**Note:** This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

Show students 8 pennies. Have students close their eyes and listen. Drop some of the pennies in a can, one at a time. To prepare students for the upcoming subtraction lessons, instruct them to count back from 8 in their heads as they hear each penny drop. Ask students to open their eyes and say how many pennies you still have in your hand.



#### NOTES ON MULTIPLE MEANS FOR ACTION AND EXPRESSION:

Not all students are comfortable being timed while completing Fluency Activities. Allow these students extra time for completion so that they feel success and strive to do their best during these exercises.

## Number Bond Dash: 8 (5 minutes)

Materials: (T) Stopwatch or timer (S) Number Bond Dash: 8 (see **G1-M1-L7**), marker to correct work

Note: By using the same system, students can focus on the mathematics alone. This activity addresses the core fluency objective for Grade 1. Teachers may want to take note of students who are using finger counting. This may identify students who require addition time or support to solve partners of 8.

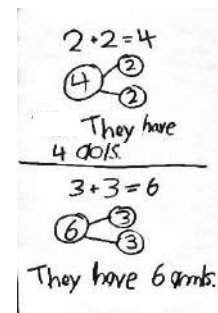
Follow the procedure for Number Bond Dash. Tell students to remember how many problems they get correct so they can try to improve their scores tomorrow.

## Application Problem (5 minutes)

May and Kay are twins. Whatever May has, Kay has it, too. May has 2 dolls. How many dolls do May and Kay have together? May has 3 stuffed animals. How many stuffed animals do they have together? Write a number bond, number sentence, and statement to show your solution.

Early Finishers: If all the dolls and all the stuffed animals were put together for an imaginary tea party, how many toys would there be? Draw or write to explain your thinking.

Note: This problem is designed as a bridge from the previous lesson, which focused on doubles. Students will also have the opportunity to locate the expressions within their number sentences on the chart, and begin recognizing other ways to use repeated reasoning as they explore the addition chart. Teachers may want to take note of students who are using finger counting for doubles. This may identify students who require addition time or support to utilize doubles as a strategy.



## Concept Development (32 minutes)

Materials: (T) Addition chart with sums to 10 to project (or post), paper to cover sections of the chart

T: (Reveal only the +0 column of the addition chart.) Mathematicians, today you need to especially put on your noticing ears and eyes! Read the expressions aloud with me.

S/T: 1 + 0, 2 + 0, 3 + 0, 4 + 0, 5 + 0, 6 + 0, 7 + 0, 8 + 0, 9 + 0, 10 + 0.

T: What did you notice was the same as you read each of these expressions?

S: We said “plus zero” every time!

Addition Chart with +0 Revealed

3 + 0	3 + 1	3 + 2	3 + 3	3 + 4	3 + 5	3 + 6	3 + 7
4 + 0							
5 + 0							
6 + 0							
7 + 0							
8 + 0							
9 + 0							
10 + 0							

- T: What did you notice was different as you read each of these expressions?
- S: The first number went up by 1 each time!
- T: Good. Now let's solve each problem together.

As students solve the problems, transform the expressions into equations as you and/or student volunteers to write the solutions. Be sure to have students read the equations aloud. Next reveal the +1 column, and go through the same process of having students read, notice the similarities and differences, and then solve.

- T: (Point to  $1 + 0$  and  $2 + 0$ .) You said that all of these problems add zero each time. How does adding zero change this first **addend**, or part (point)?
- S: The first addend doesn't change, because we're just adding zero!
- T: So it's zero more than the first number? Is this true of all of the facts in this area (gesture to the +0 column)?
- S: Yes!
- T: (Point to  $8 + 1$  and  $9 + 1$ .) You said that all of these problems add 1 each time. How does adding 1 change this first addend?
- S: The total goes up by 1, because we're adding on!  
→ It's just the next counting number!

Continue this process with the +2 column, focusing on the common addends.

### Problem Set (15 minutes)

Note: Explain to students to complete one color at a time. Students do not need to overlap colors. For examples,  $1 + 2$  will already be colored RED. Students do not need to color it ORANGE.

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 solve these problems using the RDW approach used for Application Problems.



#### NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Some students will benefit from the addition chart being colored based on the addend. For example, color all the +0 blue, +1 yellow, +3 green, etc. Using the addition chart in this way will especially help visually impaired students who may find the chart hard to read.

NYS COMMON CORE MATHEMATICS CURRICULUM

Name Maria Date \_\_\_\_\_

Use RED to color boxes with 0 as an addend. Find the total for each.  
Use ORANGE to color boxes with 1 as an addend. Find the total for each.  
Use YELLOW to color boxes with 2 as an addend. Find the total for each.  
Use GREEN to color boxes with 3 as an addend. Find the total for each.  
Use BLUE to color the boxes that are left. Find the total for each.

1+0	1+1	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+9
2+0	2+1	2+2	2+3	2+4	2+5	2+6	2+7	2+8	2+9
3+0	3+1	3+2	3+3	3+4	3+5	3+6	3+7	3+8	3+9
4+0	4+1	4+2	4+3	4+4	4+5	4+6	4+7	4+8	4+9
5+0	5+1	5+2	5+3	5+4	5+5	5+6	5+7	5+8	5+9
6+0	6+1	6+2	6+3	6+4	6+5	6+6	6+7	6+8	6+9
7+0	7+1	7+2	7+3	7+4	7+5	7+6	7+7	7+8	7+9
8+0	8+1	8+2	8+3	8+4	8+5	8+6	8+7	8+8	8+9
9+0	9+1	9+2	9+3	9+4	9+5	9+6	9+7	9+8	9+9
10+0	10+1	10+2	10+3	10+4	10+5	10+6	10+7	10+8	10+9

COMMON CORE Lesson 22: Look for and Make Use of Repeated Reasoning (MP 8) on the Addition Chart by Solving and Analyzing Problems with Common Addends G3-M3-TF-engage<sup>ny</sup> X.X.5

**Student Debrief (10 minutes)**

**Lesson Objective:** Look for and make use of repeated reasoning on the addition chart by solving and analyzing problems with common addends.

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

- Look at your Problem Set. We talked about how all the problems add 1 each time in this column. (Gesture going up and down on +1 column.) Is that the only place that had problems adding 1 each time?
- How is the second column ( $n + 1$ ) and the first row ( $1 + n$ ) related? Does this remind you of another math lesson?
- Which row is the third column related to? What **addend**, or part, do they have in common?
- Look at your application problem. Can you find the expressions from your number sentences on the chart? What do you notice about their locations?
- Which colored boxes have the easiest facts for you to solve? Why?
- Which colored boxes have the facts you need the most practice with? Why?
- How can this chart help you learn your facts better?

**Exit Ticket (3 minutes)**

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

Name \_\_\_\_\_

Date \_\_\_\_\_

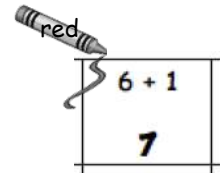
Use RED to color boxes with 0 as an addend. Find the total for each.

Use ORANGE to color boxes with 1 as an addend. Find the total for each.

Use YELLOW to color boxes with 2 as an addend. Find the total for each.

Use GREEN to color boxes with 3 as an addend. Find the total for each.

Use BLUE to color the boxes that are left. Find the total for each.



$1 + 0$	$1 + 1$	$1 + 2$	$1 + 3$	$1 + 4$	$1 + 5$	$1 + 6$	$1 + 7$	$1 + 8$	$1 + 9$
$2 + 0$	$2 + 1$	$2 + 2$	$2 + 3$	$2 + 4$	$2 + 5$	$2 + 6$	$2 + 7$	$2 + 8$	
$3 + 0$	$3 + 1$	$3 + 2$	$3 + 3$	$3 + 4$	$3 + 5$	$3 + 6$	$3 + 7$		
$4 + 0$	$4 + 1$	$4 + 2$	$4 + 3$	$4 + 4$	$4 + 5$	$4 + 6$			
$5 + 0$	$5 + 1$	$5 + 2$	$5 + 3$	$5 + 4$	$5 + 5$				
$6 + 0$	$6 + 1$	$6 + 2$	$6 + 3$	$6 + 4$					
$7 + 0$	$7 + 1$	$7 + 2$	$7 + 3$						
$8 + 0$	$8 + 1$	$8 + 2$							
$9 + 0$	$9 + 1$								

Name \_\_\_\_\_

Date \_\_\_\_\_

Some of the addends in this chart are missing! Fill in the missing numbers.

1 + 0	1 + 1	1 + 2	1 + 3	1 + 4	1 + 5	1 + 6	1 + 7	1 + 8	1 + 9
2 + 0	2 + 1	2 + 2	2 + ____	2 + 4	2 + 5	2 + 6	2 + 7	2 + 8	
3 + 0	3 + 1	3 + 2	3 + ____	3 + 4	3 + 5	3 + 6	3 + 7		
4 + 0	4 + ____	4 + 2	4 + 3	____ + 4	____ + 5	____ + 6			
5 + 0	5 + ____	5 + 2	5 + 3	5 + 4	5 + 5				
6 + 0	6 + ____	6 + 2	6 + 3	6 + 4					
7 + ____	7 + 1	7 + 2	7 + 3						
8 + ____	8 + 1	8 + 2							
9 + ____	9 + 1								
10 + 0									

Name \_\_\_\_\_

Date \_\_\_\_\_



Solve the problems without counting all. Color the boxes using the key.

Step 1: Color problems with  $+ 1$  or  $1 +$  blue.Step 2: Color remaining problems with  $+ 2$  or  $2 +$  green.Step 3: Color remaining problems with  $+ 3$  or  $3 +$  yellow.

$7 + 1 = \underline{\quad}$	$8 + \underline{\quad} = 9$	$3 + 1 = \underline{\quad}$	$5 + 3 = \underline{\quad}$
$5 + \underline{\quad} = 7$	$4 + \underline{\quad} = 7$	$6 + 3 = \underline{\quad}$	$8 + \underline{\quad} = 10$
$2 + 1 = \underline{\quad}$	$1 + \underline{\quad} = 2$	$1 + \underline{\quad} = 4$	$6 + 2 = \underline{\quad}$
$3 + \underline{\quad} = 6$	$6 + \underline{\quad} = 7$	$3 + 2 = \underline{\quad}$	$5 + 1 = \underline{\quad}$
$2 + 2 = \underline{\quad}$	$4 + \underline{\quad} = 6$	$4 + 1 = \underline{\quad}$	$7 + 2 = \underline{\quad}$
$2 + \underline{\quad} = 3$	$9 + 1 = \underline{\quad}$	$7 + 3 = \underline{\quad}$	$1 + \underline{\quad} = 3$

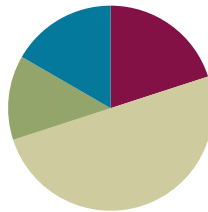


## Lesson 23

**Objective:** Look for and make use of structure on the addition chart by looking for and coloring problems with the same total.

### Suggested Lesson Structure

■ Fluency Practice	(12 minutes)
■ Application Problem	(8 minutes)
■ Concept Development	(30 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (12 minutes)

- Happy Counting by Twos **1.OA.5** (2 minutes)
- Missing Part: 8 **1.OA.6** (5 minutes)
- Number Bond Dash: 8 **1.OA.6** (5 minutes)

### Happy Counting by Twos (2 minutes)

Note: This activity supports the connection of counting on by 2 and adding 2.

Repeat the Happy Counting activity from **G1-M1-L3**, counting by 2s from 0 to 20 and back.

### Missing Part: 8 (5 minutes)

Materials: (S) 5-group cards (0–8 only) (see **G1-M1-L5**)

Note: This activity addresses the core fluency objective for Grade 1 of mastery of sums to 10.

Students work with a partner, using 5-group cards. Each student puts a card on his or her forehead. The partner tells how many more to make 8. Students must guess the cards on their foreheads. Partners can play simultaneously.

### Number Bond Dash: 8 (5 minutes)

Materials: (T) Stopwatch or timer (S) Number Bond Dash: 8 (see **G1-M1-L7**), marker to correct work

Note: This activity addresses the core fluency objective for Grade 1 of mastery of sums to 10.

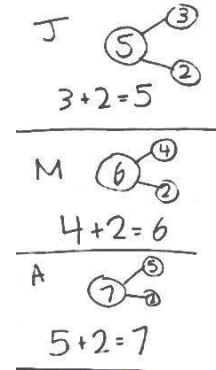
Follow procedure for Number Bond Dash remembering today is the second day with making 8. Students should recall their scores from yesterday to see and celebrate improvement.

### Application Problem (8 minutes)

John has 3 stickers. Mark has 4 stickers. Anna has 5 stickers. They each get two more stickers. How many do they each have now? Write a number bond and number sentence for each student.

Extension: How many stickers do John, Mark, and Anna have together?

Note: This problem is designed as an application of the previous lesson, which focused on common addends on the addition chart. Students will continue to explore the addition chart in today's lesson, focusing on expressions with the same total.



### Concept Development (30 minutes)

Materials: (T) Addition chart with sums to 10 to project (or post), paper to cover sections of the chart, three different colors of markers (S) addition chart with sums to 10, three different-colored pencils

Distribute an addition chart to each student. Have students fold their papers to match the chart to the right.

T: (Point to 5 + 5.) What is 5 + 5?

S: 10!

T: (Point to 4 + 6.) What is 4 + 6?

S: 10!

T: (Repeat through 1 + 9.) Talk to your partner. What do you notice about the totals?

T: (Circulate and listen. Then choose students to share with the class.)

S: They are all the same! → The totals are all 10! → They look like they're moving up like stairs!

T: You said all of the totals are 10. Help me color in the expressions that equal 10. (Prompt students to say which to color. Students also lightly color in their charts.)

T: What is 4 + 5?

S: 9.

T: Talk with your partner. Find the other expressions that equal 9.

S: (Share with partners to find totals of 9.)

Addition Chart with 1 + 5 through 1 + 9 Revealed

	1 + 5	1 + 6	1 + 7	1 + 8	1 + 9
	2 + 5	2 + 6	2 + 7	2 + 8	
	3 + 5	3 + 6	3 + 7		
	4 + 5	4 + 6			
	5 + 5				



#### NOTES ON MULTIPLE MEANS FOR ENGAGEMENT:

Offer opportunities for student leadership as "teacher." Have students demonstrate for the class how the staircase works for each total. Listen for the use math vocabulary in their description.

- T: Let's color them in. (Using a different color, prompt students say which to color, as students color in their own charts.)
- T: Talk with your partner. What do you notice about these problems?
- T: (Circulate and listen, then choose students to share with class.)
- S: They all equal 9! → The totals are all 1 less than the ones we colored in for 10! → They make another staircase!
- T: With your partner, look for expressions that equal 8. When you both agree, color them in with your last colored pencil.
- S: (Circulate and observe.)
- T: Which expressions equal 8? (As students share, color them in on the class chart.)
- T: What patterns are you noticing?
- S: All the totals of 8 make a slanted line, like a staircase.

### Problem Set (15 minutes)

Students should do their personal best to complete the Problem Set within the allotted 15 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 solve these problems using the RDW approach used for Application Problems.

### Student Debrief (10 minutes)

**Lesson Objective:** Look for and make use of structure on the addition chart by looking for and coloring problems with the same total.

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

Name Maria Date \_\_\_\_\_

Use your chart to write a list of number sentences in the spaces below.

Totals of 10	Totals of 9	Totals of 8	Totals of 7
$1+9=10$	$1+8=9$	$1+7=8$	$7=1+6$
$10=2+8$	$2+7=9$	$2+6=8$	$7=2+5$
$10=3+7$	$3+6=9$	$3+5=8$	$7=3+4$
$10=4+6$	$4+5=9$	$4+4=8$	$7=4+3$
$10=5+5$	$5+4=9$	$5+3=8$	$7=5+2$
$10=6+4$	$6+3=9$	$6+2=8$	$7=6+1$
$10=7+3$	$7+2=9$	$7+1=8$	$7=7+0$
$10=8+2$	$8+1=9$	$8+0=8$	
$10=9+1$	$9+0=9$		
$10=10+0$			

COMMON CORE Lesson 23: Look for and Make Use of Structure (MP.7) on the Addition Chart by Looking for and Coloring Problems with the Same Total GS-M3-7F-L23 4/2/13 engage<sup>ny</sup> X.X.4

You may choose to use any combination of the questions below to lead the discussion.

- Look at your Application Problem. What is similar in each of your number bonds? What is different? Could one number bond or number sentence help you solve another one?
- What did you notice about the number of boxes of each color? How many boxes will be colored for the total of 4? 3?

- Why do you think we have more totals for 10 compared to totals for 5?
- Which totals are the easiest for you to solve? Why?
- Which totals do you think you need the most practice? What can you do to get better at these expressions?
- (Point to the addition chart from yesterday's work.) How is today's work similar to what we did yesterday? How is it different?

**Exit Ticket (3 minutes)**

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

Name \_\_\_\_\_ Date \_\_\_\_\_

Use your chart to write a list of number sentences in the spaces below.

Totals of 10	Totals of 9	Totals of 8	Totals of 7

Name \_\_\_\_\_

Date \_\_\_\_\_

Circle all the boxes that total 10.

Make a straight line through all the boxes that total 8.

1 + 0	1 + 1	1 + 2	1 + 3	1 + 4	1 + 5	1 + 6	1 + 7	1 + 8	1 + 9
2 + 0	2 + 1	2 + 2	2 + 3	2 + 4	2 + 5	2 + 6	2 + 7	2 + 8	
3 + 0	3 + 1	3 + 2	3 + 3	3 + 4	3 + 5	3 + 6	3 + 7		
4 + 0	4 + 1	4 + 2	4 + 3	4 + 4	4 + 5	4 + 6			
5 + 0	5 + 1	5 + 2	5 + 3	5 + 4	5 + 5				
6 + 0	6 + 1	6 + 2	6 + 3	6 + 4					
7 + 0	7 + 1	7 + 2	7 + 3						
8 + 0	8 + 1	8 + 2							
9 + 0	9 + 1								

Name \_\_\_\_\_ Date \_\_\_\_\_

Fill in the missing box and find the totals for all expressions. Use your completed addition chart to help you.

1.

$1 + 2$	$1 + 3$
$2 + 2$	
$3 + 2$	$3 + 3$

2.

$6 + 1$	$6 + 2$
$7 + 1$	
	$8 + 2$
$9 + 1$	

3.

$4 + 4$	$4 + 5$	
$5 + 4$		
$6 + 4$		

4.

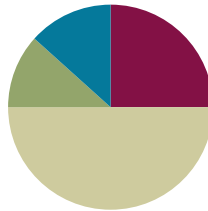
$2 + 4$		$2 + 6$
	$3 + 5$	

## Lesson 24

**Objective:** Practice to build fluency with facts to 10.

### Suggested Lesson Structure

■ Fluency Practice	(15 minutes)
■ Application Problem	(7 minutes)
■ Concept Development	(30 minutes)
■ Student Debrief	(8 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (15 minutes)

- Partner Counting: By Twos **1.OA.5** (2 minutes)
- Cold Call: 2 More/2 Less **1.OA.5** (3 minutes)
- Friendly Fact Go Around **1.OA.6** (10 minutes)

#### Partner Counting: By Twos (2 minutes)

Note: Counting on and back allows students to build and maintain fluency with this strategy as they solve addition and subtraction problems.

Partners alternate saying numbers aloud to count by twos from 0 to 20 and back.

#### Cold Call: 2 More/2 Less (3 minutes)

Note: This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

Tell students you are going to say a number aloud and instruct them to think about the number that is 2 more. Let them know you will cold call students to say the number as quickly as possible. Alternate between calling on individual students, the whole class, and groups of students (e.g., only girls, only boys, etc.). Play again, cold calling students to say the number that is 2 less.

#### Friendly Fact Go Around (10 minutes)

Materials: (T) Friendly Fact Go Around: Addition Strategies Review

Note: This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

Project the Friendly Fact Go Around: Addition Strategies Review sheet (or make a poster). Point to a problem and call on a student to answer (e.g.,  $8 + 0 = \square$ ). The student answers (8), then the class says the number



sentence aloud, completed with the answer ( $8 + 0 = 8$ ). If the student gives an incorrect answer, he or she then repeats the correct equation that the class gave. The teacher can adapt the problem to individual students, pointing to easier problems for students who are less fluent.

### Application Problem (7 minutes)

The teacher told Henry to get 8 linking cubes. Henry took 4 blue cubes and 3 red cubes. Does Henry have the correct amount of linking cubes? Use pictures or words to explain your thinking.

Note: This problem is designed as a bridge from the previous lesson's focus on common totals on the addition chart. Students will also discuss the related facts embedded in the problem during the debrief.

No. He has 7 cubes

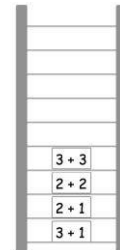
$$4 + 3 = 7$$

If he needs 8, he needs  
 $4 + 4$ . That's a double.

### Concept Development (30 minutes)

Materials: (T) Friendly Fact Go Around sheet to project or display, 10 expression cards (suggested set:  $3 + 1$ ,  $2 + 1$ ,  $2 + 2$ ,  $3 + 3$ ,  $3 + 2$ ,  $2 + 3$ ,  $4 + 3$ ,  $4 + 4$ ,  $4 + 5$ ,  $5 + 5$ ) (S) Two six-sided numeral dice, with the number 6 covered with a numeral 3

- T: (Hold up the expression cards  $3 + 1$  and  $2 + 1$ . Project ladder picture on the board.) We just found the total of each of the expressions when we played Friendly Fact Go-Around. (Tape  $3 + 1$  on bottom center of board and  $2 + 1$  directly above it.) How are  $3 + 1$  and  $2 + 1$  alike? How are they related to each other?
- S: They both are adding one to a number.
- T: What happens when you add one to a number? Use  $3 + 1$  and  $2 + 1$  as your examples to explain.
- S: You get the next counting number. When you add 1 to 3, you get 4, the next counting number. When you add 1 to 2, you get 3, which is the next counting number after 2. Twooo, 3!
- T: We're going to make a Related Fact Ladder. Let's look for an expression that might be related to  $2 + 1$  in some way. How about  $2 + 2$ ? How is  $2 + 2$  related to  $2 + 1$ ?
- S:  $2 + 2$  is one more than  $2 + 1$ .
- T: (Place  $2 + 2$  card on the next ladder rung, above  $2 + 1$ .) Find a card that is related to  $2 + 2$ . Explain how it is related.
- S:  $3 + 3$ . It's the next doubles fact.
- T: (Add card on the next rung of the ladder.)



#### NOTES ON MULTIPLE MEANS OF REPRESENTATION:

The Related Fact Ladder provides students an opportunity to demonstrate their level of comprehension. This activity facilitates student discovery of patterns and structures in their math work. Encourage students to discover these connections whenever possible.

Note: There will always be more than one expression that could be an appropriate choice. (For example, appropriate choices to follow  $3 + 2$  could be  $2 + 2$  or  $3 + 3$  as the double that helps you solve the expression, or  $4 + 1$  as an expression with the same total, where you add one to the first addend and take one away from the second addend.) As long as students are able to discuss the mathematical relationship between the two expressions (i.e., it is the next double, a double plus one fact is one more than the double fact, or the expression is one more than the previous expression), the expression can be used.

### Problem Set (10 minutes)

Distribute Problem Sets and expression cards to students. Allow them to play as partners or small groups. 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 solve these problems using the RDW approach used for Application Problems.



#### NOTES ON MULTIPLE MEANS FOR ACTION AND EXPRESSION:

Allow students to use their 5-group cards if they need them. The focus should be on students articulating the relationship between one expression and another as they solve for the totals.

MP.3

MP.4

MP.6

MP.7

To complete the Problem Set, partners begin with the first ladder. They work together to find an expression card that could be the next related fact on the ladder. Partners discuss how the fact is related and write the number sentence on the next rung. When players complete the ladder, they begin the next ladder.

Note: As students play, circulate and ask students to articulate the strategies they used to find the total. This information can be used during the debrief.

### Student Debrief (8 minutes)

**Lesson Objective:** Practice to build fluency with facts to 10.

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

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

You may choose to use any combination of the questions below to lead the discussion.

The image shows a student's work on a worksheet titled 'Related Fact Ladders'. The student's name is 'Mexico' and the date is blank. There are six ladders, each with five rungs. The facts written on the ladders are:

- Ladder 1:  $5 + 5 = 10$ ,  $4 + 4 = 8$ ,  $4 + 3 = 7$ ,  $3 + 3 = 6$ ,  $2 + 2 = 4$ ,  $2 + 1 = 3$
- Ladder 2:  $6 + 2 = 8$ ,  $6 + 1 = 7$ ,  $5 + 1 = 6$ ,  $5 + 0 = 5$ ,  $4 + 0 = 4$ ,  $4 + 1 = 5$
- Ladder 3:  $8 + 2 = 10$ ,  $7 + 2 = 9$ ,  $7 + 3 = 10$ ,  $4 + 6 = 10$ ,  $4 + 5 = 9$ ,  $5 + 5 = 10$
- Ladder 4:  $3 + 1 = 4$ ,  $4 + 1 = 5$ ,  $5 + 1 = 6$ ,  $5 + 2 = 7$ ,  $4 + 2 = 6$ ,  $3 + 4 = 7$
- Ladder 5:  $9 + 1 = 10$ ,  $9 + 0 = 9$ ,  $1 + 8 = 9$ ,  $0 + 8 = 8$ ,  $1 + 7 = 8$ ,  $2 + 6 = 8$
- Ladder 6:  $3 + 4 = 7$ ,  $4 + 4 = 8$ ,  $5 + 4 = 9$ ,  $3 + 5 = 8$ ,  $6 + 3 = 9$ ,  $7 + 3 = 10$

At the bottom of the worksheet, there is a Common Core logo, a lesson objective, a date field, and an EngageNY logo.

- Share one of your related fact ladders with a partner. Explain how each number sentence is related. What types of relationships did you both use? What was the easiest relationship for you to think of? Why?
- Which facts did you have the hardest time thinking of a related fact for? Explain what made it difficult, and what you decided to do.
- Let's look at the addition chart together. How does the chart help us see how facts are related? Use examples to explain your thinking.
- Look at your Application Problem. How could Henry change his number of linking cubes from 4 blue cubes and 3 red cubes so that he has 8 cubes using a related number sentence? Explain how your suggestion is related to  $4 + 3 = 7$ .

### Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

Name \_\_\_\_\_

Date \_\_\_\_\_

**Related Fact Ladders**

1.

$$2 + 1 = 3$$

2.

$$4 + 1 = 5$$

3.

$$5 + 5 = 10$$

4.

$$3 + 4 = 7$$

5.

$$2 + 6 = 8$$

6.

$$7 + 3 = 10$$

Name \_\_\_\_\_

Date \_\_\_\_\_

Solve the number sentences. Use the key to color. Once the box is colored, you do not need to color it again.

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

$7 + 2 = \underline{\quad}$

$2 + 3 = \underline{\quad}$

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

$7 = 1 + \underline{\quad}$

$2 = 1 + \underline{\quad}$

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

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

$3 + 4 = \underline{\quad}$

$\underline{\quad} = 5 + 4$

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

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

Color doubles - Red.

Color +1 - Blue

Color +2 - Green

Color doubles +1 - Brown

### CHALLENGE:

List the number sentences that can be colored more than 1 way.

\_\_\_\_\_

Name \_\_\_\_\_ Date \_\_\_\_\_

Solve and sort the number sentences. One number sentence can go in more than one place when you sort.

$$5 + 1 = \underline{\quad}$$

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

$$2 + 3 = \underline{\quad}$$

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

$$7 + 1 = \underline{\quad}$$

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

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

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

$$3 + 4 = \underline{\quad}$$

$$\underline{\quad} = 5 + 4$$

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

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

Doubles	Doubles +1	+1	+2	Mentally visualized 5-groups

Write your own number sentences and add them to the chart.

Solve and practice math facts.

$1 + 0$	$1 + 1$	$1 + 2$	$1 + 3$	$1 + 4$	$1 + 5$	$1 + 6$	$1 + 7$	$1 + 8$	$1 + 9$
$2 + 0$	$2 + 1$	$2 + 2$	$2 + 3$	$2 + 4$	$2 + 5$	$2 + 6$	$2 + 7$	$2 + 8$	
$3 + 0$	$3 + 1$	$3 + 2$	$3 + 3$	$3 + 4$	$3 + 5$	$3 + 6$	$3 + 7$		
$4 + 0$	$4 + 1$	$4 + 2$	$4 + 3$	$4 + 4$	$4 + 5$	$4 + 6$			
$5 + 0$	$5 + 1$	$5 + 2$	$5 + 3$	$5 + 4$	$5 + 5$				
$6 + 0$	$6 + 1$	$6 + 2$	$6 + 3$	$6 + 4$					
$7 + 0$	$7 + 1$	$7 + 2$	$7 + 3$						
$8 + 0$	$8 + 1$	$8 + 2$							
$9 + 0$	$9 + 1$								
$10 + 0$									

**Friendly Fact Go Around: Addition Strategies Review**

$2 + 1 = \square$

$3 + 1 = \square$

$5 + 1 = \square$

$4 + 1 = \square$

$6 + 1 = \square$

$9 + 1 = \square$

$2 + 2 = \square$

$2 + 3 = \square$

$5 + 5 = \square$

$3 + 3 = \square$

$4 + 4 = \square$

$4 + 5 = \square$

$0 + 1 = \square$

$1 + 3 = \square$

$1 + 1 = \square$

$2 + 2 = \square$

$7 + 1 = \square$

$3 + 3 = \square$

$1 + 5 = \square$

$5 + 5 = \square$

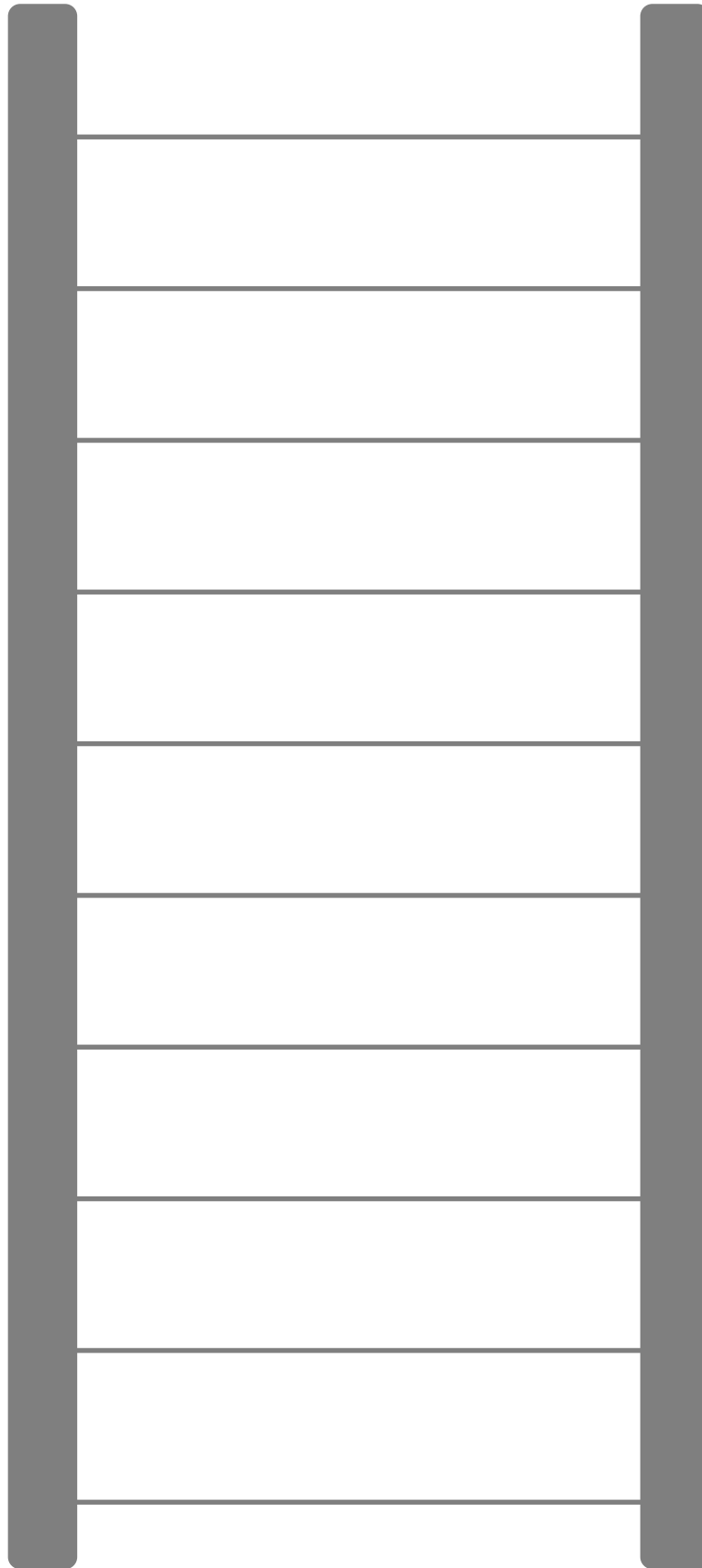
$3 + 4 = \square$

$8 + 1 = \square$

$4 + 4 = \square$

$5 + 4 = \square$





## Expression Cards

$7 + 3$	$0 + 7$
$0 + 2$	$8 + 2$
$9 + 0$	$0 + 3$
$9 + 1$	$1 + 8$
$6 + 3$	$4 + 6$
$7 + 2$	$1 + 7$

$6 + 2$	$4 + 5$
$6 + 1$	$0 + 6$
$4 + 3$	$4 + 4$
$5 + 2$	$5 + 5$
$5 + 1$	$3 + 5$
$4 + 2$	$4 + 4$

$0 + 8$	$4 + 1$
$2 + 3$	$3 + 3$
$4 + 0$	$5 + 0$
$3 + 1$	$3 + 4$
$5 + 4$	$2 + 2$



## Topic G

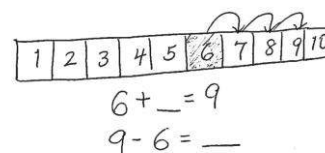
# Subtraction as an Unknown Addend Problem

1.OA.1, 1.OA.4, 1.OA.5

Focus Standard:	1.OA.1	Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart and comparing, with unknowns in all positions, e.g., by using objects, drawings and equations with a symbol for the unknown number to represent the problem.
	1.OA.4	Understand subtraction as an unknown-addend problem. <i>For example subtract <math>10 - 8</math> by finding the number that makes 10 when added to 8.</i>
	1.OA.5	Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
Instructional Days: 3		
Coherence	-Links from:	GK–M4 Number Pairs, Addition and Subtraction to 10
	-Links to:	G2–M4 Addition and Subtraction Within 200 with Word Problems to 100

Following the mid-module assessment, Topic G focuses on students understanding the meaning of subtraction as it relates to addition. In Lesson 25, students solve *add to with change unknown* problems as they have in Topic C using addition, but now relate that work directly to the act of taking away (1.OA.4). The work of this lesson starts with students calling upon their knowledge from previous *add to with change unknown* problems, and then applying it in the context of subtraction, using the addend to subtract from the total, in order to find the missing addend or part (1.OA.1).

In this opening lesson, students use objects to represent discrete counts, which serves as a bridge to the number path, used in Lessons 26 and 27. Number bonds will continue to serve as a bridge between prior learning and this new learning. In these concluding lessons, students use the number path as pictured to the right, in order to find one part, count on to the total, and determine the number of counts it took to get to that total from the part (1.OA.5). The teacher engages students in deep discussion about these strategies as they relate to the contextualized situations of story problems, ensuring that students build a solid conceptual understanding of why and how one utilizes counting on to solve subtraction.



**A Teaching Sequence Towards Mastery of Subtraction as an Unknown Addend Problem**

**Objective 1:** Solve *add to with change unknown* math stories with addition and relate to subtraction. Model with materials and write corresponding number sentences.  
(Lesson 25)

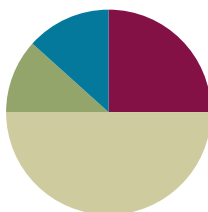
**Objective 2:** Count on using the number path to find an unknown part.  
(Lesson 26–27)

## Lesson 25

**Objective:** Solve *add to with change unknown* math stories with addition and relate to subtraction. Model with materials and write corresponding number sentences.

### Suggested Lesson Structure

■ Fluency Practice	(15 minutes)
■ Application Problem	(7 minutes)
■ Concept Development	(30 minutes)
■ Student Debrief	(8 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (15 minutes)

- Race to the Top: Doubles **1.OA.6** (5 minutes)
- X-Ray Vision: Partners to 9 **1.OA.6** (5 minutes)
- Number Bond Dash: 9 **1.OA.6** (5 minutes)

### Race to the Top: Doubles (5 minutes)

Materials: (S) Race to the Top sheet, crayons or a pencil, and a die (replace 6 with 0) per pair of students

Note: Reviewing doubles permits students continued practice with the facts presented in **G1-M1-L21**.

Students take turns rolling a die. Their partner says the double fact and records it on the graph.

### X-Ray Vision: Partners to 9 (5 minutes)

Materials: (T) 9 counters, container

Note: Reviewing partners to 9 allows students to gain and maintain fluency with addition and subtraction facts within 10.

1. Place 9 counters on the floor next to an opaque container.
2. Tell students to close their eyes. Put 1 counter in the container.



#### NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Frequent checks for understanding benefits ELLs and other students who may shy away from asking questions. Ask questions for comprehension during this lesson to ensure that students understand the vocabulary and concept.

- Tell students to open their eyes. Ask, “Who can use their x-ray vision to make a number sentence combining the counters in and outside the container to make a number sentence?”
- Continue the game, eliciting all partners to 9.

### Number Bond Dash: 9 (5 minutes)

Materials: (T) Stopwatch or timer (S) Number Bond Dash: 9 (see **G1-M1-L8**), marker to correct work

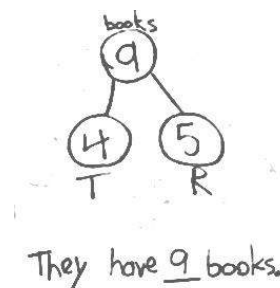
Note: By using the same system, students can focus on the mathematics alone.

Follow the procedure for Number Bond Dash. Tell students to remember how many problems they get correct so they can try to improve their scores tomorrow.

### Application Problem (7 minutes)

Taylor and her sister Reilly each got 4 books from the library. Then Reilly went back in and checked out another book. How many books do Taylor and Reilly have together? Draw and label a number bond to show the part of the books Taylor took out and the part that Reilly took out. Write a statement to share your answer.

Note: Today, we are starting the lesson with the application problem because the final fluency activity sets up well for the lesson. This problem is designed as a bridge from the previous lesson’s focus on fluency with facts within 10. This problem also allows students practice with a contextualized *double* and *double plus 1* problem.



### Concept Development (30 minutes)

Materials: (T) 10 bear counters, large blank equation template (S) Personal white board with number sentence template, sets of 10 bear counters

Have students bring their personal boards to the meeting area and sit in a semi-circle.

- T: Once upon a time, 4 little bears went to play tag in the forest. Some more bears came over. In the end, there were 6 little bears playing tag in the woods. (Place 6 bear counters on the template on the floor.)
- T: How many more bears came to play? Turn and talk to a partner and share a strategy you used.

Review the strategy of counting on to solve. Ask students to write the number sentence ( $4 + 2 = 6$ ) and the number bond. Circle the solution in both.

The teacher also writes them on the board.



#### NOTES ON MULTIPLE MEANS OF REPRESENTATION:

As you are telling the two stories in this lesson, have them written out on a chart. This will help those students who are visual learners and those students who can follow along as you read aloud.



- T: What does 6 stand for?  
 S: The number of bears playing at the end.  
 T: (Gesture over the 6 bears on the floor.)  
 T: What does 4 stand for?  
 S: The number of bears playing in the beginning.  
 T: (Separate 4 bears slightly from the group.)  
 T: How many bears came over to play? Point to where you see them.  
 S: (Point to 2 bears.) 2 bears.  
 T: We can make an imaginary line with our finger to show the 2 parts. (Draw an imaginary line between 2 groups.) 4 bears were there first and then 2 more bears came. (Point to each part accordingly.)  
 T: Many of you used addition to figure out how many bears came over to play. When we checked our work just now, we separated the 4 bears from the total group of 6 bears. (Write  $4 + \underline{\quad} = 6$  on the board.) Since we know the whole, and one part we can use subtraction to find the other part. Turn and talk to your partner about how we could write this as a subtraction sentence.  
 S: (Discuss while the teacher circulates and listens.)  
 T: (Choose a student to demonstrate her subtraction sentence using the bears.)  
 T: We can write  $6 - 4 = 2$  to show that we had 6 bears and separated 4 of them from the group, leaving us with 2 bears for the unknown part.  
 S/T: (Write  $6 - 4 = 2$  on the board.)  
 T: Circle the answer to our question in the number sentence.  
 T: What number bond matches the parts and the total for this story? Add that to your board.  
 S/T: (Draw number bond of 4 and 2 with the total of 6.)

Tell the following story: Once upon a time, 8 bears were fishing for dinner. Five bears had been fishing all day. The rest of the bears came after lunch. How many bears came after lunch?

Have students solve and write an addition and subtraction number sentence along with a matching number bond.

Place 8 bears on the floor. Invite the students to share the number sentences and analyze the referents for each number. Emphasize that there are 2 parts within the total by drawing an imaginary line between them.

MP.8

- T: Do both of your number sentences match the number bond?  
 S: Yes!  
 T: How are these number sentences the same? How are they different? Turn and talk to your partner.  
 S: Both number sentences gave us the answer. 3 more bears came to fish. The first time, we used counting on and an addition sentence to solve. The second time, we used subtraction.

Distribute a set of bear counters to each student. Repeat the process by telling other *change unknown* stories for students to solve using their counters. Be sure to have students separate one addend from the other. You might want to use the following sequence:  $5 + \underline{\quad} = 7$ ,  $7 - 5 = \underline{\quad}$ ;  $2 + \underline{\quad} = 8$ ,  $8 - 2 = \underline{\quad}$ , and  $4 + 5 = \underline{\quad}$ ,  $9 - 4 = \underline{\quad}$ .

## Problem Set (10 minutes)

Distribute the Problem Sets and guide the students through the Problem Set by reading each word problem and giving the students time to complete the task.

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 solve these problems using the RDW approach used for Application Problems. On this Problem Set, all students should begin with number 1 and possibly leave number 4 to the end if they still have time.

## Student Debrief (8 minutes)

**Lesson Objective:** Solve *add to with change unknown* math stories with addition and relate to subtraction. Model with materials and write corresponding number sentences.

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

Ask students to bring a yellow colored pencil.


- With your yellow pencil, circle all the numbers that were the unknown in the number bond and in the number sentences. Where do they appear in the number bonds and the number sentences?
- How did the number bond help you come up with the addition and the related subtraction sentence?

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 25 1•1

Name: Maria Date: \_\_\_\_\_

Break the total into parts. Write a number bond, and addition and subtraction number sentences to match the story.

1. Rachel and Lucy are playing with 5 trucks. If Rachel is playing with 2 of them, how many is Lucy playing with?

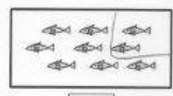


Number bond: 5 (total) split into 2 and 3.

Equations:  $2 + 3 = 5$  and  $5 - 2 = 3$

Lucy is playing with 3 trucks.

2. Jane had 9 fish at the end of the day. She had 7 fish before she ate lunch. How many fish did she catch after lunch?



Number bond: 9 (total) split into 7 and 2.


Equations:  $7 + 2 = 9$  and  $9 - 7 = 2$

Jane caught 2 fish after lunch.

COMMON CORE Lesson 25: Solve "Change Unknown" math stories with addition and relate to subtraction. Model with materials and write corresponding number sentences. 1•1. 4/25/13 engage<sup>ny</sup> X.X.6

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 25 Worksheet 1•1

3. Dad bought 6 shirts. The next day he returned some of them. Now he has 2 shirts. How many shirts did Dad return?




Number bond: 6 (total) split into 2 and 4.

Equations:  $2 + 4 = 6$  and  $6 - 2 = 4$

Dad returned 4 shirts.

4. John had 3 strawberries. Then his friend gave him more fruit. Now John has 7 pieces of fruit. How many pieces of fruit did John's friend give him?



Number bond: 7 (total) split into 3 and 4.

Equations:  $3 + 4 = 7$  and  $7 - 3 = 4$

John's friend gave him 4 pieces of fruit.

COMMON CORE Lesson 25: Solve "Change Unknown" math stories with addition and relate to subtraction. Model with materials and write corresponding number sentences. 1•1. 4/25/13 engage<sup>ny</sup> 1.6.9

- Look at Problem 4. Explain how the addition and subtraction sentences are related. How are addition and subtraction alike?

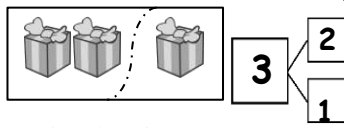
**Exit Ticket (3 minutes)**

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

Name \_\_\_\_\_

Date \_\_\_\_\_

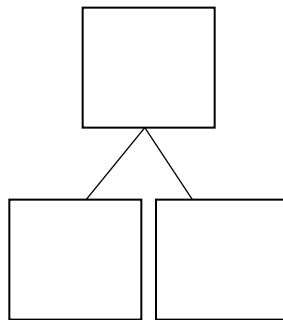
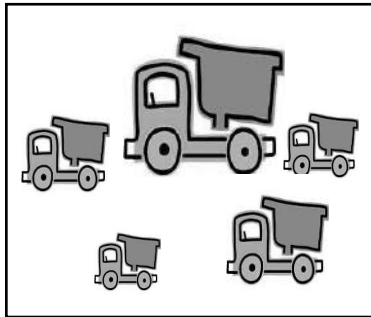
Break the total into parts. Write a number bond and addition and subtraction number sentences to match the story.



$$2 + 1 = 3$$

$$3 - 2 = 1$$

1. Rachel and Lucy are playing with 5 trucks. If Rachel is playing with 2 of them, how many is Lucy playing with?

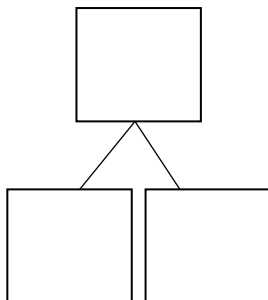
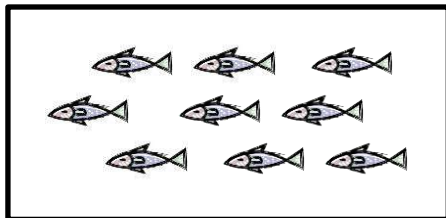


$$\boxed{2} + \boxed{\phantom{0}} = \boxed{5}$$

$$\boxed{5} - \boxed{2} = \boxed{\phantom{0}}$$

Lucy is playing with \_\_\_\_\_ trucks.

2. Jane caught 9 fish at the end of the day. She caught 7 fish before she ate lunch. How many fish did she catch after lunch?

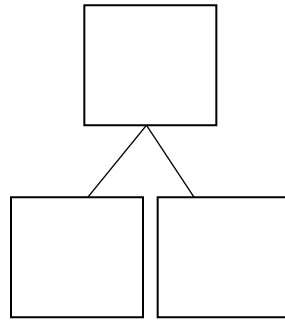


$$\boxed{\phantom{0}} + \boxed{\phantom{0}} = \boxed{9}$$

$$\boxed{9} - \boxed{\phantom{0}} = \boxed{\phantom{0}}$$

Jane caught \_\_\_\_\_ fish after lunch.

3. Dad bought 6 shirts. The next day he returned some of them. Now he has 2 shirts. How many shirts did Dad return?

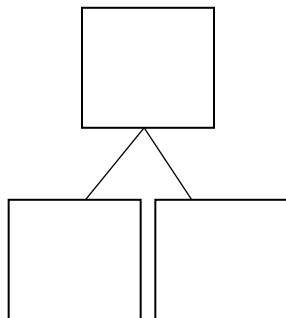
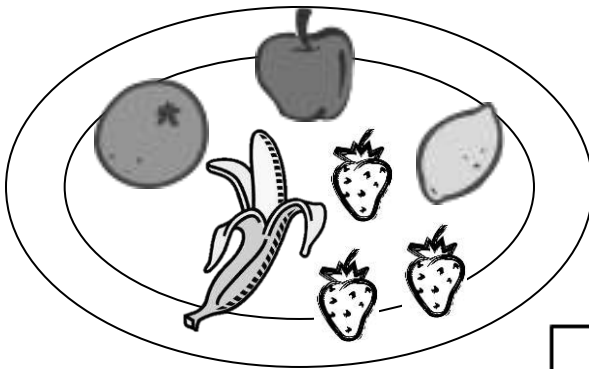


$$\square + \square = 6$$

$$6 - \square = \square$$

Dad returned \_\_\_\_\_ shirts.

4. John had 3 strawberries. Then his friend gave him more fruit. Now John has 7 pieces of fruit. How many pieces of fruit did John's friend give him?



$$\square + \square = 7$$

$$7 - \square = \square$$

John's friend gave him \_\_\_\_\_ pieces of fruit.

Name \_\_\_\_\_

Date \_\_\_\_\_

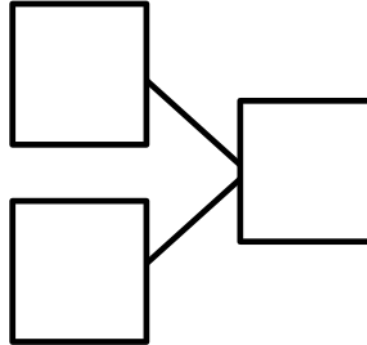
Solve the math story. Complete the number bonds and number sentences. Color the unknown number yellow.

Rich bought 6 cans of soda on Monday.

He bought some more on Tuesday.

Now he has 9 cans of soda.

How many cans did Rich buy on Tuesday?



Rich bought \_\_\_\_\_ cans.

$$\square + \square = \square$$

$$\square - \square = \square$$

Name \_\_\_\_\_

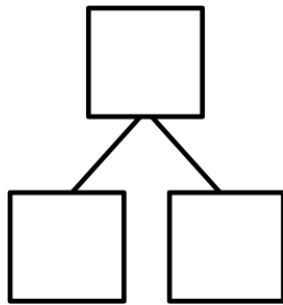
Date \_\_\_\_\_

Break the total into parts. Write a number bond and addition and subtraction number sentences to match the story.

$$2 + 1 = 3$$

$$3 - 2 = 1$$

1. Six flowers bloomed on Monday. Some more bloomed on Tuesday. Now there are 8 flowers. How many flowers bloomed on Tuesday?

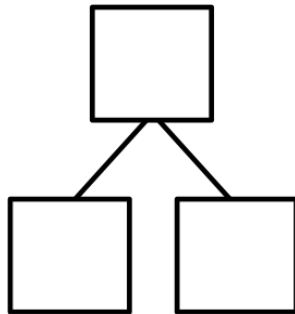
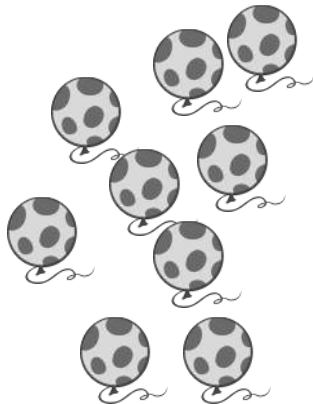


$$\square + \square = \square$$

$$\square - \square = \square$$

\_\_\_\_\_ flowers bloomed on Tuesday.

2. Below are the balloons that Mom bought. She bought 4 balloons for Bella and the rest of the balloons were for Jim. How many balloons did she buy for Jim?



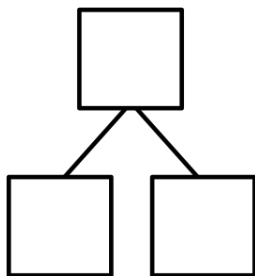
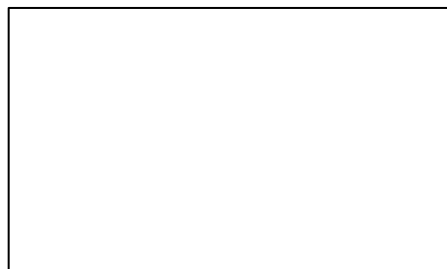
$$\square + \square = \square$$

$$\square - \square = \square$$

Mom bought Jim \_\_\_\_\_ balloons.

Draw a picture to solve the math story.

3. Missy buys some cupcakes and 2 cookies. Now she has 6 desserts. How many cupcakes did she buy?

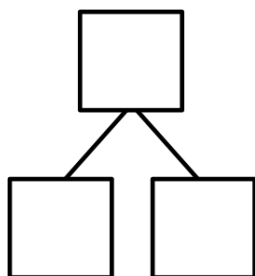


$$\square + \square = \square$$

$$\square - \square = \square$$

Missy bought \_\_\_\_\_ cupcakes.

4. Jim invites 9 friends to his party. 3 friends arrived late, but the rest came early. How many friends came early?

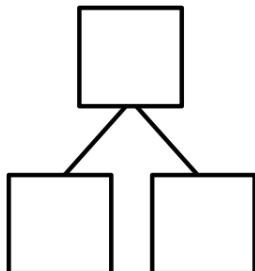


$$\square \bigcirc \square = \square$$

$$\square \bigcirc \square = \square$$

\_\_\_\_\_ friends came early.

5. Mom paints her fingernails on both hands. First she paints 2 red. She paints the rest pink. How many fingernails are pink?



$$\square \bigcirc \square = \square$$

$$\square \bigcirc \square = \square$$

Mom paints \_\_\_\_\_ fingernails pink.



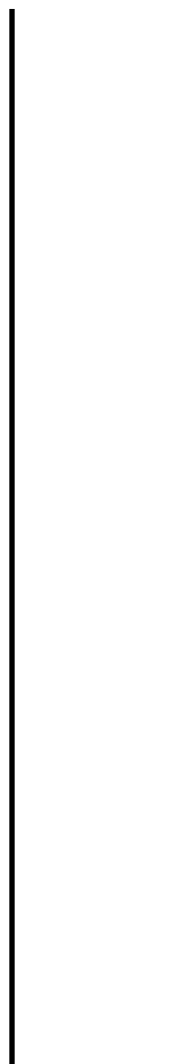
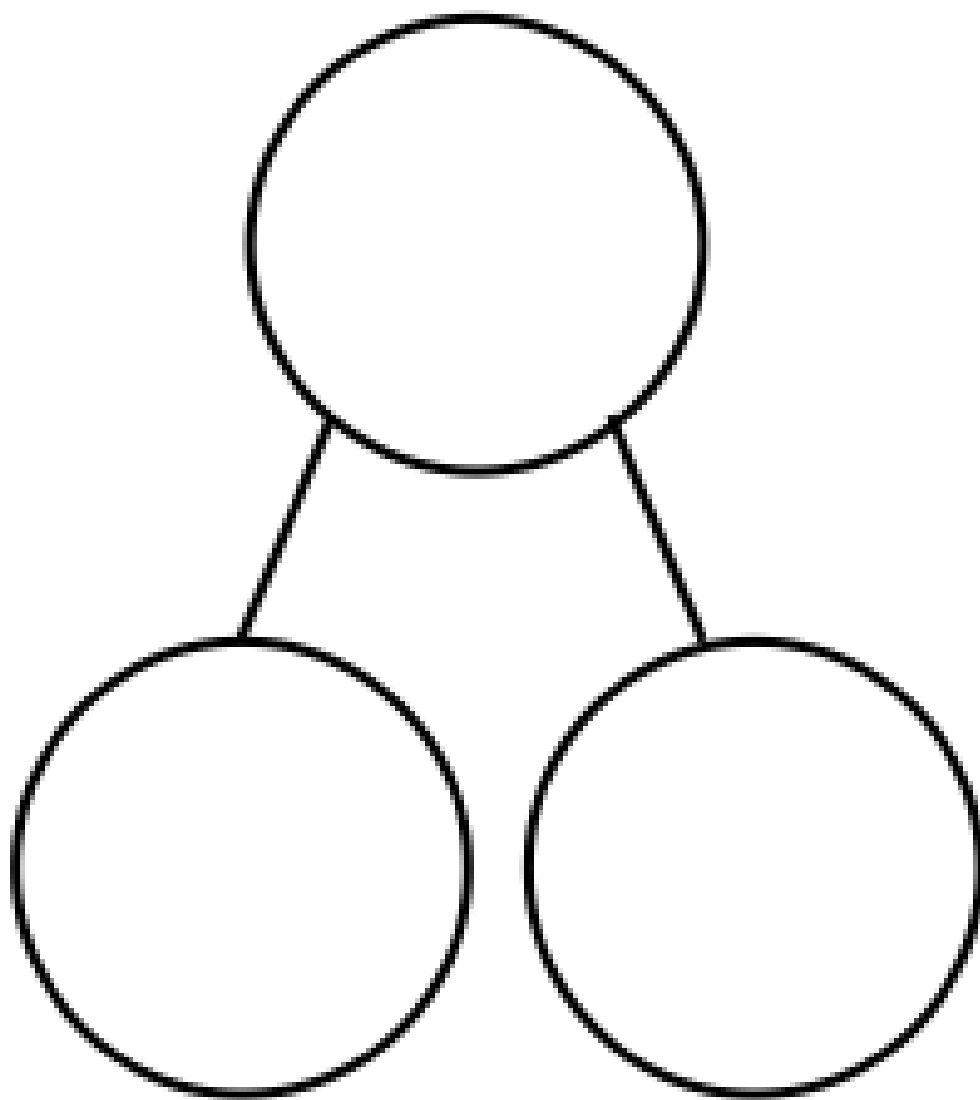
Name \_\_\_\_\_

Date \_\_\_\_\_



# Race to the Top!

0	2	4	6	8	10

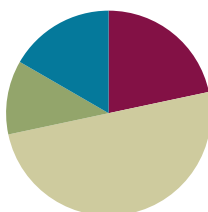


## Lesson 26

**Objective:** Count on using the number path to find an unknown part.

### Suggested Lesson Structure

■ Fluency Practice	(13 minutes)
■ Application Problem	(7 minutes)
■ Concept Development	(30 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (13 minutes)

- Number Path Hop **1.OA.5** (3 minutes)
- Partners to 9 **1.OA.3, 1.OA.6** (5 minutes)
- Number Bond Dash: 9 **1.OA.6** (5 minutes)

### Number Path Hop (3 minutes)

Materials: (S) 5-group cards (see **G1-M1-L5**), 1 counter

Note: This activity connects fluency work of addition and subtraction within 10 with the number path as a tool for modeling addition and subtraction.

Students make a number path by ordering their 5-group cards from 0 to 10. Instruct the students to place their counter on 0 and give a series of directions. “Hop forward 2. Where are you?” “Hop back 1 space. What number are you on?” “Hop from 1 to 5. How many hops did you make?” “What number do you add to 5 to make 9?”

### Partners to 9 (5 minutes)

Materials: (T/S) 5-group cards (0–9)

Note: Reviewing partners to 9 allows students to gain and maintain fluency with addition and subtraction facts within 10, a grade-level objective. We also apply the commutative property.

T: (Holds up 5-group card with 5 dots.) How many dots do you see?

S: 5.

T: Hold up your 5-group card that shows how many more dots I need to make 9.

S: (Hold up the card with 4 dots).

T: Say an addition sentence for nine, beginning with the number you see on my card.

S:  $5 + 4 = 9$ .

T: Good. Now say another addition sentence for 9. Begin with your card.

S:  $4 + 5 = 9$ .

Continue playing, eliciting all partners to 9.

### Number Bond Dash: 9 (5 minutes)

Materials: (T) Stopwatch or timer (S) Number Bond Dash: 9 (see **G1-M1-L8**), marker to correct work

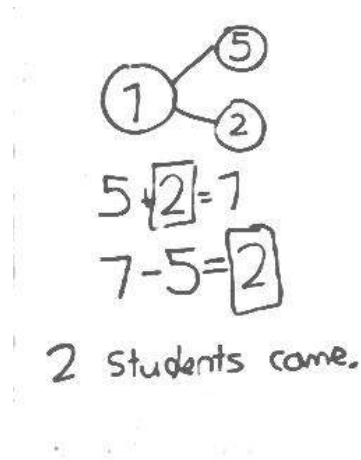
Note: This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

Follow procedure for Number Bond Dash, remembering today is the second day with making 9. Students should recall their scores from yesterday to see and celebrate improvement.

### Application Problem (7 minutes)

There were 5 students in the cafeteria. Some more students came in late. Now there are 7 students in the cafeteria. How many students came in late? Write a number bond to match the story. Write an addition sentence and a subtraction sentence to show two ways to solve the problem. Draw a rectangle around the unknown number that you found.

Note: This problem serves as a bridge from the previous *change unknown* lesson that allowed students to connect addition and subtraction as preparation for doing the same in a different context within this lesson.



### Concept Development (30 minutes)

Materials: (T) Giant number path (S) Personal white board with a number path template

Place a giant number path on the floor. Have students bring their personal white boards and sit in a semi-circle facing the number path.

T: (Write  $6 - 4 = \underline{\quad}$  on the board.) Fill in your number bond using this number sentence. One of the boxes should be left empty.

S: (Write 6 in the total box and 4 in the part box.)

T: Let's solve  $6 - 4$  by using this giant number path. What is the whole?

S: 6.

T: (Select a student to stand above 6.) If we are using the number path to show how to take 4 away from 6, should we count on or back on the number path? By how many?

S: We count down by 4.

T: As Paul hops down, let's keep track of our counts until we reach 4.

S: (Paul hops 1 square at a time as the rest of the class counts.) 1, 2, 3, 4. (He ends up on 2.)

T: What is  $6 - 4$ ?

S: 2.

S/T: (Write 2 in the number sentence. Students and teacher complete the number bond.)

T: Is there another way to solve  $6 - 4$ ? Turn and talk to your partner.

S: We can also count on from 4 to 6.  $\rightarrow$  We can use an addition sentence.  $\rightarrow$  We can think, " $4 + \underline{\quad} = 6$ ."

T: (Write  $4 + \underline{\quad} = 6$ .) We can *count on* using the number path! How many hops are needed to get to 6? Let's *count on* and keep track of the hops on our fingers.

T/S: Foouuur, 5, 6. (Put up a finger for each hop.)

T: How many does 4 need to get to 6?

S: 2.

T: What is the number sentence to show what we just did?

S:  $4 + 2 = 6$ .

T: (Fill in the blank with 2.) Again, 2 was the number we were looking for. It's the same answer as the answer from the subtraction sentence.

T: Which was easier, counting back or counting on?

T: (Write  $8 - 5 = \underline{\quad}$  on the board.) When you see a subtraction problem, you can always add instead. How can I turn this into an addition sentence?

S:  $5 + \underline{\quad} = 8$ . (Read as "five plus an unknown part equals eight.")

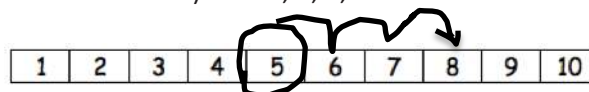
T: Write the number sentence on your personal white board.

T: On your number path, circle the 5. That's the part we already know. Let's find the unknown part by putting a dot above the next numbers until we get to 8. Watch me as you help me *count on*.

T/S: (Circle 5 and draw to show hopping to each consecutive number.) Fiiiive, 6, 7, 8!

T: How many did 5 need to get to 8?

S: 3.



T: Fill in the unknown number and put a circle around it to show that it was what we were solving for.

T: If  $5 + 3 = 8$ , then  $8 - 5$  must be...?

S: 3.

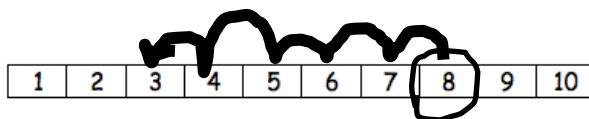
T: Let's check our work by using the number path to solve  $8 - 5$ . Erase the marks on your number path. Start at 8. Which way should we hop to show taking away 5? How many times?

S: Hop backwards 5 times.

T: Let's count as we draw our hopping marks.

T/S: 1, 2, 3, 4, 5.

T: What number did you land on?



### NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Present math concretely with familiar objects. Students may prefer using their fingers while others might prefer using something to count such as bears or disks. Allow students to use the manipulative that helps them solve problems the most effective way.

S: 3.

T: Write the number sentence and put a circle around what we were solving for.

S: (Write  $8 - 5 = 3$  and circle 3.)

Repeat this process. You might use the suggested sequence  $9 - 2$ ,  $7 - 5$ , and  $7 - 3$ . Some students may begin to see when counting on is more efficient and when counting back is more efficient. It's okay if they don't see this yet, as they will do more work with selecting an efficient strategy in Lesson 27.

### 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 solve these problems using the RDW approach used for Application Problems.

On this Problem Set, all students should begin with Problems 1–6, possibly leaving Problems 7, 8, and 9 to the end if they still have time.

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 26 Worksheet 1•1

Name: Maria Date: \_\_\_\_\_

Use the number path to solve.

1.  $3 - 2 = \underline{1}$   $2 + \underline{1} = 3$

2.  $6 - 4 = \underline{2}$   $4 + \underline{2} = 6$

3.  $8 - 5 = \underline{3}$   $5 + \underline{3} = 8$

4.  $9 - 6 = \underline{3}$   $6 + \underline{3} = 9$

5.  $9 - 3 = \underline{6}$   $3 + \underline{6} = 9$

COMMON CORE Lesson 26: "Count on" Using the Number Path to Find an Unknown Part Date: 6/24/13 engage<sup>ny</sup> 1.G.7

### Student Debrief (10 minutes)

**Lesson Objective:** Count on using the number path to find an unknown part.

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

- Look at Problem 3 and Problem 4. How are these problems related? Which strategy would be easier to solve Problem 3? Which strategy would be wiser to use to solve Problem 4?

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 26 Worksheet 1•1

Use the number path to help you solve.

5.  $5 - 4 = \underline{1}$   $4 + \underline{1} = 5$

6.  $5 - 1 = \underline{4}$   $1 + \underline{4} = 5$

7.  $7 - 5 = \underline{2}$   $5 + \underline{2} = 7$

8.  $10 - 6 = \underline{4}$   $6 + \underline{4} = 10$

9.  $9 - 3 = \underline{6}$   $3 + \underline{6} = 9$

COMMON CORE Lesson 26: "Count on" Using the Number Path to Find an Unknown Part, Solve 7–9 (1) Date: 6/24/13 engage<sup>ny</sup> 1.G.7

- Look at Problem 5 and Problem 6. What do you notice about these problems? What did you do differently or similarly to solve these?
- Look at your Application Problem and Problem Set Problem 7. Describe the connections between the two.

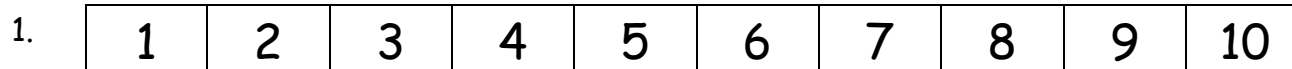
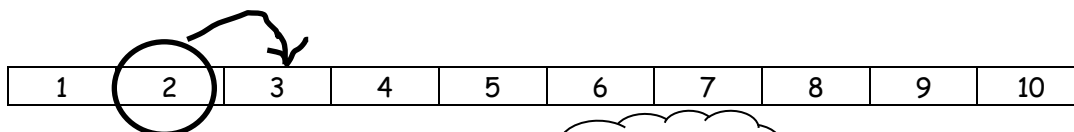
**Exit Ticket (3 minutes)**

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

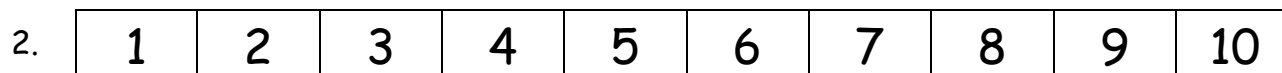
Name \_\_\_\_\_

Date \_\_\_\_\_

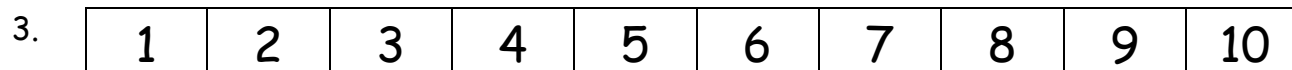
Use the number path to solve.



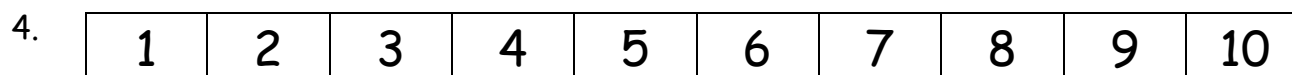
$$6 - 4 = \underline{\quad\quad\quad} \quad \circ \circ \circ \quad \text{cloud: } 4 + \underline{\quad\quad\quad} = 6$$



$$8 - 5 = \underline{\quad\quad\quad} \quad \circ \circ \circ \quad \text{cloud: } 5 + \underline{\quad\quad\quad} = 8$$



$$9 - 6 = \underline{\quad\quad\quad} \quad \circ \circ \circ \quad \text{cloud: } 6 + \underline{\quad\quad\quad} = 9$$



$$9 - 3 = \underline{\quad\quad\quad} \quad \circ \circ \circ \quad \text{cloud: } 3 + \underline{\quad\quad\quad} = 9$$



Use the number path to help you solve.

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

5.  $5 - 4 = \underline{\quad}$

$4 + \underline{\quad} = 5$

6.  $5 - 1 = \underline{\quad}$

$1 + \underline{\quad} = 5$

7.  $7 - 5 = \underline{\quad}$

$5 + \underline{\quad} = 7$

8.  $10 - 6 = \underline{\quad}$

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

9.  $9 - 3 = \underline{\quad}$

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

Name \_\_\_\_\_ Date \_\_\_\_\_

Use the number path to solve. Write the addition sentence you used to help you solve.

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

a)  $7 - 5 =$  \_\_\_\_\_

\_\_\_\_\_

b)  $9 - 2 =$  \_\_\_\_\_

\_\_\_\_\_

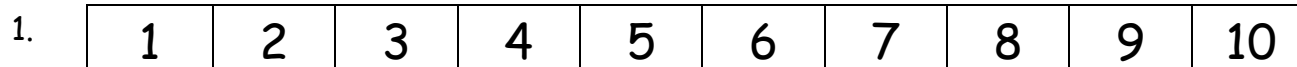
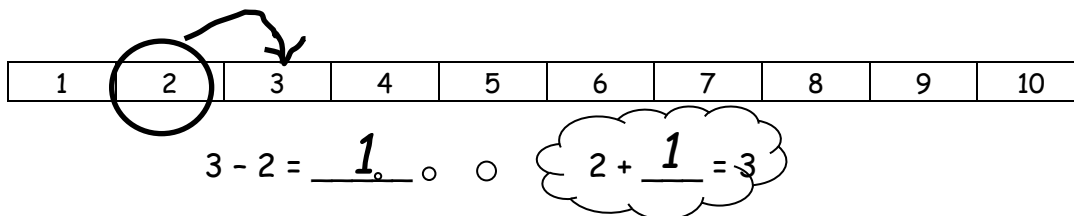
c) \_\_\_\_\_  $= 10 - 3$

\_\_\_\_\_

Name \_\_\_\_\_

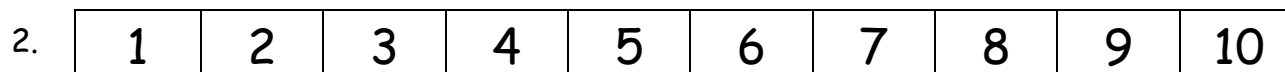
Date \_\_\_\_\_

Use the number path to solve.



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

○○○  $3 + \underline{\quad} = 5$



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

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

$7 - 4 = \underline{\quad}$

$4 + \underline{\quad} = 7$

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

---

$9 - 6 = \underline{\quad}$

---

Use the number path to solve. Match the addition sentence that can help you.

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

3.  $6 - 4 = \underline{\quad}$

$$6 + 4 = 10$$

$9 - 5 = \underline{\quad}$

$$10 = 7 + 3$$

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

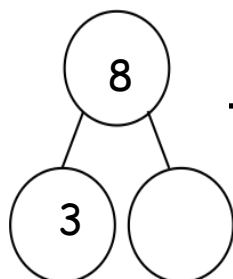
$$4 + 5 = 9$$

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

$$6 = 4 + 2$$

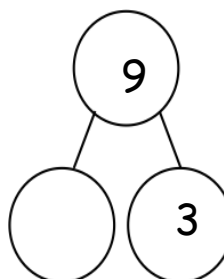
Write an addition and subtraction number sentence for the number bond. You may use the number path to solve.

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----



\_\_\_\_\_

\_\_\_\_\_



\_\_\_\_\_

\_\_\_\_\_

10
9
8
7
6
5
4
3
2
1

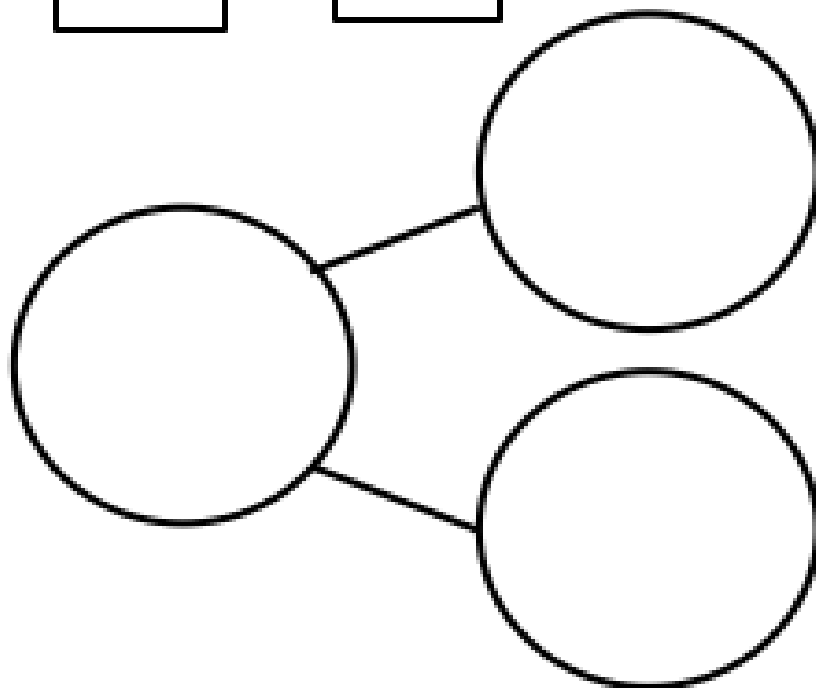
=





=



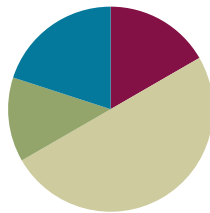


## Lesson 27

**Objective:** Count on using the number path to find an unknown part.

### Suggested Lesson Structure

■ Fluency Practice	(10 minutes)
■ Application Problem	(8 minutes)
■ Concept Development	(30 minutes)
■ Student Debrief	(12 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (10 minutes)

- Happy Counting by Twos **1.OA.5** (2 minutes)
- Number Bond Roll **1.OA.6** (5 minutes)
- Number Sentence Swap **1.OA.4** (3 minutes)

### Happy Counting by Twos (2 minutes)

Note: Reviewing counting on allows students to maintain fluency with adding 2.

Repeat the Happy Counting activity from **G1-M1-L3**, counting by twos from 10 to 20 and back.

### Number Bond Roll (5 minutes)

Materials: (S) Die (with 6 replaced by 0) per student, personal white boards

Note: Reviewing number bonds allows students to build and maintain fluency with addition and subtraction facts within 10.

Match up partners of equal ability. Each student rolls 1 die. Students use the numbers on their die and their partner's die as the parts of a number bond. They each write a number bond, addition sentence, and subtraction sentence on their personal white boards. Once both partners have made their number bonds and number sentences, they check each other's work. For example, if Partner A rolls a 2 and Partner B rolls a 3, they each write the number bond showing 2 and 3 making 5 and write number sentences such as  $2 + 3 = 5$  and  $5 - 3 = 2$ .

### Number Sentence Swap (3 minutes)

Note: This activity supports the connection between subtraction and addition. The initial subtraction sentence, with the unknown number depicted as an empty box, may be written on board as a visual support if needed.

Say a subtraction sentence aloud, saying “the mystery number” for the unknown answer (e.g., “ $5 - 3 =$  the mystery number”). Call on a student to rephrase the sentence as an addition sentence (e.g., “ $3 +$  the mystery number  $= 5$ ”). Ask students to count on with you to solve the problem, for example, “threeeeeee (touch head), 4 (raise thumb), 5 (raise index finger).” Ask students how many fingers they counted on (2).

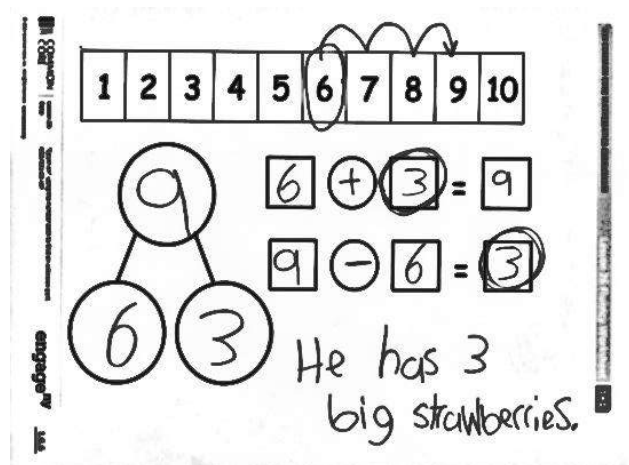
Suggested sequence:  $5 - 3$ ,  $4 - 2$ ,  $6 - 4$ ,  $6 - 5$ ,  $7 - 6$ ,  $7 - 5$ ,  $7 - 3$ .

### Application Problem (8 minutes)

Materials: (S) Personal white board with number path template (from Lesson 26)

Marcus has 9 strawberries. Six of them are small; the rest are big. How many strawberries are big? Fill in your template. Circle the mystery, or unknown number, in your number sentences and write a statement to answer the question.

Note: This problem is designed as a bridge from the previous lesson’s focus on adding on the number path as a means of solving subtraction problems.



### Concept Development (30 minutes)

Materials: (T) 2 projected or charted number paths (S) personal white board with number path template (see **G1-M1-L26**)

Have students bring their personal white boards and sit in a semi-circle facing a projected number path.

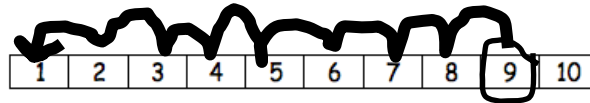
- T: (Write  $9 - 8 = \square$  on the board, and read the equation aloud with students.) Fill in your number bond using this number sentence. One of the boxes should be left empty.
- S: (Write 9 in the total box and 8 in the part box.)
- T: What are some ways we can solve this? Talk with your partner.
- S: (Share with partner.)



#### NOTES ON MULTIPLE MEANS FOR ENGAGEMENT:

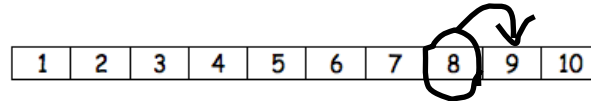
Some students may feel comfortable moving forward in small steps, with frequent opportunities to practice what they are learning. Not all students will be able to determine if they should count on or count back right away. Support the way they are solving the problems and encourage them to eventually be able to choose the method that is most efficient.

- T: (Circulate and listen, then ask a student or two to share with the class.)
- S: We can add! → We can count on using the number path! → We can count back!
- T: I heard someone say that we can count back. Let's use the number path to count back and solve  $9 - 8 = \square$ . Which way should we hop to show taking away 8? How many times?
- S: Hop backwards 8 times.
- T: Let's start with our whole, and count as we draw our hopping marks.
- T/S: 1, 2, 3, 4, 5, 6, 7, 8.



- T: What is  $9 - 8$ ?
- S: 1!
- T: Yes. Write that in your number bond, solve your number sentence and circle the unknown or answer number we were solving for.
- S: (Write 1 in the other part box, solve, and circle 1.)
- T: We counted back 8 from 9, until we reached 1. Wow, that took us a long time! Hmmm, is there a faster way to solve this? I heard someone say that we can add instead. So, if we think addition, what addition sentence could we write to help us solve  $9 - 8 = \square$ ?
- S:  $8 + \square = 9$ !
- T: Good. Please write that number sentence. (Pause.) Let's use our number paths to solve  $9 - 8 = \square$  by thinking of  $8 + \square = 9$ .

T/S: (Circle 8, draw an arced arrow to 9 as everyone counts.) Eeiight, 9!



- T: How many did we count up in order to solve?
- S: 1!
- T: Yes. Please solve your number sentence and circle the unknown or answer number we were solving for.
- S: (Solve and circle 1.)
- T: Look at these two strategies to solve the *same* problem,  $9 - 8 = \square$ . Talk with your partner. Did we get the same answer each time? Which one was more efficient, or faster?
- T: (As students talk, circulate and listen, then ask a student or two to share and explain why.)
- S: Counting *on* was more efficient, because we only had to count on 1 more! → Counting *back* took so much longer, and we still got 1 as our unknown or answer number!
- T: So when you are solving subtraction number sentences, you can think and decide: "Would it be easier for me to count back or count on?"



### NOTES ON MULTIPLE MEANS OF REPRESENTATION:

During this lesson it is important for students to articulate the way they chose to solve a problem so that other students can hear how they are thinking. This should help guide these students toward the most efficient method for solving subtraction problems.

MP.7



Continue this process, having students show the strategies on their own personal boards, just as in Lesson 26. Consider using the following suggested sequence:  $7 - 6$ ,  $9 - 2$ ,  $8 - 3$ ,  $10 - 7$ . Focus students on explaining why they would select a particular method, ensuring that they cite efficiency somehow. 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 solve these problems using the RDW approach used for Application Problems.

In this Problem Set, all students should begin with Problems 1–7 and possibly leave Problems (a–f) to the end if there is still time.

### Student Debrief (12 minutes)

**Lesson Objective:** Count on using the number path to find an unknown part.

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

- What strategy did you use for Problem (a)? Why? Problem (b)? Problem (c)?
- What is different about Problem (f)? Is there one best way to solve it? (No, counting on or back are the same. It depends on individual preference.)
- What did you notice about the times you chose to count on? When you counted back?
- What other strategies could you have used to help solve these subtraction sentences?

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 27 1•1

Name Maria Date \_\_\_\_\_

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Rewrite the subtraction number sentence as an addition number sentence. Place a ☐ around the unknown. Use the number path if you want to.

1.  $4 - 3 = \boxed{1}$   $3 + \boxed{1} = 4$

2.  $6 - 2 = \boxed{4}$   $2 + \boxed{4} = 6$

3.  $7 - 3 = \boxed{4}$   $3 + \boxed{4} = 7$

4.  $9 - 6 = \boxed{3}$   $6 + 3 = 9$

5.  $10 - 2 = \boxed{8}$   $2 + 8 = 10$

Use the number path to count on.

6.  $8 - 4 = \underline{4}$   $4 + \underline{4} = 8$

7.  $9 - 5 = \underline{4}$   $5 + \underline{4} = 9$

COMMON CORE Lesson 27 Date: Day 2 of Lesson 27: NY-T1-127-2009 6/24/13 engage<sup>ny</sup> K.K.4

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 27 1•1

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Hop back on the number path to count back.

8.  $10 - 1 = \underline{9}$  9.  $9 - 2 = \underline{7}$

Pick the best way to solve the problem. Check the box:

	➡	⬅
	Count on	Count back
(a) $10 - 9 = \underline{1}$	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(b) $9 - 1 = \underline{8}$	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(c) $8 - 5 = \underline{3}$	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(d) $8 - 6 = \underline{2}$	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(e) $7 - 4 = \underline{3}$	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(f) $6 - 3 = \underline{3}$	<input type="checkbox"/>	<input checked="" type="checkbox"/>

COMMON CORE Lesson 27 Date: Day 2 of Lesson 27: NY-T1-127-2009 6/24/13 engage<sup>ny</sup> K.K.5

- Look at Problem 8 and Problem 9. Would you have preferred to count up or back? Why? Which is more efficient, and how do you know?
- What about if we had  $117 - 115$ ? Should we count on or back? What would our answer be?

### Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

Name \_\_\_\_\_

Date \_\_\_\_\_

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Rewrite the subtraction number sentence as an addition number sentence. Place a ☐ around the unknown. Use the number path if you want to.

1.  $4 - 3 =$  ☐  $\quad \quad \quad \underline{\quad} + \underline{\quad} = \underline{\quad}$

2.  $6 - 2 =$  ☐  $\quad \quad \quad \underline{\quad} + \underline{\quad} = \underline{\quad}$

3.  $7 - 3 =$  ☐  $\quad \quad \quad \underline{\quad} + \underline{\quad} = \underline{\quad}$

4.  $9 - 6 =$  ☐  $\quad \quad \quad \underline{\quad}$

5.  $10 - 2 =$  ☐  $\quad \quad \quad \underline{\quad}$

Use the number path to count on.

6.  $8 - 4 = \underline{\quad}$   $\quad \quad \quad 4 + \underline{\quad} = 8$

7.  $9 - 5 = \underline{\quad}$   $\quad \quad \quad 5 + \underline{\quad} = 9$

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Hop back on the number path to count back.

8.  $10 - 1 = \underline{\hspace{2cm}}$

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

Pick the best way to solve the problem. Check the box.



Count on



Count back

(a)  $10 - 9 = \underline{\hspace{2cm}}$

☐☐

(b)  $9 - 1 = \underline{\hspace{2cm}}$

☐☐

(c)  $8 - 5 = \underline{\hspace{2cm}}$

☐☐

(d)  $8 - 6 = \underline{\hspace{2cm}}$

☐☐

(e)  $7 - 4 = \underline{\hspace{2cm}}$

☐☐

(f)  $6 - 3 = \underline{\hspace{2cm}}$

☐☐

Name \_\_\_\_\_

Date \_\_\_\_\_

Ben thinks to solve  $7 - 6$  you should count back and Pat thinks you should count on. Which is the best way to solve this expression? Make a simple math drawing to show why.

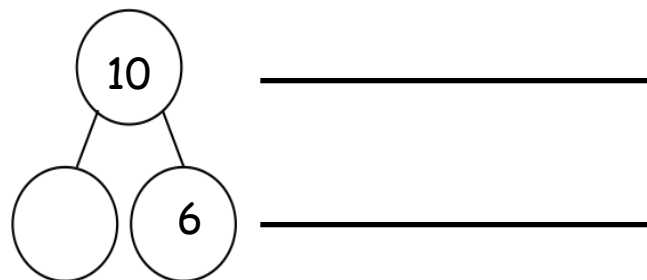
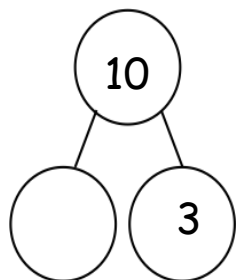
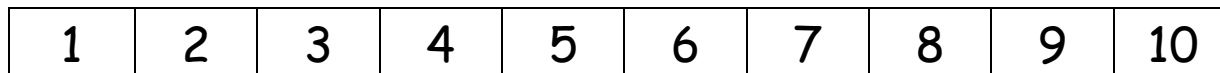
$$7 - 6 = \underline{\hspace{2cm}}$$

Name \_\_\_\_\_

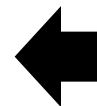
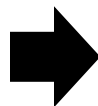
Date \_\_\_\_\_

Use the number path to complete the number bond and write an addition and a subtraction sentence to match.

1.



Solve the number sentences. Pick the best way to solve. Check the box.



Count on

Count back

a)  $9 - 7 =$  \_\_\_\_\_

☐
☐

b)  $8 - 2 =$  \_\_\_\_\_

☐
☐

c)  $7 - 5 =$  \_\_\_\_\_

☐
☐

Solve the number sentence. Pick the best way to solve. Use the number path to show why.

$7 - 5 = \underline{\quad}$

Count on



Count back



1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

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



1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

I counted \_\_\_\_\_ because it needed fewer hops.

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



Make a math drawing or write a number sentence to show why this is best.



## Topic H

## Subtraction Word Problems

1.OA.1, 1.OA.4, 1.OA.5, 1.OA.8

<b>Focus Standard:</b>	1.OA.1	Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart and comparing, with unknowns in all positions, e.g., by using objects, drawings and equations with a symbol for the unknown number to represent the problem.
	1.OA.4	Understand subtraction as an unknown-addend problem. <i>For example, subtract <math>10 - 8</math> by finding the number that makes 10 when added to 8.</i>
<b>Instructional Days:</b>	5	
<b>Coherence</b>	<b>-Links from:</b> GK–M4	Number Pairs, Addition and Subtraction to 10
	<b>-Links to:</b> G2–M4	Addition and Subtraction Within 200 with Word Problems to 100

With a smooth transition from Topic G, Topic H provides students with rich experiences connecting subtraction to their solid foundation of addition (**1.OA.4**), using various word problem types (**1.OA.1**). Lesson 28 begins with students solving action-based *take from with result unknown* problems, as they begin with a set of objects, then take some away, and finally end with a smaller set of objects. Students then work with simple math drawings and equations to represent these *take from with result unknown* stories, and connect the act of crossing off to the symbol for subtraction.

Then lesson 29 allows students to solve the relationship-based *take apart with result unknown* problems, which are both connected to *take from with result unknown* problems and are the counterpart to the familiar *put together with addend unknown* problems from earlier topics. In both Lessons 28 and 29, students make varied statements to explain the remaining amount, e.g., “There were 4 bears left,” “4 bears stayed in the forest,” “Then there were 4 bears altogether.” This permits students to think and speak flexibly about the unknown, rather than associating specific key words with a particular operation. For example, altogether does not always necessitate addition.

Lesson 30 furthers the connection between addition and subtraction as teachers have students discuss ways to attack *add to with change unknown* word problems, as they use simple math drawings and equations to represent the problem and solution. With the introduction of a whole new problem type in Lesson 31, students use drawings to solve *take from with change unknown* problems such as, “Ben had 7 pencils. He gave away some. Now he has 5. How many pencils did he give away?” The topic ends with another new relationship problem—*put together/take apart with addend unknown*. Throughout Topic G, students discuss and apply their understanding of addition as it relates to subtraction and vice versa.



**A Teaching Sequence Towards Mastery of Subtraction Word Problems**

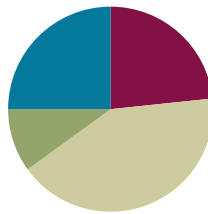
- Objective 1:** Solve *take from with result unknown* math stories with math drawings, true number sentences and statements, using horizontal marks to cross off what is taken away.  
(Lesson 28)
- Objective 2:** Solve *take apart with addend unknown* math stories with math drawings, equations and statements, circling the known part to find the unknown.  
(Lesson 29)
- Objective 3:** Solve *add to with change unknown* math stories with drawings, relating addition and subtraction.  
(Lesson 30)
- Objective 4:** Solve *take from with change unknown* math stories with drawings.  
(Lesson 31)
- Objective 5:** Solve *put together/take apart with addend unknown* math stories.  
(Lesson 32)

## Lesson 28

**Objective:** Solve *take from with result unknown* math stories with math drawings, true number sentences and statements, using horizontal marks to cross off what is taken away.

### Suggested Lesson Structure

■ Fluency Practice	(14 minutes)
■ Application Problem	(6 minutes)
■ Concept Development	(25 minutes)
■ Student Debrief	(15 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (14 minutes)

- Beep Counting by Ones (**1.NBT.1**) (2 minutes)
- Cold Call: 1 Less (**1.OA.5, 1.OA.6**) (2 minutes)
- Sprint: 1 Less (**1.OA.5, 1.OA.6**) (10 minutes)

### Beep Counting by Ones (2 minutes)

**Note:** This activity focuses on practicing the counting sequence to 120 starting at any given number. Students remain attentive to small sets of consecutive numbers, considering the order of the numbers without relying on the typical predictability of rote counting.

Say a series of three numbers but replace one of the numbers with the word *beep* (e.g., “5, 6, beep”). When signaled, students say the *beep* number. Scaffold number sequences from simple to complex. Include forward and backward number sentences.

Suggested sequence: 5, 6, beep; 17, 18, beep; 28, 29, beep; 2, 1, beep; 42, 41, beep; 62, 61, beep; 8, beep, 10; 58, beep, 60; beep, 55, 56; beep, 71, 72; 88, 87, beep; 91, beep, 89; 99, beep, 101; 109, beep, 111.

### Cold Call: 1 Less (2 minutes)

**Note:** This activity continues to strengthen students’ development of counting backwards within the counting sequences of through 120.



#### NOTES ON MULTIPLE MEANS FOR ACTION AND EXPRESSION:

Some students would benefit from having a visual model of the number sequence. Allow students to use personal white boards to record the sequence or provide a visual representation.

Tell students you are going to say a number aloud and instruct them to think about the number that is 1 less. They do not need to raise their hands, as you will cold call students to say an answer. Alternate between calling on individual students, the whole class, and groups of students (e.g., only girls, only boys, etc.). Begin with numbers within 10, and then expand to numbers within 40, then 80, then 120.

Suggested sequence: 2, 1, 8, 6, 9, 7, 10, 8, 18, 28, 38, 3, 13, 23, 33, etc.

### Sprint: 1 Less (10 minutes)

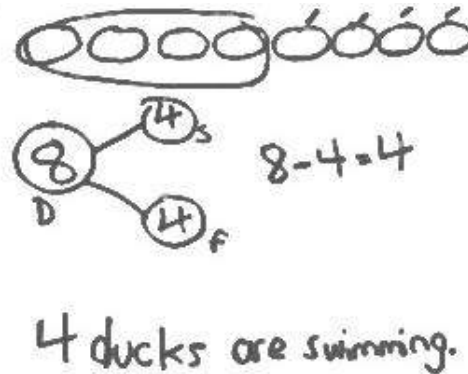
Materials: (S) 1 Less Sprint

Note: This activity continues to strengthen students' development of counting backwards within the counting sequences up to 32.

### Application Problem (6 minutes)

8 ducks are swimming in the pond. 4 ducks fly away. How many ducks are still swimming in the pond? Write a number bond, number sentence, and statement. Draw a number path to prove your answer.

Note: This problem is a bridge from Lesson 27, and a lead up to the concept development for the current lesson. Bringing students back to the number path from Lesson 27 provides a strong lead-in to then using horizontal marks to show the part that is "taken away" in the current concept.



### Concept Development (25 minutes)

Materials: (S) Personal white board

Invite students to sit in the circle area in a semi-circle.

- T: Welcome to another edition of Math Stories Theater! You will be watching math stories and have a hand at solving them.
- T: There were 6 children at the sleepover. (Call on 6 students to come to the front of the room and act out being at a sleepover). 2 children got picked up (draw an imaginary horizontal line in front of 2 students).
- S: (2 students leave the group of 6 and sit down.)
- T: How many children stayed?
- S: 4!
- T: Put that into a sentence.



#### NOTES ON MULTIPLE MEANS FOR ACTION AND EXPRESSION:

Using personal white boards for students' responses is a great way to involve different learners. Some students might not feel comfortable participating orally so they can show what they know on their personal white boards. Other students may not be able to respond orally so this way you can still check in with them for understanding.

- S: 4 children stayed.
- T: Now use simple math drawings showing how you know 4 children stayed. (Ask all actors to return to the circle.)
- S: (Draw simple math drawings such as circles, and use their own strategy to show that children left the sleepover.)
- T: (Ask students to share their strategies.)

If a student shares the crossing off using horizontal marks strategy, have her share with the group, being sure to include key points from the script below. If no one uses horizontal marks, lead students into a dialogue similar to the one below.

- T: What did we start with?
- S: 6 children at the sleepover.
- T: (Model drawing 6 circles in a linear configuration.) What is the whole in this story?
- S: 6!
- T: Yes. So our drawing shows how we started with the *whole*. Then what happened?
- S: 2 children had to leave.
- T: When they were leaving I drew an imaginary line in front of them to show that they were leaving. Let's show that with our drawing. I'm going to cross 2 off with a line (model crossing off 2 of the circles and ask students to trace it in the air). What does that line crossing out those 2 remind you of?
- S: Taking away! → The subtraction symbol!
- T: Good! Write a number bond and number sentence that tells the sleepover story. Don't forget to label your number bond.
- T: (Circulate and listen, then ask a student or two to share with the class.)
- S: For my number sentence, I wrote  $6 - 2 = 4$ . For my number bond, I wrote 6 as the total children at the sleepover, then one of the parts was 2 because those were the children who got picked up, and the other part was 4 because those children stayed.



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

Having students act out number stories is a great way to provide *math-they-can-see*. This will help your students with hearing impairments. It will also provide visual and kinesthetic learners an opportunity to engage in the lesson using their preferred style of learning.

Have students erase their personal white boards. Continue to tell stories without actors now, using the following suggested sequence and scenarios:  $7 - 3$  (frogs on a log),  $8 - 6$  (apples getting eaten),  $9 - 5$  (flowers getting picked). Focus students on the referents, starting with the whole and crossing off to show the action of taking away.

**MP.7**

### Problem Set (10 minutes)

Distribute the Problem Set, and have students complete their work in partnerships or in small groups. When setting up partners, be sure that students who are unable to read the problems are paired with a student who can read the problems. You may also decide that this Problem Set is best completed with you reading each problem aloud.

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 solve these problems using the RDW approach used for Application Problems.

On this Problem Set, all students should begin with Problem 1 and possibly leave Problem 4 to the end if there is still time.

### Student Debrief (15 minutes)

**Lesson Objective:** Solve *take from with result unknown* math stories with math drawings, true number sentences, and statements, using horizontal marks to cross off what is taken away.

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

- Look at the drawings from your Application Problem, and Problem 4 from your Problem Set. How are these two drawing strategies the same? How are they different? Does one seem more efficient than the other? Why?


NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 28 Worksheet 1•1

Name: Maria Date: \_\_\_\_\_

Read the story. Draw a horizontal line through the items that are leaving the story.

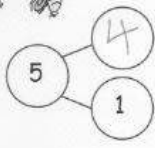
Then complete the number bond, sentence and statement.

(a) There are 5 toy airplanes flying at the park.  
1 went down and broke.  
How many airplanes are still flying?




$5 - 1 = 4$

There are 4 airplanes still flying.

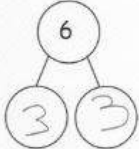


(b) I had 6 eggs from the store.  
3 of them were cracked.  
How many eggs did I have that were not cracked?



$6 - 3 = 3$

3 eggs were not cracked.




COMMON CORE Lesson 28: Solve "take from" math stories with math drawings, true number sentences and statements, using horizontal marks to cross off what is "taken away". Date: 4/25/13 engage<sup>ny</sup> 1.H.8

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 28 Worksheet 1•1

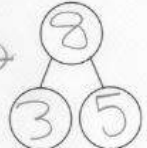
Draw a number bond and math drawing to help you solve the problems.

(c) Kate saw 8 cats playing in the grass.  
3 went away to chase a mouse.  
How many cats remained in the grass?




$8 - 3 = 5$

5 cats remained in the grass.




(d) There are 7 mango slices.  
2 of them were eaten.  
How many mango slices are left to eat?



$7 - 2 = 5$

There are 5 mango slices left.



COMMON CORE Lesson 28: Solve "take from" math stories with math drawings, true number sentences and statements, using horizontal marks to cross off what is "taken away". Date: 4/25/13 engage<sup>ny</sup> 1.H.8

- What do our drawings in a row remind us of?  
(A number path! → 5-group cards!) Why would we draw our stories this way?
- Today, we all used drawings and number bonds to solve problems. Let's look at Problem 3 together.

T: How many total cats did Kate see playing in the grass?

S: 8 cats.

T: How did you draw those 8 cats? (Invite students who have drawn in a linear configuration to share.)

S: I drew 8 circles in a line.

T: (Draw 8 circles in a line and enclose them with a rectangle. Label the total.) How many cats went to chase a mouse?

S: 3 cats.

T: I see your number bonds show that. I'm going to make this into a picture number bond and show that 3 cats chased a mouse. (Draw a diagonal line to 3 circles enclosed with a rectangle. Label the part.)

T: How many cats remained?

S: 5 cats.

T: Who can help me draw the other part of our picture number bond to show that 5 cats remained? (Call on one student.)

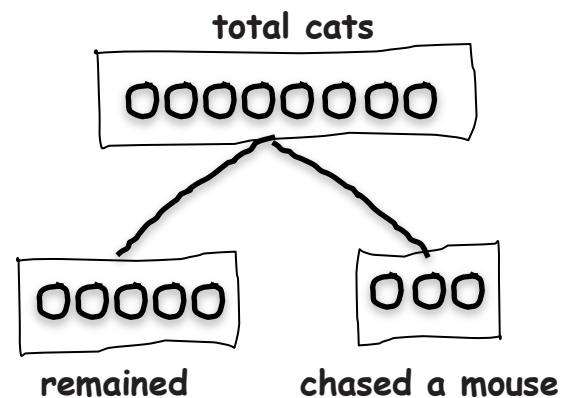
S: (Draw another diagonal line to 5 circles enclosed with a rectangle.)

T: These are the cats that...

S: Remained! → Stayed!

T: (Label the part. Ask the following questions to close the lesson.)

- How is this number bond different from your number bond? How is it the same?
- How is this number bond different from your math drawing? How is it the same?
- Can we always show a math story using a picture number bond? Does it only work for this story? (Try it out with Problem 4!)

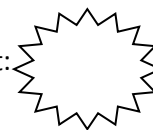


### Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

A

Number correct:



Name \_\_\_\_\_

Date \_\_\_\_\_

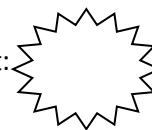
\*Write the number that is 1 less

1	5		16	10	
2	4		17	8	
3	3		18	11	
4	5		19	10	
5	3		20	9	
6	1		21	1	
7	4		22	11	
8	5		23	21	
9	7		24	4	
10	6		25	14	
11	7		26	24	
12	9		27	10	
13	8		28	20	
14	9		29	21	
15	10		30	31	



**B**

Number correct:



Name \_\_\_\_\_

Date \_\_\_\_\_

\*Write the number that is 1 less.

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

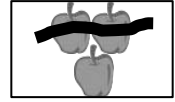


Name \_\_\_\_\_

Date \_\_\_\_\_

Read the story. Draw a horizontal line through the items that are leaving the story.

Then complete the number bond, sentence and statement.

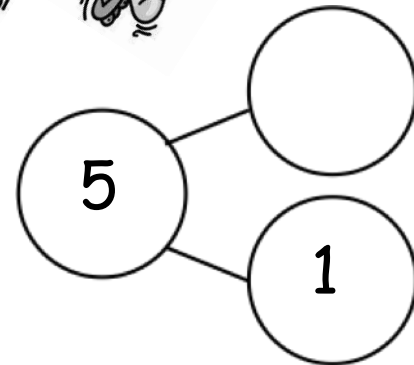


1. There are 5 toy airplanes flying at the park.  
1 went down and broke.  
How many airplanes are still flying?

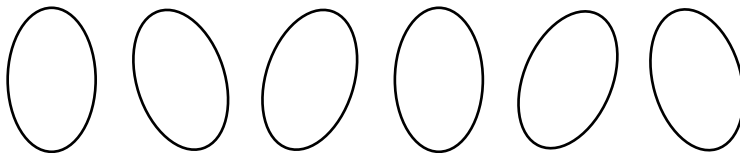


$$5 - 1 = \underline{\quad}$$

There are \_\_\_\_\_ airplanes still flying.

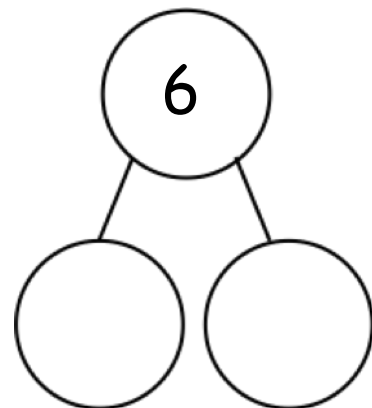


2. I had 6 eggs from the store.  
3 of them were cracked.  
How many eggs did I have that were not cracked?



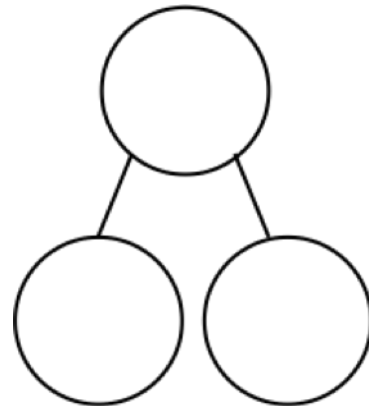
$$6 - \underline{\quad} = \underline{\quad}$$

\_\_\_\_\_ eggs were not cracked.



Draw a number bond and math drawing to help you solve the problems.

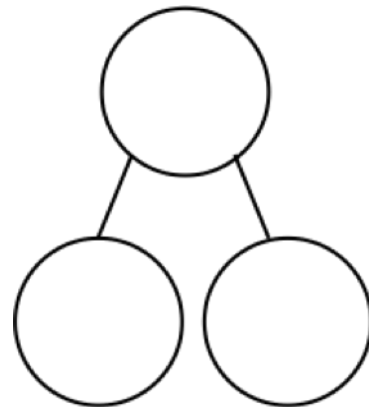
3. Kate saw 8 cats playing in the grass.  
3 went away to chase a mouse.  
How many cats remained in the grass?



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

         cats remained in the grass.

4. There are 7 mango slices.  
2 of them were eaten.  
How many mango slices are left to eat?



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

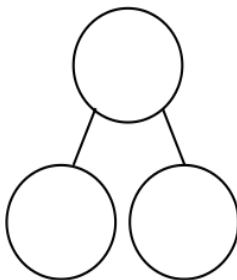
There are          mango slices left.

Name \_\_\_\_\_

Date \_\_\_\_\_

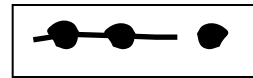
Read the problem. Make a math drawing to solve.

There were 9 kites flying in the park. 3 kites got caught in trees. How many kites were still flying?



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

       kites were still flying.

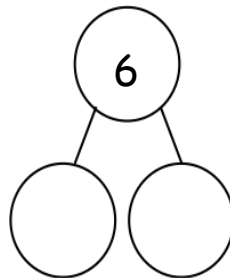


Name \_\_\_\_\_

Date \_\_\_\_\_

Read story. Make a math drawing to solve.

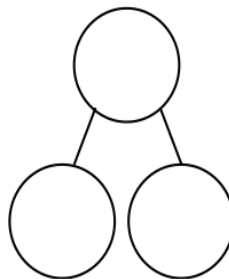
1. There were 6 hot dogs on the grill. 2 finish cooking and are removed. How many hot dogs remain on the grill?



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

There are \_\_\_\_\_ hot dogs remaining on the grill.

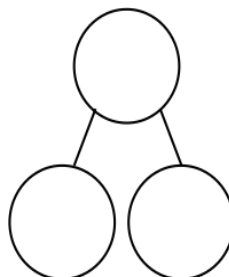
2. Bob buys 8 new toy cars. He takes 3 from the bag. How many cars are still in the bag?



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

\_\_\_\_\_ cars are still in the bag.

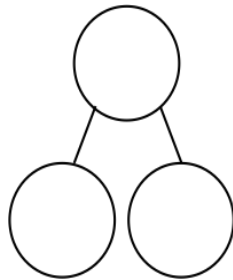
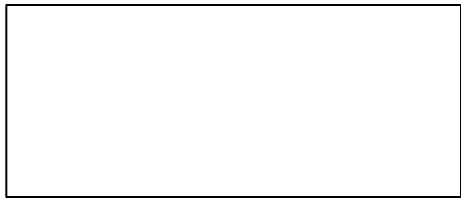
3. Kira sees 7 birds in the tree. 3 birds fly away. How many birds are still in the tree?



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

\_\_\_\_\_ birds are still in the tree.

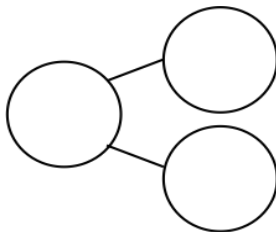
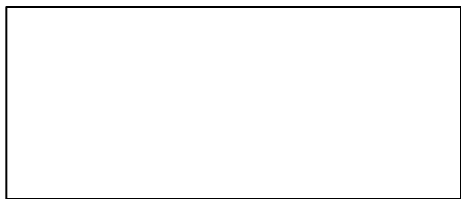
4. Brad has 9 friends over for a party. 6 friends get picked up. How many friends are still at the party?



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

         friends are still at the party.

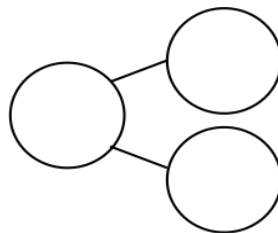
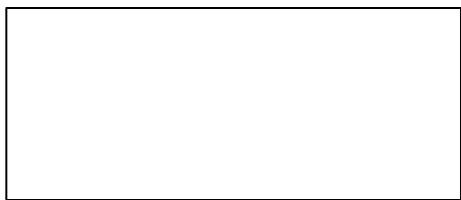
5. Jordan is playing with 10 cars. He gave 7 to Kate. How many cars is Jordan playing with now?



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

Jordan is playing with          cars now.

6. Tony takes 4 books from the bookshelf. There were 10 books on the shelf to start. How many books are on the shelf now?



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

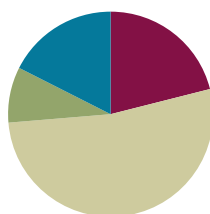
         books are on the shelf now.

## Lesson 29

**Objective:** Solve *take apart with addend unknown* math stories with math drawings, equations, and statements, circling the known part to find the unknown.

### Suggested Lesson Structure

■ Fluency Practice	(12 minutes)
■ Application Problem	(8 minutes)
■ Concept Development	(30 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (12 minutes)

- Stand on Even Numbers **1.OA.5** (3 minutes)
- Cold Call: 2 Less **1.OA.5, 1.OA.6** (2 minutes)
- Subtraction with Cards **1.OA.6** (7 minutes)

### Stand on Even Numbers (3 minutes)

Note: Practice counting forward by twos helps promote automaticity with adding 2 and counting with automaticity up to 40.

Students sit in a circle and count by ones, each student saying one number to count up. When a student says an even number, she stands: 1, 2 (student stands), 3, 4 (student stands)... Continue counting until all students are standing. The last one sitting is the winner. Play again starting at a different point in the circle. This leads nicely into Cold Call wherein all students start out standing.

### Cold Call: 2 Less (2 minutes)

Note: This activity supports students' ability to relate counting back 2 and subtracting 2.

Tell students you are going to say a number aloud and instruct them to think about the number that is 2 less. Let them know you will cold call students to say the answer as quickly as possible. Alternate between calling on individual students, the whole class, and groups of students (e.g., only girls, only boys, etc.). Begin with numbers within 10, and then expand to numbers within 20. Students stand with hands behind their backs to help them resist raising their hand when they hear the teacher's call.

Suggested sequence type: 3, 2, 8, 6, 9, 7, 10, 8, 18, 8, ten 8, 3, 13, etc.

### Subtraction With Cards (7 minutes)

Materials: (S) 1 set of numeral cards for each pair of students (see 5-group cards in **G1-M1-L5** and copy numeral side only), counters (if needed)

Note: This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

Students place cards face down between them. Each partner flips over two cards and subtracts the smaller number from the larger number. The partner with the smallest difference keeps the cards played by both players that round. The player with the most cards at the end of the game wins.

### Application Problem (8 minutes)

Lucas has 9 pencils for school. He lends 4 of them to his friends. How many pencils does Lucas have left? Box the solution in your number sentence, and include a statement to answer the question. Be sure to draw your simple shapes in a straight line.

Note: This problem applies the objective from Lesson 28 and moves from crossing off a part that is taken away to circling a known part to identify an unknown part embedded within the total. In the Debrief, students will be able to compare and contrast the two strategies.

$9 - 4 = \boxed{5}$   
~~00000000~~  
 He has 5 pencils.

### Concept Development (30 minutes)

Materials: (S) Personal white board

Invite students to sit in the circle area in a semi-circle.

- T: Welcome to another edition of Math Stories Theater! 6 children are at a sleepover. (Call 6 children to the front, lining them up in a straight row.)
- T: 4 children are wearing black shoes. The rest are wearing white shoes.
- T: How many children are wearing white shoes at the sleepover?
- T: Write a subtraction sentence to answer that question.
- S: (Write  $6 - 4 = 2$  on their personal white boards.)
- T: By lining up our actors in a straight row, we can easily see the sets of students. Let's try another one.



#### NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Frequent checks for understanding benefit ELLs and other students who may shy away from asking questions. Ask questions for comprehension and encourage students to retell the story to ensure the vocabulary and concept is being understood.

- T: It's bedtime! Three children are in their sleeping bags. The rest are underneath their blankets. How many children are using blankets? Turn and decide with a partner.
- S: (Discuss with partner.)
- S: 3 children are using blankets!
- T: Let's use the actors to see. These 3 have sleeping bags (gesture to students). That means these children have the blankets. 3 children are using blankets!
- T: Let's draw a simple math drawing to match this situation. (On personal board, draw 6 circles in a row.)
- T: These circles represent our 6 children in the story. We know that 3 of them are using a sleeping bag. I'm going to circle the first 3 of these (circle the first 3 shapes), and then we should be able to see how many children are left using blankets. How many circles are left?
- S: 3 circles.
- T: Draw a simple math drawing like mine to match the story. Write the subtraction sentence that goes with it.
- S: (Create similar math drawing on their personal boards and write  $6 - 3 = 3$ .)



### NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Adjust the lesson structure to suit the specific needs of the class. Some students may need to continue with concrete representations throughout the lesson. Other students may be ready for more challenging numbers or the opportunity to develop their own math stories.

Repeat the process with more *take apart* math stories. The following is a suggested sequence:

- 8 cupcakes in all: 6 with chocolate icing, the rest with vanilla
- 7 sneakers in all: 3 with Velcro, the rest with shoe laces
- 10 coats: 7 with buttons, the rest with zippers
- 9 balls: 3 basketballs, the rest are soccer balls

Each time, ask the students to draw a simple math story to check their solution to the story problem before having the actors portray the two parts. Focus on circling the part that is known to help solve the unknown part.

### 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 solve these problems using the RDW approach used for Application Problems.

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 29: Word Problems 1•1

Name: Maria Date: \_\_\_\_\_

Complete the story and solve. Label the number bond. Color the missing part in the number sentence and number bond.

1. There are 6 apples.  
3 have worms. Yuck!  
How many good apples are there?  
There are 3 good apples.

$6 - 3 = 3$

2. 9 books are in the case.  
5 books are on the top shelf.  
How many books are on the bottom shelf?  
4 books are on the bottom shelf.

$9 - 5 = 4$

COMMON CORE LESSON 29: Solve "Take Apart" math stories with math drawings, equations and statements. Circle the known part to find the unknown. 4/25/13 engage<sup>ny</sup> 1•1.6



In this Problem Set, we suggest all students begin with Problem 1, possibly leaving Problem 4 to the end if there is still time.

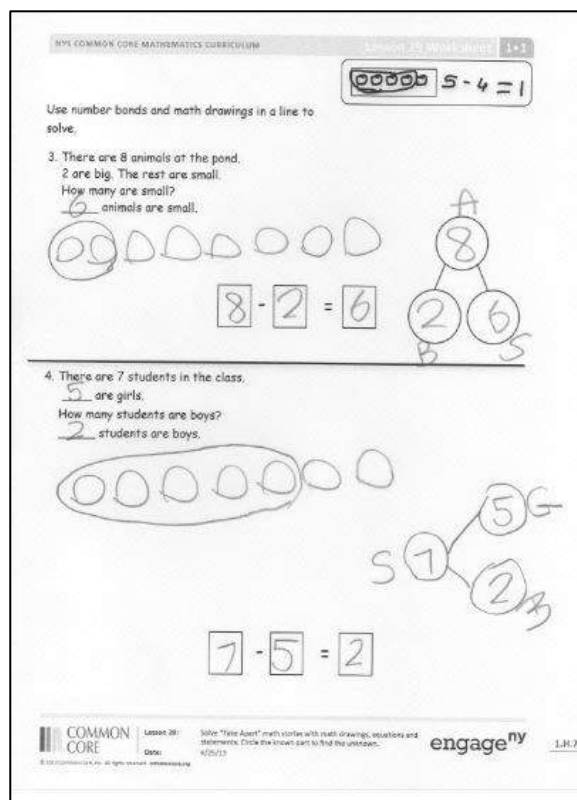
## Student Debrief (10 minutes)

**Lesson Objective:** Solve *take apart with addend unknown* math stories with math drawings, equations, and statements, circling the known part to find the unknown.

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

- In what way does making your drawing in a straight line help you solve the math problems? Use Problem 3 to help you explain your thinking.
  - Explain your choices for Problem 4 to a partner. Did you complete Problem 4 in the same way or a different way? Can you both be right even if you have different numbers for the parts? Why?
  - With your partner, come up with different ways to make this story true.
  - How did the Application Problem connect to today's lesson? How is the strategy of crossing out in our math drawing similar to the strategy we used today? Why might we choose one strategy instead of another when solving story problems?
  - Help students make a distinction between the *take apart* and *take from* stories, the two problem types using subtraction they have encountered thus far in the module.
- T: When we used subtraction today, we didn't cross off any parts of our drawings. What does it mean when we cross things off in our drawings? (Give an example.)
- S: Something is going away.
- T: Why didn't we cross things off today? (Give an example.)
- S: Because nothing went away. It was just that one part was different from the other. We were looking for the other part.

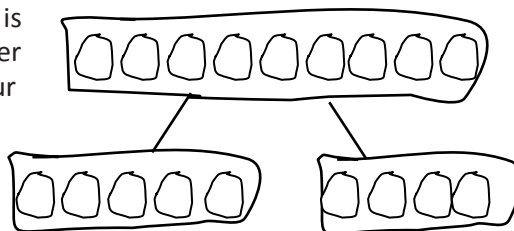


- Another strategy for problems like the ones we had today is to draw our parts into a picture number bond. This number bond math drawing represents one of the problems in your Problem Set. (Draws the following picture on the board)

- Which problem do you think it represents? (Problem 2)

How can you tell? Describe each part. (Label as each part is described. Top row represents all of the books.

Bottom row has 2 parts, 1 part represents books on the top shelf and the other part represents the books on the bottom shelf.)



### Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

Name \_\_\_\_\_

Date \_\_\_\_\_

Complete the story and solve. Label the number bond.

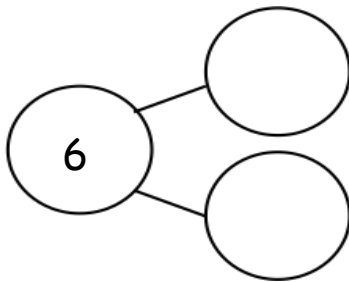
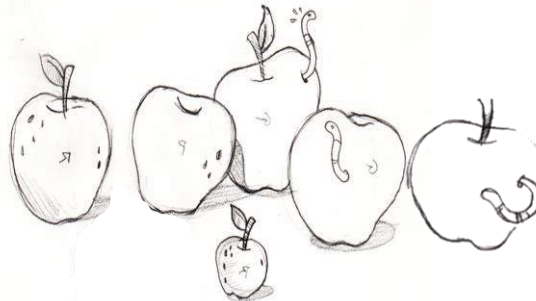
Color the missing part in the number sentence and number bond.



1. There are \_\_\_\_\_ apples.

\_\_\_\_\_ have worms. Yuck!

How many good apples are there?



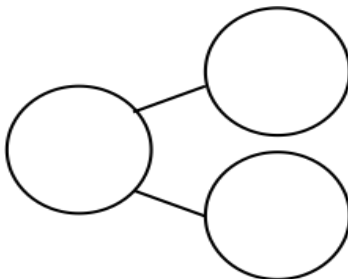
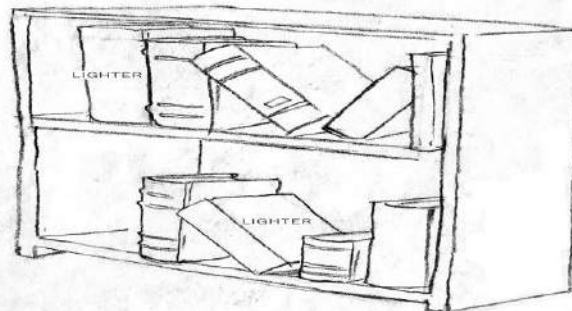
$$\boxed{6} - \boxed{\phantom{00}} = \boxed{\phantom{00}}$$

There are \_\_\_\_\_ good apples.

2. \_\_\_\_\_ books are in the case.

\_\_\_\_\_ books are on the top shelf.

How many books are on the bottom shelf?



$$\boxed{9} - \boxed{\phantom{00}} = \boxed{\phantom{00}}$$

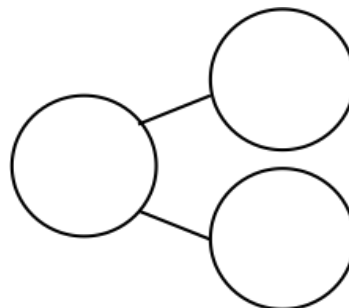
\_\_\_\_\_ books are on the bottom shelf.

Use number bonds and math drawings in a line to solve.

Example of math drawing and number sentence.


$$5 - 4 = 1$$

3. There are 8 animals at the pond.  
2 are big. The rest are small.  
How many are small?



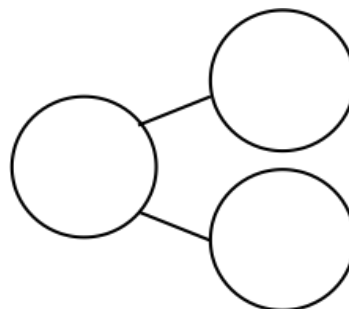
$$\square - \square = \square$$

\_\_\_\_\_ animals are small.

4. There are 7 students in the class.

\_\_\_\_\_ students are girls.

How many students are boys?



$$\square - \square = \square$$

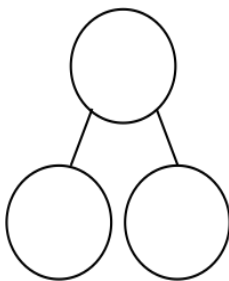
\_\_\_\_\_ students are boys.

Name \_\_\_\_\_

Date \_\_\_\_\_

Read the story. Make a math drawing to solve.

There are 9 baseball players on the team. 7 are on the bench. How many are not on the bench?



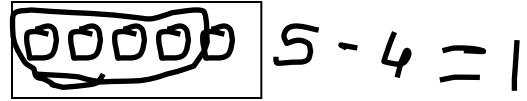
$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

\_\_\_\_\_ players are not on the bench.

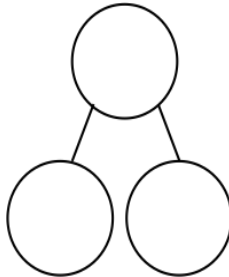
Name \_\_\_\_\_

Date \_\_\_\_\_

Read the math stories. Make math drawings to solve.



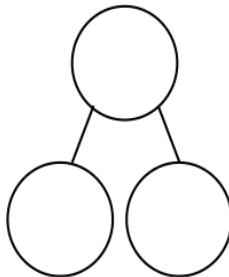
1. Tom has a box of 7 crayons. 5 crayons are red. How many crayons are not red?



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

\_\_\_\_\_ crayons are not red.

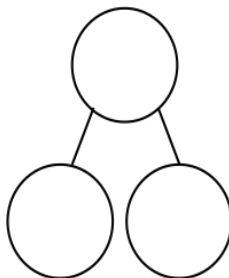
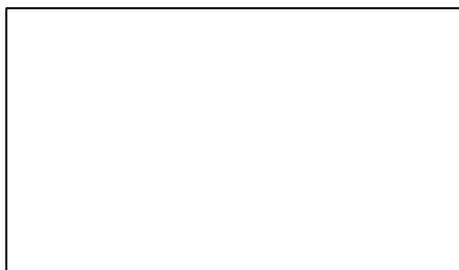
2. Mary picks 8 flowers. 2 are daisies. The rest are tulips. How many tulips does she pick?



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

Mary picks \_\_\_\_\_ tulips.

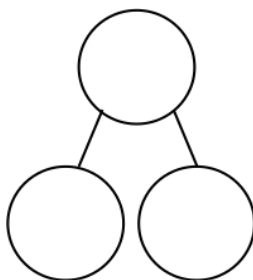
3. There are 9 pieces of fruit in the bowl. 4 are apples. The rest are oranges. How many pieces of fruit are oranges?



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

The bowl has \_\_\_\_\_ oranges.

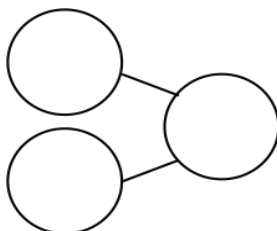
4. Mom and Ben make 10 cookies. 6 are stars. The rest are round. How many cookies are round?



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

There are          round cookies.

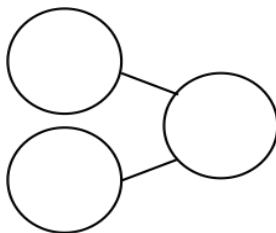
5. The parking lot has 7 spaces. 2 cars are parked in the lot. How many more cars can park in the lot?



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

         more cars can park in the lot.

6. Liz has 2 fingers with Band Aids. How many fingers are not hurt?



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



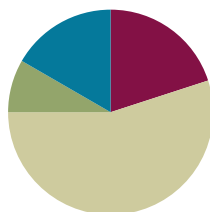
Write a statement for your answer:

## Lesson 30

**Objective:** Solve *add to with change unknown* math stories with drawings, relating addition and subtraction.

### Suggested Lesson Structure

■ Fluency Practice	(12 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(33 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (12 minutes)

- Happy Counting by Tens **1.NBT.1, 1.NBT.5** (2 minutes)
- Math Hands Flash: Partners to 10 **1.OA.4, 1.OA.6** (5 minutes)
- Number Bond Dash: 10 **K.OA.3, 1.OA.6** (5 minutes)

### Happy Counting by Tens (2 minutes)

Note: Practice counting forward and back by tens helps promote automaticity with 10 more and 10 less addition and subtraction problems.

Repeat the Happy Counting activity from **G1-M1-L3**, counting by tens. First count from 0 to 120 and back, then from 9 to 119 and back.

### Math Hands Flash: Partners to 10 (5 minutes)

Note: This activity provides an opportunity for students to maintain their fluency of partners of 10 and strengthen their visualization of 5-groups by using their hands to see the math. The activity also continues to support students in seeing the connection between addition and subtraction.

Follow the paradigm below to guide students to relate addition and subtraction problems while building fluency with partners to 10.

T: (Hold up 9 fingers.) Show me how many fingers I need to make 10.

S: (Hold up 1 finger).

T: 9 plus what number equals 10?

S: 1.

T: Good!  $9 + 1 = 10$ , so  $10 - 9 = ?$  Look at your hands.



S: 1

Continue playing, eliciting all partners to 10.

### Number Bond Dash: 10 (5 minutes)

Materials: (T) Stopwatch or timer (S) Number Bond Dash: 10 (see **G1-M1-L9**), marker to correct work

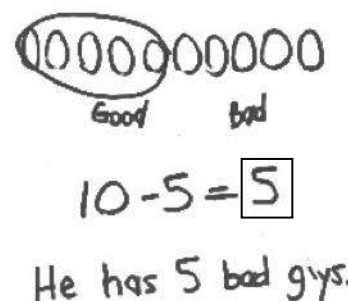
Note: By using the same system, students can focus on the mathematics alone. This activity addresses the core fluency for Grade 1 of adding and subtracting within 10.

Follow the procedure for Number Bond Dash. Tell students to remember how many problems they get correct so they can try to improve their scores tomorrow.

### Application Problem (5 minutes)

Freddie has 10 action figures in his pocket. 5 of them are good guys. How many of his action figures are bad guys? Box the solution in your number sentence, and include a statement to answer the question. Make a math drawing. Circle the part that is good guys to show you have the correct number of bad guys.

Note: This problem applies learning from the previous day's lesson on solving *take apart* story problems by circling the known part to find the unknown part. During the Debrief, students will connect this with their new learning as they create a picture number bond to go with the problem.



### Concept Development (33 minutes)

Materials: (T) Books of different sizes (S) Personal white board with the number bond and number sentence frames from **G1-M1-L9** or **G1-M1-L26**, yellow colored pencil or highlighter for the Problem Set

Display 5 books (either on the ledge of the board or on a shelf). Invite students to sit in the meeting area in a semi-circle with their personal white boards.

T: How many books do I have on this shelf? (Gesture to books.)

S: 5 books.

T: A student came and put some more books on the shelf. Close your eyes. (Add 2 more books.) Open your eyes. How many books are there now?

S: 7 books.

T: Let's make a number bond to figure out how many more books the student brought.



#### NOTES ON MULTIPLE MEANS FOR ACTION AND EXPRESSION:

Provide sentence frames to support verbal responses for ELLs and other students that may require language supports.

Ask students to identify what they already know from the story and decide if it is a part or the total as they fill in the boxes. Have students identify the referents for each number and label the boxes accordingly.

T: Turn and talk to your partner about what you can do to solve how many more books the student put on the shelf. Write the number sentence but leave the mystery number blank.

S: (Discuss and write  $5 + \square = 7$  or  $7 - 5 = \square$ .)

T: (Circulate and listen. Ask a student who used addition to share.)

S: (Shows the number sentence.) I counted on. Five, 6, 7. I added 2 more. → I said 5 plus what equals 7 and just knew it was 2.

T: Great strategies! (Choose a student who used subtraction to share.)

S: I knew there were 7 books total, so I took away 5 books that we already had and got 2 books.

T: Nice work! Did we all get the same answer even though some used an addition sentence and others used a subtraction sentence?

S: Yes!

Have students fill in the missing part of the number bond and label it.

T: Let's draw a picture number bond to show the story.

T: Draw circles in a row to represent the total of 7 books. Put a box around it just like the number has a box around it in the number bond. (Model and emphasize the importance of making circles the same size. Each circle represents 1 book, not the size of each book.)

S: (Draw.)

T: Draw circles in a row to represent the number of books we began with. Put a box around it. (Model and draw a diagonal line to connect the part and total box.)

S: (Draw.)

T: Draw a box to show the part that will contain the number of books the student brought. (Model and draw another diagonal line.) Fill in the box with circles that represent how many more books were put on the shelf.

S: (Draw 2 more circles.)

T: Write the labels to show what each box and its circles stand for. (Guide the students if necessary.)

S: (Write labels.)

Repeat the process by telling more *add to with change unknown* stories. Use the following suggested sequence:  $4 + \square = 7$ ,  $6 + \square = 8$ ,  $6 + \square = 9$ . At times, rotate the picture number bond so that the parts are above the total as shown on the Problem Set.

T: How did you use your math drawing to show how you can use addition to solve the problem?

S: I started with the 6 books and used my fingers to *count on* 3 (or add 3) to get to the total.

T: How did you use your math drawing to show how you can use subtraction to solve the problem?

S: I started with the total, which is 9, and separate the 6 and see that 3 are 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 solve these problems using the RDW approach used for Application Problems.

In this Problem Set, students should begin with Problem 1, possibly leaving Problem 4 to the end if there is still time.

## Student Debrief (10 minutes)

**Lesson Objective:** Solve *add to with change unknown* math stories with drawings, relating addition and subtraction.

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

- How did the addition sentences help you solve today's problems? How did subtraction sentences help you solve today's problems?
- Which problem do you think would be solved most efficiently using subtraction? Why?
- What new math strategy did we use today to communicate precisely? Explain how it is helpful.
- How is drawing a picture number bond similar and different from your past math drawings?
- How did the application problem connect to today's lesson? Draw a picture number bond to match the story.

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 30 1•1

Name: Maria Date: \_\_\_\_\_

Solve the math stories. Complete and label the number bond and the picture number bond. Lightly shade in the solution.

1. Jill was given a total of 5 flowers for her birthday. She put 3 in one vase and the rest in another vase. How many did she put in the other vase?

$$\begin{array}{r} 5 \\ 3 + 2 = 5 \\ 5 - 3 = 2 \end{array}$$

2. Kate and Nana were baking cookies. They made 5 heart-shaped cookies and then made some square cookies. They made 8 cookies altogether. How many square cookies did they make? Draw and solve.

$$\begin{array}{r} 5 \\ 3 + 8 = 11 \\ 8 - 5 = 3 \end{array}$$

COMMON CORE Lesson 30: Solve *add to with change unknown* math stories with drawings, relating addition and subtraction. engage<sup>ny</sup> X.3.6

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 30 1•1

Solve. Complete and label the number bond and the picture number bond. Circle the unknown number.

3. Bill has 2 trucks. His friend, James, came over with some more. Together they had 6 trucks. How many trucks did James bring over?

$$\begin{array}{r} 6 \\ 2 + 4 = 6 \\ 6 - 2 = 4 \end{array}$$

James brought over 4 trucks.

4. Jane caught 5 fish before she stopped to eat lunch. After lunch she caught some more. At the end of the day she had 9 fish. How many fish did she catch after lunch?

$$\begin{array}{r} 9 \\ 5 + 4 = 9 \\ 9 - 5 = 4 \end{array}$$

Jane caught 4 fish after lunch.

COMMON CORE Lesson 30: Solve *add to with change unknown* math stories with drawings, relating addition and subtraction. engage<sup>ny</sup> X.3.6

- Let's compare our problems using subtraction again.
  - T: When we used subtraction yesterday, we didn't cross off any parts of our drawings. What does it mean when we cross things off in our drawings? (Give an example.)
  - S: Something is going away.
  - T: Why didn't we cross things off today? (Give an example.)
  - S: Something was being added but we didn't know what. → We added on the mystery number. → We just subtracted because it was a missing part but it didn't sound like subtraction. → I didn't even write a subtraction at first! → I didn't need to because I saw the number bond in my mind. A part was missing.

### Exit Ticket (3 minutes)

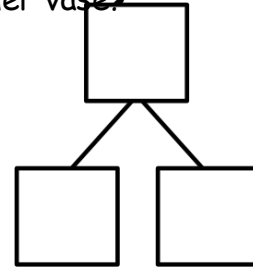
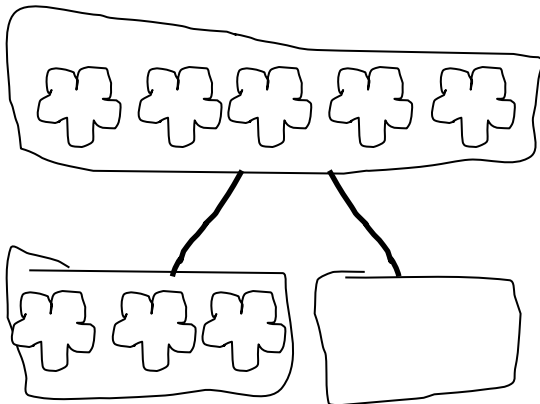
After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

Name \_\_\_\_\_

Date \_\_\_\_\_

Solve the math stories. Complete and label the number bond and the picture number bond. Lightly shade in the solution.

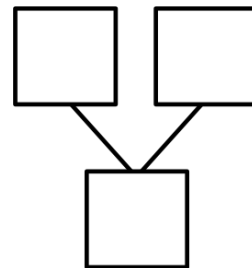
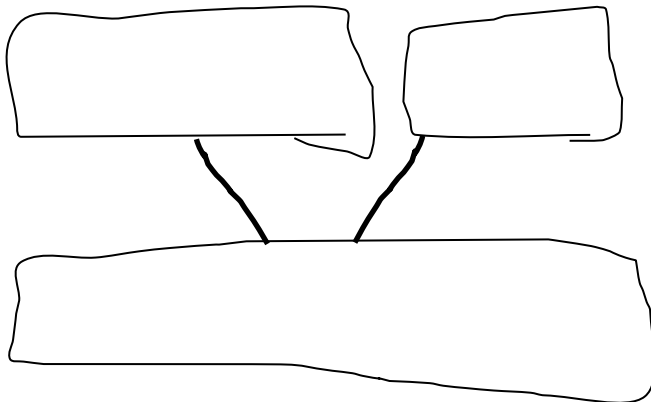
1. Jill was given a total of 5 flowers for her birthday. She put 3 in one vase and the rest in another vase. How many did she put in the other vase?



$$\boxed{3} + \boxed{\phantom{00}} = \boxed{5}$$

$$\boxed{5} - \boxed{3} = \boxed{\phantom{00}}$$

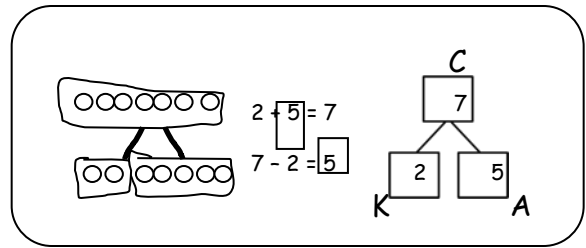
2. Kate and Nana were baking cookies. They made 5 heart-shaped cookies and then made some square cookies. They made 8 cookies altogether. How many square cookies did they make? Draw and solve.



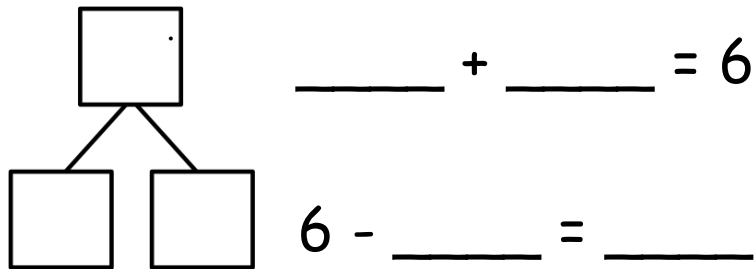
$$\boxed{5} + \boxed{\phantom{00}} = \boxed{8}$$

$$\boxed{8} - \boxed{5} = \boxed{\phantom{00}}$$

Solve. Complete and label the number bond and the picture number bond. Circle the unknown number.

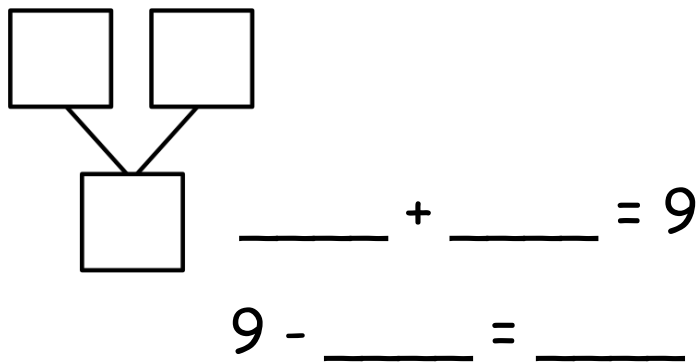


3. Bill has 2 trucks. His friend, James came over with some more. Together they had 6 trucks. How many trucks did James bring over?



James brought over \_\_\_\_\_ trucks.

4. Jane caught 5 fish before she stopped to eat lunch. After lunch she caught some more. At the end of the day she caught 9 fish. How many fish did she catch after lunch?



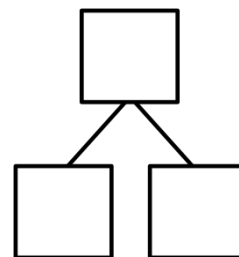
Jane caught \_\_\_\_\_ fish after lunch.

Name \_\_\_\_\_

Date \_\_\_\_\_

Draw and label a picture number bond to solve.

1. Toby collects shells. On Monday he finds 6 shells. On Tuesday he finds some more. Toby finds a total of 9 shells. How many shells does Toby find on Tuesday?



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

Toby finds \_\_\_\_\_ shells on Tuesday.

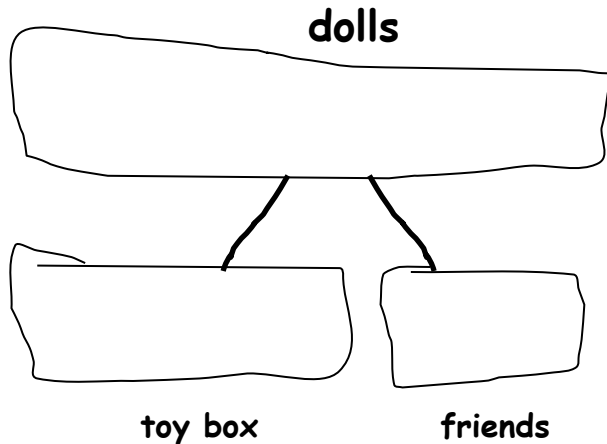
$$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Name \_\_\_\_\_

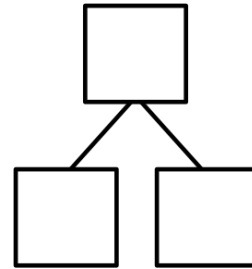
Date \_\_\_\_\_

Solve the math stories. Draw and label a picture number bond to solve. Circle the unknown number.

1. Grace has a total of 7 dolls. She put 2 in the toy box and takes the rest to her friends. How many dolls does she take to her friends?



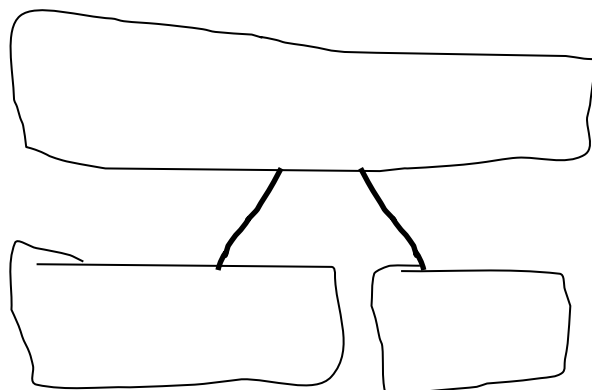
Grace takes \_\_\_\_\_ dolls to her friends.



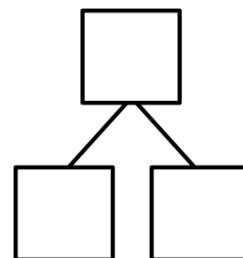
$$\underline{\quad\quad} + \underline{\quad\quad} = 7$$

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

2. Jack can invite 8 friends to his birthday party. He makes 3 invitations. How many invitations does he still need to make?



Jack still needs to make \_\_\_\_\_ invitations.

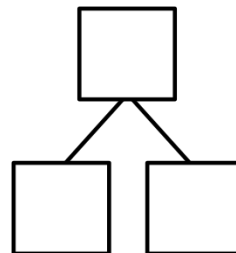


$$\underline{\quad\quad} + \underline{\quad\quad} = 8$$

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



3. There are 9 dogs at the park. 5 dogs play with balls. The rest are eating bones. How many dogs are eating bones?



$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = 9$$

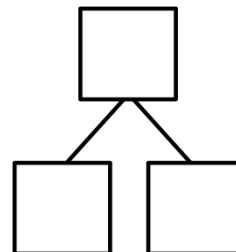
       dogs are eating bones.

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

4. There are 10 students in Jim's class. Seven bought lunch at school. The rest brought lunch from home. How many brought lunch from home?

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

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



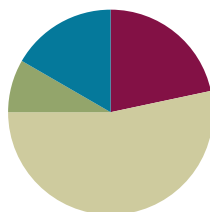
       students brought lunch from home.

## Lesson 31

**Objective:** Solve *take from with change unknown* math stories with drawings.

### Suggested Lesson Structure

■ Fluency Practice	(13 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(32 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (13 minutes)

- Beep Counting by Tens **1.NBT.5** (3 minutes)
- Penny Drop: Count on from 10 **1.OA.6** (5 minutes)
- Number Bond Dash: 10 **1.OA.6** (5 minutes)

### Beep Counting by Tens (3 minutes)

Note: This fluency activity helps students recognize patterns while building fluency with adding and subtracting 10.

Say a series of three numbers but replace one of the numbers with the word *beep*. When signaled, students say the *beep* number. (See **G1-M1-L28**).

Suggested sequence type: basic multiples of 10 (10, 20, beep; 80, 90, beep; etc.), 10 more with some ones (25, 35, beep; 48, 58, beep; etc.). If your students are ready, try counting backwards or placing the beep first or second in the sequence.

### Penny Drop: Count on from 10 (5 minutes)

Materials: (T) 15 pennies, a can

Note: This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

Tell students that 10 pennies are in the can. Have students close their eyes and listen. Drop 1 to 5 pennies in the can, one at a time. Ask students to open their eyes and tell you how many pennies are in the can now.



#### NOTES ON MULTIPLE MEANS FOR ACTION AND EXPRESSION:

Scaffold tasks by carefully selecting numbers that are most appropriate for learners. Some students would benefit from a longer sequence to make the pattern more apparent. Challenge higher-level students by changing the placement of the beeps or using more challenging number sequences.

**Number Bond Dash: 10 (5 minutes)**

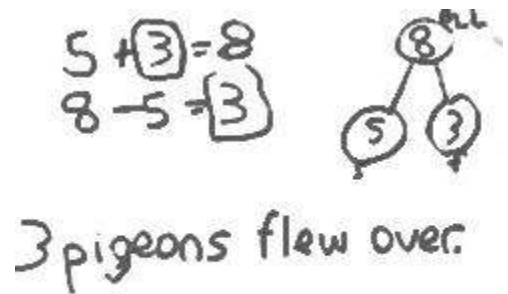
Materials: (T) Stopwatch or timer (S) Number Bond Dash: 10 (see **G1-M1-L9**), marker to correct work

Note: Reviewing number bonds allows students to build and maintain fluency with addition and subtraction facts within 10. Follow procedure for Number Bond Dash, remembering today is the second day with making 10. Students should recall their scores from yesterday to see and celebrate improvement.

**Application Problem (5 minutes)**

Shanika saw 5 pigeons on the roof. Some more pigeons flew onto the roof. She then counted 8 pigeons. How many pigeons flew over?

Write a number bond and both addition and subtraction number sentences to match the story. Box the solution in your number sentence, and include a statement to answer the question.



Note: This problem applies learning from Lesson 30, where students use strategies to solve *add to with change unknown* problems. By writing both addition and subtraction number sentences, students continue to strengthen their understanding of the relationship between the operations.

**Concept Development (32 minutes)**

Materials: (T) Books of different sizes (S) Personal white board, yellow colored pencil for Problem Set

- T: I borrowed 7 books from the library. On my way home, I lent some of the books to a friend. Will my backpack have more or *fewer* books than 7? How do you know?
- S: Fewer books because you took away some books to give to your friend.
- T: You're right! There are 5 books still in the backpack. How many books did I lend? Let's fill in the number bond to find out.
- T: Fill in the number bond. What does 7 stand for?
- S: The books you borrowed from the library.
- T: Is that a part or the total number of books in the story?
- S: The total.
- T/S: (Fill in 7 on the number bond and label *B* for borrowed books.)
- T: What else do you know?
- S: You have 5 books left.
- T: Are these 5 books part of the total number of books?
- S: Yes.
- T/S: (Fill in 5 and label *L* for leftover books.)

- T: What about this part box? What does it stand for?
- S: That's the mystery number. It stands for how many books you gave to your friend.
- T: Let's write a number sentence. How did the story begin?
- S: You borrowed 7 books.
- T: (Write 7.) What happened next? How can we continue our number sentence?
- S: You gave away some books so use minus. → Write 7 minus box, because we don't know how many books you gave away.
- T: (Write  $7 - \underline{\quad}$ .) What happened last? How can we continue our number sentence?
- S: You ended up with 5 books. 7 minus something is 5.
- T: (Writes  $7 - \underline{\quad} = 5$ .)
- T: Let's make a math drawing to show what we know so far.
- S: (Draw 7 circles.)
- T: Group the circles that show how many books I still have.
- S: (Group 5 circles together.)
- T: What are these books that we didn't group? (Gesture to 2 remaining books.)
- S: The books you gave to your friend.
- T: How can we show that I gave away these books?
- S: Say, goodbye 2! Make the line look like one big subtraction sign.
- S: Goodbye 2.
- T: Write a number sentence to show what you just did.
- S: (Write  $7 - 2 = 5$ .)
- T: How many books did I give away?
- S: You gave away 2 books.
- T: Circle the part of the number sentence that shows this answer.
- S: (Circle 2.)

Continue to tell *take from with change unknown* stories, using the following suggested sequence and scenarios:


- Hansel and Gretel have a bag with 8 pieces of bread. They drop some on their path and end with 3 pieces remaining.
- Nine children are playing hide and seek. Some went away to hide. 4 children can still be seen.
- We caught 9 fireflies. Some flew away. 6 fireflies are left in the jar.

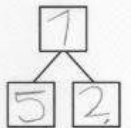
NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 31 Worksheet 1•1

Name: Maria Date: \_\_\_\_\_

Make a math drawing and circle the part you know. Cross out the unknown part. Complete the number sentence and number bond.

1. Kate made 7 cookies. Bill ate some. Now Kate has 5 cookies. How many cookies did Bill eat?






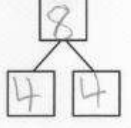
$7 - 2 = 5$

Bill ate 2 cookies.

---

2. On Monday Tim had 8 pencils. Tuesday, he lost some pencils. On Wednesday, he has 4 pencils. How many pencils did Tim lose?





$8 - 4 = 4$

Tim lost 4 pencils.

COMMON CORE Lesson 31 Date: 6/24/13 Solve "Take from with change unknown" math stories with drawing. engage<sup>ny</sup> 1.H.6

### 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 solve these problems using the RDW approach used for Application Problems.

On this Problem Set, students should begin with Problems 1–3, possibly leaving Problem 4 to the end if there is still time.

### Student Debrief (10 minutes)

**Lesson Objective:** Students will solve *take from with change unknown* math stories with drawings.

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

- What pattern did you notice about all of our story problems today?
- What new math strategy did we use today to solve our story problems today?
- One at a time, share some student drawings that have particular strengths (e.g., use of simple circles or squares, picture number bonds, straight rows or similarly sized shapes, clear labels). What do you notice about this math drawing? What qualities make it useful for solving math problems?
- Today, we did not include addition sentences on our Problem Set. How does the number bond help you continue to use addition to help you think about subtraction?
- Explain to your partner how you can use addition to solve Problem 1. Explain how you can use counting on to solve addition and subtraction. How can you use counting on or counting back to help you solve subtraction problems?
- Is counting on or counting back for number 1 more efficient? Explain your thinking.
- Look at your Application Problem. How could making a quick math drawing help you solve it?

**Exit Ticket (3 minutes)**

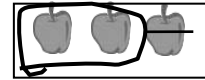
After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

Name \_\_\_\_\_

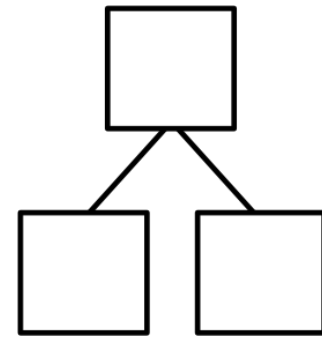
Date \_\_\_\_\_

Make a math drawing and circle the part you know. Cross out the unknown part.

Complete the number sentence and number bond.



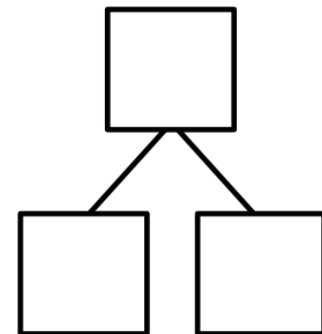
1. Kate made 7 cookies. Bill ate some. Now Kate has 5 cookies.  
How many cookies did Bill eat?



$$\boxed{7} - \boxed{\phantom{0}} = \boxed{\phantom{0}}$$

Bill ate \_\_\_\_\_ cookies.

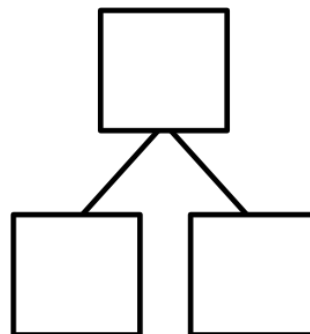
2. On Monday Tim had 8 pencils. Tuesday, he lost some pencils.  
On Wednesday, he has 4 pencils. How many pencils did Tim lose?



$$\boxed{\phantom{0}} - \boxed{\phantom{0}} = \boxed{\phantom{0}}$$

Tim lost \_\_\_\_\_ pencils.

3. A store had 6 shirts on the rack. Now there are 2 shirts on the rack.  
How many shirts were sold?



\_\_\_\_\_ shirts were sold.

$$\square - \square = \square$$

4. There were 9 children at the park. Some children went inside. 5 children stayed.  
How many children went inside?

\_\_\_\_\_ children went inside.

$$\square - \square = \square$$



Name \_\_\_\_\_

Date \_\_\_\_\_

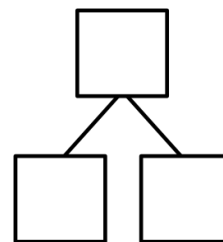
Make a math drawing and circle the part you know. Cross out the unknown part.

Complete the number sentence and number bond.

1. Deb blows up 9 balloons. Some balloons popped. 3 balloons are left. How many balloons popped?

\_\_\_\_\_ balloons popped.

$$\square - \square = \square$$

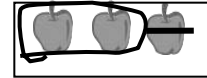


Name \_\_\_\_\_

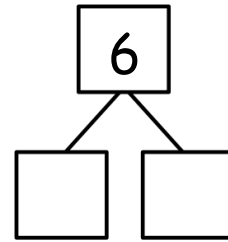
Date \_\_\_\_\_

Make a math drawing and circle the part you know. Cross out the unknown part.

Complete the number sentence and number bond.



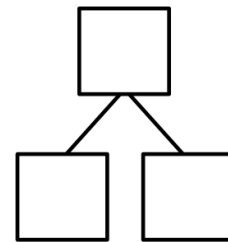
1. Missy gets 6 presents for her birthday. She unwraps some. 4 are still wrapped. How many presents did she unwrap?



Missy unwrapped \_\_\_\_\_ presents.

$$\boxed{6} \bigcirc - \boxed{\phantom{0}} = \boxed{\phantom{0}}$$

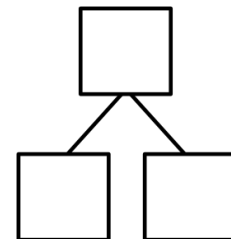
2. Ann has a box of 8 markers. Some fall on the floor. 6 are still in the box. How many markers fell on the floor?



\_\_\_\_\_ markers fell on the floor.

$$\boxed{\phantom{0}} \bigcirc - \boxed{\phantom{0}} = \boxed{\phantom{0}}$$

3. Nick makes 7 cupcakes for his friends. Some cupcakes were eaten. Now there are 5 left. How many cupcakes were eaten?



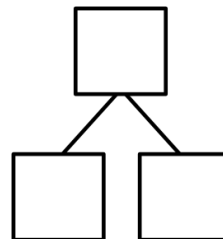
\_\_\_\_\_ cupcakes were eaten.

$$\boxed{\phantom{0}} \bigcirc - \boxed{\phantom{0}} = \boxed{\phantom{0}}$$

4. A dog has 8 bones. He hides some. He still has 5 bones. How many bones are hidden?

\_\_\_\_\_ bones are hidden.

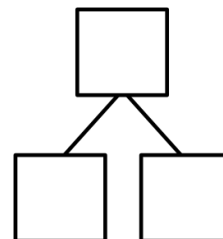
$$\square - \square = \square$$



5. The cafeteria table can seat 10 students. Some of the seats are taken. 7 seats are empty. How many seats are taken?

\_\_\_\_\_ seats are taken.

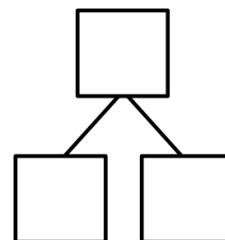
$$\square - \square = \square$$



6. Ron has 10 sticks of gum. He gives one stick to each of his friends. Now he has 3 sticks of gum left. How many friends did Ron share with?

Ron shared with \_\_\_\_\_ friends.

$$\square - \square = \square$$

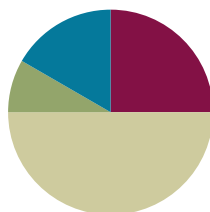


## Lesson 32

**Objective:** Solve *put together/take apart with addend unknown* math stories.

### Suggested Lesson Structure

■ Fluency Practice	(15 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(30 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (15 minutes)

- Happy Counting the Say Ten Way **1.OA.5** (3 minutes)
- 5-Group Match: Partners to 10 **1.OA.6** (10 minutes)
- Number Sentence Swap **1.OA.4** (2 minutes)

### Happy Counting the Say Ten Way (3 minutes)

Note: This activity helps students maintain their ability to count by tens, which is foundational to later first grade work with adding and subtracting tens. Remember the Rekenrek can be used on the first count to help students visualize the numbers as they count forward and backward.

Have students count up and down between 20 and 120 the Say Ten way depending on their skill level (see **G1-M1-L3**). 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. Alternate at times between regular and Say Ten counting, too.

### 5-Group Match: Partners to 10 (10 minutes)

Materials: (S) 5-group cards (0-10) with 1 extra 5 card per pair (see **G1-M1-L5**)

Note: Strong fluency with partners to 10 will be critical in Module 2, so students can avoid using up too many of their attention resources on lower-level skills when they are addressing higher-level problems.

Assign students partners. Partner 1 closes his eyes. Partner 2 quickly lays out the 5-group cards, numeral side up. Partner 1 opens his eyes and tries to match all partners to ten as quickly as possible. Each player tries twice in a row to see if they can increase their speed.

## Number Sentence Swap (2 minutes)

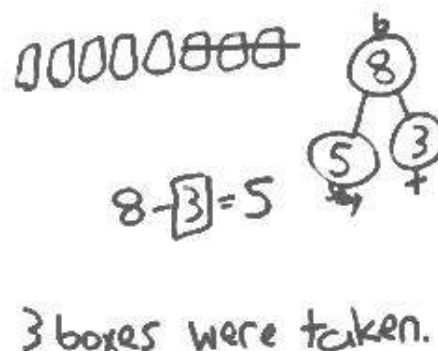
Note: This activity supports students in developing a strong foundation in the relationship between addition and subtraction.

Say a subtraction sentence aloud, saying “the mystery number” for the unknown answer (e.g., “ $5 - 3 =$  the mystery number”). Call on a student to rephrase the sentence as an addition sentence (e.g., “ $3 + \text{blank} = 5$ ”). Ask students to count on with you to solve the problem, for example, “threeeeeee (touches head or holds up fist), 4 (raises thumb), 5 (raises index finger).” Ask students how many fingers they counted on (2).

## Application Problem (5 minutes)

There are 8 juice boxes in the cubbies. Some children drank their juice. Now there are only 5 juice boxes. How many juice boxes were taken from the cubbies?

Make a number bond. Write a subtraction sentence and a statement to match the story. Make a box around the solution in your number sentence. Make a math drawing to show how you know.



Note: This problem applies learning from Lesson 31, where students use strategies to solve *take from*, *change unknown* problems. The continued use of the number bond supports student’s growing understanding of the relationship between addition and subtraction as they solve various problem types.

## Concept Development (30 minutes)

Materials: (T) 10 white linking cubes (S) personal white board

Invite students to come to the meeting area with their personal white boards and sit in a semi-circle.

- T: There are 8 apples. (In a line, lay out 8 individual white linking cubes.) Put on your magic glasses that will show different colors. (Pretend to put on glasses.)
- S: (Pretend to put on glasses.)
- T: Oooh, I see two parts. There are five red apples, here on this side. (Gesture.) That’s one part. Thumbs up if you can see the red apples.
- S: (Show thumbs up.)
- T: The other part of the apples is green. Can you see the two parts?
- S: Yes!



### NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Facilitate student discussions to provide opportunities for ELLs to use math language. This will also provide an opportunity to check for understanding of vocabulary and concepts.

- T: Make a number bond to find out how many apples are green. Be sure to label each box, even the mystery box.
- S: (Make a number bond with labels.)
- T: Make a math drawing to show how you can solve the mystery number. Remember to line up your pictures in a straight row.
- S: (Drawings may vary.)
- T: Write the number sentence to solve. Be sure to circle the solution.
- S: (Number sentences may vary.)
- T: (Circulate and observe. Choose two students to share different strategies and number sentences. Possibilities include counting up, counting back, and writing addition or subtraction sentences.)
- T: James wrote  $5 + \underline{\quad} = 8$ , and Lily wrote  $8 - 5 = \underline{\quad}$ . Even though they used different number sentences and drawings, did they get the same answer?
- S: Yes!
- T: Hmmmm, which was a faster or more efficient way to solve? Counting up, or counting back? Turn and talk to your partner and explain why.
- S: Counting up! You only need to count on 3 times to get to 8. Taking away 5 takes longer.
- T: (While guiding students to notice that counting on 3 is more efficient, accept all explanations. Some students may know their  $-5$  facts and find  $8 - 5$  a better strategy.)



### NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Never underestimate the use of manipulatives when students are learning a new skill. Students should use their 5-group cards, number path, or other manipulative such as counting bears when they need extra support. Allow students to use the extra support as long as they need it.

Repeat the process with math stories using the following suggested sequence:  $7 + \underline{\quad} = 9$ ,  $3 + \underline{\quad} = 7$ ,  $4 + \underline{\quad} = 8$ ,  $6 + \underline{\quad} = 9$ . After each story, ask students to identify which number sentence, addition or subtraction, they used to solve. Guide students to make a generalization about when it would be a better shortcut to use counting on or counting back, along with just knowing the decompositions!

- T: Look at this number bond. (Write 8 as the total and 6 as a part.)
- T: Think of a math story with a missing part where nothing goes away that could go with this number bond. Tell it to your partner.
- T: Make a math drawing and write an addition and subtraction number sentence and solve. Circle each of your solutions.
- S: (Solve.)

Repeat the process by asking students to create their own number bond with 9 as the total.

### 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 solve these problems using the RDW approach used for Application Problems.

### Student Debrief (10 minutes)

**Lesson Objective:** Solve *put together/take apart* with *addend unknown* math stories.

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.


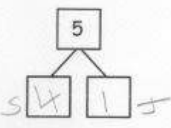
- Choose one of your stories for Problem 3 or Problem 4. Tell it to your partner and have him solve and explain what he did.
- How can solving Problem 2 help you solve Problem 3?
- When you use different strategies, do you always find the unknown number in the same place in your number sentence? Give an example to explain your thinking.
- Was it easier for you to use an addition sentence or a subtraction sentence to solve today's math stories? Why do you think that is?
- When is it wiser for you to use an addition sentence to solve the problem? Give an example from the Problem Set. What about using a subtraction sentence?

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 32 K•5

Name: Maria Date: \_\_\_\_\_

Solve. Use simple math drawings to show how to solve with addition and subtraction. Label the number bond.


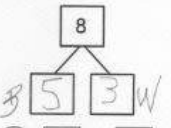
1. There are 5 apples. 4 are Sam's. How many are Tim's?

$$4 + 1 = 5$$

$$5 - 4 = 1$$

2. There are 8 mushrooms. 5 are black. How many are white?

$$5 + 3 = 8$$


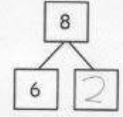
$$8 - 5 = 3$$

COMMON CORE Lesson 32: Solve put together/take apart with addend unknown math stories. 4/10/12 engage<sup>ny</sup> K•5

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 32 K•5

Use the number bond to complete the number sentences. Use simple math drawings to tell math stories.


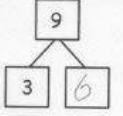
3.

$$6 + 2 = 8$$

$$8 - 6 = 2$$

4.

$$3 + 6 = 9$$

$$9 - 3 = 6$$

COMMON CORE Lesson 32: Solve put together/take apart with addend unknown math stories. 4/10/12 engage<sup>ny</sup> K•5

- Remember when we were thinking about if it was better to count on or count back? I'm thinking of a subtraction sentence where counting on or counting back would take the same amount of time. What number sentence could I be thinking of? (e.g.,  $10 - 5 = 5$ ,  $8 - 4 = 4$ , etc.)
- How did the application problem connect to today's lesson?

**Exit Ticket (3 minutes)**

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

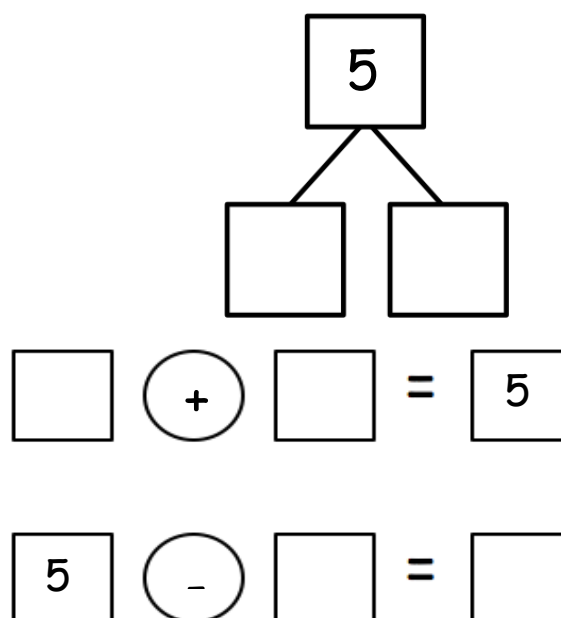


Name \_\_\_\_\_

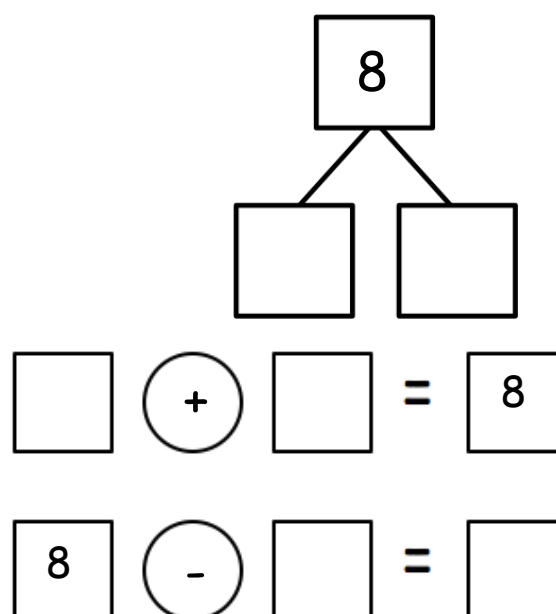
Date \_\_\_\_\_

Solve. Use simple math drawings to show how to solve with addition and subtraction.  
Label the number bond.

1. There are 5 apples.  
4 are Sam's. The rest  
are Jim's.  
How many are Jim's?

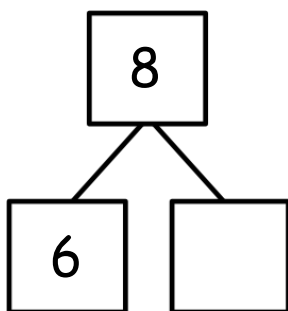


2. There are 8 mushrooms. 5 are black.  
The rest are white. How many are  
white?



Use the number bond to complete the number sentences. Use simple math drawings to tell math stories.

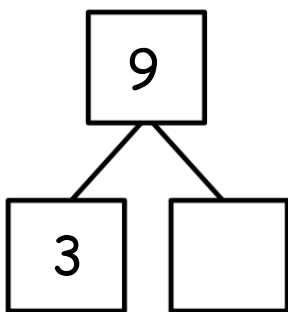
3.



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

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

4.



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

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

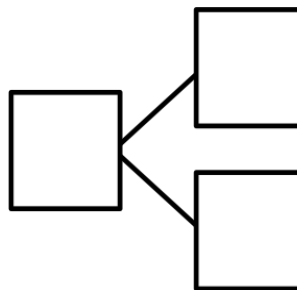
Name \_\_\_\_\_

Date \_\_\_\_\_

Read the math story. Make a math drawing and solve.

Glenn has 9 pens. 5 are black. The rest are blue. How many pens are blue?

\_\_\_\_\_ pens are blue.



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

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

Name \_\_\_\_\_

Date \_\_\_\_\_

Match the math stories to the number sentences that tell the story. Make a math drawing to solve.

1.

There are 10 flowers in a vase. 6 are red. The rest are yellow.  
How many are yellow?

$$\square + \square = 9$$

$$9 - \square = \square$$

There are 9 apples in a basket. 6 are red. The rest are green.  
How many are green?

$$3 + \square = 10$$

$$10 - \square = \square$$

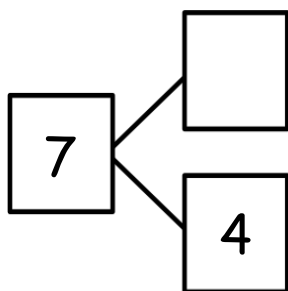
Kate has her fingernails painted. 3 have designs. The rest are plain. How many are plain?

$$6 + \square = 10$$

$$10 - 6 = \square$$

Use the number bond to tell an addition and subtraction math story with pictures.  
Write an addition and subtraction number sentence

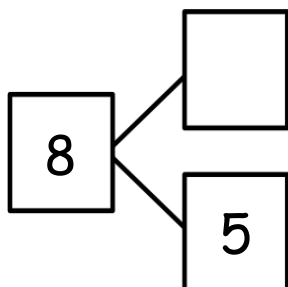
2.




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

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

3.




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

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



## Topic I

# Decomposition Strategies for Subtraction

1.OA.5, 1.OA.6, 1.OA.4

<b>Focus Standard:</b>	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 $6 + 6 + 1 = 12 + 1 = 13$ ).
<b>Instructional Days:</b>	5	
<b>Coherence</b>	<b>-Links from:</b> GK–M4	Number Pairs, Addition and Subtraction to 10
	<b>-Links to:</b> G2–M4	Addition and Subtraction Within 200 with Word Problems to 100

Similar to Topic E's addition methods, Topic I allows students to learn methods for subtraction which involve subtracting 0 and 1, subtracting the whole number, subtracting one less than the whole number, and using familiar decompositions (5-groups and partners of 10) to conceptualize subtraction as finding a missing part (1.OA.6).

In Lesson 33, students use pictures and simple math drawings to show 0 less and 1 less and construct number sentences (1.OA.5). The discussion in Lesson 34 around what happens each time we take away 0 or 1 with numbers within 10 leads students to an understanding that this same reality remains true with all numbers. Similarly, students explore what happens in both  $n-n$  and  $n-(n-1)$  situations. They notice, "When I take 5 away from 5, I have zero every time!" and " $5 - 4$  is 1, just like  $6 - 5$  is 1! It's just a number minus a number that's one less gives me 1!" and again generalize this new understanding.

In Lesson 35, students transfer their knowledge of both doubles and fives to the context of subtraction, where they extract those known facts from given expressions. For instance, when faced with  $8 - 5$ , students access the decomposition of 8 ("I know that 5 and 3 makes 8!"), and apply that understanding to help them solve subtraction problems ("So  $8 - 5$  must be 3!"). Lessons 36 and 37 continue on this explicit decomposition and subtraction connection, as students use their knowledge of partners of 10 and partners of 9 to help them solve subtraction stories and equations efficiently. Topic I is full of students using strategies, and discussing those strategies and patterns in order to gain fluency and facility with subtraction within 10, and ultimately beyond!

**A Teaching Sequence Towards Mastery of Decomposition Strategies for Subtraction**

**Objective 1:** Model 0 less and 1 less pictorially and as subtraction number sentences.  
(Lesson 33)

**Objective 2:** Model  $n - n$  and  $n - (n - 1)$  pictorially and as subtraction sentences.  
(Lesson 34)

**Objective 3:** Relate subtraction facts involving fives and doubles to corresponding decompositions.  
(Lesson 35)

**Objective 4:** Relate subtraction from ten to corresponding decompositions.  
(Lesson 36)

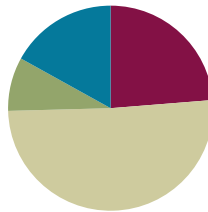
**Objective 5:** Relate subtraction from nine to corresponding decompositions.  
(Lesson 37)

## Lesson 33

**Objective:** Model 0 less and 1 less pictorially and as subtraction number sentences.

### Suggested Lesson Structure

■ Fluency Practice	(15 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(30 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (15 minutes)

- Rekenrek Counting Within 20 **K.NBT.1** (3 minutes)
- Sprint: Addition **1.OA.6** (10 minutes)
- 1 Less, 0 Less **1.OA.5, 1.OA.6** (2 minutes)

### Rekenrek Counting Within 20 (3 minutes)

Materials: (T) Rekenrek

Note: Reviewing the Kindergarten standard K.NBT.1 will prepare students for work with teen numbers in Module 2.

T: (Move the top 10 beads on the Rekenrek to the right). How many red beads do you see?

S: 5.

T: How many white beads do you see?

S: 5.

T: 5 and 5 make?

S: 10.

T: Count the Say Ten way as I move the beads. (Move one bead at a time up to 2 tens and back down to 10.)

S: Ten 1, ten 2...ten 9, 2 tens, ten 9, ten 8...ten.

Work up and down from ten 1 to 2 tens, from ten 2 to ten 9, from ten 3 to ten 8, ten 4 to ten 7 and ten 5 to ten 6 and back out again.



**Addition Sprint (10 minutes)**

Materials: (S) Addition Sprint

Note: This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

**0 Less, 1 Less (2 minutes)**

Ask questions to review subtraction language. Instruct students to answer on your signal.

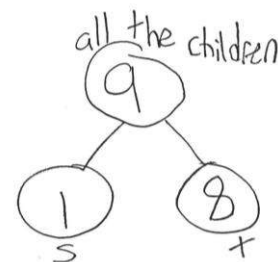
Note: This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

Suggested questions: What's 1 less than 8? What comes before 6?  $6 - 0 = ?$  0 less than 9 is ? 9 is 1 less than?  $9 = 10 - ?$

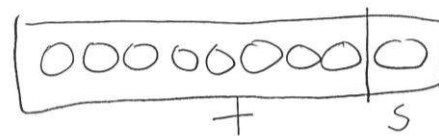
**Application Problem (5 minutes)**

9 children are playing outside. 1 child is on the swings and the rest are playing tag. How many children are playing tag? Write a number bond and number sentence. Make a math drawing to show how you know.

Note: This problem provides an application of the Lesson 32 objective, solving unknown addends, as well as continuing to explore *1 less*, a segment of the Lesson 33 objective.



$$9 - 1 = 8$$

**Concept Development (30 minutes)**

Materials: (T) Number bracelet of 10, white board or easel (S) Number bracelet of 10 beads, 5 red, 5 white (see **G1-M1-L8**), personal white board

Have students bring materials to meeting area and sit in a semi-circle.

- T: How many beads are on your number bracelet?  
 S: 10 beads! (Students and teacher hold up bracelet.)  
 T: Take one bead away. (Push 1 white bead away from set, as shown. Students do the same.)  
 T: How many beads do we have now?  
 S: (Count beads as needed.) 9 beads!

**NOTES ON  
MULTIPLE MEANS OF  
REPRESENTATION:**

Integrating Children's Literature, Poetry and Songs reinforces and supports mathematical knowledge for ELLs. Some suggested titles are: 10 Little Monkeys Jumping on the Bed by Child's Play and Ten Sly Piranha's by William Wise.

T: Write a number sentence to show what we did.

S/T: (Write  $10 - 1 = 9$ .)

T: Push that bead all the way up until it is hiding in your hand. (Push bead into palm, as shown. Students do the same.)

T: We have 9 beads.



Repeat the process of taking 1 bead away and writing the new number sentence for the following suggested sequence:  $9 - 1$ ,  $8 - 1$ ,  $7 - 1$ .

T: Push your beads back and open your pipe cleaner so that your beads are in a straight line.

S/T: (Adjust beads and pipe cleaner as shown.)

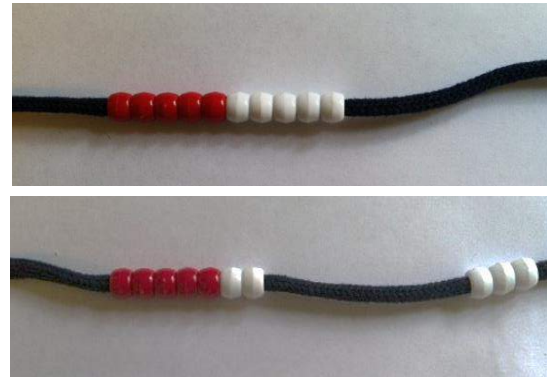
T: Push a set of 3 white beads away to the end of the pipe cleaner. (Be sure students push 3 beads as a set, not one at a time to encourage decomposition rather than 1 to 1 counting.)

T: Tell me a number sentence to describe what we did.

S:  $10 - 3 = 7$ .

T: Use your beads to show me  $7 - 1$ . Write the number sentence on your board.

S: (Show 6 beads together and 1 separated bead. Write  $7 - 1 = 6$  on personal boards.)



Repeat the process for  $5 - 1$ .

T: We have 4 beads. This time, take 0 away.

S: (Look at their beads.)

T: How many beads do we have now?

S: 4 beads!

T: Hmm. Let's try that with a larger number. Push all your beads back to the middle, so we can start with 10.

S/T: (Push beads back to middle, showing all 10 beads.)

T: We have 10 beads. Take away 0 beads. How many beads do we have now?

S: 10 beads!

T: Write the number sentence to show what we did.

S/T: (Write  $10 - 0 = 10$ .)

Repeat the process of taking 0 beads away and writing the new number sentence for the following suggested sequence:  $9 - 0$ ;  $6 - 0$ .



#### NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Cultivate excitement for students who are ready to work with larger numbers by presenting numbers to 100. These students would also benefit from developing their own story, song or poem for larger numbers.

## 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 solve these problems using the RDW approach used for Application Problems.

## Student Debrief (10 minutes)

**Lesson Objective:** Model 0 less and 1 less pictorially and as subtraction number sentences.

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.


- How can solving Problem 1 help you solve Problem 3?
- Explain to your partner any patterns you see in Problems 3–10?
- Talk to your partner about how visualizing your 5-groups help you solve (g)?
- Explain how solving  $10 - 0$  can help you solve  $122 - 0$ . What happens every time you subtract 0?
- Explain how solving  $9 - 1$  can help you solve  $73 - 1$ ? What happens every time you subtract 1? How does subtracting 1 relate to counting?
- How did the application problem connect to today's lesson?


MP.8

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 33 Worksheet 1•1


Name: Maria Date: \_\_\_\_\_


Cross off, when needed, to subtract.


1.   $6 - 1 = \underline{5}$


2.   $6 - 0 = \underline{6}$


If you want, make a 5-groups drawing for each problem like the ones above. Show the subtraction.


3.   $7 - 1 = \underline{6}$


4.   $7 - 0 = \underline{7}$


5.   $10 - 1 = \underline{9}$

6.   $10 - 0 = \underline{10}$

7.   $8 - 1 = \underline{7}$

8.   $8 - 0 = \underline{8}$


9.   $9 - 1 = \underline{8}$


10.   $9 - 0 = \underline{9}$


COMMON CORE Lesson 33: Model "0 less" and "1 less" pictorially and as subtraction number sentences. Use dialogue to generate these word cases. 4/30/15 engage<sup>ny</sup> 1.1.7

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 33 Worksheet 1•1

Cross off, when needed, to subtract.

11.   $6 - 1 = \underline{5}$

12.   $8 - 1 = \underline{7}$

13.   $9 - 0 = \underline{9}$

Subtract:

14.  $7 - 1 = \underline{6}$

15.  $8 - 0 = \underline{8}$

16.  $9 - 1 = \underline{8}$

Fill in the missing number. Visualize your 5-groups to help you.

(a)  $6 - 0 = \underline{6}$  (b)  $6 - 1 = \underline{5}$

(c)  $7 - \underline{0} = 7$  (d)  $7 - 1 = \underline{6}$

(e)  $8 - 0 = \underline{8}$  (f)  $8 - \underline{1} = 7$

(g)  $9 - \underline{0} = 9$  (h)  $9 - 1 = \underline{8}$

(i)  $10 - \underline{0} = 10$  (j)  $10 - \underline{1} = 9$

COMMON CORE Lesson 33: Model "0 less" and "1 less" pictorially and as subtraction number sentences. Use dialogue to generate these word cases. 4/30/15 engage<sup>ny</sup> 1.1.8

**Exit Ticket (3 minutes)**

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

Name \_\_\_\_\_

Date \_\_\_\_\_

**A**

# Correct \_\_\_\_\_

Add.

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

© Bill Davidson

Name \_\_\_\_\_

Date \_\_\_\_\_

**B**

Improvement \_\_\_\_\_

# Correct \_\_\_\_\_

Add.

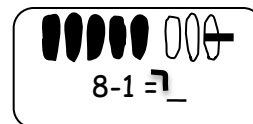
1	$2 + 1 =$		23	$1 + 8 =$	
2	$3 + 1 =$		24	$3 + 7 =$	
3	$4 + 1 =$		25	$1 + 5 =$	
4	$8 + 1 =$		26	$2 + 4 =$	
5	$5 + 1 =$		27	$1 + 4 =$	
6	$7 + 1 =$		28	$2 + 3 =$	
7	$9 + 1 =$		29	$1 + 3 =$	
8	$6 + 1 =$		30	$1 + 2 =$	
9	$1 + 6 =$		31	$3 + 3 =$	
10	$1 + 9 =$		32	$4 + 3 =$	
11	$1 + 7 =$		33	$5 + 3 =$	
12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

© Bill Davidson

Name \_\_\_\_\_

Date \_\_\_\_\_

Cross off, when needed, to subtract.



1. 

$6 - 1 = \underline{\quad}$

2. 

$6 - 0 = \underline{\quad}$

If you want, make a 5-groups drawing for each problem like the ones above.  
Show the subtraction.

3.  $7 - 1 = \underline{\quad}$

4.  $7 - 0 = \underline{\quad}$

5.  $10 - 1 = \underline{\quad}$

6.  $10 - 0 = \underline{\quad}$

7.  $8 - 1 = \underline{\quad}$

8.  $8 - 0 = \underline{\quad}$

9.  $9 - 1 = \underline{\quad}$

10.  $9 - 0 = \underline{\quad}$

Cross off, when needed, to subtract.

11.



$$6 - 1 = \underline{\quad}$$

12.



$$8 - 1 = \underline{\quad}$$

13.



$$9 - 0 = \underline{\quad}$$

Subtract.

14.  $7 - 1 = \underline{\quad}$

15.  $8 - 0 = \underline{\quad}$

16.  $9 - 1 = \underline{\quad}$

Fill in the missing number. Visualize your 5-groups to help you.

(a)  $6 - 0 = \underline{\quad}$

(b)  $6 - 1 = \underline{\quad}$

(c)  $7 - \underline{\quad} = 7$

(d)  $7 - 1 = \underline{\quad}$

(e)  $8 - 0 = \underline{\quad}$

(f)  $8 - \underline{\quad} = 7$

(g)  $9 - \underline{\quad} = 9$

(h)  $9 - 1 = \underline{\quad}$

(i)  $10 - \underline{\quad} = 10$

(j)  $10 - \underline{\quad} = 9$



Name \_\_\_\_\_

Date \_\_\_\_\_

Complete the numbers sentences. If you want, use 5-group drawings to show the subtraction.

1.

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

2.

$$8 = \underline{\quad} - 0$$

3.

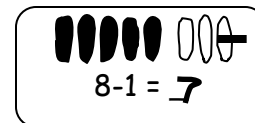
$$8 = \underline{\quad} - 1$$

4.

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

Name \_\_\_\_\_ Date \_\_\_\_\_

Show the subtraction. If you want, use a 5-groups drawing for each problem.



1.

2.

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

$9 - 0 = \underline{\quad}$

3.

4.

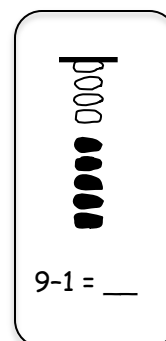
$6 - \underline{\quad} = 6$

$6 = 7 - \underline{\quad}$

Show the subtraction. If you want, use a 5-groups drawing like the model for each problem.

5.

6.



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

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

7.

8.

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

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

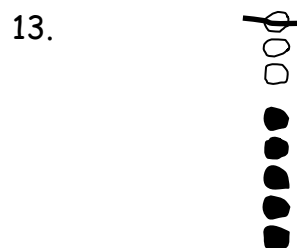
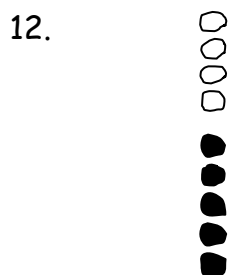
Write the subtraction number sentence to match the 5-group drawing.



\_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_

\_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_

\_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_



\_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_

\_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_

Fill in the missing number. Visualize your 5-groups to help you.

(a)  $7 - \underline{\quad} = 6$

(b)  $0 = 7 - \underline{\quad}$

(c)  $8 - \underline{\quad} = 7$

(d)  $6 - \underline{\quad} = 5$

(e)  $8 = 9 - \underline{\quad}$

(f)  $9 = 10 - \underline{\quad}$

(g)  $10 - \underline{\quad} = 10$

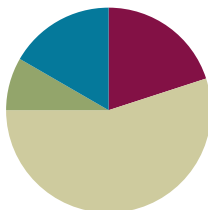
(h)  $9 - \underline{\quad} = 8$

## Lesson 34

**Objective:** Model  $n - n$  and  $n - (n - 1)$  pictorially and as subtraction sentences.

### Suggested Lesson Structure

Fluency Practice	(12 minutes)
Application Problem	(5 minutes)
Concept Development	(33 minutes)
Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (12 minutes)

- 1 Less, 2 Less **1.OA.6** (2 minutes)
- Sprint:  $n - 0$  and  $n - 1$  **1.OA.6** (10 minutes)

### 1 Less, 2 Less (2 minutes)

Note: This activity builds on the previous day's lesson and prepares students to solve today's application problem. It builds on the counting sequence within 120.

T: I'll say a number. You say 1 less at the signal.

Suggested sequence: 4, 14, 24, 9, 19, 20, 10, 20, 30, 25, 35, 45, 63, 73, 83, 81, 91, 101. When ready, change to 2 less.

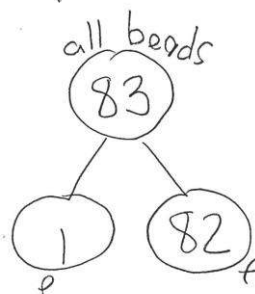
### Sprint: $n - 0$ and $n - 1$ (10 minutes)

Materials: (S)  $n - 0$  and  $n - 1$  Sprint.

Note: This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

### Application Problem (5 minutes)

83 beads spill on the floor. A student picks up 1 bead. How many beads are still on the floor? Write a number bond, number sentence, and a statement to share your solution.



$$83 - 1 = 82$$

There were 82 beads left.

Extension: If a second child picks up 10 more beads, how many beads will remain on the floor? Use number bonds to show how you know.

Note: This problem enables students to apply their learning from the previous day to a number they can't visualize (easily). Instead, students will use their understanding of the *subtracting one* along with their knowledge of the counting sequence within 120.

### Concept Development (33 minutes)

Materials: (T) Number bracelet of 10, white board or easel (S) Number bracelet of 10 beads, 5 red, 5 white (from **G1-M1-L8**), personal white board

Have students bring materials to meeting area and sit in a semi-circle.



T: Stretch out your bracelet into a long line of beads, like we did yesterday.

S/T: (Adjust pipe cleaner into a straight line.)

T: How many beads do we have in this set?

S: 10 beads!

T: Take 10 beads away. (Push 10 beads to the other side of the pipe cleaner. Students do the same.)

T: How many beads do we have now?

S: Zero!

T: Write the number sentence to show what you did. Write the number bond also.

S/T: (Write  $10 - 10 = 0$  on personal boards.)

T: Start with 8 beads now. (Push 8 beads back to main section of the pipe cleaner. Students do the same.)

Repeat the process using the following suggested sequence:  $8 - 8$ ;  $7 - 7$ ;  $6 - 6$ .

T: How are these problems similar to each other?

S: We are taking away the total amount.

T: When we have a number, and we subtract that exact number, what part are we left with?

S: Zero!

T: Let's try something different. Start with 10 beads again.

S/T: (Reset pipe cleaner to show all ten beads as a set.)

T: Take away 9 beads. (Push 9 beads slightly farther down the pipe cleaner. Students do the same.)



#### NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Providing opportunities for all students to work at the concrete level facilitates student discovery of patterns and structures in their math work. Allow time for students to explore with the number bracelets throughout the week to help solidify 5-groups and discouraging counting all.



#### NOTES ON MULTIPLE MEANS FOR ACTION AND EXPRESSION:

Provide students with a variety of ways to respond. Some students will need concrete models to show their understanding while others would benefit from a partner share.

T: How many beads will we have left?

S: 1 bead!

T: Write the number sentence to show what you did. Write the number bond also.

S/T: (Write  $10 - 9 = 1$ .)

T: Start with 9 beads now.

Repeat the process using the following suggested sequence:  $9 - 8$ ;  $8 - 7$ ;  $7 - 6$ . Be sure to keep these number sentences on the board for discussion.

T: How are these problems similar to each other? Turn and talk to your partner.

S: (Discuss while the teacher circulates and listens.)

T: How are these problems similar?

S: The answer is 1 every time!

T: Let's try a few more. This time, try to complete the number sentence and number bond without using the beads. Then check your answer using your beads.

Repeat the process again using expressions that varying between subtracting all and subtracting all but one through the following suggested sequence:  $6 - 6$ ;  $6 - 5$ ;  $8 - 8$ ;  $8 - 7$ ;  $9 - 9$ ;  $9 - 8$ .

T: When you are working today, see if you can figure out how to tell quickly that the answer to a subtraction problem will be 1, or that the answer will be 0.

MP.8

### 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 solve these problems using the RDW approach used for Application Problems.

### Student Debrief (10 minutes)

**Lesson Objective:** Model  $n - n$  and  $n - (n - 1)$  pictorially and as subtraction sentences.

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.

NYS COMMON CORE MATHEMATICS CURRICULUM 1•1

Name: Maria Date: \_\_\_\_\_

Cross off to subtract.

1.  $6 - 6 = \underline{0}$

2.  $6 - 5 = \underline{1}$

Subtract. Make a math drawing, like the ones above, for each.

3.  $7 - 7 = \underline{0}$

4.  $7 - 6 = \underline{1}$

5.  $10 - 10 = \underline{0}$

6.  $10 - 9 = \underline{1}$

7.  $8 - 8 = \underline{0}$

8.  $8 - 7 = \underline{1}$

9.  $9 - 9 = \underline{0}$

10.  $9 - 8 = \underline{1}$

engage<sup>ny</sup>

Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

- What pattern did you notice between Problems 3 and 10?
- How were your drawings different in Problems 5 and 6?
- How did the application problem connect to today's lesson?
- How can solving  $10 - 10$  help you solve  $1,272 - 1272$ ... $10,629 - 10,629$  and  $1,000,000 - 1,000,000$ ?
- How can solving  $9 - 8$  help you solve  $759 - 758$ ... $2,478 - 2,477$ ... $1,000,001 - 1,000,000$ ?

### Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

NYS COMMON CORE MATHEMATICS CURRICULUM 1•1

Cross off, when needed, to subtract.

11.  $6 - 6 = 0$

12.  $8 - 8 = 0$

13.  $9 - 8 = 1$

Subtract. Make a math drawing, like the ones above, for each.

14.  $7 - 7 = 0$

15.  $8 - 7 = 1$

16.  $9 - 9 = 0$

Fill in the missing number. Visualize your 5-groups to help you.

(a)  $6 - 6 = 0$  (b)  $6 - 5 = 1$

(c)  $7 - 7 = 0$  (d)  $7 - 6 = 1$

(e)  $8 - 8 = 0$  (f)  $8 - 7 = 1$

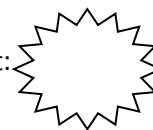
(g)  $9 - 9 = 0$  (h)  $9 - 8 = 1$

(i)  $10 - 10 = 0$  (j)  $10 - 9 = 1$

engage<sup>ny</sup>

A

Number correct:



Name \_\_\_\_\_

Date \_\_\_\_\_

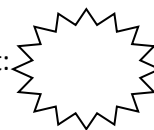
\*Write the missing number from each subtraction sentence. Pay attention to the = sign.

1	$2 - 1 = \square$		16	$\square = 10 - 0$	
2	$1 - 1 = \square$		17	$\square = 10 - 1$	
3	$1 - 0 = \square$		18	$\square = 9 - 1$	
4	$3 - 1 = \square$		19	$\square = 7 - 1$	
5	$3 - 0 = \square$		20	$\square = 6 - 1$	
6	$4 - 0 = \square$		21	$\square = 6 - 0$	
7	$4 - 1 = \square$		22	$\square = 8 - 0$	
8	$5 - 1 = \square$		23	$8 - \square = 8$	
9	$6 - 1 = \square$		24	$\square - 0 = 8$	
10	$6 - 0 = \square$		25	$7 - \square = 6$	
11	$8 - 0 = \square$		26	$7 = 7 - \square$	
12	$10 - 0 = \square$		27	$9 = 9 - \square$	
13	$9 - 0 = \square$		28	$\square - 1 = 7$	
14	$9 - 1 = \square$		29	$\square - 0 = 8$	
15	$10 - 1 = \square$		30	$9 = \square - 1$	



**B**

Number correct:



Name \_\_\_\_\_

Date \_\_\_\_\_

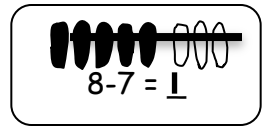
\*Write the missing number from each subtraction sentence. Pay attention to the = sign.

1	$3 - 1 = \square$		16	$\square = 10 - 1$	
2	$2 - 1 = \square$		17	$\square = 9 - 1$	
3	$1 - 1 = \square$		18	$\square = 7 - 1$	
4	$1 - 0 = \square$		19	$\square = 7 - 0$	
5	$2 - 0 = \square$		20	$\square = 8 - 0$	
6	$4 - 0 = \square$		21	$\square = 10 - 0$	
7	$5 - 1 = \square$		22	$\square = 9 - 1$	
8	$7 - 1 = \square$		23	$9 - \square = 8$	
9	$8 - 1 = \square$		24	$\square - 1 = 8$	
10	$9 - 0 = \square$		25	$7 - \square = 6$	
11	$10 - 0 = \square$		26	$6 = 7 - \square$	
12	$7 - 0 = \square$		27	$9 = 9 - \square$	
13	$8 - 0 = \square$		28	$\square - 0 = 9$	
14	$10 - 1 = \square$		29	$\square - 0 = 10$	
15	$9 - 1 = \square$		30	$8 = \square - 1$	

Name \_\_\_\_\_

Date \_\_\_\_\_

Cross off to subtract.



1. 

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

2. 

$6 - 5 = \underline{\quad}$

Subtract. Make a math drawing, like the ones above, for each.

3.  $7 - 7 = \underline{\quad}$

4.  $7 - 6 = \underline{\quad}$

5.  $10 - 10 = \underline{\quad}$

6.  $10 - 9 = \underline{\quad}$

7.  $8 - 8 = \underline{\quad}$

8.  $8 - 7 = \underline{\quad}$

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

10.  $9 - 8 = \underline{\quad}$

Cross off, when needed, to subtract.

11.



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

12.



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

13.



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

Subtract. Make a math drawing, like the ones above, for each.

14.

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

15.

$$8 - 7 = \underline{\quad}$$

16.

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

Fill in the missing number. Visualize your 5-groups to help you.

$$(a) \quad 6 - 6 = \underline{\quad}$$

$$(b) \quad 6 - 5 = \underline{\quad}$$

$$(c) \quad 7 - \underline{\quad} = 0$$

$$(d) \quad 7 - 6 = \underline{\quad}$$

$$(e) \quad 8 - 8 = \underline{\quad}$$

$$(f) \quad 8 - \underline{\quad} = 1$$

$$(g) \quad 9 - \underline{\quad} = 0$$

$$(h) \quad 9 - 8 = \underline{\quad}$$

$$(i) \quad 10 - \underline{\quad} = 10$$

$$(j) \quad 10 - \underline{\quad} = 1$$

Name \_\_\_\_\_

Date \_\_\_\_\_

Make 5-group drawings to show the subtraction.

1.

2.

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

$$0 = 10 - \underline{\quad}$$

3.

4.

$$1 = \underline{\quad} - 7$$

$$0 = \underline{\quad} - 9$$

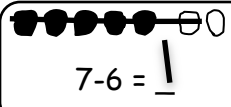
Name \_\_\_\_\_

Date \_\_\_\_\_

Cross off to subtract.

1. 

2. 



$$7 - 6 = \underline{1}$$

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

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

Make a 5-group drawing like the ones above. Show the subtraction.

3.

$1 = \underline{\quad} - 7$

4.

$8 - \underline{\quad} = 0$

5.

$0 = \underline{\quad} - 7$

6.

$6 - \underline{\quad} = 1$


Make a 5-groups drawing like the model for each problem. Show the subtraction.

7.

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

8.

$0 = 8 - \underline{\quad}$



$$9 - 9 = \underline{0}$$

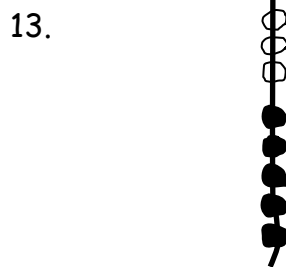
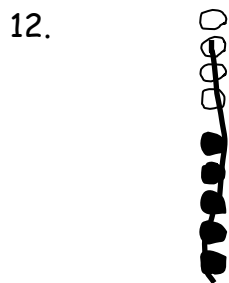
Write the subtraction number sentence to match the 5-group drawing.



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

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

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



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

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

14. Fill in the missing number. Visualize your 5-groups to help you.

(a)  $7 - \underline{\quad} = 0$

(b)  $1 = 7 - \underline{\quad}$

(c)  $8 - \underline{\quad} = 1$

(d)  $6 - \underline{\quad} = 0$

(e)  $0 = 9 - \underline{\quad}$

(f)  $1 = 10 - \underline{\quad}$

(g)  $10 - \underline{\quad} = 0$

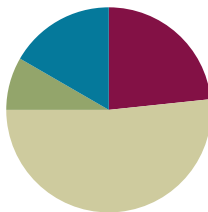
(h)  $9 - \underline{\quad} = 1$

## Lesson 35

**Objective:** Relate subtraction facts involving fives and doubles to corresponding decompositions.

### Suggested Lesson Structure

■ Fluency Practice	(14 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(31 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (14 minutes)

- Cold Call **1.OA.6** (2 minutes)
- Sprint:  $n - n$ ,  $n - (n - 1)$  **1.OA.6** (10 minutes)
- Speed Writing (2 minutes)

### Cold Call (2 minutes)

Note: This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

Ask questions to practice subtraction situations for  $n - n$  or  $n - (n - 1)$  problem types. Tell students you will “Cold Call” them to say the answer as quickly as possible. Alternate between calling on individual students, the whole class, and groups of students (e.g., only boys or only girls). Use the example dialogue below as a reference.

- T: Listen carefully to my question so you will be ready if I call on you. What is  $6 - 6$ ? (Pause to provide thinking time.) Everybody.
- S: 0.
- T: 1 less than 6 is? (Pause.) Boys?
- S: (Only boys.) 5.
- T: We know  $6 - 6$  is 0. What is  $6 - 5$ ? (Pause.) Girls.
- S: (Only girls.) 1.

**Sprint:  $n - n$ ,  $n - (n - 1)$  (10 minutes)**

Materials: (S) Sprint:  $n - n$ ,  $n - (n - 1)$

Note: This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

**Speed Writing (2 minutes)**

Materials: (S) Personal white board

Note: This activity focuses on the counting sequence to 120, while continuing to develop foundational skills for place value. By writing and whispering, students engage multi-modalities for learning.

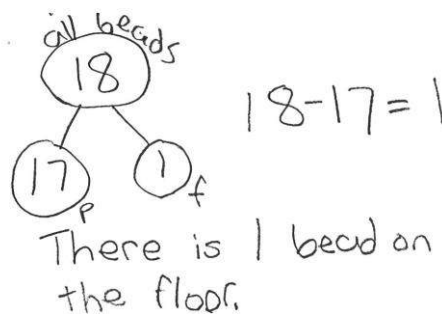
Tell students to write their numbers from 10 to as high as they can in one minute, while whisper counting the Say Ten way.

**Application Problem (5 minutes)**

The teacher spilled 18 beads on the floor today. A student picked up 17 of the beads. How many beads are still left on the floor? Write a number bond, number sentence, and a statement to share your solution.

Extension: If the 17 beads had been picked up by two students, how many beads might each student have picked up? Make a number bond to show your solution.

Note: This problem enables students to apply Lesson 34 objective to a number they can't visualize (easily). During the Student Debrief, students consider how tools such as 5-groups and Rekenreks might help them solve the problem.

**Concept Development (31 minutes)**

Materials: (S) Number bracelet of 10 beads, 5 red and 5 white (see **G1-M1-L8**), personal white board

- T: Show me 7 the Math Way. How many fingers did you use on your left hand?
- S: (Hold up 5 fingers on their left hands and the thumb and index finger on their right hands.) 5.
- T: Show me  $7 - 5$  by hiding your 5.

**NOTES ON  
MULTIPLE MEANS OF  
ENGAGEMENT:**

Some students may need to make real life connections to concepts such as doubles and 5-groups. Allow students the opportunity to explore doubles and 5-groups they see in real life (pairs of shoes, 4-wheelers, legs of a spider, doubles on dominoes, and their fingers).



- S: (Hide their left hands.)  
 T: What's the answer?  
 S: 2.  
 T: Give me the complete number sentence.  
 S: 7 minus 5 is 2.  
 T: Show me your 7 again. Subtract 2 by hiding your 2.  
 The answer is?  
 S: 5.  
 T: Give me the complete number sentence.  
 S: 7 minus 2 is 5.



### NOTES ON MULTIPLE MEANS OF REPRESENTATION:

For those students who are developing fluency with math facts, provide a visual tool, such as the addition chart with the doubles facts, for the students to reference until this skill becomes automatic.

Quickly repeat the same process, subtracting 5 and its partner from 6 through 10 on their hands.

- T: Please take out your bracelets and start with 8 beads. (Project  $8 - 5$ .) Use your beads in one movement to show me the answer. Write the number sentence and number bond.  
 S: (Push 5 beads in one movement away from the set and write  $8 - 5 = 3$ . Circulate and have them do the exercise again if they move the beads one, two, three, or four at a time.)  
 T: How did you solve this so quickly?  
 S: I moved just my red beads in a 5-group. → I moved a group of 5 without counting out 1, 2, 3, 4, 5.  
 T: How did you know how many to push at once?  
 S: The beads are in groups of 5.  
 T: Push them back together to have 8 and try this one. (Project  $8 - 3$ .)  
 S: (Push the 3 white beads away from the set and write  $8 - 3 = 5$ .)  
 T: What did you push away as a group?  
 S: The 3 white beads.  
 T: What did you have left?  
 S: The 5 red beads.

Repeat the process using the following suggested sequence:  $9 - 5$ ;  $9 - 4$ ;  $7 - 5$ ;  $7 - 2$ .

- T: Great job visualizing larger groups to help you subtract quickly. Now we will use a different way to visualize, or see groups, to help us subtract. Put your bracelets back together so you have 10 beads total. What two equal parts do you see?  
 S: 5 and 5.  
 T: That's right. Remember, facts like  $5 + 5$  are part of a special group of addition facts. What are they called?  
 S: Doubles.  
 T: Starting at  $1 + 1$ , let's recite our doubles facts. Point your fingers together as we say them.



MP.7

S/T:  $1 + 1 = 2$ ;  $2 + 2 = 4$ ;  $3 + 3 = 6$ ;  $4 + 4 = 8$ ;  $5 + 5 = 10$ .

T: Doubles can be easy to see, just like 5-groups. Let's see if we can spot which of these subtraction facts are made from doubles. Visualize your doubles facts as we look for them.

T: (Project three subtraction expressions:  $7 - 3$ ;  $8 - 4$ ;  $9 - 2$ .)

T: Which subtraction expression is splitting up a *double*? Turn and talk with your partner to decide. Talk about how you know. Write the number sentence and number bond on your paper.

S: (Discuss with partner, while teacher circulates and listens.)

T: I like how you proved your idea to your partner by showing the doubles on your fingers. Try more.

Repeat the process using the following suggested sequence of 3 sets of expressions:

(a)  $5 - 2$ ;  $8 - 3$ ;  $4 - 2$ ; (b)  $7 - 4$ ;  $6 - 3$ ;  $10 - 4$ ;

(c)  $8 - 4$ ;  $6 - 3$ ;  $10 - 5$ . The last set purposely has three *doubles* facts as students begin to visualize their doubles and recognize the facts within the subtraction context more quickly.

## 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 solve these problems using the RDW approach used for Application Problems.

On this Problem Set, most all students begin with Problems 1 through Problem 5 and possibly leave Problems 6 through Problem 11 to the end if they still have time.

## Student Debrief (10 minutes)

**Lesson Objective:** Relate subtraction facts involving fives and doubles to corresponding decompositions.

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

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 35 1•1

Name Maria Date \_\_\_\_\_

Solve the sets of number sentences. Look for "easy groups" to cross off.

1.  $6 - 5 = 1$   $6 - 1 = 5$

2.  $8 - 3 = 5$   $8 - 5 = 3$

3.  $9 - 4 = 5$   $9 - 5 = 4$

Subtract. Make a math drawing, like the ones above, for each. Write a number bond.

4.  $7 - 5 = 2$   $7 - 2 = 5$

5.  $10 - 5 = 5$

COMMON CORE Lesson 35: Relate Subtraction Facts Involving Fives and Doubles to Corresponding Decompositions G3-M3-T1-L3.5.docx  
© 2013 Common Core, Inc. All rights reserved. commoncore.org engageNY X.X.9

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 35 1•1

Solve. Visualize your 5-groups to help you.

(a)  $7 - 5 = 2$  (b)  $7 - 2 = 5$  (c)  $8 - 3 = 5$

(d)  $9 - 5 = 4$  (e)  $9 - 4 = 5$  (f)  $8 - 5 = 3$

Complete the number bond. Complete the number sentence.

6.  $4 - 2 = 2$   $6 - 3 = 3$

7.  $10 - 5 = 5$   $8 - 4 = 4$

8.  $8 - 4 = 4$   $6 - 3 = 3$

9.  $10 - 5 = 5$

10.  $8 - 4 = 4$  11.  $6 - 3 = 3$

Complete the number sentences below. Circle the strategy that can help.

(a)  $7 - 5 = 2$  5-groups doubles

(b)  $7 - 2 = 5$  5-groups doubles

(c)  $8 - 4 = 4$  5-groups doubles

(d)  $8 - 3 = 5$  5-groups doubles

(e)  $8 - 5 = 3$  5-groups doubles

(f)  $10 - 5 = 5$  5-groups doubles

COMMON CORE Lesson 35: Relate Subtraction Facts Involving Fives and Doubles to Corresponding Decompositions G3-M3-T1-L3.5.docx  
© 2013 Common Core, Inc. All rights reserved. commoncore.org engageNY X.X.9

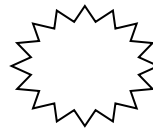
Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

- Look at Problem a through Problem f on the top of Page 2.
- Talk to your partner about what you visualized to help you solve these problems.
- How can your hands help you solve problems like these? (Fingers are like 5-groups.)
- How are your hands similar to the number bracelet? How are they different?
- Look at the last six problems at the bottom of Page 2, Problem a through Problem f. What problems did you use 5-groups for? Which did you use doubles for? Were there any problems that you could have used both?
- Look at how you solved the application problem. How can we use the Rekenrek to solve this same problem? How can we use 5-groups to solve this problem?

### Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

Number correct:



A

Name \_\_\_\_\_

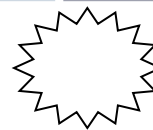
Date \_\_\_\_\_

Write the missing number from each subtraction sentence. Pay attention to the = sign.

1	$2 - 2 = \square$		16	$0 = 10 - \square$	
2	$1 - 1 = \square$		17	$0 = 9 - \square$	
3	$1 - 0 = \square$		18	$0 = 8 - \square$	
4	$3 - 3 = \square$		19	$0 = 6 - \square$	
5	$3 - 2 = \square$		20	$1 = 6 - \square$	
6	$4 - 4 = \square$		21	$1 = 7 - \square$	
7	$4 - 3 = \square$		22	$1 = 10 - \square$	
8	$6 - 6 = \square$		23	$10 - \square = 1$	
9	$7 - 7 = \square$		24	$\square - 9 = 1$	
10	$8 - 8 = \square$		25	$7 - \square = 0$	
11	$8 - 7 = \square$		26	$0 = 7 - \square$	
12	$9 - 9 = \square$		27	$0 = 9 - \square$	
13	$9 - 8 = \square$		28	$\square - 8 = 0$	
14	$10 - 10 = \square$		29	$\square - 7 = 1$	
15	$10 - 9 = \square$		30	$1 = \square - 5$	

**B**

Number correct:



Name \_\_\_\_\_

Date \_\_\_\_\_

Write the missing number from each subtraction sentence. Pay attention to the = sign.

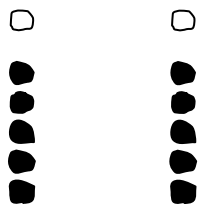
1	$3 - 3 = \square$		16	$0 = 6 - \square$	
2	$2 - 2 = \square$		17	$0 = 7 - \square$	
3	$1 - 1 = \square$		18	$0 = 8 - \square$	
4	$1 - 0 = \square$		19	$0 = 10 - \square$	
5	$2 - 1 = \square$		20	$1 = 10 - \square$	
6	$4 - 3 = \square$		21	$1 = 9 - \square$	
7	$5 - 4 = \square$		22	$1 = 7 - \square$	
8	$7 - 7 = \square$		23	$7 - \square = 1$	
9	$8 - 8 = \square$		24	$\square - 6 = 1$	
10	$9 - 9 = \square$		25	$6 - \square = 0$	
11	$10 - 10 = \square$		26	$0 = 6 - \square$	
12	$10 - 9 = \square$		27	$0 = 8 - \square$	
13	$8 - 7 = \square$		28	$\square - 8 = 0$	
14	$6 - 5 = \square$		29	$\square - 6 = 1$	
15	$6 - 6 = \square$		30	$1 = \square - 6$	

Name \_\_\_\_\_

Date \_\_\_\_\_

Solve the sets of number sentences. Look for "easy groups" to cross off.

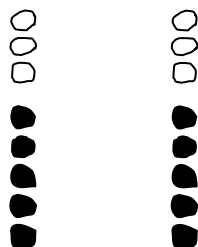
1.



$6 - 5 = \underline{\quad}$

$6 - 1 = \underline{\quad}$

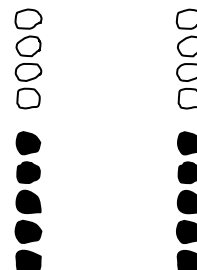
2.



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

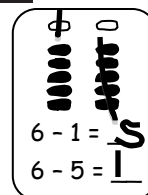
$8 - 5 = \underline{\quad}$

3.



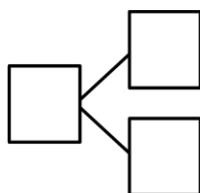
$9 - 4 = \underline{\quad}$

$9 - 5 = \underline{\quad}$



Subtract. Make a math drawing, like the ones above, for each. Write a number bond.

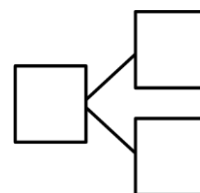
4.



$7 - 5 = \underline{\quad}$

$7 - 2 = \underline{\quad}$

5.



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

Solve. Visualize your 5-groups to help you.

(a)  $7 - 5 = \underline{\quad}$

(b)  $7 - \underline{\quad} = 5$

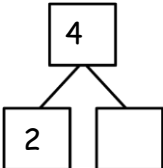
(c)  $8 - 3 = \underline{\quad}$

(d)  $9 - \underline{\quad} = 4$

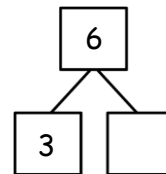
(e)  $9 - \underline{\quad} = 5$

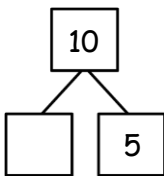
(f)  $8 - \underline{\quad} = 3$

Complete the number bond. Complete the number sentence.

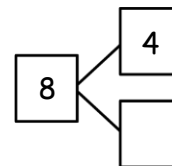
6.  $4 - 2 = \underline{\quad}$ 


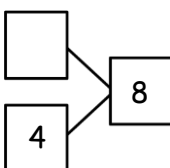
7.  $6 - 3 = \underline{\quad}$



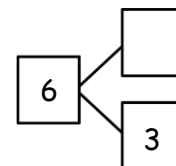
8.  $10 - 5 = \underline{\quad}$ 


9.  $8 - 4 = \underline{\quad}$



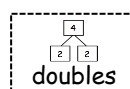
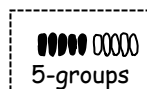
10.  $8 - 4 = \underline{\quad}$ 


11.  $6 - 3 = \underline{\quad}$

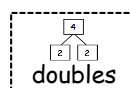


Complete the number sentences below. Circle the strategy that can help.

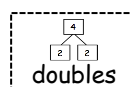
(a)  $7 - 5 = \underline{\quad}$



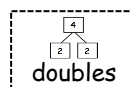
(b)  $7 - 2 = \underline{\quad}$



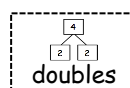
(c)  $8 - 4 = \underline{\quad}$



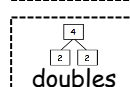
(d)  $8 - 3 = \underline{\quad}$



(e)  $8 - 5 = \underline{\quad}$



(f)  $10 - 5 = \underline{\quad}$



Name \_\_\_\_\_

Date \_\_\_\_\_

Solve the number sentences. Make a number bond. Draw a picture or write a statement about the strategy that helped you.

Doubles helped me  
solve.



$$6 - 3 = 3$$

1. \_\_\_\_\_ - 5 = 5

2. 8 - \_\_\_\_\_ = 4

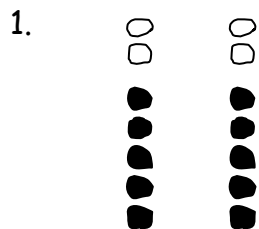
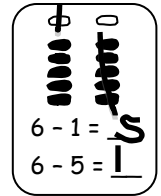
3. 9 - \_\_\_\_\_ = 4



Name \_\_\_\_\_

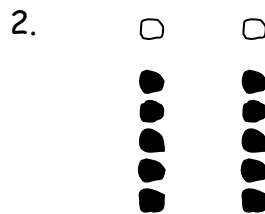
Date \_\_\_\_\_

Solve the sets of number sentences. Write a related number sentence that would have the same number bond. Look for "easy groups" to cross off.



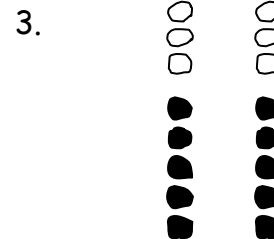
$$7 - 5 = \underline{\quad}$$

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



$$6 - 5 = \underline{\quad}$$

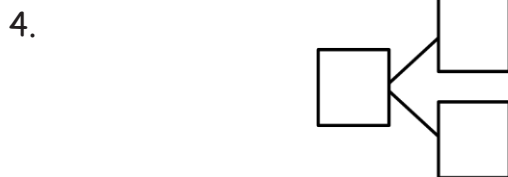
$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$



$$9 - \underline{\quad} = 4$$

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

Subtract. Make a math drawing, like the ones above, for each. Write a number bond.



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



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

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

Solve. Visualize 5-groups to help you.

(a)  $9 - \underline{\quad} = 4$

(b)  $\underline{\quad} - 5 = 5$

(c)  $8 - \underline{\quad} = 5$

(d)  $\underline{\quad} - 5 = 2$

(e)  $\underline{\quad} - 5 = 3$

(f)  $\underline{\quad} - 4 = 5$

Complete the number sentence. Make a number bond.

6.

7.

8.

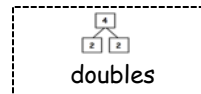
$6 - 3 = \underline{\quad}$

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

$8 - \underline{\quad} = 4$

Match the number sentence to the strategy that helps you solve.

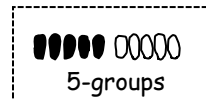
$7 - \underline{\quad} = 2$



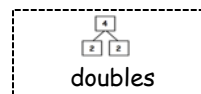
$8 - \underline{\quad} = 3$



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



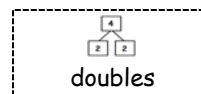
$\underline{\quad} - 3 = 3$



$8 - \underline{\quad} = 4$



$9 - \underline{\quad} = 5$

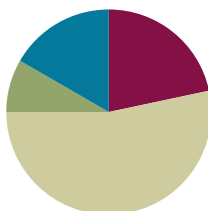


## Lesson 36

**Objective:** Relate subtraction from ten to corresponding decompositions.

### Suggested Lesson Structure

■ Fluency Practice	(13 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(32 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (13 minutes)

- Counting the Say Ten Way **K.NBT.1** (2 minutes)
- 5-Group Flash **K.OA.5, 1.OA.6** (3 minutes)
- Number Bonds of Ten **K.OA.5, 1.OA.6** (8 minutes)

### Counting the Say Ten Way (2 minutes)

Note: Say Ten counting reinforces place value and prepares students to decompose teen numbers.

Count in the teens, alternating between saying numbers the regular way and the Say Ten way. 2 ten, 19, ten-8, 17, ten-6, 15, ten-4, 13, ten-2, 11.

### 5 Group Flash (3 minutes)

Materials: (T) 5-group cards (see **G1-M1-L5**)

Note: This activity prepares students for Module 2, where they will learn how to make 10 to facilitate adding (e.g.,  $9 + 4$  can be thought of as  $9 + 1 + 3$ , or  $10 + 3$ ).

Take out the 7 dot 5-group card and ask students to compare and contrast it with the 7 dot ten-frame card.

Flash a 5-group card for two to three seconds and instruct students to identify the number on your signal (or snap). Flash the cards a second time and ask for the partner to 10. Begin with numbers closest to 10 first, because it is easier to identify the partner to 10.

## Number Bonds of 10 (8 minutes)

Materials: (S) Numeral cards 1–10 (single-sided numerals from 5-group cards template in **G1-M1-L5**), 10 two-sided beans or counters, a personal board with a ten-frame template

Note: This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

Assign students partners of equal ability. Students put numeral cards face down in front of them. One partner flips over a card and adds counters to the ten-frame, (e.g., a partner flips 9 and adds 9 red counters to the ten-frame). The other partner fills up the empty cells, using the other side of the counters, (e.g., 1 white counter). The partners will then work together to fill in a number bond and write two number sentences to match.



### NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

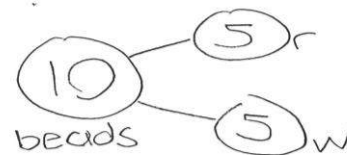
Provide challenging extensions for students that are ready by connecting partners to 10 to numbers to 100. For example, some pairs could have double-digit numbers. Their goal would be to find the partner to make the next ten and complete a number bond. (46, 4, 50.)

## Application Problem (5 minutes)

MP.1

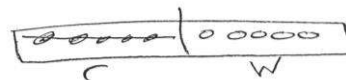
There are 10 beads on the floor. There is the same number of red beads as white beads. A student picks up the white beads. How many beads are still on the floor? Write a number bond, number sentence, and a statement to share your solution. Make a math drawing to show how you know.

Note: Today, we are starting the lesson with the application problem because the final fluency activity sets up well for the lesson. This problem enables students to apply their learning from the previous day, using doubles facts and 5-groups to solve subtraction. Additionally, it bridges to the current lesson, which will focus on decompositions of 10.



$$10 - 5 = 5$$

There are 5 beads on the floor.



### NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSIONS:

Partner share time provides a good opportunity to facilitate student analysis of work, allowing students to evaluate the process and analyze errors. Careful choice of partners is important when students are developing these skills.

## Concept Development (32 minutes)

Materials: (T) Number bracelet of 10 beads, 5 red, 5 white (from **G1-M1-L8**), white board or easel (S) Number bracelet, personal white boards

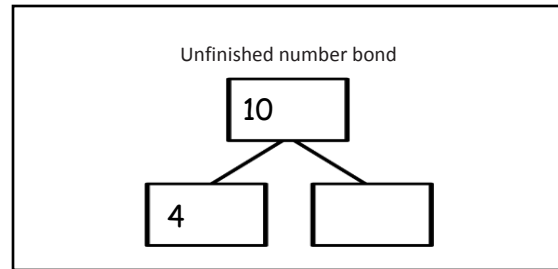
Before students come to the meeting area, the teacher slips 4 white beads off of the teacher pipe cleaner and places them in pocket, out of view of the students. Have students bring materials to the meeting area and sit in a semi-circle.

MP.7

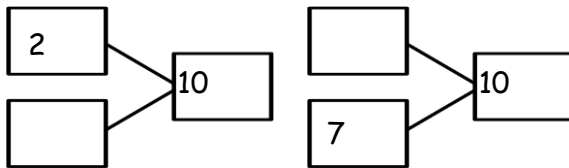
- T: Oh no! My bracelet broke and is missing some of its beads. (Show pipe cleaner to class, holding it far enough away so that students cannot touch each bead to count.)
- T: How many beads are on my bracelet?
- S: 6 beads.
- T: Wait, how many beads do you have on your bracelet?
- S: 10.
- T: Use one movement of beads to find out how many fell off my bracelet.
- S: (Push 6 away in one movement from the set to find 4.) Four of your beads fell off.
- T: Write a number sentence and number bond to show what just happened to my bracelet.
- S: (Write  $10 - 4 = 6$ , and write the corresponding number bond.)
- T: (Assign partners. Project  $10 - 1$ .) Partner A, use your beads to show Partner B the answer to this problem. Write the number sentence and number bond on your personal white boards.
- S: (Partner A pushes 1 bead away from the set, write  $10 - 1 = 9$ , and write the number bond.)
- T: How many beads are left?
- S: 9 beads.
- T: (Project  $10 - 9$ .) Partner B, use your beads to show Partner A the answer to this problem. Write the number sentence and number bond on your personal white boards.
- S: (Partner B pushes 9 beads away from the set, write  $10 - 9 = 1$ , and write the number bond.)
- T: Look at your stretched out bracelets. Talk with your partner: What's the same or different about them? (Circulate and listen.)
- S: (Discuss with partner.) They're the same; mine is just facing the other way. → When I flip my bracelet over, it's exactly the same as my partner's.
- T: Look at your number bonds and equations. Talk with your partner: What's the same of different about them? (Circulate and listen.)
- S: (Discuss with partner.) Our number bonds are the same. → Our number sentences use the same numbers and always start with 10 as the whole.
- T: (Project  $10 - 7$ .) Partner A, use your beads to show Partner B the answer to this problem. Write the number sentence and number bond on your personal white boards.
- S: (Partner A pushes 7 beads away from the set, write  $10 - 7 = 3$ , and write the number bond.)
- T: Partner B, use your bracelet to show Partner A the other subtraction sentence, which matches your number bond. Write the number sentence.
- S: (Partner B pushes 3 beads away from the set and write  $10 - 3 = 7$ .)

Repeat this process using  $10 - 6$ , starting with Partner B so that Partner A has a hand at coming up with the other subtraction equation. If it seems necessary, continue the process two more times, using  $10 - 8$  and  $10 - 3$ .

- T: You've been writing some wonderful number bonds, taking apart 10. Now I'm going to show you a number bond that's not quite finished. (Show number bond with 10 in the total box, 4 in a part box, and the other blank.) What goes with 4 to make 10?
- S: 6.
- T: Good. Now write both subtraction sentences all by yourself.
- S: (Write  $10 - 4 = 6$  and  $10 - 6 = 4$ .)



Repeat this process with the following number bonds:



### 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 solve these problems using the RDW approach used for Application Problems.

### Student Debrief (10 minutes)

**Lesson Objective:** Relate subtraction from ten to corresponding decompositions.

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.

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 36 1•1

Name: Maria Date: \_\_\_\_\_

Solve the sets. Cross off on the 5-groups. Use the first number sentence to help you solve the next.

1.  $10 - 9 = 1$   
 $10 - 1 = 9$

2.  $10 - 6 = 4$   
 $10 - 4 = 6$

3.  $10 - 3 = 7$   
 $10 - 7 = 3$

Make a math drawing and solve.

4.  $10 - 4 = 6$   
 $10 - 6 = 4$

5.  $10 - 5 = 5$

6.  $10 - 8 = 2$   
 $10 - 2 = 8$

COMMON CORE Lesson 36: M1-T1-L36-0001  
© 2012 Common Core, Inc. All rights reserved. [www.commoncore.org](http://www.commoncore.org)



engage<sup>ny</sup> X.X.12


Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.


- How are 5-groups and our bracelets the same in appearance; what they can help us do? How are they different?
- Which Problem Set problem(s) is the Application Problem similar to? How do you know? How did you solve them similarly or differently?
- Look at Problem 4 and Problem 6. How could Problem 4 help you solve Problem 6? What's different about them?
- Why is there only one number sentence for Problem 5?
- Explain to your partner how you decided to solve Problem 7, Problem 8, Problem 9, and Problem 10. What helped you? How did you solve them differently or similarly?
- Can we visualize rather than holding our bracelets or 5-groups?


NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 36 1•1

Subtract. Then write the related subtraction sentence.  
Make a math drawing if needed and complete a number bond for each.


7.    
 $10 - 8 = 2$   
 $10 - 2 = 8$


8.   
 $10 - 9 = 1$   
 $10 - 1 = 9$


9.   
 $10 - 3 = 7$   
 $10 - 7 = 3$


10.   
 $10 - 6 = 4$   
 $10 - 4 = 6$


Fill in the missing part. Write the 2 matching subtraction sentence.

(a)   $10 - 9 = 1$   
 $10 - 1 = 9$

(b)   $10 - 2 = 8$   
 $10 - 8 = 2$

(c)   $10 - 3 = 7$   
 $10 - 7 = 3$

(d)   $10 - 6 = 4$   
 $10 - 4 = 6$

(e)   $10 - 5 = 5$

COMMON CORE Lesson 36: Relate Subtraction from Ten to Corresponding Decompositions G1- engage<sup>ny</sup> K.K.13  
 © 2013 Common Core, Inc. All rights reserved. commoncore.org

### Exit Ticket (3 minutes)

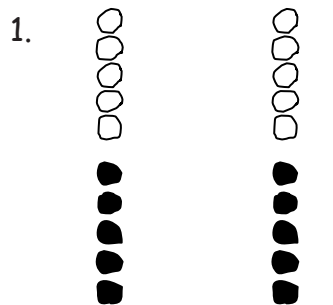
After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

Name \_\_\_\_\_

Date \_\_\_\_\_

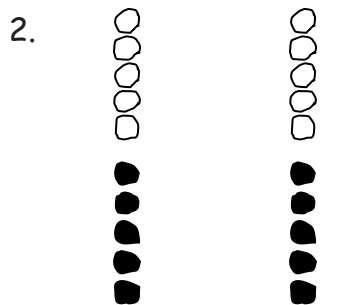
Solve the sets. Cross off on the 5-groups.

Use the first number sentence to help you solve the next.



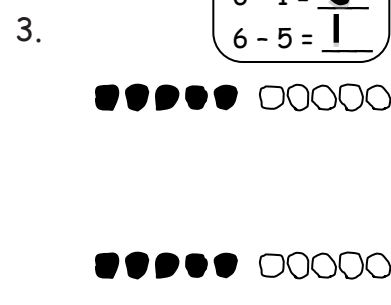
$$10 - 9 = \underline{\quad}$$

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



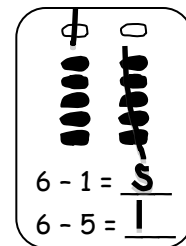
$$10 - 6 = \underline{\quad}$$

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



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

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



Make a math drawing and solve.

4.

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

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

5.

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

6.

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

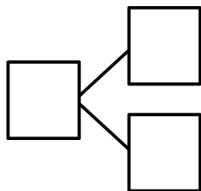
$$10 - 2 = \underline{\quad}$$



Subtract. Then write the related subtraction sentence.

Make a math drawing if needed and complete a number bond for each.

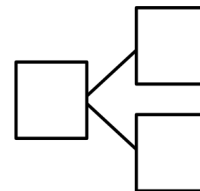
7.



$$10 - 8 = \underline{\hspace{2cm}}$$

\_\_\_\_\_

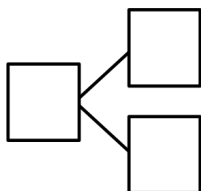
8.



$$10 - 9 = \underline{\hspace{2cm}}$$

\_\_\_\_\_

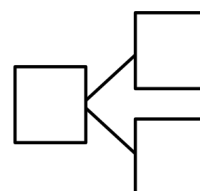
9.



$$10 - 3 = \underline{\hspace{2cm}}$$

\_\_\_\_\_

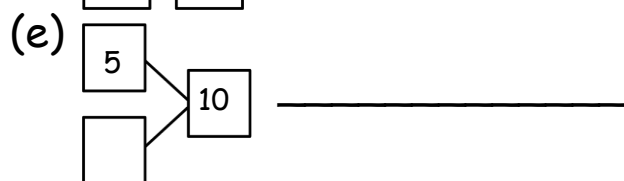
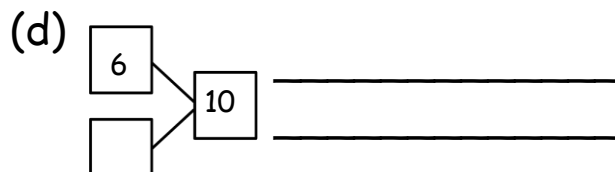
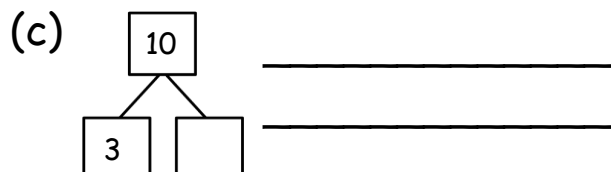
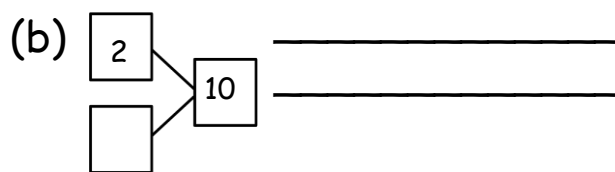
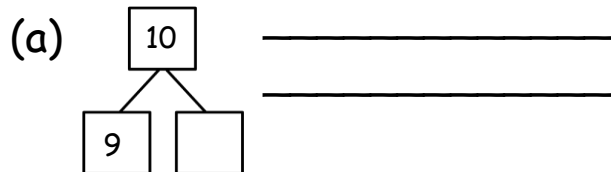
10.



$$10 - 6 = \underline{\hspace{2cm}}$$

\_\_\_\_\_

Fill in the missing part. Write the 2 matching subtraction sentence.

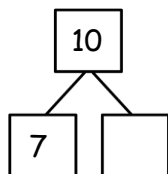


Name \_\_\_\_\_

Date \_\_\_\_\_

Fill in the missing part. Draw a math picture if needed. Write the 2 matching subtraction sentences.

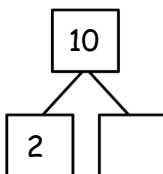
1.



\_\_\_\_\_

\_\_\_\_\_

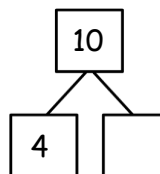
2.



\_\_\_\_\_

\_\_\_\_\_

3.



\_\_\_\_\_

\_\_\_\_\_

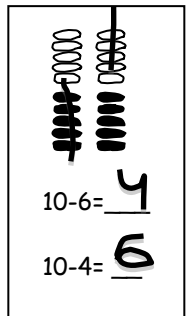
Name \_\_\_\_\_ Date \_\_\_\_\_

Make a math drawing and solve. Use the first number sentence to help you write a related number sentence that matches your picture.

1.

2.

3.



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

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

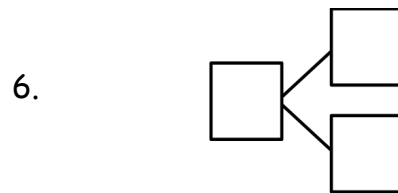
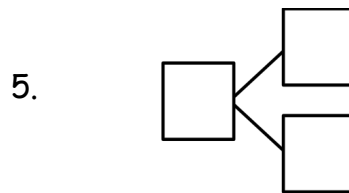
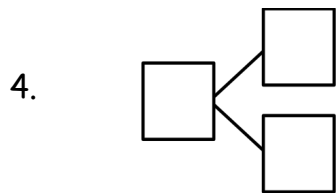
$$10 - 7 = \underline{\quad}$$

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

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

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

Subtract. Then write the related subtraction sentence. Make a math drawing if needed, and complete a number bond for each.



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

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

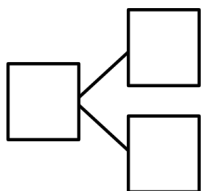
$$10 - \underline{\quad} = 6$$

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

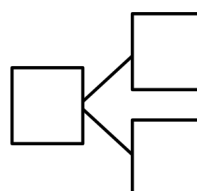
7.



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

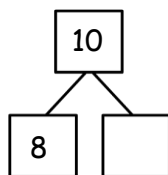
\_\_\_\_\_

8.



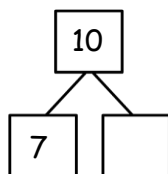
$$\underline{\quad} = 10 - 5$$

Use a ten-frame to complete the number bond. Match the number bond to the related subtraction sentence. Write the other related subtraction number sentence.



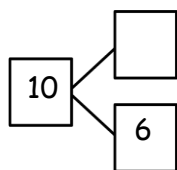
$10 - 5 = \underline{\quad}$

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



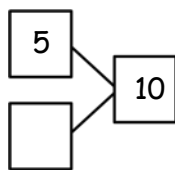
$10 - 1 = \underline{\quad}$

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



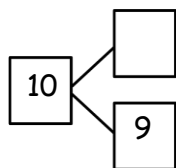
$10 - 2 = \underline{\quad}$

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



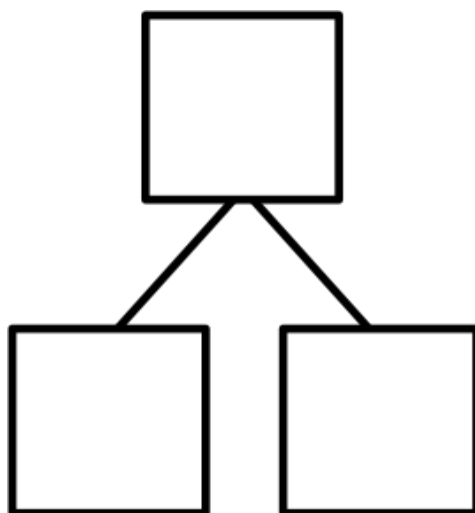
$10 - 4 = \underline{\quad}$

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



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

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

## Numeral Cards

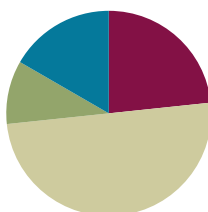
0	1	2	3
4	5	<u>6</u>	7
8	<u>9</u>	10	10
10	10	5	5

## Lesson 37

**Objective:** Relate subtraction from nine to corresponding decompositions.

### Suggested Lesson Structure

■ Fluency Practice	(14 minutes)
■ Application Problem	(6 minutes)
■ Concept Development	(30 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (14 minutes)

- Choral Counting: The Regular and the Say Ten Way **1.NBT.2** (2 minutes)
- 5-Group Flash **K.OA.5, 1.OA.6** (2 minutes)
- Sprint: Partners to 10 **K.OA.5, 1.OA.6** (10 minutes)

### Choral Counting: The Regular and the Say Ten Way (2 minutes)

Note: This activity supports students' ability to maintain their fluency with the counting sequence while also building the foundational skills for place value.

Tell students to count with you, alternating between the regular and the Say Ten way (e.g., 12, ten 3, 14, ten 5, etc.). Start at different numbers within 40. If students are ready, try counting back, too.

### 5-Group Flash (2 minutes)

Materials: (T) 5-Group cards (see **G1-M1-L5**)

Note: This activity addresses the core fluency objective for Grade 1 of adding and subtracting with 10, using visual models to support stronger foundational development.

Flash a 5-group card for 2–3 seconds and instruct students to identify the number on your signal (or snap). Ask for a number sentence to solve ten minus the number flashed.



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

Some students would benefit from having a set of ten-frame cards to use as a reference and to have available for practice. This practice should include flipping the cards over to encourage visualization of the numbers and their partners.

**Sprint: Partners to 10 (10 minutes)**

Materials: (S) Partners to 10 Sprint

Note: This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

**Application Problem (6 minutes)**

There are 10 beads on the floor. A student picked up some of the beads and left some on the floor. Write a number bond and a number sentence that would match this story.

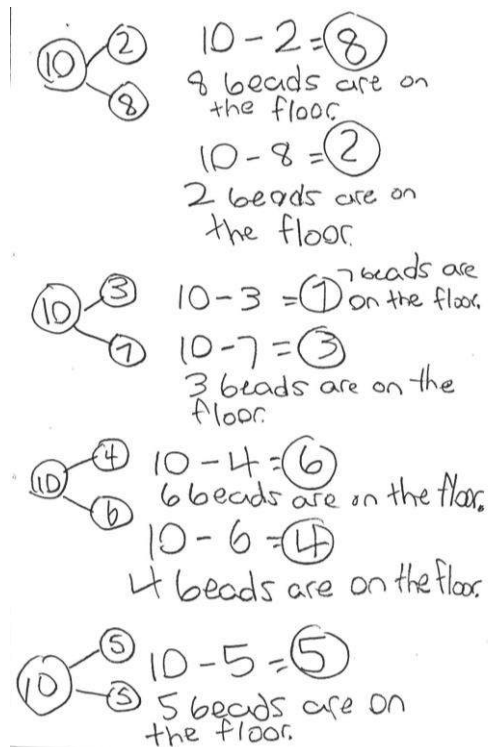
Extension: What other number bonds and number sentences could match this story? Try to list all of the possibilities. (Encourage all students to attempt this.)

Note: This problem applies the objective from Lesson 36, decompositions of 10 and their related subtraction facts. This also connects to the current lesson's concept development, which focuses on all of the decompositions of 9 in a similar way.

**Concept Development (30 minutes)**

Materials: (T) Number bracelet of 10 beads, 5 red, 5 white (from **G1-M1-L8**), (S) Number bracelet of 10 beads (5 red, 5 white), personal white boards

Have students bring materials to meeting area and sit in a semi-circle.

**MP.7**

- T: (Assign partners. Project 10 – 5.) Partner A, use your beads and also show Partner B the number sentence and number bond on your white board. Explain as you go.
- S: (Students do so.)
- T: (Project 9 – 5.) Partner B, take off 1 bead and put it behind you to have 9. (Pause.) Use your beads and also show Partner A number sentence and number bond on your white board. Explain what you did.
- S: (Students do so.)
- T: Compare your bracelets, your number sentences and number bonds. How can Partner A's work help you solve Partner B's work? (Circulate and listen.)
- S: (Discuss with partner.) Partner B starts with 1 less as the whole, but we both took 5 away, and Partner B's answer is 1 less!  $\rightarrow 9$  is 1 less than 10, so when we take 5 away, our answer will be 1 less.  $\rightarrow$  It's just like on the addition chart!  $\rightarrow$  We take away a five group so it's 4 left not 5.
- T: Good! Now Partner A, please remove 1 bead and place it behind you to make sure you have 9. (Pause.) Our 10 is now...



S: 9!

T: (Project.)

Use your beads and also show the number sentence and number bond on your white board.

S: (Push 1 bead away from the set, finish the number bond and write  $9 - 1 = 8$ .)

T: What is the other number sentence you can write to describe this number bond?

S:  $9 - 8 = 1$ !

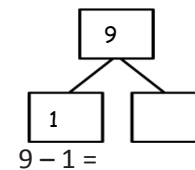
T: Yes. Please write it below your first number sentence.

S: (Write  $9 - 8 = 1$ .)

T: Now you're going to write (on your white board) all of the other number bonds with 9 as the total or the whole, and the subtraction sentences that describe each number bond. You can move around the room to do this. Hmmm, what tools can you use to help you do this?

S: Our bracelets! → Our hands. → Our 5 group cards. → Our math drawings. → Our addition chart. → Visualizing. → Our brains. → The charts in the room!

T: Talk with your partner!



### NOTES ON MULTIPLE MEANS OF REPRESENTATION:

During this lesson it is important for students to articulate how using strategies helps to solve problems so that other students can hear how they are thinking. This should help guide them towards a better understanding of the patterns and structures.

As students work, circulate and support them as appropriate. When most students have finished, have them return to the meeting area.

T: What strategies did you use to be sure that you got every way to make 9?

S: I used my bracelet, and showed 1 less each time! → I checked mine over a couple of times, and showed it with my bracelet.

T: What strategies did you use to be sure that you showed the subtraction sentences that described the number bonds?

S: I actually took the beads away on my bracelet! → I flipped my bracelet after I made the first subtraction sentence.

### 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 solve these problems using the RDW approach used for Application Problems.

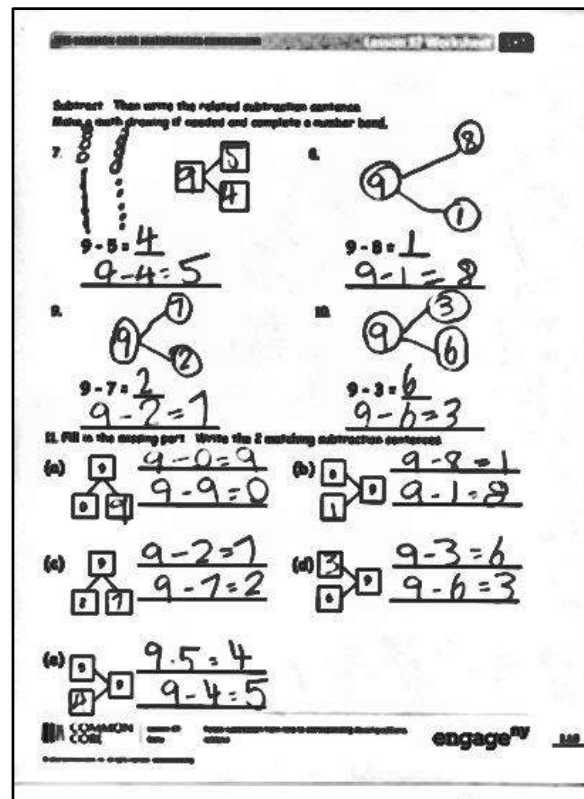
### Student Debrief (10 minutes)

**Lesson Objective:** Relate subtraction from nine to corresponding decompositions.

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

- Look at Problem 2 and Problem 6. What is similar and different about them? How did you use Problem 2 to help you solve Problem 6?
- Look at Problems 7–10. What strategy or strategies did you use to solve these? How was your strategy different or similar to your partner's?
- Which strategy is the most efficient for solving Problems 7–10? Why?
- How did the application problem connect to today's lesson?
- How can you visualize 9? What do you see in your brain? Does that help you to subtract from 9?

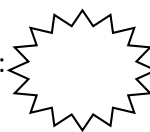


### Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

A

Number correct:



Name \_\_\_\_\_

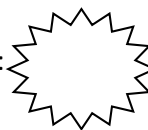
Date \_\_\_\_\_

\*Write the missing number from each subtraction sentence. Pay attention to the + and - signs.

1	$9 + 1 = \square$		16	$10 - 7 = \square$	
2	$1 + 9 = \square$		17	$10 = 7 + \square$	
3	$10 - 1 = \square$		18	$10 = 3 + \square$	
4	$10 - 9 = \square$		19	$10 = 6 + \square$	
5	$10 + 0 = \square$		20	$10 = 4 + \square$	
6	$0 + 10 = \square$		21	$10 = 5 + \square$	
7	$10 - 0 = \square$		22	$10 - \square = 5$	
8	$10 - 10 = \square$		23	$5 = 10 - \square$	
9	$8 + 2 = \square$		24	$6 = 10 - \square$	
10	$2 + 8 = \square$		25	$7 = 10 - \square$	
11	$10 - 2 = \square$		26	$7 = \square - 3$	
12	$10 - 8 = \square$		27	$4 = 10 - \square$	
13	$7 + 3 = \square$		28	$5 = \square - 5$	
14	$3 + 7 = \square$		29	$6 = 10 - \square$	
15	$10 - 3 = \square$		30	$7 = \square - 3$	

## B

Number correct:



Name \_\_\_\_\_

Date \_\_\_\_\_

\*Write the missing number from each number sentence. Pay attention to the + and - signs.

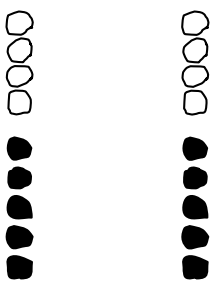
1	$8 + 2 = \square$		16	$10 - 6 = \square$	
2	$2 + 8 = \square$		17	$10 = 8 + \square$	
3	$10 - 2 = \square$		18	$10 = 7 + \square$	
4	$10 - 8 = \square$		19	$10 = 3 + \square$	
5	$9 + 1 = \square$		20	$10 = 4 + \square$	
6	$1 + 9 = \square$		21	$10 = 5 + \square$	
7	$10 - 1 = \square$		22	$10 - \square = 5$	
8	$10 - 9 = \square$		23	$6 = 10 - \square$	
9	$10 + 0 = \square$		24	$7 = 10 - \square$	
10	$0 + 10 = \square$		25	$8 = 10 - \square$	
11	$10 - 0 = \square$		26	$7 = \square - 3$	
12	$10 - 10 = \square$		27	$2 = 10 - \square$	
13	$6 + 4 = \square$		28	$4 = \square - 6$	
14	$4 + 6 = \square$		29	$3 = 10 - \square$	
15	$10 - 4 = \square$		30	$7 = \square - 3$	

Name \_\_\_\_\_

Date \_\_\_\_\_

Solve the sets. Cross off on the 5-groups. Write the related subtraction sentence that would have the same number bond.

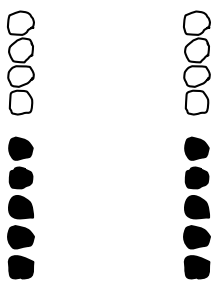
1.



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

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

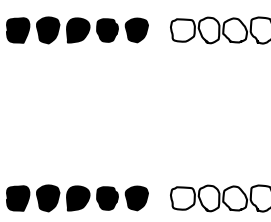
2.



$9 - 7 = \underline{\quad}$

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

3.



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

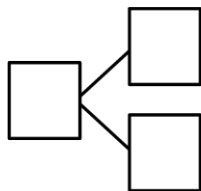
$\underline{\hspace{2cm}}$

Make a 5-group drawing. Solve and write a related subtraction sentence that would have the same number bond. Cross off to show.

<p>4.</p>          <p><math>9 - 6 = \underline{\quad}</math></p> <p><math>\underline{\hspace{2cm}}</math></p>	<p>5.</p>          <p><math>9 - 4 = \underline{\quad}</math></p> <p><math>\underline{\hspace{2cm}}</math></p>	<p>6.</p>          <p><math>9 - 3 = \underline{\quad}</math></p> <p><math>\underline{\hspace{2cm}}</math></p>
---	---	---

Subtract. Then write the related subtraction sentence.  
Make a math drawing if needed and complete a number bond.

7.



$$9 - 5 = \underline{\quad}$$

\_\_\_\_\_

8.

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

\_\_\_\_\_

9.

$$9 - 7 = \underline{\quad}$$

\_\_\_\_\_

10.

$$9 - 3 = \underline{\quad}$$

\_\_\_\_\_

11. Fill in the missing part. Write the 2 matching subtraction sentences.

(a) \_\_\_\_\_  
\_\_\_\_\_

(b) \_\_\_\_\_  
\_\_\_\_\_

(c) \_\_\_\_\_  
\_\_\_\_\_

(d) \_\_\_\_\_  
\_\_\_\_\_

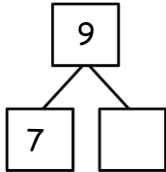
(e) \_\_\_\_\_  
\_\_\_\_\_

Name \_\_\_\_\_

Date \_\_\_\_\_

Fill in the missing part. Draw a math picture if needed. Write the 2 matching subtraction sentences.

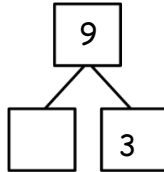
1.



---

---

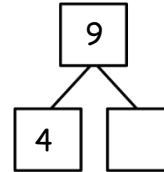
2.



---

---

3.



---

---

Name \_\_\_\_\_

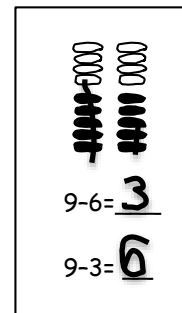
Date \_\_\_\_\_

Make 5-group drawings and solve. Use the first number sentence to help you write a related number sentence that matches your picture.

1.

2.

3.



$$9 - 2 = \underline{\quad}$$

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

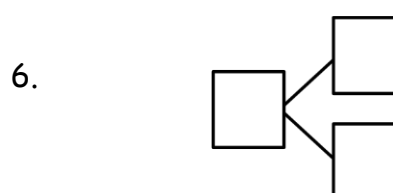
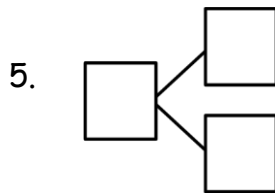
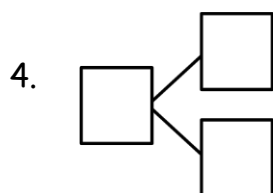
$$9 - 4 = \underline{\quad}$$

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

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

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

Subtract. Then write the related subtraction sentence. Make a math drawing if needed and complete a number bond for each.



$$9 - 7 = \underline{\quad}$$

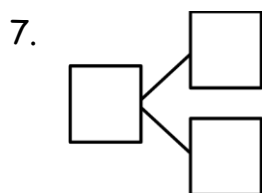
$$9 - \underline{\quad} = 9$$

$$9 - \underline{\quad} = 6$$

\_\_\_\_\_

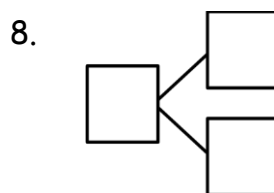
\_\_\_\_\_

\_\_\_\_\_



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

\_\_\_\_\_

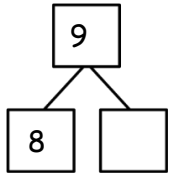


$$\underline{\quad} = 9 - 5$$

\_\_\_\_\_

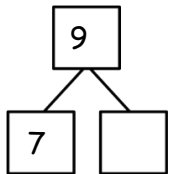


Use 5-group drawings to help you complete the number bond. Match the number bond to the related subtraction sentence. Write the other related subtraction number sentence.



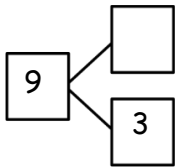
$9 - 5 = \underline{\quad}$

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



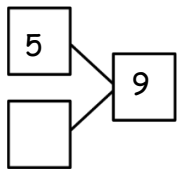
$9 - 1 = \underline{\quad}$

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



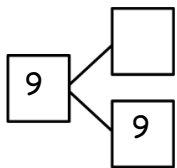
$9 - 2 = \underline{\quad}$

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



$9 - 6 = \underline{\quad}$

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



$9 - \underline{\quad} = 0$

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



## Topic J

# Development of Subtraction Fluency Within 10

## 1.OA.6

<b>Focus Standard:</b>	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 $6 + 6 + 1 = 12 + 1 = 13$ .)
<b>Instructional Days:</b>	2	
<b>Coherence</b>		
-Links from:	GK–M4	Number Pairs, Addition and Subtraction to 10
-Links to:	G2–M4	Addition and Subtraction Within 200 with Word Problems to 100

Grade 1's Module 1 closes with Topic J, where students spend Lesson 38 exploring the addition chart (similar to Topic F) and looking for patterns within the context of subtraction (**MP.7, MP.8, 1.OA.6**).

When presented with a subtraction equation such as  $7 - 3$ , students then use their knowledge of the decompositions of 7 to help them solve, and then discuss to find related addition equations on the addition chart such as  $3 + 4$  or  $4 + 3$ .

The final lesson, Lesson 39, allows students to further analyze the addition chart to create their own sets of related addition and subtraction facts for them to practice throughout the year as they work toward mastery of these foundational facts.

1 + 0	1 + 1	1 + 2	1 + 3	1 + 4	1 + 5	1 + 6	1 + 7	1 + 8	1 + 9
2 + 0	2 + 1	2 + 2	2 + 3	2 + 4	2 + 5	2 + 6	2 + 7	2 + 8	
3 + 0	3 + 1	3 + 2	3 + 3	3 + 4	3 + 5	3 + 6	3 + 7		
4 + 0	4 + 1	4 + 2	4 + 3	4 + 4	4 + 5	4 + 6			
5 + 0	5 + 1	5 + 2	5 + 3	5 + 4	5 + 5				
6 + 0	6 + 1	6 + 2	6 + 3	6 + 4					
7 + 0	7 + 1	7 + 2	7 + 3						
8 + 0	8 + 1	8 + 2							
9 + 0	9 + 1								
10 + 0									

**A Teaching Sequence Towards Mastery of Development of Subtraction Fluency Within 10**

**Objective 1:** Look for and make use of repeated reasoning and structure using the addition chart to solve subtraction problems.  
(Lesson 38)

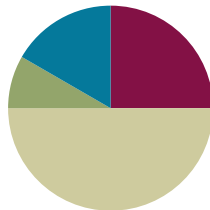
**Objective 2:** Analyze the addition chart to create sets of related addition and subtraction facts.  
(Lesson 39)

## Lesson 38

**Objective:** Look for and make use of repeated reasoning and structure using the addition chart to solve subtraction problems.

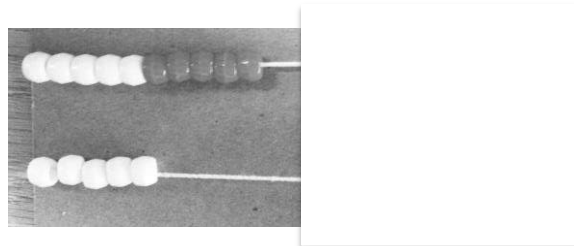
### Suggested Lesson Structure

■ Fluency Practice	(10 minutes)
■ Application Problem	(7 minutes)
■ Concept Development	(33 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (10 minutes)

- Rekenrek: Teen Numbers **K.NBT.1** (2 minutes)
- Hide Zero Cards **K.NBT.1** (3 minutes)
- Subtraction With Cards **1.OA.6** (5 minutes)



### Rekenrek (2 minutes)

Materials: (T) Rekenrek (cover the unused beads)

Note: Reviewing K.NBT.1 prepares students for the Make Ten strategy of Module 2.

T: (Move the top 4 beads on the Rekenrek into view). How many beads do you see?

S: 4.

T: How many more do we need to make 10?

S: 6.

T: (Move 6 more beads into view.)  $4 + 6 = ?$

S: 10

T: (Move 3 beads from the bottom row into view.) How many beads are on the bottom row?

S: 3

T: Let's say it the Say Ten way.

S: Ten 3.

T: Now say it the regular way.

S: Thirteen.

Continue with other examples: 7 and 3 leading to 10 and 4, 8 and 2 leading to 10 and 5, etc.

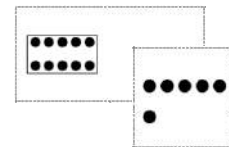
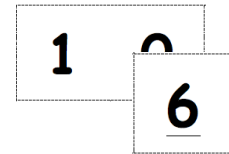
### Hide-Zero Cards: Bonding Teen Numbers (3 minutes)

Materials: (T) Hide-zero cards (S) Personal white board

Note: This activity continues to maintain students' understanding and use of teen numbers as "10 and some more." Hide-zero cards are made so that the single digit cards can be laid on top of the 10 card to create teen numbers. The digit in the ones place can be lifted to show the zero from the 10 "hiding" behind the single digit card.

Use the hide-zero cards to show teen numbers. For example, show 14 by covering the ones place of 10 with 4. Students write number bonds with 10 as a part. The teacher breaks apart the hide-zero cards to show the 2 parts (10 and 4).

Hide Zero Cards



### Subtraction With Cards (5 minutes)

Materials: (S) 1 deck of numeral cards (single-sided numerals from 5-group cards in **G1-M1-L5**) with 2 extra tens for each pair of students, counters (if needed)

Note: This activity addresses the fluency objective for Grade 1 of adding and subtracting within 10.

Students place the deck of cards face down between them. Each partner flips over two cards and subtracts the smaller number from the larger number. The partner with the smallest difference keeps the cards played by both players that round. The player with the most cards at the end of the game wins.



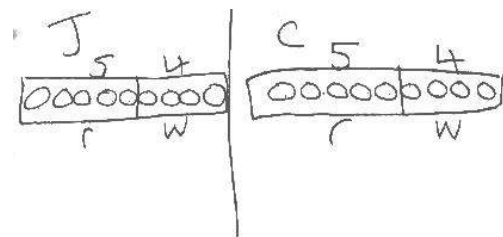
#### NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Some students will need concrete representations to solve word problems. Provide concrete models as needed. Allow students to take on leadership roles as appropriate by developing their own stories for the class to solve.

### Application Problem (7 minutes)

Jessie and Carl were comparing the beads they picked up. Jessie picked up 9 beads, 5 of them were red and the rest were white. Carl picked up 5 red beads and 4 white beads. Carl said they had the same amount of white beads. Is Carl correct? Draw and label your work to show your thinking.

Note: This problem incorporates the Lesson 37 objective. In addition, it asks students to solve and compare two types of word problems: *take apart* and *put together*. While students can solve this problem without knowing Carl's total, they must focus on what is being asked in the question in order to determine this. The problem also incorporates an opportunity to relate addition and subtraction, which will be the focus on today's lesson.



Carl is rit. They both have 4 white beads.

## Concept Development (33 minutes)

Materials: (T) Addition chart (S) Addition chart, yellow crayon, personal white board

- T: (Project addition chart.) How did this addition chart help us with our addition facts?
- S: (Responses will vary.) All the +1 addends are in the same column. → The rows start with the same part. → The totals made a staircase. → The ones near each other are related, like  $4 + 3$  is 7 and underneath we see  $5 + 3$ , that's one more—it's 8!
- T: (Holds up subtraction expression card  $7 - 4$ .) Write a number bond and leave the missing part empty for now.
- S: (Write number bond.)
- T: What is the whole?
- S: 7.
- T: The known part?
- S: 4.
- T: Which of the addition problems on your chart have a part that is 4? Talk to your partner.
- S: The ones here, going across. → It's the row that starts with  $4 + 0$ . → There is one here too going down. → It starts with  $1 + 4$ .
- T: The chart tells the parts but not the totals. Which of those problems have the same total as  $7 - 4$ ? Don't call out the answer.
- S: (After the signal.)  $4 + 3$ ! →  $3 + 4$ !
- T: Let's color in  $4 + 3$  and  $3 + 4$  on our chart with yellow and fill in our number bond with the missing part.
- T: Let's also color our totals yellow.
- S: (Color in chart and complete number bond.)
- T: Write the subtraction number sentence from the card we started with. Write the addition number sentence that helped us solve it.
- S: (Write  $7 - 4 = 3$  and  $4 + 3 = 7$ .)

Repeat the process with the following suggested sequence:  
 $8 - 4$ ,  $9 - 4$ ,  $9 - 5$ . Record the number sentences on the board to be used during the Debrief.

1+0	1+1	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+9
2+0	2+1	2+2	2+3	2+4	2+5	2+6	2+7	2+8	
3+0	3+1	3+2	3+3	3+4	3+5	3+6	3+7		
4+0	4+1	4+2	4+3	4+4	4+5	4+6			
5+0	5+1	5+2	5+3	5+4	5+5				
6+0	6+1	6+2	6+3	6+4					
7+0	7+1	7+2	7+3						
8+0	8+1	8+2							
9+0	9+1								
10+0									

6-4

Pick a subtraction flashcard.  
Find the related addition fact on the chart and shade it in.  
Write the subtraction sentence and a number bond to match.  
Continue for at least 6 turns.

Handwritten student work showing number bonds and equations for subtraction problems:

- For  $7 - 4$ : Number bond with 7 at the top, 4 and 3 at the bottom. Equations:  $7 - 4 = 3$  and  $3 + 4 = 7$ .
- For  $8 - 4$ : Number bond with 8 at the top, 4 and 4 at the bottom. Equations:  $8 - 4 = 4$  and  $4 + 4 = 8$ .
- For  $9 - 4$ : Number bond with 9 at the top, 4 and 5 at the bottom. Equations:  $9 - 4 = 5$  and  $5 + 4 = 9$ .
- For  $9 - 5$ : Number bond with 9 at the top, 5 and 4 at the bottom. Equations:  $9 - 5 = 4$  and  $4 + 5 = 9$ .



### NOTES ON MULTIPLE MEANS FOR ACTION AND EXPRESSION:

Using personal white boards with an addition chart template involves different learners. Some students might not feel comfortable participating orally but can show what they know on their board. Others may not be able to respond orally so this way you can still check for understanding.

### 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 solve these problems using the RDW approach used for Application Problems.

### Student Debrief (10 minutes)

**Lesson Objective:** Look for and make use of repeated reasoning and structure using the addition chart to solve subtraction problems.

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

Directions: On your addition chart shade a square orange. Write the related subtraction fact in a space below with its number bond. Color all the totals orange.

- $8 - 3 = 5$
- $9 - 3 = 6$
- $10 - 4 = 6$
- $6 = 7 - 1$
- $4 = 8 - 4$

- Look at the subtraction problems we solved during the lesson. (Gestures to sequence of  $7 - 4$ ,  $8 - 4$ ,  $9 - 4$ ,  $9 - 5$ .) What do you notice about these problems? Where are the helpful addition facts for these subtraction sentences located on your chart? How can solving the first one help you solve the next?
- Look at your work from the class. What pattern do you notice on your chart? How are these subtraction facts related?
- What is another set of subtraction facts that would make a cross on your chart?
- When you worked through the Problem Set, was it tricky to put the totals in the right place? Why?
- What tool did we use in a new way to solve subtraction problems today? Explain how the tool helped you.
- How did the application problem connect to today's lesson?

### Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

Name \_\_\_\_\_

Date \_\_\_\_\_

1 + 0	1 + 1	1 + 2	1 + 3	1 + 4	1 + 5	1 + 6	1 + 7	1 + 8	1 + 9
2 + 0	2 + 1	2 + 2	2 + 3	2 + 4	2 + 5	2 + 6	2 + 7	2 + 8	
3 + 0	3 + 1	3 + 2	3 + 3	3 + 4	3 + 5	3 + 6	3 + 7		
4 + 0	4 + 1	4 + 2	4 + 3	4 + 4	4 + 5	4 + 6			
5 + 0	5 + 1	5 + 2	5 + 3	5 + 4	5 + 5				
6 + 0	6 + 1	6 + 2	6 + 3	6 + 4					
7 + 0	7 + 1	7 + 2	7 + 3						
8 + 0	8 + 1	8 + 2							
9 + 0	9 + 1								
10 + 0									

6 - 4

3

2

Pick a subtraction flashcard.

Find the related addition fact on the chart and shade it in.

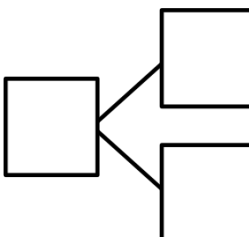
Write the subtraction sentence and a number bond to match.

Continue for at least 6 turns.

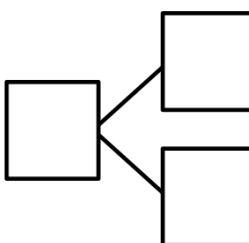


Directions: On your addition chart shade a square orange. Write the related subtraction fact in a space below with its number bond. Color all the totals orange.

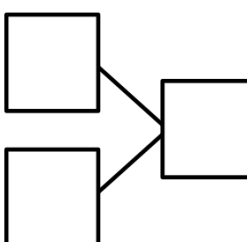
1.  $\underline{\quad\quad} - \underline{\quad\quad} = \underline{\quad\quad}$



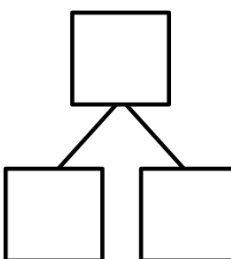
2.  $\underline{\quad\quad} - \underline{\quad\quad} = \underline{\quad\quad}$



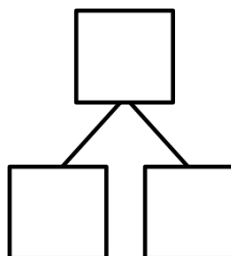
3.  $\underline{\quad\quad} - \underline{\quad\quad} = \underline{\quad\quad}$



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



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

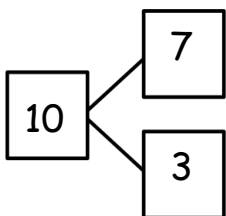


Name \_\_\_\_\_

Date \_\_\_\_\_

Write the related number sentences for the number bonds.

1.



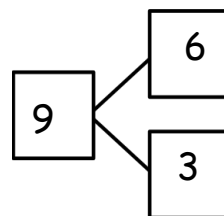
$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

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

$$\underline{\quad} \bigcirc \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} \bigcirc \underline{\quad} = \underline{\quad}$$

2.



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

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

$$\underline{\quad} \bigcirc \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} \bigcirc \underline{\quad} = \underline{\quad}$$

Name \_\_\_\_\_

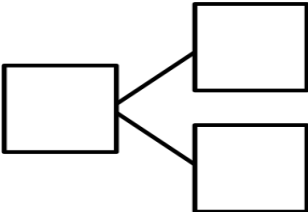
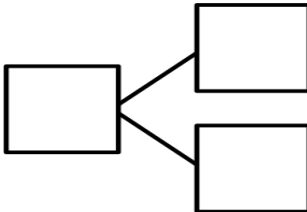
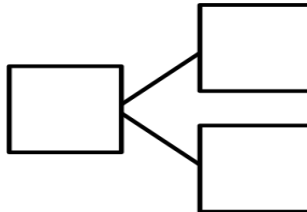
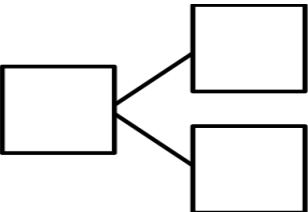
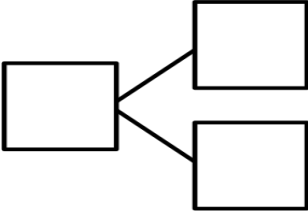
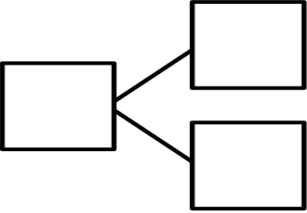
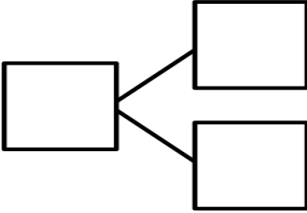
Date \_\_\_\_\_

Find and solve the 7 unshaded addition problems that are doubles and 5-groups.

Make subtraction flashcards for the related subtraction facts. (Remember, doubles will only make 1 related subtraction fact instead of 2 related facts.)

Make a number bond card and use your cards to play memory.

1 + 0	1 + 1	1 + 2	1 + 3	1 + 4	1 + 5	1 + 6	1 + 7	1 + 8	1 + 9
2 + 0	2 + 1		2 + 3	2 + 4	2 + 5	2 + 6	2 + 7	2 + 8	
3 + 0	3 + 1	3 + 2	3 + 3	3 + 4	3 + 5	3 + 6	3 + 7		
4 + 0	4 + 1	4 + 2	4 + 3	4 + 4	4 + 5	4 + 6			
5 + 0	5 + 1	5 + 2	5 + 3	5 + 4	5 + 5				
6 + 0	6 + 1	6 + 2	6 + 3	6 + 4					
7 + 0	7 + 1	7 + 2	7 + 3						
8 + 0	8 + 1	8 + 2							
9 + 0	9 + 1								
10 + 0									

$$6 - 4$$

$$9 - 1$$

$$5 - 2$$

$$10 - 4$$

$$9 - 7$$

$$4 - 3$$

$$8 - 3$$

$$7 - 1$$

$$3 - 2$$

$$9 - 8$$

$$4 - 1$$

$$8 - 7$$

$10 - 2$

$7 - 3$

$9 - 5$

$5 - 0$

$10 - 7$

$7 - 2$

$9 - 3$

$5 - 4$

$6 - 5$

$8 - 0$

$3 - 1$

$6 - 2$

$10 - 10$	$9 - 2$
$8 - 6$	$4 - 4$
$1 - 1$	$4 - 2$
$7 - 0$	$7 - 6$
$7 - 4$	$9 - 9$
$4 - 0$	$5 - 1$

$$2 - 1$$

$$5 - 3$$

$$0 - 0$$

$$10 - 0$$

$$8 - 1$$

$$3 - 3$$

$$6 - 3$$

$$10 - 1$$

$$8 - 2$$

$$10 - 8$$

$$6 - 1$$

$$7 - 7$$



$1 - 0$

$5 - 5$

$6 - 0$

$10 - 9$

$8 - 4$

$10 - 3$

$6 - 6$

$10 - 6$

$9 - 6$

$10 - 5$

$3 - 0$

$2 - 2$

$$2 - 0$$

$$7 - 5$$

$$8 - 5$$

$$8 - 8$$

$$9 - 0$$

$$9 - 4$$

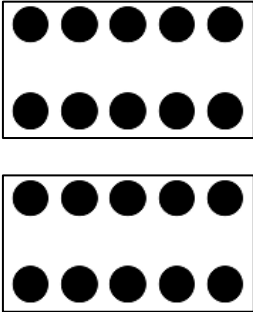
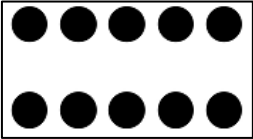













Hide Zero Cards. Copy double-sided.

Numerals

1	0	2	0
0	1	2	3
4	5	<u>6</u>	7
8	<u>9</u>		

Hide Zero Cards. Copy double-sided.

5-groups

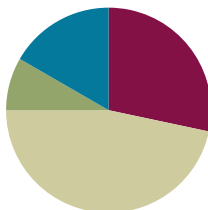
			
			
 	 		
		 	 

## Lesson 39

**Objective:** Analyze the addition chart to create sets of related addition and subtraction facts.

### Suggested Lesson Structure

■ Fluency Practice	(17 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(28 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (17 minutes)

- Decompose Teen Numbers **K.NBT.1** (2 minutes)
- Sprint: Decomposing Teen Numbers **K.NBT.1** (10 minutes)
- Number Bond Roll **1.OA.6** (5 minutes)

### Decompose Teen Numbers (2 minutes)

Note: Reviewing the kindergarten standard **K.NBT.1** will prepare students for problem-solving strategies presented in Module 2.

Ask questions to decompose teen numbers. Instruct students to answer on your signal.

Suggested questions: What's 14 the Say Ten way? 12 is 10 and ? 17 is 7 and ?

### Sprint: Decomposing Teen Numbers (10 minutes)

Materials: (S) Decomposing Teen Numbers Sprint

Note: This activity addresses the core fluency objective for Grade 1 of adding and subtracting within 10.

### Number Bond Roll (5 minutes)

Materials: (S) Die (with 6 replaced by 0), personal white board

Note: Reviewing number bonds allows students to build and maintain fluency with addition and subtraction facts within 10.

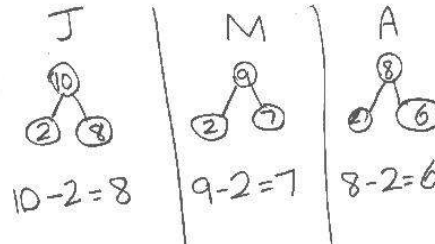
Match up partners of equal ability. Each student rolls 1 die. Students use the numbers on their die and their

partner's die as the parts of a number bond. Instruct each student to write a number bond, 2 addition sentences, and 2 subtraction sentences on their boards. Once completed, the students check each other's work.

### Application Problem (5 minutes)

John has 10 pencils. Mark has 9 pencils. Anna has 8 pencils. They each lost two of their pencils. How many do they each have now? Write a number bond and number sentence for each student.

Note: This problem continues to apply subtraction objectives in solving word problems. During the Debrief, the relationship between the three embedded problems will be discussed.



### Concept Development (28 minutes)

Materials: (T) Addition chart (S) Addition chart reprinted from **G1-M1-L38**, personal white board

T: Last night, you created some addition and subtraction sentences for homework using the chart. Look at  $5 + 2$  on the addition chart. (Gesture to  $5 + 2$  on chart.) Who can share a subtraction sentence and an addition sentence that have the same parts and total?

S:  $7 - 5 = 2$  and  $5 + 2 = 7$ .

T: Let's all write that set on our board. Write the number bond too.

S/T: (Write  $7 - 5 = 2$  and  $5 + 2 = 7$  and matching number bond.)

T: There're more addition facts that we can make from this same number bond. What is one?

S:  $2 + 5 = 7$ !

T: Let's write that number sentence as well.

S: (Write  $2 + 5 = 7$ .)

T: We can also write a number sentence matching two addition expressions without totals. Turn and talk with your partner to discuss what this number sentence might be. Write it on your board.

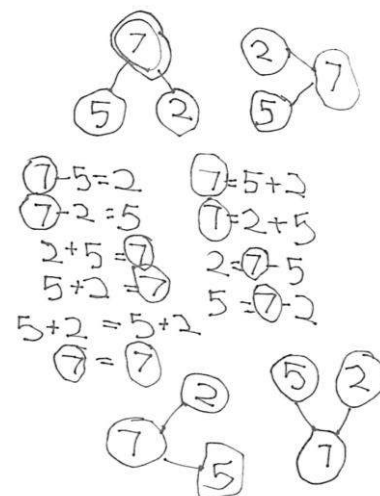
S: (Discuss and write  $5 + 2 = 2 + 5$  on board. Teacher circulates and listens.)

T: I saw many of you write  $5 + 2 = 2 + 5$ .  $5 + 2$  is equal to,



#### NOTES ON MULTIPLE MEANS FOR ACTION AND EXPRESSION:

When students are not able to participate in the traditional *partner share*, they can use their white boards to adjust. Partners can jot questions and answers to one another on slates still participating.



MP.7

or the same as,  $2 + 5$ .

T: There are other number sentences that have the same parts and total. Talk with your partner to decide what they could be, and write them on your white board. (Circulate and listen.)

S: (Discuss and write  $7 - 2 = 5$ .)

T: See if you can write your number bond in different ways, too. Circle your totals!

T: Look how many facts you can share using your knowledge of ONE fact.

Assign pairs of students different number bonds from which to make as many varied number sentences as they can. Have them make a poster and prepare to share their ideas to their peers.

### 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 solve these problems using the RDW approach used for Application Problems.

### Student Debrief (10 minutes)

**Lesson Objective:** Analyze the addition chart to create sets of related addition and subtraction facts.

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

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

- Hold up a subtraction expression. What are number sentences we can make? What number sentence can we make that uses BOTH of the addition expressions?
- Look at Problem 1. Write the number sentence that uses both addition expressions below your work.
- How does knowledge of addition or subtraction fact help you know other facts? Use an example from your worksheet to explain your thinking.

NYS COMMON CORE MATHEMATICS CURRICULUM

Directions: Choose an expression card and write 4 problems that use the same parts and totals. Shade the totals orange.

1.  $9 - 2 = 7$   
 $2 + 7 = 9$   
 $7 + 2 = 9$   
 $9 - 7 = 2$

2.  $10 - 4 = 6$   
 $6 + 4 = 10$   
 $4 + 6 = 10$   
 $10 - 6 = 4$

3.  $8 - 6 = 2$   
 $6 + 2 = 8$   
 $8 - 2 = 6$   
 $2 + 6 = 8$

4.  $9 - 5 = 4$   
 $5 + 4 = 9$   
 $9 - 4 = 5$   
 $4 + 5 = 9$



#### NOTES ON MULTIPLE MEANS FOR ENGAGEMENT:

Adjust problem set directions as needed to suit specific learning needs. Some students may need to write a number bond before writing the number sentences.

- Look at your application problem. Where are the related addition facts on the addition chart? How are the three number bonds similar? How are they different?
- Have different groups present their work from the earlier part of the lesson. Let the others ask them questions about their work.

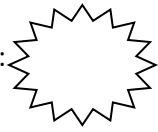
**Exit Ticket (3 minutes)**

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.



A

Number correct:



Name \_\_\_\_\_

Date \_\_\_\_\_

\*Write the missing number from each sentence.

1	8 and 2 make <input type="text"/>		16	11 is 10 and <input type="text"/>	
2	9 and 1 make <input type="text"/>		17	11 is 1 and <input type="text"/>	
3	7 and 3 make <input type="text"/>		18	12 is 2 and <input type="text"/>	
4	6 and <input type="text"/> make 10		19	11 is <input type="text"/> and 1	
5	4 and <input type="text"/> make 10		20	14 is 10 and <input type="text"/>	
6	5 and <input type="text"/> make 10		21	15 is <input type="text"/> and 5	
7	<input type="text"/> and 5 make 10		22	18 is 10 and <input type="text"/>	
8	13 is 10 and <input type="text"/>		23	20 is 10 and <input type="text"/>	
9	14 is 10 and <input type="text"/>		24	2 more than 10 is <input type="text"/>	
10	16 is 10 and <input type="text"/>		25	10 more than 2 is <input type="text"/>	
11	17 is 10 and <input type="text"/>		26	10 is <input type="text"/> less than 12	
12	19 is 10 and <input type="text"/>		27	10 is <input type="text"/> less than 12	
13	18 is 10 and <input type="text"/>		28	8 less than 18 is <input type="text"/>	
14	12 is 10 and <input type="text"/>		29	6 less than 16 is <input type="text"/>	
15	13 is 10 and <input type="text"/>		30	10 less than 20 is <input type="text"/>	

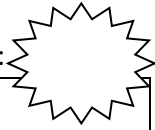
## B

Name \_\_\_\_\_

Date \_\_\_\_\_

\*Write the missing number from each sentence.

Number correct:



1	9 and 1 make <input type="text"/>		16	12 is 10 and <input type="text"/>	
2	8 and 2 make <input type="text"/>		17	12 is 2 and <input type="text"/>	
3	6 and 4 make <input type="text"/>		18	11 is 1 and <input type="text"/>	
4	7 and <input type="text"/> make 10		19	11 is <input type="text"/> and 1	
5	3 and <input type="text"/> make 10		20	15 is 10 and <input type="text"/>	
6	7 and <input type="text"/> make 10		21	14 is <input type="text"/> and 4	
7	<input type="text"/> and 5 make 10		22	19 is 10 and <input type="text"/>	
8	14 is 10 and <input type="text"/>		23	20 is 10 and <input type="text"/>	
9	13 is 10 and <input type="text"/>		24	1 more than 10 is <input type="text"/>	
10	17 is 10 and <input type="text"/>		25	10 more than 1 is <input type="text"/>	
11	16 is 10 and <input type="text"/>		26	10 is <input type="text"/> less than 11	
12	15 is 10 and <input type="text"/>		27	10 is <input type="text"/> less than 11	
13	19 is 10 and <input type="text"/>		28	7 less than 18 is <input type="text"/>	
14	11 is 10 and <input type="text"/>		29	7 less than 16 is <input type="text"/>	
15	12 is 10 and <input type="text"/>		30	10 less than 20 is <input type="text"/>	

Name \_\_\_\_\_

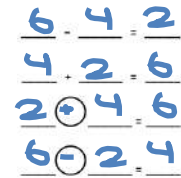
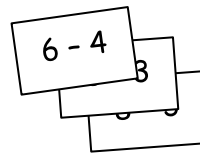
Date \_\_\_\_\_

Study the addition chart to solve and write related problems.

1 + 0	1 + 1	1 + 2	1 + 3	1 + 4	1 + 5	1 + 6	1 + 7	1 + 8	1 + 9
2 + 0	2 + 1	2 + 2	2 + 3	2 + 4	2 + 5	2 + 6	2 + 7	2 + 8	
3 + 0	3 + 1	3 + 2	3 + 3	3 + 4	3 + 5	3 + 6	3 + 7		
4 + 0	4 + 1	4 + 2	4 + 3	4 + 4	4 + 5	4 + 6			
5 + 0	5 + 1	5 + 2	5 + 3	5 + 4	5 + 5				
6 + 0	6 + 1	6 + 2	6 + 3	6 + 4					
7 + 0	7 + 1	7 + 2	7 + 3						
8 + 0	8 + 1	8 + 2							
9 + 0	9 + 1								
10 + 0									

Pick a subtraction flashcard.  
Find the related addition fact on the chart and shade it in.  
Write the subtraction sentence and the shaded addition sentence.  
Write the other two related facts.  
Continue for at least 4 turns.

Directions: Choose an expression card and write 4 problems that use the same parts and totals. Shade the totals orange.



1. \_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_

2. \_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_

\_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_

\_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_

\_\_\_\_\_ ○ \_\_\_\_\_ = \_\_\_\_\_

\_\_\_\_\_ ○ \_\_\_\_\_ = \_\_\_\_\_

\_\_\_\_\_ ○ \_\_\_\_\_ = \_\_\_\_\_

\_\_\_\_\_ ○ \_\_\_\_\_ = \_\_\_\_\_

3. \_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_

4. \_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_

\_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_

\_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_

\_\_\_\_\_ ○ \_\_\_\_\_ = \_\_\_\_\_

\_\_\_\_\_ ○ \_\_\_\_\_ = \_\_\_\_\_

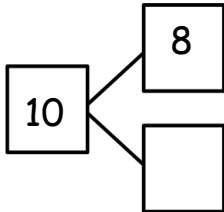
\_\_\_\_\_ ○ \_\_\_\_\_ = \_\_\_\_\_

\_\_\_\_\_ ○ \_\_\_\_\_ = \_\_\_\_\_

Name \_\_\_\_\_ Date \_\_\_\_\_

Write the related number sentences for the number bonds.

1.



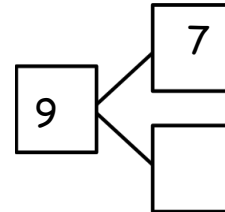
$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

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

$$\underline{\quad} \bigcirc \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} \bigcirc \underline{\quad} = \underline{\quad}$$

2.



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

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

$$\underline{\quad} \bigcirc \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} \bigcirc \underline{\quad} = \underline{\quad}$$

Name \_\_\_\_\_

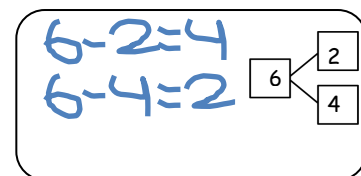
Date \_\_\_\_\_

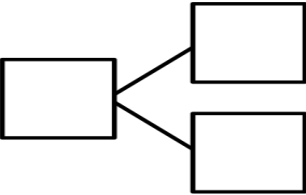
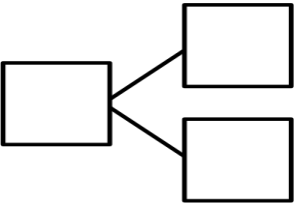
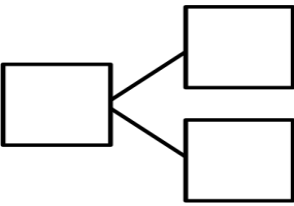
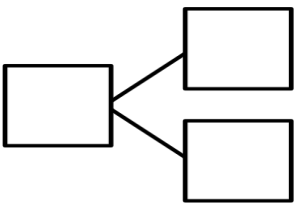
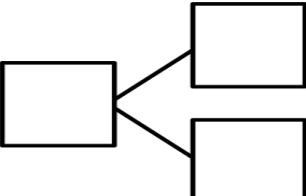
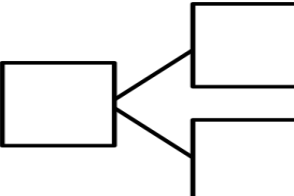
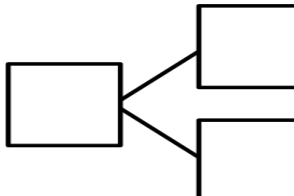
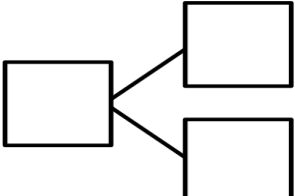
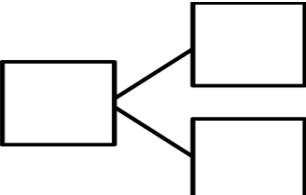
Solve the unshaded addition problems below.

1 + 0	1 + 1	1 + 2	1 + 3	1 + 4	1 + 5	1 + 6	1 + 7	1 + 8	1 + 9
2 + 0	2 + 1	2 + 2	2 + 3	2 + 4	2 + 5	2 + 6	2 + 7	2 + 8	
3 + 0	3 + 1	3 + 2	3 + 3	3 + 4	3 + 5	3 + 6	3 + 7		
4 + 0	4 + 1	4 + 2	4 + 3	4 + 4	4 + 5	4 + 6			
5 + 0	5 + 1	5 + 2	5 + 3	5 + 4	5 + 5				
6 + 0	6 + 1	6 + 2	6 + 3	6 + 4					
7 + 0	7 + 1	7 + 2	7 + 3						
8 + 0	8 + 1	8 + 2							
9 + 0	9 + 1								
10 + 0									

$4 + 2$

Pick an addition fact from the chart. Use the grid to write the two subtraction facts that would have the same number bond. Repeat, in order to make a set of subtraction flash cards. To help you practice your addition and subtraction facts even more, make your own number bond flash cards with the templates on the last page.





Name \_\_\_\_\_

Date \_\_\_\_\_

1. There were 5 boys at Jake's party. Some more came after basketball practice. Then there were 9. How many boys came to Jake's party after basketball practice?
- a. Draw a picture to help you solve the problem.

b. Draw a complete number bond that goes with this story.

c. Write an addition sentence to match this story.

---

2. Write the numbers that go in the blanks.

a. Color all of the partners to 10 blue.

b. Color all of the +1 facts yellow.

c. Color all of the +2 facts red.

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

$\underline{\quad} = 1 + 4$

$3 + 2 = \underline{\quad}$

$\underline{\quad} = 7 + 2$

$5 + 1 = \underline{\quad}$

$\underline{\quad} = 8 + 1$

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

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

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

3. Look at the party picture!



a. Write at least two different addition sentences using 3, 6, and 9 that describe the party picture.

\_\_\_\_\_

\_\_\_\_\_

b. How are these number sentences the same? Explain using pictures and numbers.

4. Monica says when the unknown is 4, it makes this number sentence true:  
 $5 + 3 = \underline{\quad} + 4$ . Terry says she is wrong. He says 8 makes the number sentence true.
- a. Who is correct? Explain your thinking using pictures, words, or numbers.
- b. Monica says that 3 and 5 is equal to 5 and 3. Terry says she is wrong again. Explain who is correct, using pictures, numbers, or words.
- c. Next, Monica tells Terry  $8 = 8$ . Terry says she is wrong one more time. Explain who is correct, using pictures, numbers, or words.
- d. Terry decided to share 8 carrot sticks with his friend Monica. Monica put 5 carrot sticks on her plate and some more in her lunch box. How many carrot sticks did Monica put in her lunch box?

## Mid-Module Assessment Task Standards Addressed

## Topics A–F

### Represent and solve problems involving addition and subtraction.

- 1.OA.1** Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. (See Glossary, Table 1.)

### Understand and apply properties of operations and the relationship between addition and subtraction.

- 1.OA.3** Apply properties of operations as strategies to add and subtract. (Students need not use formal terms for these properties.) *Examples: If  $8 + 3 = 11$  is known, then  $3 + 8 = 11$  is also known. (Commutative property of addition.) To add  $2 + 6 + 4$ , the second two numbers can be added to make a ten, so  $2 + 6 + 4 = 2 + 10 = 12$ . (Associative property of addition.)*

### Add and subtract within 20.

- 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  $6 + 6 + 1 = 12 + 1 = 13$ ).

### Work with addition and subtraction equations.

- 1.OA.7** Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. *For example, which of the following equations are true and which are false?  $6 = 6$ ,  $7 = 8 - 1$ ,  $5 + 2 = 2 + 5$ ,  $4 + 1 = 5 + 2$ .*
- 1.OA.8** Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations  $8 + ? = 11$ ,  $5 = \square - 3$ ,  $6 + 6 = \square$ .*

## 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 each student is to achieve Step 4 mastery. These steps are meant to help teachers and students identify and celebrate what the student CAN do now, and what they need to work on next.

## A Progression Toward Mastery

Assessment Task Item	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)
<b>1</b>  <b>1.OA.1</b> <b>1.OA.5</b> <b>1.OA.8</b>	The student is unable to represent the problem with pictures or is disorganized with the symbols, digits, and structure and writes an inaccurate number bond and number sentence.	The student draws an incorrect picture with an equation and number bond that may or may not match the incorrect picture.	<p>The student draws and solves the <i>add to with change unknown</i> problem correctly (4 more boys came to the party), but is unable to write an addition equation or number bond to match the problem.</p> <p>Or, the student writes an equation and number bond (using 9, 5, and 4), but cannot explain their thinking using pictures to solve the <i>add to with change unknown</i> problem.</p>	<p>The student correctly:</p> <ul style="list-style-type: none"> <li>Draws a picture to solve the <i>add to with change unknown</i> problem and determines that 4 more boys came to the party.</li> <li>Makes a number bond with 9, 5, and 4.</li> <li>Writes an addition equation (<math>9 = 5 + \underline{\quad}</math>, <math>5 + \underline{\quad} = 9</math>, etc.).</li> </ul>
<b>2</b>  <b>1.OA.6</b>	The student is unable to add as evidenced by unanswered problems. The student colors boxes at random with little understanding of partners to 10, +1, and +2.	<p>The student makes several calculation or category coloring errors.</p> <p>The student makes no accommodation for <math>9 + 1</math>.</p>	<p>The student answers most addition problems correctly, and makes some category coloring errors (up to 2 calculation or color errors combined.)</p> <p>The student makes no accommodation for <math>9 + 1</math>, or makes an accommodation for <math>9 + 1</math> with calculation or category coloring errors.</p>	<p>The student correctly:</p> <ul style="list-style-type: none"> <li>Answers all addition problems.</li> <li>Colors all equations in accordance to the problem type categories.</li> <li>Makes an accommodation for <math>9 + 1</math> as it fits two categories.</li> </ul>



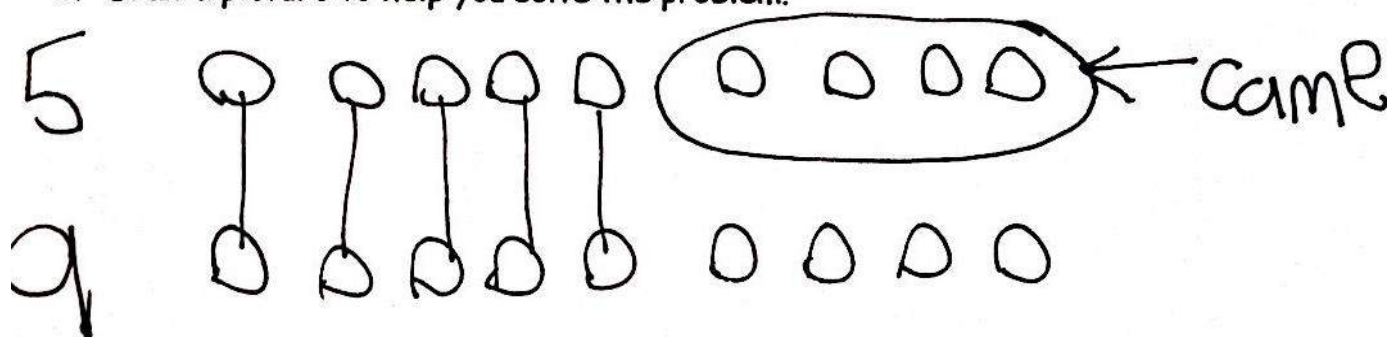
<p><b>3</b></p> <p><b>1.OA.3</b> <b>1.OA.6</b></p>	<p>The student writes two incorrect number sentences.</p> <p>Or, the student is disorganized with the symbols, digits, and structure, and writes an inaccurate equation.</p>	<p>The student writes one correct number sentence, and thus cannot explain the similarities between two equations.</p> <p>Or, the student writes two number sentences that are exactly the same as one another, and explains her thinking that does not reflect an understanding of the commutative property.</p>	<p>The student writes two correct and unique addition equations using 3, 6, and 9, but is unable to cite the commutative property in her own words to explain how the equations are same.</p>	<p>The student clearly:</p> <ul style="list-style-type: none"> <li>Writes two correct and unique addition equations that use 3, 6, and 9 (<math>9 = 6 + 3</math>, or <math>3 + 6 = 9</math>, or <math>9 = 3 + 6</math>, etc.).</li> <li>Demonstrates with pictures, numbers, and words how the number sentences are the same, somehow citing the commutative property in her own words.</li> </ul>
<p><b>4</b></p> <p><b>1.OA.1</b> <b>1.OA.3</b> <b>1.OA.5</b> <b>1.OA.6</b> <b>1.OA.7</b> <b>1.OA.8</b></p>	<p>The student cannot explain any of the three scenarios clearly using equations, pictures, or words.</p> <p>The student cannot solve the <i>take apart with addend unknown</i> problem correctly.</p>	<p>The student explains one of the three scenarios clearly and thoroughly using equations, pictures, or words. The student solves the <i>take apart with addend unknown</i> problem incorrectly (something other than 3 carrots were in her lunch box).</p>	<p>The student explains two of the three scenarios clearly and thoroughly using equations, pictures, and/or words.</p> <p>The student solves the <i>take apart with addend unknown</i> problem correctly and determines that 3 carrots were in her lunch box.</p>	<p>The student clearly and thoroughly:</p> <ul style="list-style-type: none"> <li>Explains all three scenarios using equations, pictures, and/or words.</li> <li>Solves the <i>take apart with addend unknown</i> problem correctly and determines that 3 carrots were in her lunch box.</li> </ul>

Name Maria

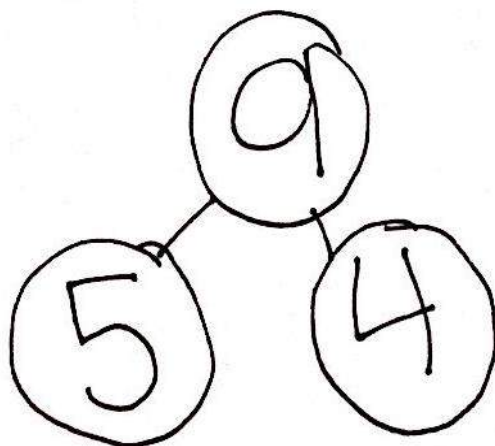
Date \_\_\_\_\_

1. There were 5 boys at Jake's party. Some more came after basketball practice. Then there were 9.

a. Draw a picture to help you solve the problem.



b. Draw a complete number bond that goes with this story.



Write an addition sentence to match this story.

$$5 + 4 = 9$$



2. Write the numbers that go in the blanks.

a. Color all of the partners to 10 blue.

b. Color all of the +1 facts yellow.

c. Color all of the +2 facts red.

$$3 + 7 = 10$$

$$5 = 1 + 4$$

$$3 + 2 = 5$$

$$9 = 7 + 2$$

$$5 + 1 = 6$$

$$9 = 8 + 1$$

$$9 + 1 = 8$$

$$8 = 2 + 6$$

$$6 + 4 = 10$$

3. Look at the party picture!



a. Write at least two different addition sentences using 3, 6, and 9 that describe the party picture.

$$3 + 6 = 9$$

$$6 + 3 = 9$$

b. How are these number sentences the same? Explain using pictures and numbers.

$$3 \text{ } \bigcirc \bigcirc \bigcirc + \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc = 9$$

$$6 \text{ } \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc + \bigcirc \bigcirc \bigcirc = 9$$



4. Monica says when the unknown is 4, it makes this number sentence true:

$5 + 3 = \underline{\quad} + 4$ . Terry says she is wrong. He says 8 makes the number sentence true.

- a. Who is correct? Explain your thinking using pictures, words, or numbers.

Monica  
 $5 + 3 = 8$   
 $4 + 4 = 8$   
 They are the same so shes rite.

- b. Monica says that 3 and 5 is equal to 5 and 3. Terry says she is wrong again.

Explain who is correct, using pictures, numbers, or words.

$3 + 5 = 5 + 3$   
 $3 + 5 = 5 + 3$   
 Monica the same

- c. Next, Monica tells Terry  $8 = 8$ . Terry says she is wrong one more time. Explain who is correct, using pictures, numbers, or words.

$8 = 8$   
 Its true!

- d. Terry decided to share 8 carrot sticks with his friend Monica. Monica put 5 carrot sticks on her plate and some more in her lunch box. How many carrot sticks did Monica put in her lunch box?

$5 + 3 = 8$   
 $5 + 3 = 8$   
 3 Carrot sticks

Name \_\_\_\_\_

Date \_\_\_\_\_

1. There are 9 ducks swimming along in a line. There are 2 grown-up ducks, and the rest are babies. How many of the ducks are babies?
- a. Explain your thinking using pictures, numbers or words.

- b. Write a number sentence that shows how you solved the problem.

---

2. Jennifer says you can use addition to solve subtraction.  
She says to solve  $9 - 6 = \square$ , just add  $9 + 6$ .  
Explain how Jennifer is right **and** wrong using words, pictures, and numbers.

3. Jeremy is confused about this problem:  $\underline{\hspace{1cm}} = 10 - 8$ . Be his teacher. Write two addition number sentences that might help him understand and solve it. Explain to Jeremy using words, pictures, or numbers, too.

4. At the park, there are 6 friends playing baseball. Some more friends come. Now there are 10 friends playing.

a. How many friends come to play with the first 6 friends? Explain your thinking using a math drawing, numbers, and words.

b. Write an addition sentence and a subtraction sentence to match the story.

\_\_\_\_\_

c. Write the addition sentence you found when solving the problem, and use the same 3 numbers to write 3 more number sentences:

\_\_\_\_\_

\_\_\_\_\_

## End-of-Module Assessment Task Standards Addressed

## Topics A–J

### Represent and solve problems involving addition and subtraction.

- 1.OA.1** Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. (See Glossary, Table 1.)

### Understand and apply properties of operations and the relationship between addition and subtraction.

- 1.OA.3** Apply properties of operations as strategies to add and subtract. (Students need not use formal terms for these properties.) *Example: If  $8 + 3 = 11$  is known, then  $3 + 8 = 11$  is also known. (Commutative property of addition.) To add  $2 + 6 + 4$ , the second two numbers can be added to make a ten, so  $2 + 6 + 4 = 2 + 10 = 12$ . (Associative property of addition.)*
- 1.OA.4** Understand subtraction as an unknown-addend problem. *For example, subtract  $10 - 8$  by finding the number that makes 10 when added to 8.*

### Add and subtract within 20.

- 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  $6 + 6 + 1 = 12 + 1 = 13$ ).

### Work with addition and subtraction equations.

- 1.OA.7** Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. *For example, which of the following equations are true and which are false?  $6 = 6$ ,  $7 = 8 - 1$ ,  $5 + 2 = 2 + 5$ ,  $4 + 1 = 5 + 2$ .*
- 1.OA.8** Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations  $8 + ? = 11$ ,  $5 = \square - 3$ ,  $6 + 6 = \square$ .*

## 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 each student is to achieve Step 4 mastery. These steps are meant to help teachers and students identify and celebrate what the student can do now, and what they need to work on next.

## A Progression Toward Mastery

Assessment Task Item	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)
<b>1</b>  <b>1.OA.1</b> <b>1.OA.4</b> <b>1.OA.6</b> <b>1.OA.8</b>	The student demonstrates a limited ability to both explain his thinking and answer accurately.	The student demonstrates a beginning concept of how to solve an <i>addend unknown</i> relationship problem using pictures, words, or numbers by attempting to show her thinking, but provides an inaccurate answer.	The student correctly solves the <i>addend unknown</i> relationship problem and writes a corresponding equation, but cannot explain his thinking in pictures, words, or numbers.  Or, the student explains her thinking using pictures, words, or numbers, but is unable to write an accurate equation.	The student correctly: <ul style="list-style-type: none"> <li>Solves the <i>addend unknown</i> relationship problem and determines that 7 ducks are babies.</li> <li>Explains thinking by drawing a picture, writing numbers or equations, or words.</li> <li>Writes an equation that corresponds with her solution process (addition or subtraction).</li> </ul>
<b>2</b>  <b>1.OA.4</b> <b>1.OA.5</b> <b>1.OA.7</b> <b>1.OA.8</b>	The student shows little evidence of understanding how addition and subtraction differ, or is unable to complete the task.	The student shows evidence of beginning to understand how addition and subtraction differ through his explanation, but demonstrates incomplete reasoning and/or an incorrect answer.	The student identifies that Jennifer is incorrect, but cannot fully support the claim or explain his thinking clearly.	The student correctly identifies that Jennifer is correct that addition can be used to solve a subtraction problem, and that she is incorrect in adding 9 and 6 to solve $9 - 6$ . The student shows her thinking using words, pictures, or numbers.



## A Progression Toward Mastery

<b>3</b>  <b>1.OA.5</b> <b>1.OA.4</b> <b>1.OA.7</b> <b>1.OA.8</b>	<p>The student demonstrates little to no concept of the connection between addition and subtraction, and is unable to explain her thinking.</p>	<p>The student demonstrates a beginning understanding of the connection between addition and subtraction, but does not answer accurately.</p>	<p>The student correctly writes two accurate equations using 8, 2, and 10, but is unable to explain her thinking.</p> <p>Or, the student is able to explain her thinking, somehow citing the connection between addition and subtraction, but is unable to write two accurate equations.</p>	<p>The student correctly:</p> <ul style="list-style-type: none"> <li>Writes two accurate addition equations using 8, 2, and 10.</li> <li>Explains her thinking using pictures, numbers, or words, and cites the connection between addition and subtraction in her explanation.</li> </ul>
<b>4</b>  <b>1.OA.1</b> <b>1.OA.3</b> <b>1.OA.4</b> <b>1.OA.6</b> <b>1.OA.7</b> <b>1.OA.8</b> <b>1.OA.5</b>	<p>The student shows very little understanding of how to solve the <i>add to with change unknown</i> problem, and cannot write corresponding equations.</p>	<p>The student shows a beginning understanding of how to solve the <i>add to with change unknown</i> problem, but lacks reasoning or equation writing skills.</p>	<p>The student correctly answers the <i>add to with change unknown</i> problem (4 friends came to play), writes accurate addition and subtraction equations, including those that demonstrate an understanding of the commutative property, but is unable to explain his thinking.</p> <p>Or, the student writes addition and subtraction equations correctly and clearly explains his thinking but does not answer accurately (something other than 4 friends came to play).</p> <p>Or, the student solves the problem (4 friends came to play) and explains thinking clearly but does not write all addition and subtraction sentences accurately.</p>	<p>The student clearly:</p> <ul style="list-style-type: none"> <li>Solves the <i>add to with change unknown</i> problem and determines that 4 friends came to play, and explains his thinking.</li> <li>Writes addition and subtraction equations which correspond to the problem.</li> <li>Applies the commutative property and knowledge of the equal sign to write three additional equations (<math>10 = 6 + 4</math>; <math>4 + 6 = 10</math>; <math>10 - 4 = 6</math>; etc.).</li> </ul>



Name Maria

Date \_\_\_\_\_

1. There are 9 ducks swimming along in a line. There are 2 grown-up ducks, and the rest are babies. How many of the ducks are babies?

a. Explain your thinking using pictures, numbers or words.

Grown Ups

Babies

$$2 + 7 = 9$$

b. Write a number sentence that shows how you solved the problem.

$$2 + 7 = 9$$

B

$$2 + \square = 9$$

2. Jennifer says you can use addition to solve subtraction.

She says to solve  $9 - 6 = \square$ , just add  $9 + 6$ .

Explain how Jennifer is right and wrong using words, pictures, and numbers.

$$3 + \_ = 5$$

$$5 - 3 = 2$$

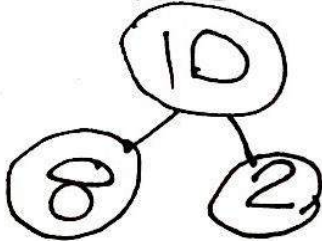
rite

~~$$3 + 5$$~~

$$3 + 8 \text{ is not } 5$$

rong

3. Jeremy is confused about this problem:  $\underline{\quad} = 10 - 8$ . Be his teacher. Write two addition number sentences that might help him understand and solve it. Explain to Jeremy using words, pictures, or numbers, too.

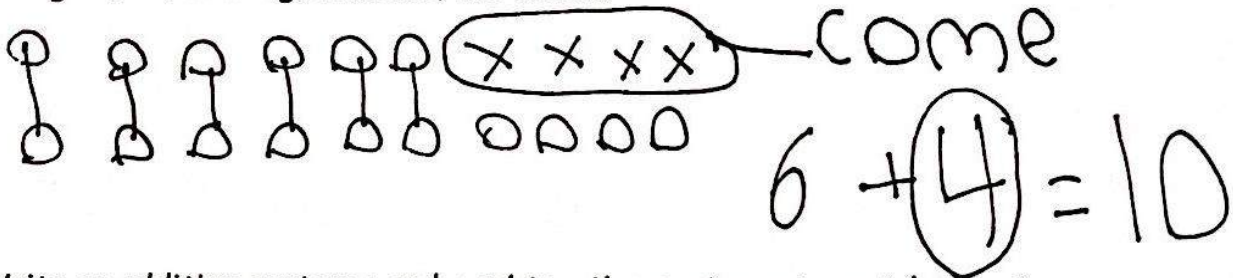


$$10 - 8 = \underline{\quad}$$

is the same

$$8 + \square = 10$$

4. At the park, there are 6 friends playing baseball. Some more friends come. Now there are 10 friends playing.
- a. How many friends come to play with the first 6 friends? Explain your thinking using a math drawing, numbers, and words.



- b. Write an addition sentence and a subtraction sentence to match the story.

$$6 + 4 = 10 \quad 10 - 6 = 4$$

- c. Write the addition sentence you found when solving the problem, and use the same 3 numbers to write 3 more number sentences:

$$6 + 4 = 10 \quad 10 = 6 + 4$$

$$4 + 6 = 10 \quad 10 = 4 + 6$$