Teacher's Manual

Instruction Coach™ 1

Mathematics

Dear Educator,

Instruction Coach has been built to meet the new, higher standards for mathematics and contains the rigor that your students will need. We believe you will find it to be an excellent resource for comprehensive instruction, practice, and assessment.

The Triumph Learning Team

Instruction Coach, Mathematics, First Edition, Grade 1, Teacher's Manual 521NATE ISBN-13: 978-1-62928-381-4
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Printed in the United States of America. 10 9 8 7 6 5 4 3 2 1

Contents

Problem Solving | Fluency Lesson | Performance Task

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Chapter 3: Measurement and Data

Chapter 4: Geometry

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Instructional Overview

Welcome to *Instruction Coach*!

This program is based on the philosophy that mathematical skills are built on concepts. Math, more than any other school subject, builds from concept to concept, one on top of another, over several years. When students understand concepts and how they connect to skills, they are better equipped to solve the problems that they encounter in the real world.

Implementation

This program is your instructional anchor. You probably have other instructional materials in your class—they may be books and workbooks, computers, smart boards, pads, math manipulatives, or a basal textbook. You know when and how to apply the appropriate mix of instruction for your students as the content demands. In the end, these are your students, who are in your class and your school. You know your class best. You have the wisdom and knowledge to use this program in the best way possible for your students.

Supplemental Implementation

If you use a basal textbook, then this program becomes an excellent partner in helping to strengthen and advance your mathematics instruction. This program and your basal can work together hand in hand; whether for lesson review, lesson practice, chapter review, or working through a performance task, this program is ready to help your students.

The flexibility of this program allows it to fit into many stages of instruction. For example, you may want to use this program on a twice-weekly basis to add depth, understanding, and practice to the basal experience. Alternatively, you may choose to use this program at the end of a chapter of instruction if you judge that your students need additional practice in that chapter. You can then choose several or all lessons from the chapter to reinforce and review concepts and skills included in that chapter. Or, you may want to assign specific lessons from this program to groups of students or to individuals.

Basal Implementation

This program offers complete instruction for your grade. It combines complete instruction with an accompanying Teacher's Manual full of practical and inventive suggestions for every lesson. You can use it as your main instructional vehicle throughout the school year because it is a complete package—from instructional lessons to robust lesson practice to chapter reviews to performance tasks. A friendly Home-School Connection booklet brings extra practice to the students' homes and informs families of the math that children are learning.

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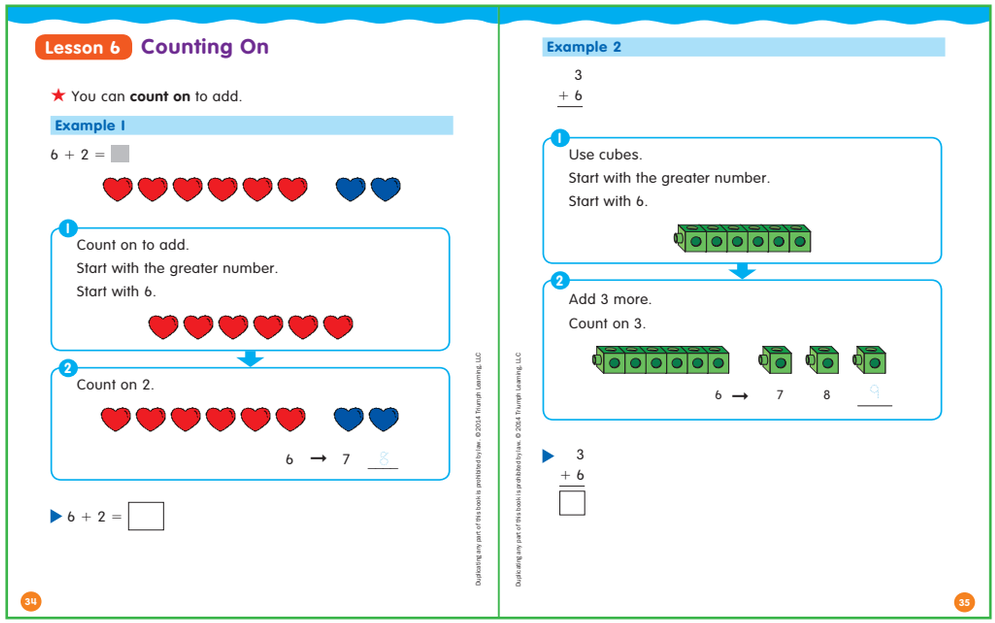
Student Book

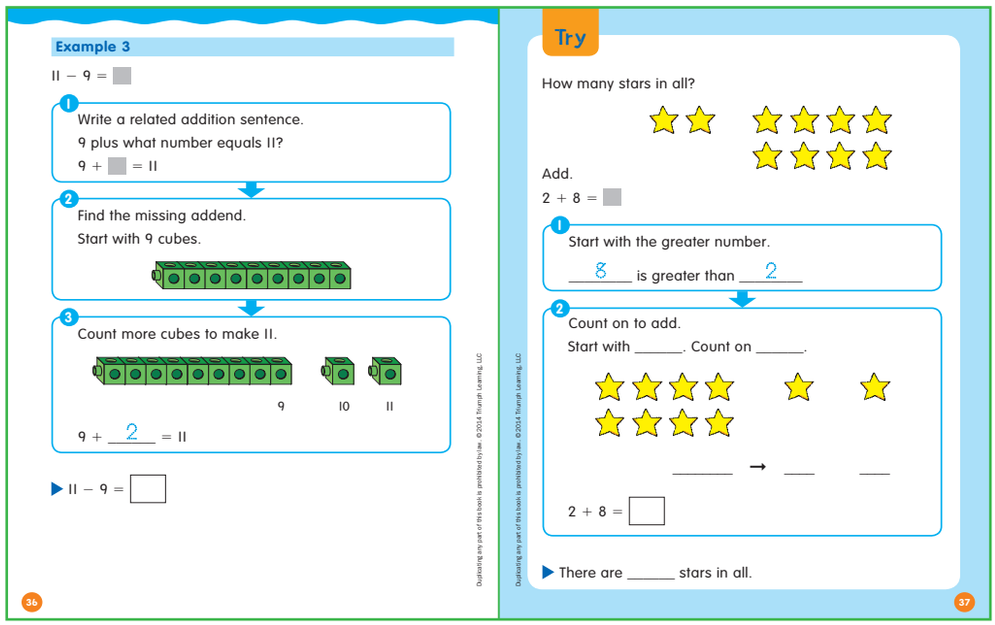
Lessons

The **Lessons** flow in a logical fashion, building on prior knowledge from the forerunner chapter or from a chapter whose content links to the chapter at hand. Lessons will often take several days to complete. Lessons work through many variants of the skills and/or concepts. All skills are developed through Examples. You can use the interactive Examples in the lessons to stimulate discussions, to allow groups of students to interact and answer questions, and to connect with other parts of the math curriculum.

At the end of all Examples, interactive sections have students complete the problem posed in the Example. Each lesson includes an Example that is aligned to mathematical practices. Suggestions for how to use the Example to develop deeper understanding are offered in the lesson plan.

The **Try** feature provides a scaffolded example for children to work through individually or as a class before they are assigned practice.





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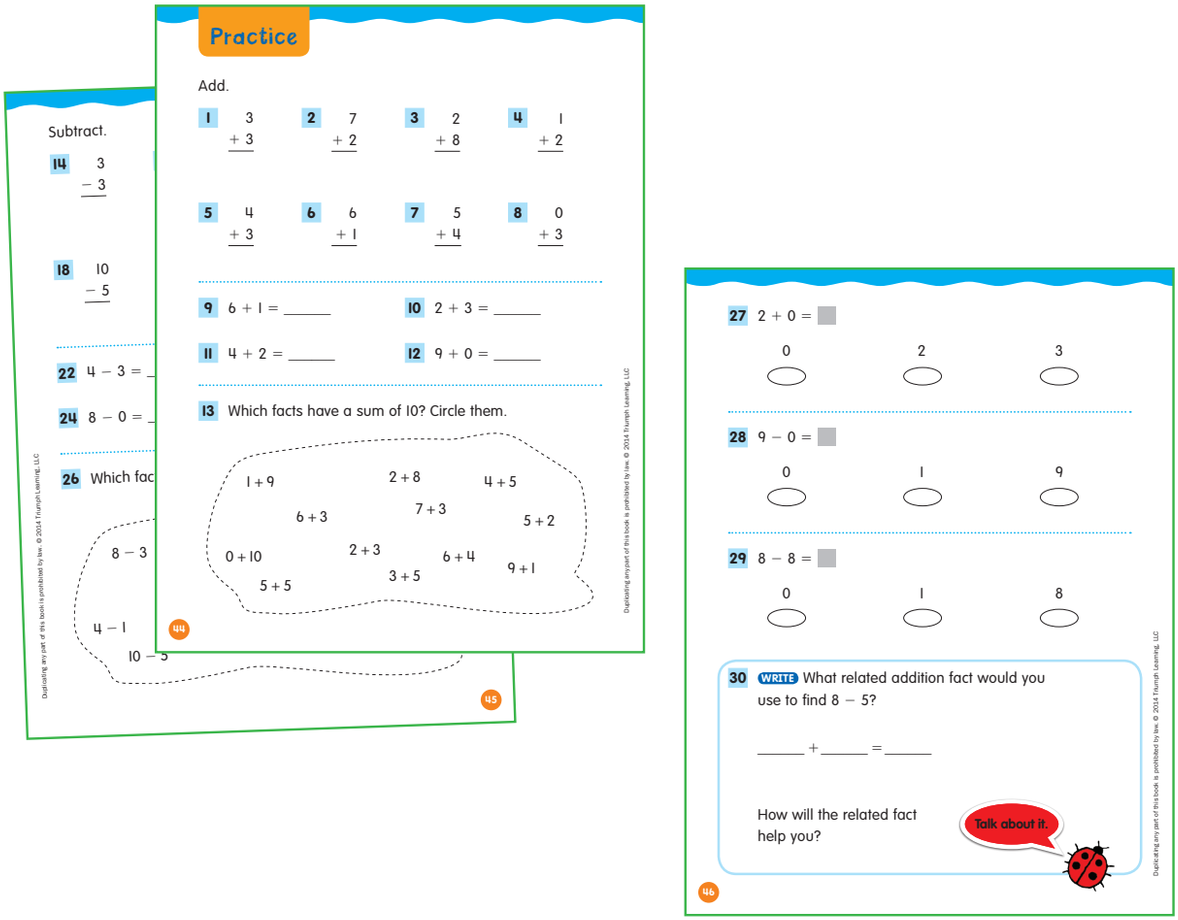
Practice appears in each lesson. Each lesson concludes with practice aligned to the content covered in the instruction. The practice items build in difficulty and offer a variety of question types.

Each Practice section ends with a problem that stretches and extends the skill(s) in the lesson. Many of the lesson practice sections include a **Talk About It** feature as well. Young children may not be able to write too much—a number or a word here, a sentence there—but they can certainly talk when encouraged. By means of the built-in **Talk About It** feature, children can tell how they get their answers, tell why a solution works, and even argue why their answer is better than someone else's. The trick is to encourage conversation about math questions and to stimulate reasoning and thinking. **Talk About It** is a starter for good conversations about math questions; and when successful, the conversations induce good mathematical practices. Look for them, extend them, and then create your own **Talk About It** topics.



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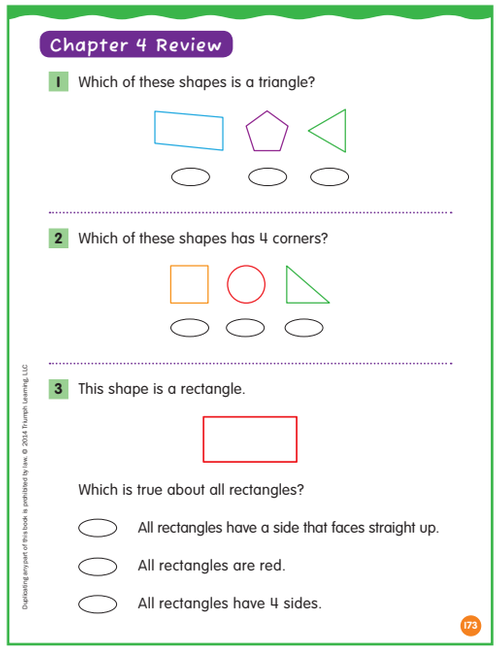
Chapter Reviews

Chapter Reviews consist of questions that cover all standards in the domain. Chapter Reviews include multiple-choice questions, short-answer questions, and extended-response questions. These reviews serve as excellent assessment tools. Each Chapter Review ends with a problem that stretches and extends the skill(s) in the lessons.



Chapter 4 Review

1 Which of these shapes is a triangle?

2 Which of these shapes has 4 corners?

3 This shape is a rectangle.

Which is true about all rectangles?

- All rectangles have a side that faces straight up.
- All rectangles are red.
- All rectangles have 4 sides.

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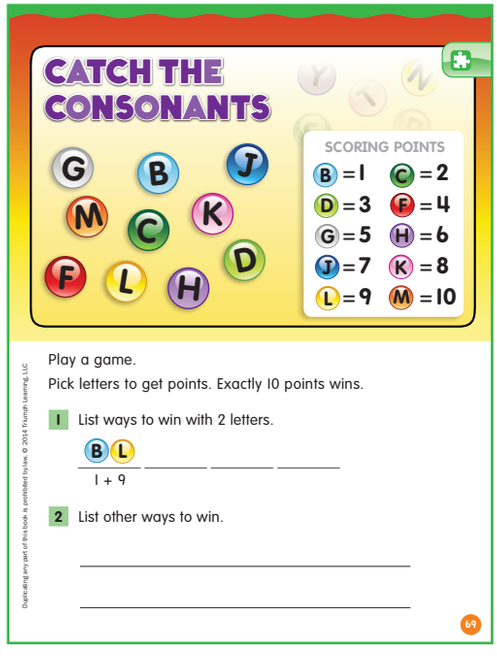
Performance Tasks

Performance Tasks appear at the end of each Chapter Review. They complement instruction with non-routine applications of chapter skills. Performance Tasks require students to perform a range of activities, from drawing and building to writing and talking.



CATCH THE CONSONANTS

SCORING POINTS

B = 1 C = 2
D = 3 F = 4
G = 5 H = 6
J = 7 K = 8
L = 9 M = 10

Play a game.
Pick letters to get points. Exactly 10 points wins.

1 List ways to win with 2 letters.

B L
1 + 9

2 List other ways to win.

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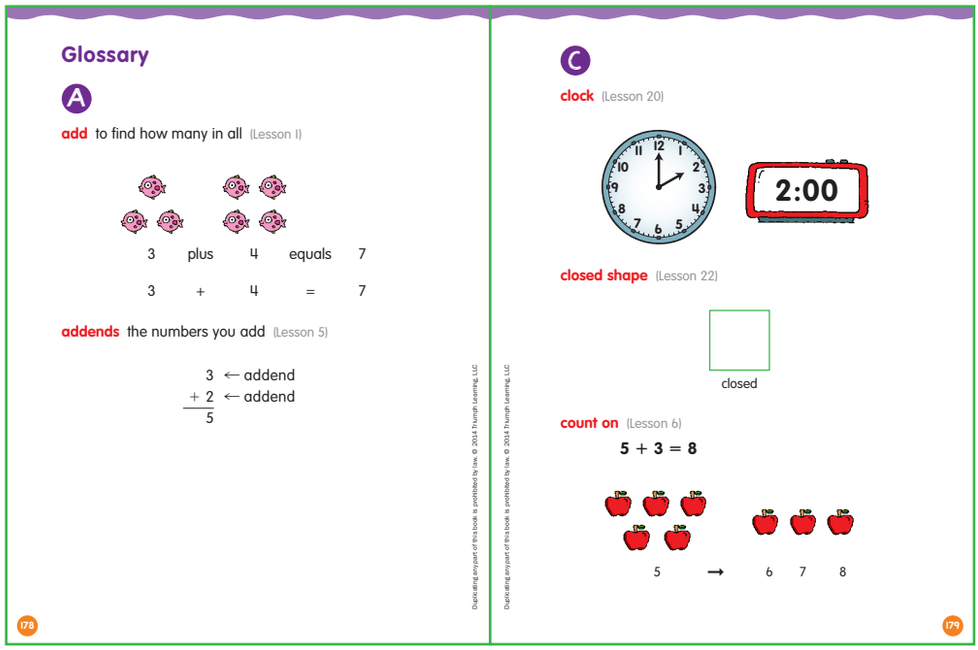
Glossary and Math Tools

The Student Edition also includes a **Glossary** and a selection of content-specific math tools. When students encounter a highlighted term in their book, they will find this term defined in the glossary. When **Math Tools** are necessary for a given lesson, you will find this reference in the Materials section of your lesson plan—occasionally, these tools are referenced in the lesson itself.



Glossary

A

add to find how many in all (Lesson 1)

3 plus 4 equals 7

3 + 4 = 7

addends the numbers you add (Lesson 5)

3 ← addend
+ 2 ← addend
5

C

clock (Lesson 20)

2:00

closed shape (Lesson 22)

closed

count on (Lesson 6)

5 + 3 = 8

5 → 6 7 8

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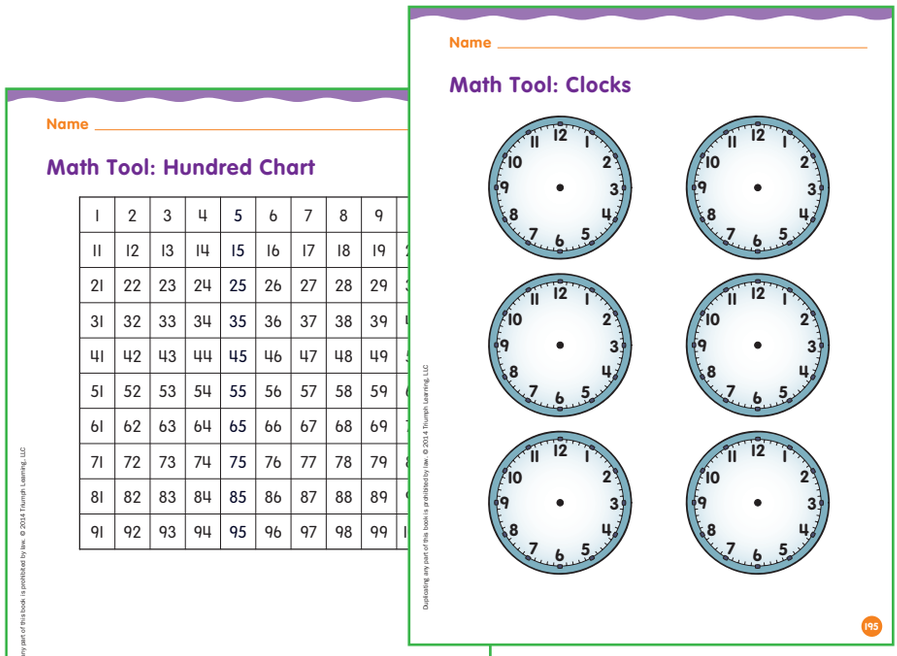

Name

Math Tool: Hundred Chart

1	2	3	4	5	6	7	8	9	
11	12	13	14	15	16	17	18	19	
21	22	23	24	25	26	27	28	29	
31	32	33	34	35	36	37	38	39	
41	42	43	44	45	46	47	48	49	
51	52	53	54	55	56	57	58	59	
61	62	63	64	65	66	67	68	69	
71	72	73	74	75	76	77	78	79	
81	82	83	84	85	86	87	88	89	
91	92	93	94	95	96	97	98	99	

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Name

Math Tool: Clocks

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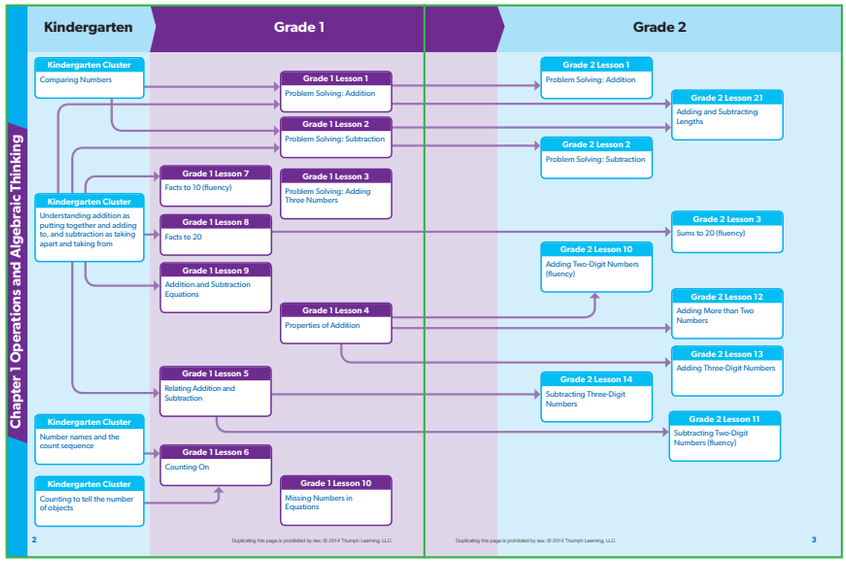
Teacher's Manual

Lesson Progressions

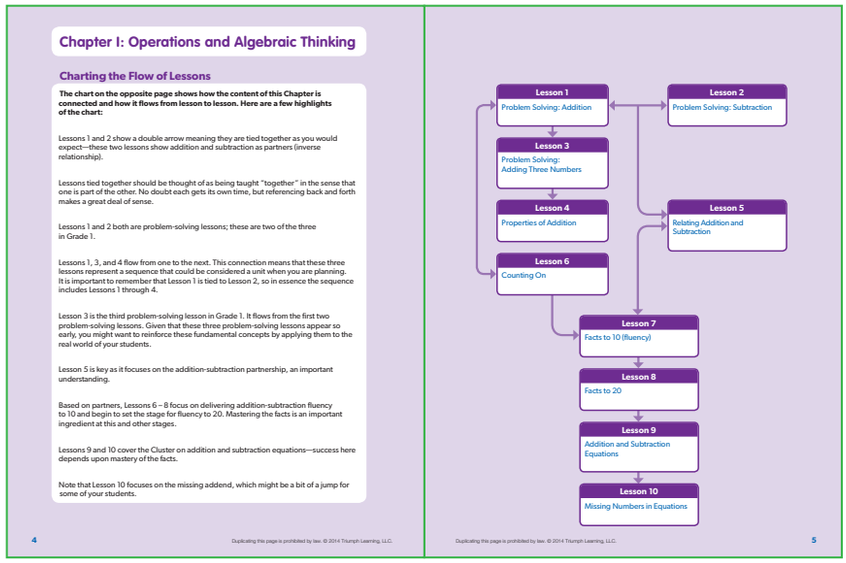
The content covered in this program is organized by chapter. The content across grades 1 and 2 connects back to math taught earlier in kindergarten. This program helps you make critical connections between topics within a single grade level and across grade levels.

Lesson Progressions in the Teacher's Manual help you focus on key connections. Each Chapter includes a Lesson Progression Map that offers a visual progression of lesson content across grades, including both pre- and post-requisite lessons for each chapter. Focusing instruction on these connections will help strengthen the continuum of mathematical concepts and skills.



Lesson Flow Charts

You will find useful **Lesson Flow Charts** in this manual at the beginning of each Chapter's lesson plans. These are your guides to how lessons are connected within that Chapter. You can look at an entire Chapter and make judgments about how to plan your teaching strategies.



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Lesson Plans

Lesson plans provide guidance for each student lesson.

Learning Objectives for each lesson are stated clearly.

Math Vocabulary

Materials

Scripted pre-lesson activities introduce new concepts and skills and focus on previous knowledge.

Lesson 6

Counting On

Learning Objective

- Children will relate counting to addition and subtraction by counting on.

Vocabulary

count on

Materials

- two-color counters
- sticky notes
- paper bag
- Fluency Practice, pages A2–A6

Before the Lesson

In kindergarten, children learned to count to 100 and to add within 10 by using objects or drawings. In Grade 1, they will relate counting to addition.

Tell the children a story such as the following: *Malik has 5 tickets for carnival rides. Allison has 2 tickets. How many tickets do they have in all?*

Write this addition sentence on the board:

$5 + 2 = \square$.

Say: *This is an addition sentence.* Review the meanings of the parts: The plus sign means to add. The equal sign shows that the numbers on either side of the equal sign have the same value. The box is used to stand for a number that is missing.

Use 5 red counters to represent Malik's tickets and 2 yellow counters to represent Allison's tickets.

Place 5 red counters in a row. Say: *These counters show the number of tickets Malik has. How many tickets does he have?* 5

Place 2 yellow counters in a row to the right of the red ones with a space between the red and yellow ones. Say: *These counters show the number of tickets Allison has. How many tickets does she have?* 2

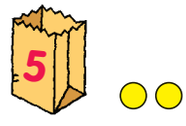
Ask: *How can we find how many there are in all?* Possible answer: count them Have children count the counters to find the sum. 1, 2, 3, 4, 5, 6, 7 Ask: *How many tickets are there in all?* 7

Say: *You can count to find how many tickets there are in all, but there is a faster way to solve the problem. Let's use the same problem and solve it using counting a different way.*

Reread the problem: *Malik has 5 tickets for the rides. Allison has 2 tickets. How many tickets do they have in all?*

Take 5 red counters for Malik and place them in a bag. Say: *I am putting the counters for Malik's tickets into this bag. We know he has 5 tickets.* Draw a 5 on a sticky note and place it on the bag.

Say: *Now I will take 2 counters for Allison's 2 tickets.* Place 2 yellow counters next to the bag. Explain that they can use counting on to find how many in all. Ask: *What does counting on mean?* Counting on means starting at one number and continuing to count on from that number.



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Say: *Let's start at 5 for Malik's tickets and count on 2 more for Allison's.* Point to the bag as you say: 5 Then point to the yellow counters one at a time while saying: *6, 7* Ask: *How many counters are there in all?* 7 counters in all.

Say: *You can count on to add. To add 1 to a number, you just need to count 1 more number in order. To add 2, you would count 2 more numbers in order. To add 3, you would count 3 more numbers in order.* Help the children understand why they do not need to count out both addends. They should understand that they can start counting at one number and just count on the other number to find the total.

Change the story to show the second addend as the greater number. For example: *The teacup ride has 3 red teacups and 4 yellow teacups. How many red and yellow teacups are there altogether?*

Tell the children that they can again use counting on to help solve this problem.

Say: *When you use counting on, first look for the greater number.* Ask: *Which is the greater number?* 4 Say: *So we will start with 4.*

Put 4 counters in the bag and say: *The 4 counters inside this paper bag stand for the 4 yellow teacups.* Put a sticky note with 4 on the bag.

Place 3 red counters next to the bag and say: *These counters stand for the 3 red teacups. How can I find how many there are altogether?* Start at 4 and count on 3 more. Then count with the children to find how many in all. Point to the bag as you say: *4* Then point to the counters as you say: *5, 6, 7*. Ask: *How many teacups are there altogether?* 7

Repeat this activity using different stories for counting on 1, 2, or 3 and for other sums to 10. Vary the position of the greater number in the problems.

Fluency

Use Fluency Practice pages A2–A5 to review Addition and Subtraction: Sums to 5.

Teaching the Lesson

This lesson has children count on to relate counting to addition and subtraction. Children will see examples showing how they can count on starting with one addend rather than counting all the objects that represent both addends. Have the children turn to page 34.

Example 1

This example shows children how to solve a problem using counting on. Explain that it is easier to count on by starting with the greater number.

For Step 1, ask: *Which is the greater number?* 6 *How many will you count on?* 2 In Step 2, encourage children to point to the 6 red hearts and say 6, then the blue hearts one at a time as they say together *7, 8*. Have children trace over the dotted 8 at the end of Step 2. Ask: *What is 6 plus 2?* 8

Some children might need to count all the hearts to check that the answer matches the answer they get by counting on the blue hearts. Allow time for children to do this to discover that both methods produce the same sum.

$6 + 2 = \mathbf{8}$

Example 2

This example is presented in vertical form. Remind children that it doesn't matter if the problem is written across or up and down. It means the same thing and can be solved the same way.

In this example, connecting cubes are used to illustrate counting on.

For Step 1, ask: *Which is the greater number?* 6 Note that the greater number is the second addend. Say: *Since 6 is the greater number, it shows you where you will start. Start with 6 cubes.* Ask: *How many do you have to add or count on?* 3

For Step 2, start at 6 and count on 3 while you say: *Count with me. Pointing to the six cubes, say 6; then pointing to each cube, count on: 7, 8, 9.* Ask: *Which number did we end on?* 9 Children should trace over the dotted 9. Ask: *What is 3 plus 6?* 9

$$\begin{array}{r} 3 \\ +6 \\ \hline \mathbf{9} \end{array}$$

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Full support in working through instruction with scripting

Scripted Examples help in teaching the concepts and skills.

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Lesson Plans *(continued)*

Common Error sections anticipate likely student errors and suggest ways to help.

Common Error Watch for children who count how many they are adding on instead of starting at the greater number and continuing the count. For 3 + 2, children might say 3 and then count 1, 2 instead of saying 3, 4, 5.

Example 3

In Lesson 5, children learned that subtraction is related to addition and that related facts use the same numbers. Example 3 uses that relationship to solve a subtraction sentence.

Ask: *How is a subtraction fact related to an addition fact?* Related facts use the same numbers. Ask: *Which number in the subtraction sentence will be the sum in the related addition sentence?* 11 Point out that 11 is the greater of the two numbers in the subtraction sentence, so we will count up from the addend we know until we reach 11.

Ask: *What number will we start counting with?* 9 *How many cubes did we count on to reach 11?* 2 Step 3 shows the answer to the addition sentence. Have children trace over the dotted 2. Ask: *What is 11 minus 9?* 2

11 − 9 = **2**

You may wish to explore this idea further with questions such as: *What idea that you already knew did you use to find the missing number?* Children should explain that related facts were used to solve the problem. They knew that related facts use the same numbers, so they knew that the related addition sentence should use the same numbers as the given subtraction sentence. When they found the missing addend, they also found the unknown number in the subtraction sentence. *What did you notice about the missing number in the subtraction sentence and the missing addend in the addition sentence?* It is the same number.

Try

In this problem, the greater number is the second addend.

Remind children that they should start with the greater number, 8, and count on from that number. Say: *Remember that you can add in any order and the sum does not change.* Explain that this problem becomes easier when the order of the addends is changed so that the greater number is first because then it is only necessary to count on 2.

Step 2: Start with **8**. Count on **2**.

8 → **9**, **10**

2 + 8 = **10**

There are **10** stars in all.

You might like to explore this topic further with questions such as: *What is another way you could solve this problem?* Children might solve the problem by counting all of the stars, or by starting with 2 and counting on 8. They might use a different model, such as the connecting cubes used in Examples 2 and 3.

Practice

As children are working, pay special attention to problems 4 and 5. These provide an opportunity for students to apply their understanding of counting on by using the art provided to determine the second addend. They must recognize that the missing addend and the difference are the same number.

For answers, see page 129.

SHOW For problem 6, children should draw a representation that corresponds to the quantities shown in the problem. They might show a group of 5 objects, a space, and then a group of 2 objects or they might draw 5 connecting cubes and 2 more connecting cubes. By drawing either of these representations, the children are creating a model that demonstrates their understanding of the problem.

Fluency

Have students complete Fluency Practice page A6 to provide practice with Addition: Sums to 10.

Suggested use of Fluency Practice

Chapter 1

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TRY page presents a problem with scaffolding to guide students.

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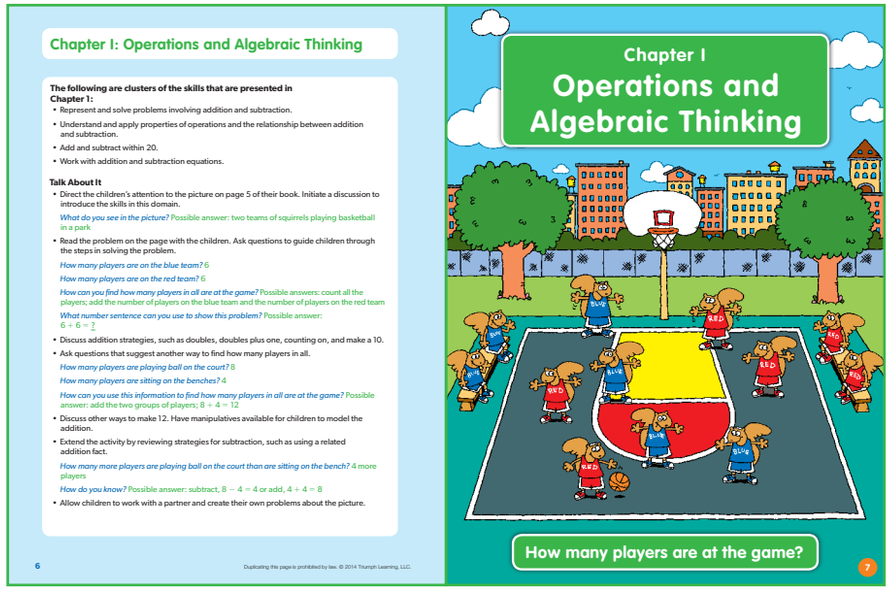
Chapter Openers

Chapter Openers are the opening acts of each Chapter. They explore, entertain, and prepare students for the Chapter ahead. Openers, in the form of high-interest art, set the stage for the lessons and standards of the Chapter by addressing the math coming up. Each **Chapter Opener** is a different setting and story. Although this manual provides guidance about how you might approach Chapter Openers, you should use your own storytelling capabilities to expand on what you find here. Designed to be engaging and fun, they should be good ways to organize the new Chapter.



Chapter 1: Operations and Algebraic Thinking

The following are clusters of the skills that are presented in Chapter 1:

- Represent and solve problems involving addition and subtraction.
- Understand and apply properties of operations and the relationship between addition and subtraction.
- Add and subtract within 20.
- Work with addition and subtraction equations.

Talk About It

- Direct the children's attention to the picture on page 5 of their book. Initiate a discussion to introduce the skills in this domain.
  What do you see in the picture? Possible answer: two teams of squirrels playing basketball in a park
- Read the problem on the page with the children. Ask questions to guide children through the steps in solving the problem.
  How many players are on the blue team? 6
  How many players are on the red team? 6
  How can you find how many players in all are at the game? Possible answers: count all the players; add the number of players on the blue team and the number of players on the red team
  What number sentence can you use to show this problem? Possible answer: $6 + 6 = \underline{?}$
- Discuss addition strategies, such as doubles, doubles plus one, counting on, and make a 10.
- Ask questions that suggest another way to find how many players in all.
  How many players are playing ball on the court? 8
  How many players are sitting on the benches? 4
  How can you use this information to find how many players in all are at the game? Possible answer: add the two groups of players; $8 + 4 = 12$
- Discuss other ways to make 12. Have manipulatives available for children to model the addition.
- Extend the activity by reviewing strategies for subtraction, such as using a related addition fact.
  How many more players are playing ball on the court than are sitting on the bench? 4 more players
  How do you know? Possible answer: subtract, $8 - 4 = 4$ or add, $4 + 4 = 8$
- Allow children to work with a partner and create their own problems about the picture.

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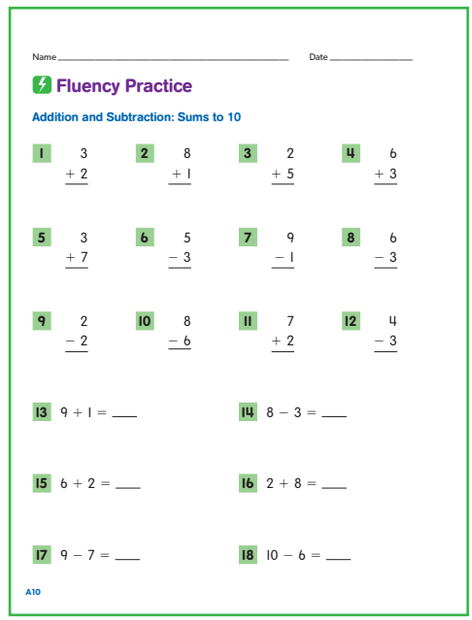
Appendix A: Fluency Practice

Fluency Practice appears at the end of the Teacher's Manual. The Teacher's Manual includes practice pages that are specially designed to align with fluencies. Instructions on when and how to administer the fluency pages are included in the lesson plans within this manual.



Name _____ Date _____

Fluency Practice

Addition and Subtraction: Sums to 10

1 $3 + 2$	2 $8 + 1$	3 $2 + 5$	4 $6 + 3$
5 $3 + 7$	6 $5 - 3$	7 $9 - 1$	8 $6 - 3$
9 $2 - 2$	10 $8 - 6$	11 $7 + 2$	12 $4 - 3$

13 $9 + 1 =$ ___ 14 $8 - 3 =$ ___

15 $6 + 2 =$ ___ 16 $2 + 8 =$ ___

17 $9 - 7 =$ ___ 18 $10 - 6 =$ ___

A10

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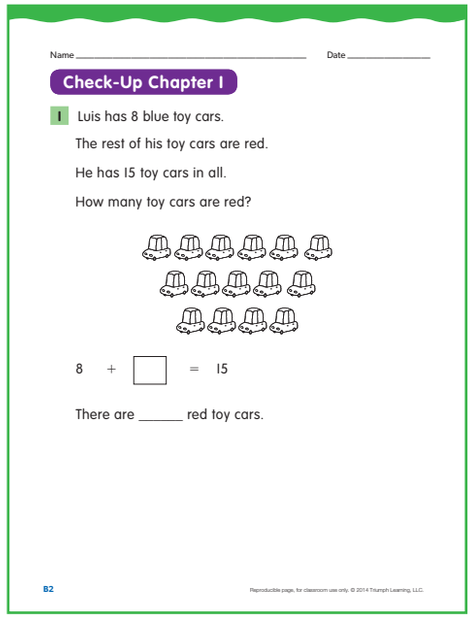
Appendix B: Check-Ups

How will you assess student progress in this program? The answer is here in the Teacher's Manual in the form of a series called **Check-Ups**. These are questions that you can use as you best see fit— with a small group, with an individual student, or with a full class. Use them for diagnosis or for formative assessment. Each **Check-Up** assesses a single Chapter—the natural scope for diagnosis or formative assessment—where you may want to check up on how your students are doing above and beyond their daily interaction with lessons and lesson practice. While the Chapter Review should also be seen as an opportunity to look at an entire domain of content, the **Check-Ups** also provide information about student mastery. The questions are easy to implement—either by paper and pencil, or verbally—thus allowing for informal assessment. All you have to do is make as many copies from this manual as you need.



Name _____ Date _____

Check-Up Chapter 1

1 Luis has 8 blue toy cars.

The rest of his toy cars are red.

He has 15 toy cars in all.

How many toy cars are red?

8 + ☐ = 15

There are _____ red toy cars.

B2

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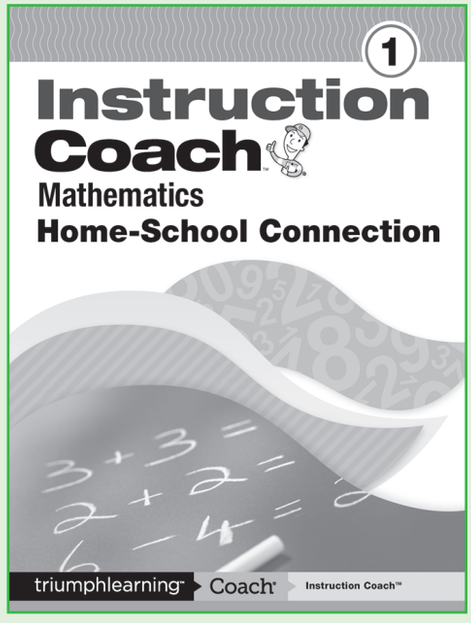
Home-School Connection

The **Home-School Connection** booklet keeps math alive beyond the time constraints of the school day and the walls of the school building. The **Home-School Connection** booklet provides a short sample of what is happening in each lesson in the form of the last question or two of each lesson's Practice section. You will find that these questions are not exact replicas of those questions; the numbers and sometimes the forms have changed slightly to offer a repeat of the same types of questions. By using these questions, children can review the content of their school lessons with their caregivers. In this way, children extend their thinking about math, thus deepening their understanding and preparation for the next day.



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Lesson 6

Counting On

Learning Objective

- Children will relate counting to addition and subtraction by counting on.

Vocabulary

count on

Materials

- two-color counters
- sticky notes
- paper bag
- Fluency Practice, pages A2–A6

Before the Lesson

In kindergarten, children learned to count to 100 and to add within 10 by using objects or drawings. In Grade 1, they will relate counting to addition.

Tell the children a story such as the following: *Malik has 5 tickets for carnival rides. Allison has 2 tickets. How many tickets do they have in all?*

Write this addition sentence on the board:

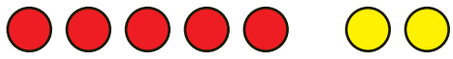
$5 + 2 = \square$.

Say: *This is an addition sentence.* Review the meanings of the parts: The plus sign means to add. The equal sign shows that the numbers on either side of the equal sign have the same value. The box is used to stand for a number that is missing.

Use 5 red counters to represent Malik's tickets and 2 yellow counters to represent Allison's tickets.

Place 5 red counters in a row. Say: *These counters show the number of tickets Malik has. How many tickets does he have?* 5

Place 2 yellow counters in a row to the right of the red ones with a space between the red and yellow ones. Say: *These counters show the number of tickets Allison has. How many tickets does she have?* 2



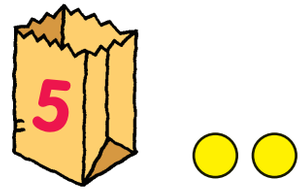
Ask: *How can we find how many there are in all?* Possible answer: count them Have children count the counters to find the sum. 1, 2, 3, 4, 5, 6, 7 Ask: *How many tickets are there in all?* 7

Say: *You can count to find how many tickets there are in all, but there is a faster way to solve the problem. Let's use the same problem and solve it using counting a different way.*

Reread the problem: *Malik has 5 tickets for the rides. Allison has 2 tickets. How many tickets do they have in all?*

Take 5 red counters for Malik and place them in a bag. Say: *I am putting the counters for Malik's tickets into this bag. We know he has 5 tickets.* Draw a 5 on a sticky note and place it on the bag.

Say: *Now I will take 2 counters for Allison's 2 tickets.* Place 2 yellow counters next to the bag. Explain that they can use counting on to find how many in all. Ask: *What does counting on mean?* Counting on means starting at one number and continuing to count on from that number.



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Say: *Let's start at 5 for Malik's tickets and count on 2 more for Allison's.* Point to the bag as you say: *5* Then point to the yellow counters one at a time while saying: *6, 7* Ask: *How many counters are there in all?* 7 counters in all.

Say: *You can count on to add. To add 1 to a number, you just need to count 1 more number in order. To add 2, you would count 2 more numbers in order. To add 3, you would count 3 more numbers in order.* Help the children understand why they do not need to count out both addends. They should understand that they can start counting at one number and just count on the other number to find the total.

Change the story to show the second addend as the greater number. For example: *The teacup ride has 3 red teacups and 4 yellow teacups. How many red and yellow teacups are there altogether?*

Tell the children that they can again use counting on to help solve this problem.

Say: *When you use counting on, first look for the greater number.* Ask: *Which is the greater number?* 4 Say: *So we will start with 4.*

Put 4 counters in the bag and say: *The 4 counters inside this paper bag stand for the 4 yellow teacups.* Put a sticky note with 4 on the bag.

Place 3 red counters next to the bag and say: *These counters stand for the 3 red teacups. How can I find how many there are altogether?* Start at 4 and count on 3 more. Then count with the children to find how many in all. Point to the bag as you say: *4* Then point to the counters as you say: *5, 6, 7*. Ask: *How many teacups are there altogether?* 7

Repeat this activity using different stories for counting on 1, 2, or 3 and for other sums to 10. Vary the position of the greater number in the problems.

Fluency

Use Fluency Practice pages A2–A5 to review Addition and Subtraction: Sums to 5.

Teaching the Lesson

This lesson has children count on to relate counting to addition and subtraction. Children will see examples showing how they can count on starting with one addend rather than counting all the objects that represent both addends. Have the children turn to page 34.

Example 1

This example shows children how to solve a problem using counting on. Explain that it is easier to count on by starting with the greater number.

For Step 1, ask: *Which is the greater number?* 6 *How many will you count on?* 2 In Step 2, encourage children to point to the 6 red hearts and say 6, then the blue hearts one at a time as they say together *7, 8*. Have children trace over the dotted 8 at the end of Step 2. Ask: *What is 6 plus 2?* 8

Some children might need to count all the hearts to check that the answer matches the answer they get by counting on the blue hearts. Allow time for children to do this to discover that both methods produce the same sum.

6 + 2 = **8**

Example 2

This example is presented in vertical form. Remind children that it doesn't matter if the problem is written across or up and down. It means the same thing and can be solved the same way.

In this example, connecting cubes are used to illustrate counting on.

For Step 1, ask: *Which is the greater number?* 6 Note that the greater number is the second addend. Say: *Since 6 is the greater number, it shows you where you will start. Start with 6 cubes.* Ask: *How many do you have to add or count on?* 3

For Step 2, start at 6 and count on 3 while you say: *Count with me. Pointing to the six cubes, say 6; then pointing to each cube, count on: 7, 8, 9.* Ask: *Which number did we end on?* 9 Children should trace over the dotted 9. Ask: *What is 3 plus 6?* 9

$$\begin{array}{r} 3 \\ +6 \\ \hline 9 \end{array}$$

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Common Error Watch for children who count how many they are adding on instead of starting at the greater number and continuing the count. For 3 + 2, children might say 3 and then count 1, 2 instead of saying 3, 4, 5.

Example 3

In Lesson 5, children learned that subtraction is related to addition and that related facts use the same numbers. Example 3 uses that relationship to solve a subtraction sentence.

Ask: *How is a subtraction fact related to an addition fact?* Related facts use the same numbers. Ask: *Which number in the subtraction sentence will be the sum in the related addition sentence?* 11 Point out that 11 is the greater of the two numbers in the subtraction sentence, so we will count up from the addend we know until we reach 11.

Ask: *What number will we start counting with?* 9 *How many cubes did we count on to reach 11?* 2 Step 3 shows the answer to the addition sentence. Have children trace over the dotted 2. Ask: *What is 11 minus 9?* 2

11 − 9 = **2**

You may wish to explore this idea further with questions such as: *What idea that you already knew did you use to find the missing number?* Children should explain that related facts were used to solve the problem. They knew that related facts use the same numbers, so they knew that the related addition sentence should use the same numbers as the given subtraction sentence. When they found the missing addend, they also found the unknown number in the subtraction sentence. *What did you notice about the missing number in the subtraction sentence and the missing addend in the addition sentence?* It is the same number.

Try

In this problem, the greater number is the second addend.

Remind children that they should start with the greater number, 8, and count on from that number. Say: *Remember that you can add in any order and the sum does not change.* Explain that this problem becomes easier when the order of the addends is changed so that the greater number is first because then it is only necessary to count on 2.

Step 2: Start with **8**. Count on **2**.

8 → **9**, **10**

2 + 8 = **10**

There are **10** stars in all.

You might like to explore this topic further with questions such as: *What is another way you could solve this problem?* Children might solve the problem by counting all of the stars, or by starting with 2 and counting on 8. They might use a different model, such as the connecting cubes used in Examples 2 and 3.

Practice

As children are working, pay special attention to problems 4 and 5. These provide an opportunity for students to apply their understanding of counting on by using the art provided to determine the second addend. They must recognize that the missing addend and the difference are the same number.

For answers, see page 129.

SHOW For problem 6, children should draw a representation that corresponds to the quantities shown in the problem. They might show a group of 5 objects, a space, and then a group of 2 objects or they might draw 5 connecting cubes and 2 more connecting cubes. By drawing either of these representations, the children are creating a model that demonstrates their understanding of the problem.

Fluency

Have students complete Fluency Practice page A6 to provide practice with Addition: Sums to 10.

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