Teacher's Manual

Instruction Coach™ 2

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

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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 student's home and informs families of the math that children are learning.

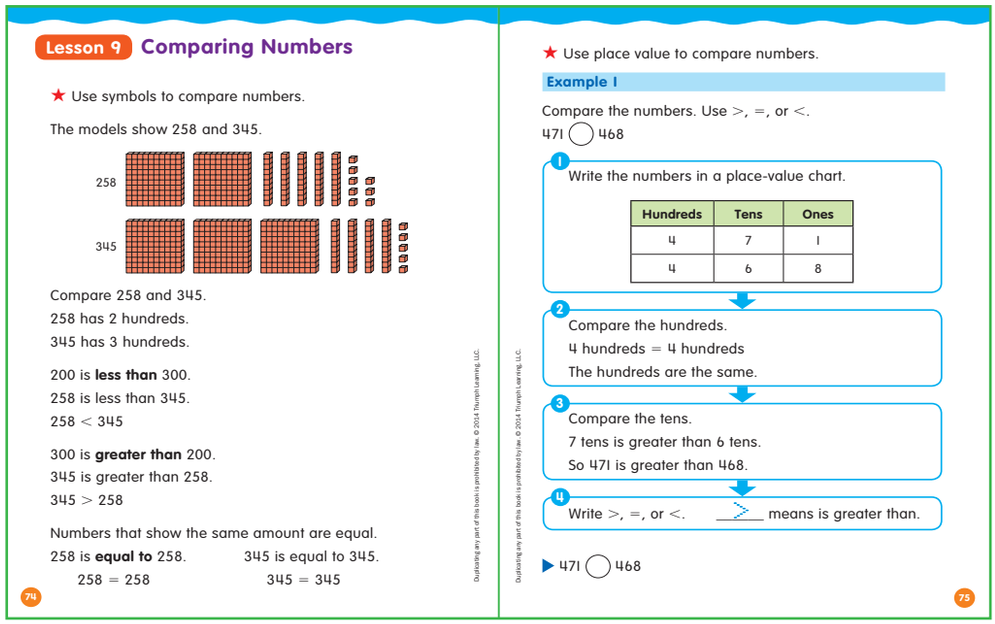
Student Book

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. The interactive Examples in the lessons stimulate discussions, allow groups of students to interact and answer questions, and 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 addressed 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.



Lesson 9 Comparing Numbers

★ Use symbols to compare numbers.

The models show 258 and 345.

258

345

Compare 258 and 345.
258 has 2 hundreds.
345 has 3 hundreds.

200 is **less than** 300.
258 is less than 345.
258 < 345

300 is **greater than** 200.
345 is greater than 258.
345 > 258

Numbers that show the same amount are equal.
258 is **equal to** 258. 258 = 258
345 is equal to 345. 345 = 345

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★ Use place value to compare numbers.

Example 1

Compare the numbers. Use >, =, or <.
471 ◯ 468

1 Write the numbers in a place-value chart.

Hundreds	Tens	Ones
4	7	1
4	6	8

2 Compare the hundreds.
4 hundreds = 4 hundreds
The hundreds are the same.

3 Compare the tens.
7 tens is greater than 6 tens.
So 471 is greater than 468.

4 Write >, =, or <. > means is greater than.

▶ 471 ◯ 468

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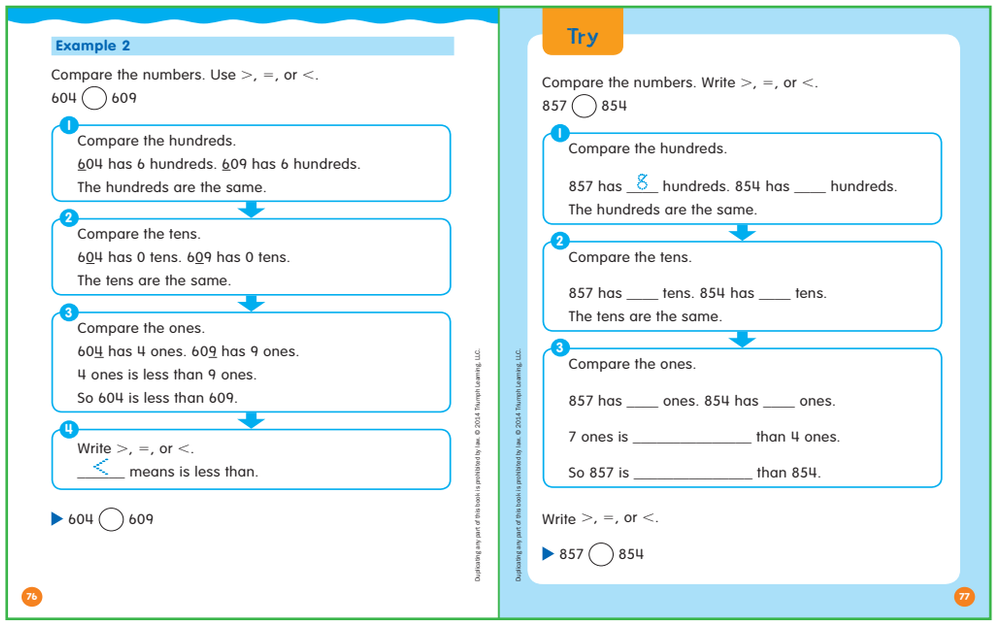

Example 2

Compare the numbers. Use >, =, or <.
604 ◯ 609

1 Compare the hundreds.
604 has 6 hundreds. 609 has 6 hundreds.
The hundreds are the same.

2 Compare the tens.
604 has 0 tens. 609 has 0 tens.
The tens are the same.

3 Compare the ones.
604 has 4 ones. 609 has 9 ones.
4 ones is less than 9 ones.
So 604 is less than 609.

4 Write >, =, or <.
< means is less than.

▶ 604 ◯ 609

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Try

Compare the numbers. Write >, =, or <.
857 ◯ 854

1 Compare the hundreds.
857 has 8 hundreds. 854 has ____ hundreds.
The hundreds are the same.

2 Compare the tens.
857 has ____ tens. 854 has ____ tens.
The tens are the same.

3 Compare the ones.
857 has ____ ones. 854 has ____ ones.
7 ones is _____ than 4 ones.
So 857 is _____ than 854.

Write >, =, or <.

▶ 857 ◯ 854

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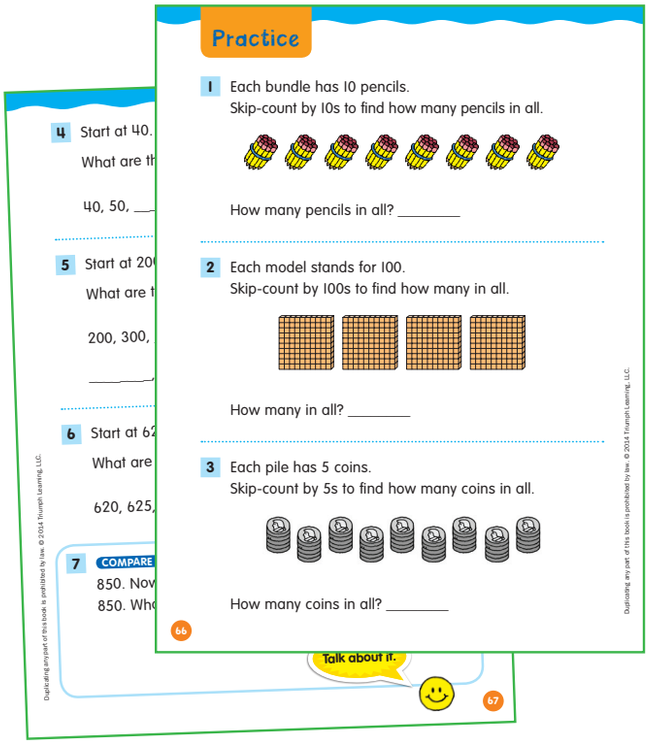
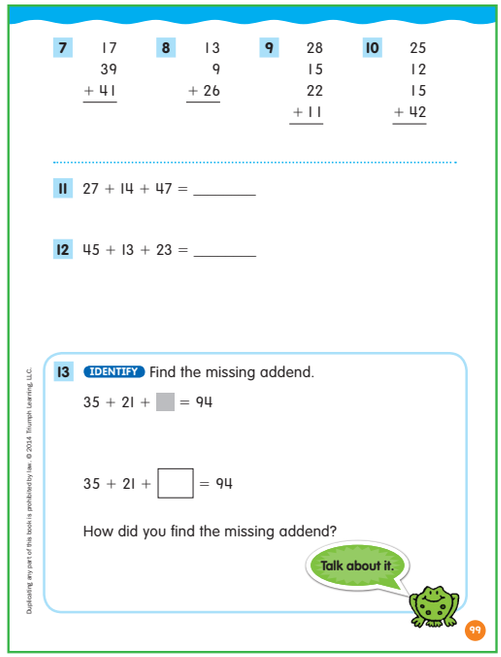
Practice appears in each lesson. Each lesson concludes with practice aligned to the content covered in the instruction. The practice items build in difficulty and offer a variety of question types.

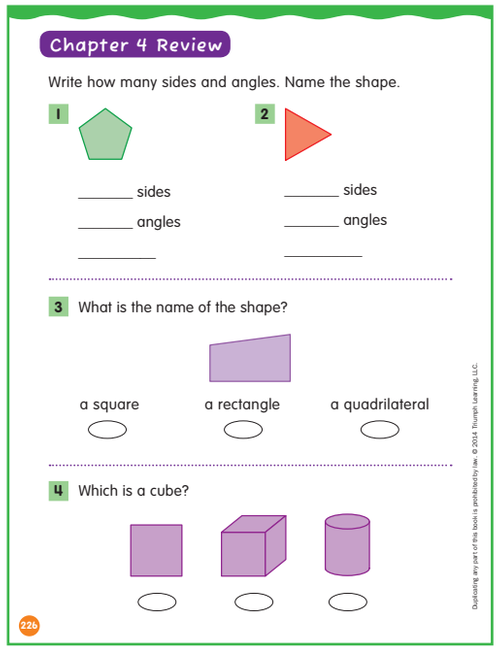
Each Practice section ends with a problem that stretches and extends the skill(s) in the lesson. Many of the lesson Practice sections include a **Talk About It** feature as well. Young children may not be able to write too much – a number or a word here, a sentence there – but they can surely talk when 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**s.





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

Write how many sides and angles. Name the shape.

1

_____ sides

_____ angles

_____

2

_____ sides

_____ angles

_____

3 What is the name of the shape?

a square

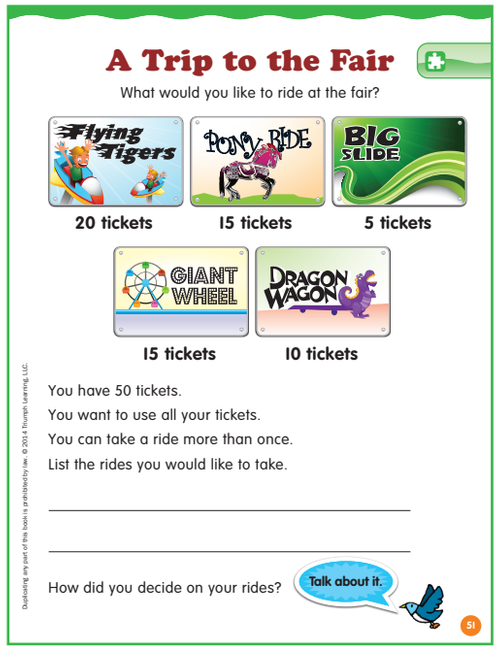
a rectangle

a quadrilateral

4 Which is a cube?

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 about.


A Trip to the Fair

What would you like to ride at the fair?

Flying Tigers — 20 tickets

Pony Ride — 15 tickets

Big Slide — 5 tickets

Giant Wheel — 15 tickets

Dragon Wagon — 10 tickets

You have 50 tickets.
You want to use all your tickets.
You can take a ride more than once.
List the rides you would like to take.

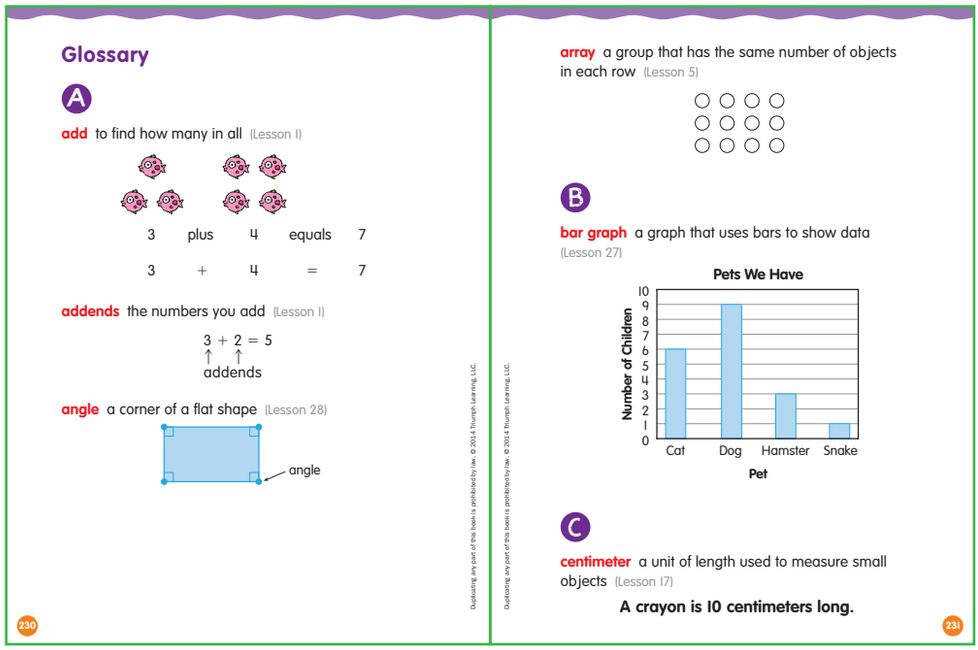
_____

_____

How did you decide on your rides? Talk about it.

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 1)

3 + 2 = 5
addends

angle a corner of a flat shape (Lesson 28)

angle

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array a group that has the same number of objects in each row (Lesson 5)

B

bar graph a graph that uses bars to show data (Lesson 27)

Pets We Have

Number of Children

Cat Dog Hamster Snake

Pet

C

centimeter a unit of length used to measure small objects (Lesson 17)

A crayon is 10 centimeters long.

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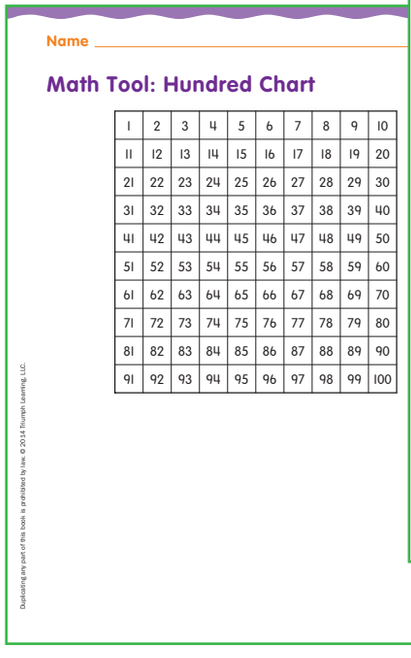

Name

Math Tool: Hundred Chart

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	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

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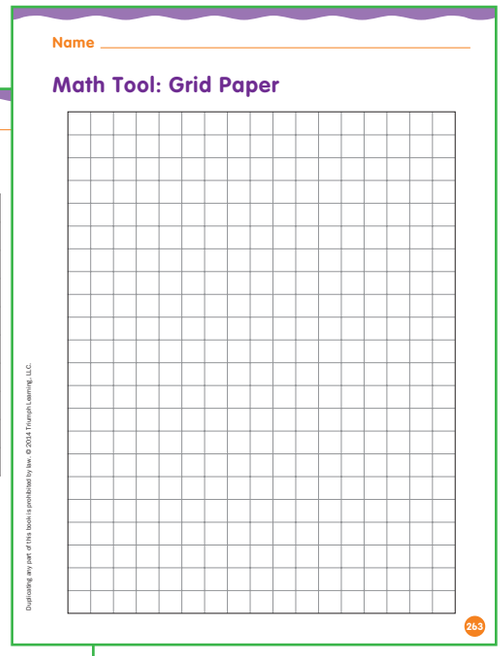

Name

Math Tool: Grid Paper

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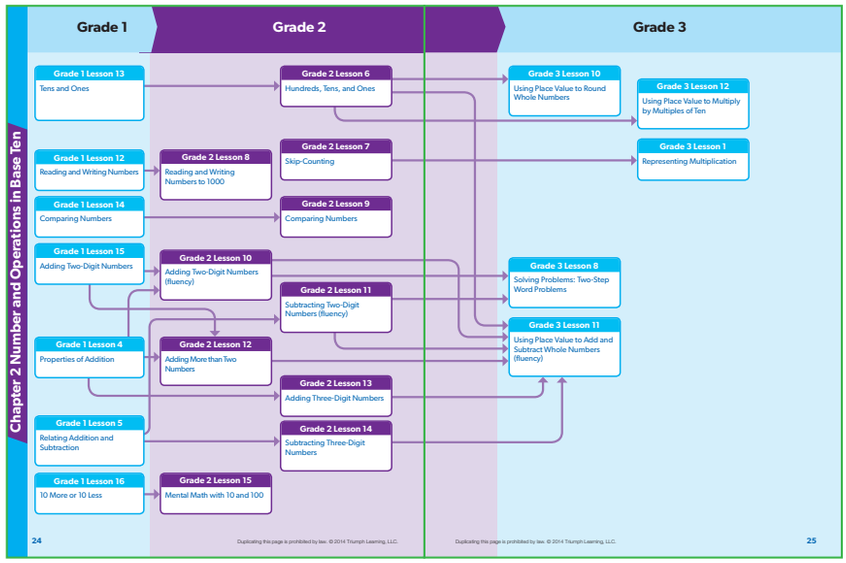
Teacher's Manual

Lesson Progressions

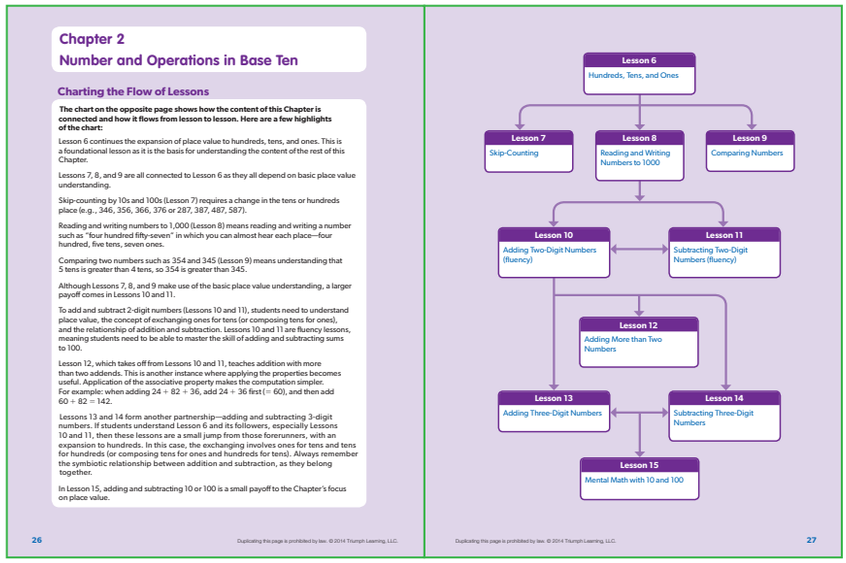
The content covered in this program is organized by chapter. The content across grades 1 and 2 connects back to math taught earlier in kindergarten. This program helps you make critical connections between topics within a single grade level and across grade levels.

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.



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 1

Problem Solving: Addition

Learning Objective

- Children will use addition to solve one- and two-step word problems with unknowns in all positions.

Vocabulary

add
addends
sum
equation

Materials

- counters
- place-value blocks (optional)
- Fluency Practice, page A2
- Fluency Practice, page A3

Before the Lesson

In Grade 1, children have learned to use addition within 20 to solve one-step word problems. In Grade 2, they will use addition within 100 to solve one- and two-step word problems.

Tell children the following story: *Tyrone bought 6 red peppers and 8 green peppers. How many peppers did he buy in all?*

Ask: *What can you do to find how many peppers he bought in all?* You can count all the peppers. Say: *When you find how many in all, you are adding. Counting can help you add.*

Use 6 red counters and 8 yellow counters. Show a red counter. Say: *Let's use red counters to show the number of red peppers Tyrone bought.* Ask: *How many red peppers did he buy?* 6 *How many red counters should we use for the red peppers?* 6 Display 6 red counters.

Show a yellow counter. Say: *Let's use yellow counters to show the number of green peppers Tyrone bought.* Ask: *How many green peppers did he buy?* 8 *How many yellow counters should you use for the green peppers?* 8 Place 8 yellow counters to the right of the red ones with a space between the red and yellow ones.

Ask: *How can we find how many there are in all?* Put them together and count. Have children count to find the sum. Ask: *How many peppers are there in all?* 14

Say: *An addition sentence shows what happens when we add two numbers.* Write the parts of the addition sentence $6 + 8 = 14$ on the board as you say the following: *The addition sentence begins with the number of red peppers Tyrone bought. Then a plus sign shows that you will add the number of green peppers Tyrone bought.* Ask: *How many green peppers did Tyrone buy?* 8 Say: *So we need to write 8. Next we need to write an equal sign.* Ask: *What does the equal sign mean? Whatever is on one side of the sign has the same value as what is*

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Suggested use of Fluency Practice

on the other side of the sign. How many peppers are there in all? 14 Say: *So we need to write 14. We read this sentence as six plus eight equals fourteen.*

You might want to use Fluency Practice pages A2 and A3 to help children review addition for sums to 10.

Chapter 1

Teaching the Lesson

This lesson has children use addition to solve one- and two-step word problems involving situations with unknowns in all positions. Children use drawings and equations with a symbol for the unknown to represent and solve the problems. Have the children turn to page 6.

Example 1

This example shows children how to solve a problem using addition. The problem asks children to find the sum, or how many in all.

Ask: *What does the problem ask you to find?* The number of marbles in all You may wish to have children use counters to model the problem. Ask: *How many marbles does Melanie have?* 7 *How many marbles does Diego have?* 12 *How can we find how many marbles there are in all?* Add 7 and 12.

Ask: *How many marbles are in the bag?* 19 You may wish to ask a child to count the number of counters to confirm the answer. Have the children trace over the dotted 19 in the box. Direct children's attention to the statement below. Have them fill in the answer.

Melanie and Diego have **19** marbles in all.

Example 2

This example has children use place-value models to solve a word problem that involves adding a multiple of 10 to a 2-digit number.

Draw children's attention to the equation. Ask: *What does the shaded box stand for?* The number of buttons that Yuri has now

Ask: *How many buttons does Yuri have at the start of the problem?* 35 Have children look at the place-value models that show 35. Ask: *How many tens are in 35?* 3 *How many ones?* 5

Say: *Look at the bag.* Ask: *What has been spilled out of the bag?* 3 tens Then ask: *What do the 3 tens stand for?* the 30 buttons that Ann gives to Yuri

Ask: *How can we find the number of buttons that Yuri has now?* Count on 3 tens starting from 35. Say: *Let's count on 3 tens from 35.* 35 (pause), 45, 55, 65

Ask: *Is there another way to find the number of buttons Yuri has now?* Yes; add the ones and add the tens; 5 ones + 0 ones is 5 ones, 3 tens + 3 tens is 6 tens, and 6 tens 5 ones is 65. Children should trace over the dotted 65 in the box. Direct children's attention to the statement below. Have them fill in the answer.

Yuri now has **65** buttons.

Common Error Watch for children who count on three ones from 35 by saying, 35, 36, 37, 38 instead of counting on three tens by saying 35, 45, 55, 65.

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

Example 3

For this example, as for Example 2, children can add on tens in order to solve the word problem.

Ask: *What does the problem tell us?* Zoey has 40 more coins than Kevin has. *How many coins does Kevin have?* 38 *What do we need to find to solve this problem?* How many coins Zoey has *What equation can we write to show this problem?* 38 + 40 = ☐

Scripted Examples help in teaching the concepts and skills.

Ask: *How many tens are there in 40?* 4 tens Say: *Start with the addend you know, 38, and add 1 ten.* Ask: *What is the sum?* 48 *If you add another ten to 48, what is the sum?* 58 *After you have added 4 tens to 38, what is the sum?* 78 *So, what is the sum of 38 plus 40?* 78 Children should trace over the dotted 78 in the box. Direct children's attention to the statement below. Have them fill in the answer.

Zoey has **78** coins.

Example 4

For this example, children find a missing addend. Ask: *What do we need to find to solve this problem?* How many stamps Kayla has *What does the problem tell us?* Liam has 63 stamps. *What else does it tell us?* Kayla and Liam have 83 stamps in all.

Say: *Look at the drawing. The addends have been joined together to make the sum.* Ask: *Which addend do we know?* 63 *What does 63 stand for?* Liam's stamps *What is the sum?* 83 *What does 83 stand for?* The number of stamps in all *What do we need to find?* The addend that stands for the number of stamps Kayla has

Then ask: *When you start with the addend you know, 63, and add 10, what is the sum?* 73 *Does this number match the sum?* No *Add 10 more to 73. What is the sum?* 83 *Does this match the sum?* Yes *How many did we add?* 20 Children should trace over the dotted 20 in the box. Direct children's attention to the statement below. Have them fill in the answer.

Kayla has **20** stamps.

Example 5

The problem in this example requires more than one step to solve. To make this clear to children, the problem is stepped out. Read the problem with the class.

For Step 1, ask: *How can we find how many blocks Austin had at the start?* By adding 12 and 3 or by counting on three from 12 *How many blocks in all does Austin have at the start?* 15 Children should trace over the dotted 15 in the box.

For Step 2, ask: *What do we need to find?* How many blocks Austin's dad gave him *How many blocks does Austin have now?* 45 *How can we find how many blocks his dad gave him?* By adding on tens to 15 until we reach a sum of 45; then we count how many tens we had to add.

Guide children through adding 10s to get from 15 to 45. Ask: *How many blocks did Austin's dad give him?* 30 blocks Children should trace over the dotted 30 in the triangle. Finally, ask: *Austin's dad gave him how many blocks?* 30 Direct children's attention to the statement below. Have them fill in the answer.

Austin's dad gave him **30** blocks.

You might like to explore this topic further by asking children to use place-value models to display this problem. Ask: *How could you model Step 1 of this problem?* Step 1 could be modeled with 1 ten and 2 ones to stand for the 12 blue blocks and 3 ones to stand for the 3 red blocks. That's a sum of 15 in all.

Ask: *How could you model Step 2 of this problem?* Step 2 could be modeled by adding 1 ten to the 15 for a total of 25, adding another ten to the 25 for a total of 35, and adding one more ten to the 35 to reach the total of 45.

Try

Place-value blocks are used to model this problem. Children are given two addends, for which they need to find the sum.

Ask: *How many puzzle pieces does Maya have?* 27 Say: *The problem tells us that Jason has 50 more pieces than Maya.* Ask: *What do we need to find?* How many pieces Jason has *How do the models help you to solve this problem?* They help me to count on tens.

Ask: *How many tens will you count on?* 5 *Why 5 tens?* Because 50 is equal to 5 tens Say: *Let's start at 27 and count on 50.* 27 (pause) 37, 47, 57, 67, 77 Have children trace the 37 and write the other numbers they counted. Ask: *How many puzzle pieces does Jason have?* 77 Children should write 77 in the box to complete the equation $27 + 50 = \square$.

Jason has **77** puzzle pieces.

To further explore this topic, replace the numbers in this problem with other numbers. Say, for example: *Suppose Maya has 37 puzzle pieces. And suppose Jason has 60 more puzzle pieces than Maya. How many puzzle pieces does Jason have?* 97 Allow children to use place-value blocks to model the problems.

Practice

For this section, children will count on or add to find either a missing addend or a sum. As they work, check to be sure that they understand how to approach problems 4 and 5, each of which requires a two-step solution.

For answers, see page 150.

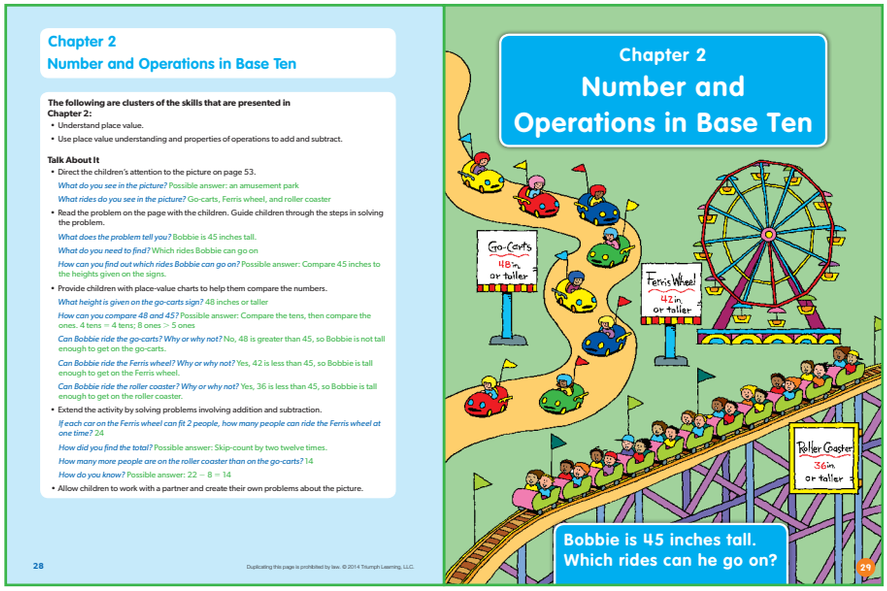
SOLVE For problem 5, children are asked to write and solve an equation to determine how many stamps Lauren has in all. After children write the equation to describe the situation, you may wish to ask them to use place-value models to explain how they solved the problem.

Full support in working through instruction with scripting

TRY page presents a problem with scaffolding to guide students.

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 story-telling 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 2
Number and Operations in Base Ten

The following are clusters of the skills that are presented in Chapter 2:

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

Talk About It

- Direct the children's attention to the picture on page 53.
  - *What do you see in the picture?* Possible answer: an amusement park
  - *What rides do you see in the picture?* Go-carts, Ferris wheel, and roller coaster
- Read the problem on the page with the children. Guide children through the steps in solving the problem.
  - *What does the problem tell you?* Bobbie is 45 inches tall.
  - *What do you need to find?* Which rides Bobbie can go on
  - *How can you find out which rides Bobbie can go on?* Possible answer: Compare 45 inches to the heights given on the signs.
- Provide children with place-value charts to help them compare the numbers.
  - *What height is given on the go-carts sign?* 48 inches or taller
  - *How can you compare 48 and 45?* Possible answer: Compare the tens, then compare the ones. 4 tens = 4 tens; 8 ones > 5 ones
  - *Can Bobbie ride the go-carts? Why or why not?* No, 48 is greater than 45, so Bobbie is not tall enough to get on the go-carts.
  - *Can Bobbie ride the Ferris wheel? Why or why not?* Yes, 42 is less than 45, so Bobbie is tall enough to get on the Ferris wheel.
  - *Can Bobbie ride the roller coaster? Why or why not?* Yes, 36 is less than 45, so Bobbie is tall enough to get on the roller coaster.
- Extend the activity by solving problems involving addition and subtraction.
  - *If each car on the Ferris wheel can fit 2 people, how many people can ride the Ferris wheel at one time?* 24
  - *How did you find the total?* Possible answer: Skip-count by two twelve times.
  - *How many more people are on the roller coaster than on the go-carts?* 14
  - *How do you know?* Possible answer: 22 − 8 = 14
- Allow children to work with a partner and create their own problems about the picture.

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Chapter 2
Number and Operations in Base Ten

Go-carts 48 in. or taller

Ferris Wheel 42 in. or taller

Roller Coaster 36 in. or taller

Bobbie is 45 inches tall.
Which rides can he go on?

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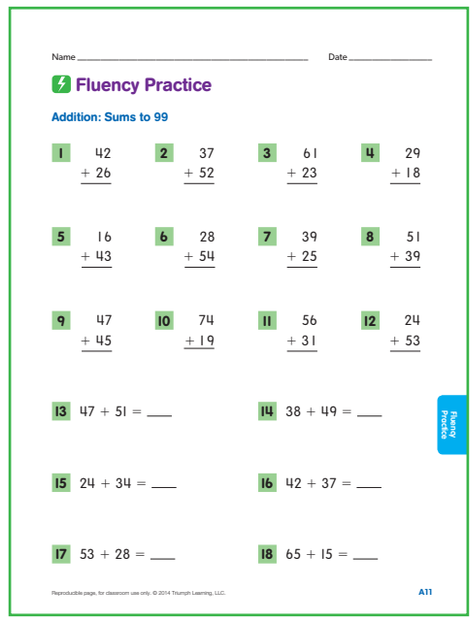
Appendix A: Fluency Practice

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: Sums to 99

1 42 + 26	2 37 + 52	3 61 + 23	4 29 + 18
5 16 + 43	6 28 + 54	7 39 + 25	8 51 + 39
9 47 + 45	10 74 + 19	11 56 + 31	12 24 + 53

13 47 + 51 = ____ 14 38 + 49 = ____

15 24 + 34 = ____ 16 42 + 37 = ____

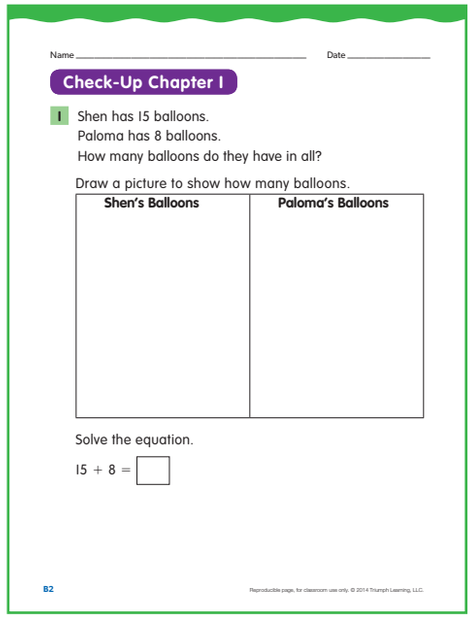
17 53 + 28 = ____ 18 65 + 15 = ____

Fluency Practice

A11

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 a 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 Shen has 15 balloons.
Paloma has 8 balloons.
How many balloons do they have in all?

Draw a picture to show how many balloons.

Shen's Balloons	Paloma's Balloons

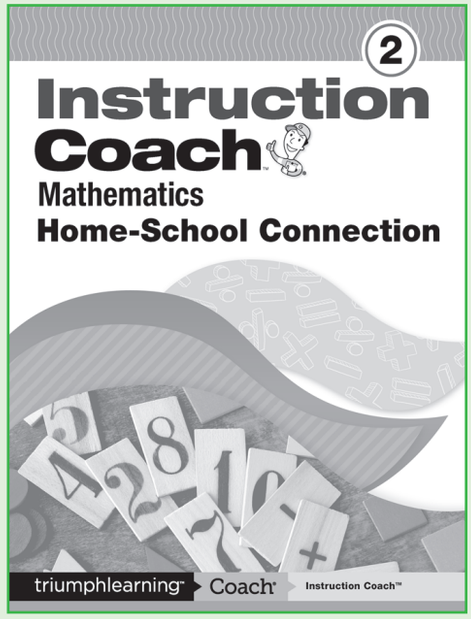
Solve the equation.

15 + 8 = ☐

B2

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 care-givers. In this way, children extend their thinking about math, thus deepening their understanding and preparation for the next day.



Lesson 2

Problem Solving: Subtraction

Learning Objective

- Children will use subtraction to solve one- and two-step word problems with unknowns in all positions.

Vocabulary

subtract

difference

Materials

- place-value blocks (optional)
- Fluency Practice, page A4
- Fluency Practice, page A5

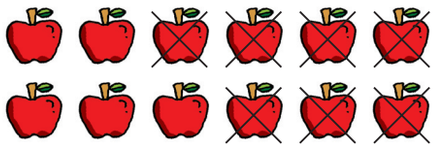
Before the Lesson

In Grade 1, children learned to solve word problems by subtracting within 20. In Grade 2, they will use subtraction within 100 to solve one- and two-step word problems.

Tell the children the following story: *A man is selling fruit. He had 12 apples . He sells 7 of the apples. How many apples does he have left?*

Say: *You can use a drawing to show this problem.* Ask: *How many apples does the man start with?* 12 *So, how many apples should we draw to start?* 12 Draw 12 apples on the board or call a volunteer to do it.

Ask: *How many apples does he sell?* 7 *What should you do to show that he sells 7?* Take 7 away. Explain that in a drawing, they can put an X on an object to show that it is being taken away. Cross off 7 apples, one at a time, or call a volunteer to do it, as the class counts with you. *1, 2, 3, 4, 5, 6, 7*



Ask: *How many apples are left?* Have children count with you the apples that are not crossed off. 1, 2, 3, 4, 5

Say: *You can subtract to solve this problem.* Write the parts of the subtraction sentence $12 - 7 = 5$ on the board as you say the following: *The subtraction sentence will begin with the number of apples that the man had.* Ask: *How many apples did he start with?* 12 *Then we need to put a minus sign to show that we will take away the number of apples he sells.* Ask: *How many apples does he sell?* 7 Say: *So we need to write 7. Next we will need an equal sign.* Ask: *How many apples does he have left?* 5 Say: *So we need to write 5. We read this sentence as twelve minus seven equals five.*

You might want to use Fluency Practice pages A4 and A5 to help children review subtraction for sums to 10.

Teaching the Lesson

This lesson has children solve word problems by using subtraction. They will use subtraction sentences to represent word problems that have missing numbers in all positions. Have children turn to page 14.

Example 1

Explain that this problem asks them to take apart a group and that they can use a subtraction to solve the problem.

Ask: *How many stickers are there?* 19 *How many stickers are blue?* 8 *How can we find how many stickers are yellow?* Subtract *What should we subtract?* 19 − 8

Point out that the box in the subtraction sentence stands for the missing number, in this case, the number of yellow stickers. Ask: *What is 19 minus 8?* 11 Children should trace the dotted 11. Direct children's attention to the statement below. Read it with the class and have them fill in the answer.

There are **11** yellow stickers.

Example 2

This example presents a problem in which the original number of objects in a group is given and the number of objects that have been taken away from the group is also given. Children need to find how many are left.

Ask: *How many acorns did the squirrel have at first?* 20 *How many acorns did the squirrel eat?* 5 *What do we need to find?* How many acorns were left

Say: *20 stands for the number of acorns in all.* Ask: *How many acorns are crossed out?* 5 Ask: *What do the 5 that are crossed out represent?* The number of acorns that the squirrel ate Say: *We can say that we are subtracting the 5 acorns from a group of 20.*

Ask: *How can we find the number of acorns that are left?* Count the acorns that are not crossed out; subtract Have children trace over the dotted 15 in the box. Direct children's attention to the statement below and have them write in the answer.

There were **15** acorns left.

Example 3

In this example, the number being taken away is the missing number.

Ask: *How many pennies did Blake start with?* 70 *How many pennies did Blake end up with?* 30 *How can we find how many pennies Blake spent?* Subtract *What subtraction sentence should we use?* 70 minus ☐ equals 30.

Direct attention to the place-value blocks. Ask: *How many tens are there in all?* 7 *How many of Blake's pennies does each ten represent?* 10 pennies Then ask: *How many pennies do all 7 tens represent?* 70 pennies

Ask: *How many tens do the 30 pennies that are left stand for?* 3 tens *If each ten stands for 10 pennies, how many pennies do these 3 tens represent?* 30 pennies

Ask: *What does it say below the 4 tens?* Pennies spent *What does that mean?* It means that Blake spent 4 tens, or 40 pennies. Have children trace over the dotted 40 in the box. Ask: *How many pennies did Blake spend?* 40

Blake spent **40** pennies.

Example 4

This example shows a subtraction problem that has a missing starting number (minuend).

Ask: *How many walnuts did Sharon eat?* 10 *How many walnuts are left?* 24 *What do we need to find?* How many walnuts were on the table to start Say: *We can use a subtraction sentence because some walnuts were taken away.*

Say: *We do not know the number of walnuts on the table to start, so we do not know the first number in our sentence. We will use a box for the unknown number in our equation.* Ask: *Do we know how many walnuts Sharon ate?* Yes *How many walnuts did Sharon eat?* 10 Say: *We can write minus 10 for the walnuts Sharon ate.* Ask: *How many walnuts were left?* 24

Say: *We have 24 left and 10 were eaten. One way to solve this is to take the 24 walnuts that were left and add back the 10 that were eaten.* Ask: *24 + 10 equals what number?* 34 *What number minus 10 equals 24?* 34 Children should trace the dotted 34. Have the children complete the sentence below.

There were **34** walnuts on the table to start.

Common Error Make sure that children do not subtract the 10 from the 24 that are left. They should understand that they are looking for the total number of walnuts that were on the table before some were eaten.

You may wish to have children compare this problem to the missing-addend problem, Example 4, in Lesson 1. Ask: *How is Example 4 in Lesson 1 like Example 4 in this lesson?* Both use an addend-addend-sum chart. Ask: *How do the two problems differ?* For Example 4 in Lesson 1, we needed to find an addend. For this example, we needed to find a sum.

Example 5

For this example, children use place-value models and subtract tens in order to solve a word problem involving comparing.

Ask: *What do we know about the number of games Luke has?* That Luke has 20 fewer games than Mary-Jo has *How many games does Mary-Jo have?* 50 *What do we need to find to solve this problem?* How many games Luke has

Ask: *What equation can we write to show this problem?* 50 − 20 = ☐ *What does the model show?* 5 tens with 2 tens crossed out Finally, ask: *How many tens are left?* 3 *What is the value of 3 tens?* 30

Ask: *How many games does Luke have?* 30 Have children trace over the dotted 30. Then draw children's attention to the statement below and have them write in the answer.

Luke has **30** games.

Example 6

This example involves a two-step word problem. Step 1 requires children to find a sum. Step 2 has them find the difference between that sum and another number. Read the problem with the class.

For Step 1, ask: *How many storybooks did Haley have at the start?* 18 *How many animal books did she have?* 3 *How many books does Haley have after she gives some of these books away?* 19 *What do we need to find to solve this problem?* How many books Haley gave away

For Step 1, ask:*What can we do to find how many books Haley had before she gave some away?* We can count on 3 ones from 18. Say: *Let's count on 3 from 18.* 18 (pause), 19, 20, 21 Ask: *What is the last number you will say?* Twenty-one Children should trace over the dotted 21 in the box. Ask: *How many books did Haley have at the start?* 21

For Step 2, ask: *Now, what do we need to find?* How many books Haley gave away *What subtraction equation helps us find this?* 21 − △ = 19 *How can we find the missing number?* By using a related addition sentence and counting on from 19, the number of books Haley has now, until we reach 21, the number of books she had at the start.

Say: *Let's count on together from nineteen:* 19 (pause), 20, 21 Ask: *How many did we count on from 19 to 21?* 2 *So, how many of her 21 books did Haley give away?* 2 Children should trace over the dotted 2 in the triangle. Then direct their attention to the statement below and have them write in the answer.

Haley gave away **2** books.

Try

This problem uses place-value blocks to model the subtraction needed to solve the word problem.

Read the problem with the class. Ask: *How many coins does Lucy have?* 30 fewer than Gavin has *How many coins does Gavin have?* 80 *What do we need to find?* The number of coins that Lucy has *How will we go about finding the number of coins Lucy has?* We will subtract 30 from 80.

Ask: *What does the first model show?* It shows 8 tens. *What do the 8 tens stand for?* The 80 coins that Gavin has *What does the second model show?* 3 of the 8 tens crossed out Explain that the 3 tens are crossed out to show that Lucy has 3 tens, or 30, fewer coins than Gavin. Ask: *How many tens are left after 3 tens are crossed out?* 5 *What is the value of the 5 tens?* 50

Finally, ask: *How many coins does Lucy have?* 50 Children should trace over the dotted 50 in the box to complete the equation 80 − 30 = 50 and then write the answer in the statement below.

Lucy has **30** coins.

To further explore this topic, have children explain why they needed to subtract to solve this problem. Ask: *Why did you subtract, and not add, to solve this problem?* Possible answer: The problem said that Gavin has 80 coins and Lucy has 30 fewer. If I added, I would have found that Lucy has more than 80 coins, which doesn't match the problem.

Practice

As children work, pay special attention to problem 2. Be sure they understand that they need to find how many toys were in the attic at the start of the problem. You may have them use place-value blocks to model the problem. Help them read the equation as, "What number minus twenty equals thirty-three?"

For answers, see page 150.

SOLVE To challenge children to express their understanding of problem 5, you may want to have them use the existing problem as the basis of a problem of their own by replacing the names and numbers in the problem with names and numbers of their choosing. Again, have them write and solve equations for such problems.