TEACHER'S EDITION: Grade 1 Sample Topic

TOPIC 4 CLUSTER OVERVIEW

TOPIC 4

SUBTRACTION FACTS TO 20: USE STRATEGIES

TOPIC 4 MAJOR CLUSTER 1.OA.B

MATH BACKGROUND: FOCUS

FCR FOCUS | COHERENCE | RIGOR

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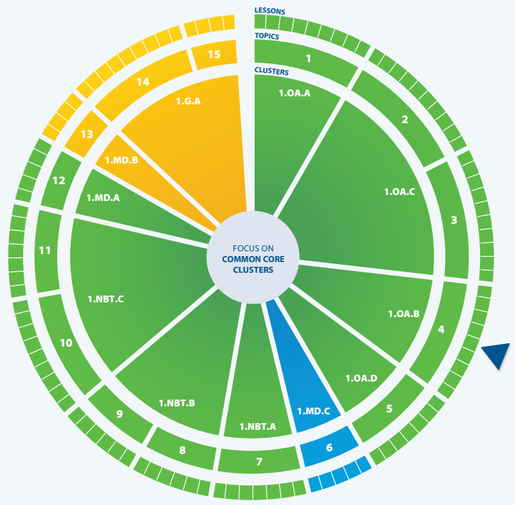
PD

MAJOR CLUSTER | SUPPORTING CLUSTER | ADDITIONAL CLUSTER



TOPIC 4 Subtraction Facts to 20: Use Strategies

TOPIC 4 FOCUSES ON

MAJOR CLUSTER 1.OA.B

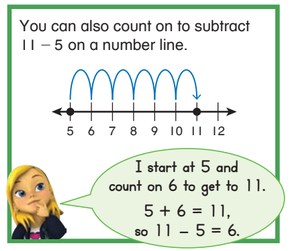
Understand and apply properties of operations and the relationship between addition and subtraction.

Content Focus in enVisionmath2.0

This topic introduces students to several key strategies for solving subtraction facts to 20. These strategies include counting to subtract, making 10 to subtract, and using addition to subtract. These strategies will serve students by encouraging a deeper and more conceptual understanding of the relationship between addition and subtraction.

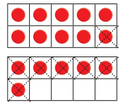
SUBTRACTION FACT STRATEGIES

- **Count to Subtract** In Lesson 4-1, students use a number line as a model to solve subtraction by counting on or counting back to find the difference. When students count on to subtract, they are thinking addition to subtract and connecting operations. (1.OA.C.5, 1.OA.C.6)



- **Make 10 to Subtract** In Lesson 4-2, students explore how to use 10 to subtract within 20. The make-10 strategy for subtraction helps students create a landmark problem by first subtracting to get to 10. Students then subtract from 10, a "friendlier" problem that they have done before in Topic 2. (1.OA.C.6)

1. 16 – 7 = ?



16 – 6 = 10

10 – 1 = 9

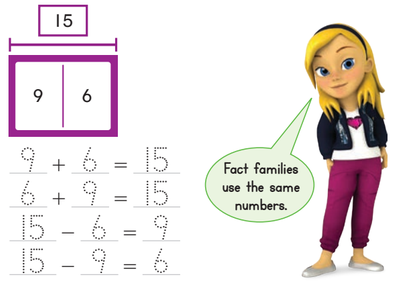
So, 16 – 7 = 9.

In Lesson 4-3, students continue to make 10 to subtract and once again explore the relationship between addition and subtraction. Using ten-frames, students count on from the subtrahend (the amount being subtracted) to make 10 and later find the difference. (1.OA.C.6, 1.OA.B.4)

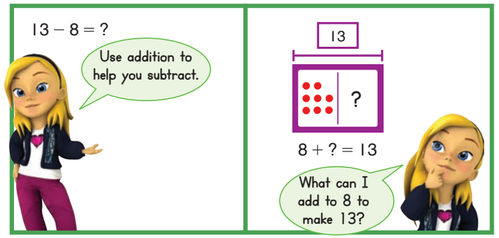
Content Focus in enVisionmath2.0 (continued)

ADDITION AND SUBTRACTION RELATIONSHIP

- **Fact Families** Students use part-part-whole mats (bar diagrams) to visually see the connection between addition and subtraction. The addition-subtraction relationship becomes even more visible than before as students work with fact families in Lesson 4-4. (1.OA.B.4, 1.OA.C.6)



- **Think Addition to Subtract** Students move toward more abstract thinking by using addition facts to help them determine the difference in subtraction problems. They think of addition facts they know to help them subtract in Lessons 4-5 and 4-6. (1.OA.B.4, 1.OA.C.6)



SOLVING WORD PROBLEMS

- **Common Addition and Subtraction Situations** In Lesson 4-8, students receive specific instruction on the Start Unknown problem types for Add To and Take From. Throughout this lesson and earlier in the topic, students solve problems involving a variety of situations. These experiences encourage them to use flexible thinking in problem solving. (1.OA.A.1)

1. Jim picks some red flowers. He also picks 7 yellow flowers. He picks 15 flowers in all. How many red flowers did Jim pick?

___ ◯ ___ = ___

___ red flowers

PD **Professional Development Videos** Topic Overview Videos and Listen and Look For Lesson Videos present important information about the content.

TOPIC 4

MAJOR CLUSTER 1.OA.B

MATH BACKGROUND: COHERENCE

FOCUS | FCR COHERENCE | RIGOR

Content Coherence in enVisionmath2.0

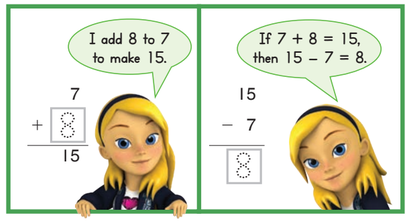
Students learn best when ideas are connected in a coherent curriculum. This coherence is achieved through various types of connections including connections within and across clusters, across domains, and across grades.

BIG IDEAS IN GRADES K–6

Big Ideas are the conceptual underpinnings of **enVision**math**2.0** and provide conceptual cohesion of the content. Big Ideas connect Essential Understandings throughout the program.

A part of a Big Idea that connects most of the work in this cluster is that each operation is related to other operations.

For example, when students see subtraction as unknown-addend problems in Use Addition lessons, they see how addition and subtraction are related.



Students see this relationship in part-part-whole models when they work on fact families. They also see it when they count on or make 10 to subtract.

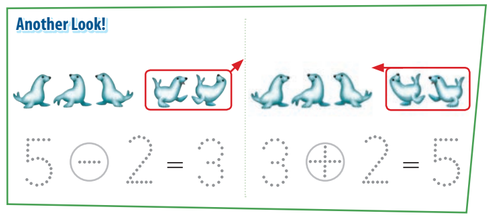
For a complete list of Big Ideas, see pages 90–91 in the *Teacher's Edition Program Overview.*

LOOK BACK

How does Topic 4 connect to what students learned earlier?

GRADE K

- **Counting** Kindergarten students learn to count forward from any given number within the known sequence. This skill is critical for students to develop fluency in using counting on and back in subtraction strategies. (K.CC.A.2)
- **Making 10** Students also have a concerted focus on making 10 in Grade K. This is highlighted as students focus on counting 10 objects, reading and writing 10 and, most importantly, discovering ways to decompose and compose 10. (K.OA.A.3, K.OA.A.4)
- **Related Facts within 5** Students in Grade K use related facts to help them become more fluent with facts to 5. (K.OA.A.5)



- **Subtraction Word Problems** Grade K students solve word problems that represent taking apart situations. Although these problems always have the unknown in the result position, solving them lays a solid foundation for solving contextual subtraction problems. (K.OA.A.2)

EARLIER IN GRADE 1

- **Using Addition to Subtract within 10** In Topic 2, students explored the relationship between addition and subtraction within 10 by using addition to subtract. (1.OA.B.4, 1.OA.C.6)
- **Word Problems within 10** In Topic 1, students solved taking away from and comparison subtraction problem situations within 10. (1.OA.A.1)

Content Coherence in enVisionmath2.0 (continued)

TOPIC 4

How is content connected within Topic 4?

- **Connecting Addition and Subtraction** Within Topic 4, students first connect addition and subtraction by using counting on as one method for making 10 to subtract. Later they see the relationship between addition and subtraction in Fact Family and Use Addition Lessons. (1.OA.B.4, 1.OA.C.6)
- **Pulling It All Together** In the last three lessons in Topic 4, students revisit the strategies they have learned previously in the topic. In Lesson 4-7, students explain and use these strategies. In Lesson 4-8, students use these strategies to solve word problems of different types. In Lesson 4-9, students write and solve their own word problems. (1.OA.B.4, 1.OA.C.5, 1.OA.C.6, MP.2)

Guided Practice Find each difference. Circle the strategy that you used.

1. 15 – 9 = 6
   Count
   (Make 10)
   Think Addition
   My Way
2. 9 – 7 = ☐
   Count
   Make 10
   Think Addition
   My Way

LOOK AHEAD

How will Topic 4 connect to what students will learn later?

LATER IN GRADE 1

- **Solving Problems About Data** In Topic 6, students practice organizing and analyzing data. They will apply the skills and strategies developed in Topic 4 to solve word problems about data presented in picture graphs. (1.MD.C.4)

1.

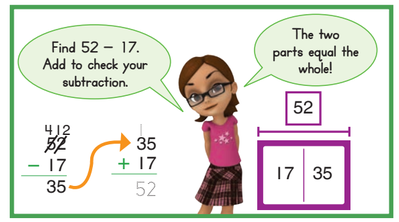
Favorite Fruit							
Apple							
Orange							

Jim asks 9 members of his family for their favorite fruit.
6 people say they like oranges. The rest say they like apples.
How many people say they like apples? ____ people

- **Subtracting Tens** In Topic 11, students subtract tens. In Lesson 11-6, they use addition to subtract, once again demonstrating the relationship between addition and subtraction. (1.NBT.C.6)

GRADE 2

- **Fluency with Facts to 20** In Grade 2, students will use the relationship between addition and subtraction as well as the make 10 to subtract strategy in order to develop fluency for addition and subtraction within 20. (2.OA.B.2)
- **Subtracting within 100** Later, students break apart numbers and use the relationship between addition and subtraction to fluently subtract within 100. They also use addition to check subtraction, reinforcing their understanding of the addition-subtraction relationship. (2.NBT.B.5, 2.NBT.B.9)



- **Subtracting within 1,000** Additionally, students will practice subtracting within 1,000 using the relationship between addition and subtraction. (2.NBT.B.7)

TOPIC 4

MAJOR CLUSTER 1.OA.B

MATH BACKGROUND: RIGOR

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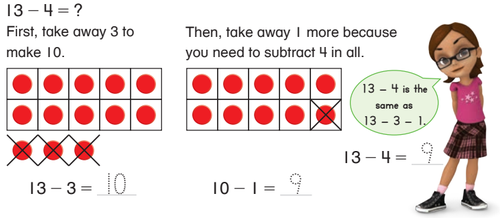
Content Rigor in enVisionmath2.0

A rigorous curriculum provides a balance between conceptual understanding, procedural skill and fluency, and applications.

CONCEPTUAL UNDERSTANDING

- **Understand 10 as a Benchmark Number** Our number system is a base-10 system. The number 10 plays a key role in place-value and operations. Ten-frames have been used throughout Kindergarten and Grade 1 to help students visualize 10. Early in Topic 4, students develop a strong conceptual understanding of making 10 to subtract by using ten-frames. This understanding allows students to determine how many to count back to reach 10 as they make 10 to subtract. (1.OA.C.6)

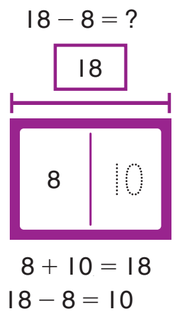


- **The Addition-Subtraction Relationship** Subtraction is inversely related to addition. Students need a strong understanding of this relationship to help them learn facts and to solve different problem types. In Topic 4, students use part-part-whole models to represent this relationship. They think addition to solve subtraction facts. They also solve word problems in which they need to understand the whole and the parts in the problem in order to determine what is missing. Topic 4 provides multiple opportunities to help students understand the addition-subtraction relationship. (1.OA.B.4, 1.OA.C.6)

- **Understanding Different Problem Situations** Students continue to build their conceptual understanding of subtraction by using a variety of strategies to solve word problems. This topic presents students with taking away from and comparison situations to ensure that they understand that both situations represent subtraction. (1.OA.A.1)

PROCEDURAL SKILLS AND FLUENCY

- **Using Strategies to Subtract within 20** In Grade 1, students begin to develop fluency for subtraction within 10 by using the relationship between addition and subtraction and by using counting strategies. In Topic 4, students further their subtraction skills by revisiting these strategies and by making 10. (1.OA.B.4, 1.OA.C.6)



APPLICATIONS

- **Addition and Subtraction Situations** Lesson 4-8 specifically introduces taking from and comparison subtraction situations in context (1.OA.A.1). These situations allow students to apply their understandings of subtraction in context. Students solve problems with unknowns in all positions. In Lesson 4-9, students apply what they know about addition and subtraction to write word problems for addition or subtraction situations.

Solve & Share

Some books are on a shelf. Aiden puts 4 more books on the shelf. Now there are 12 books. How many books were on the shelf to start? Use objects, drawings, or equations to show your thinking.

MAJOR CLUSTER 1.OA.B

MATH PRACTICES

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MP

Connecting Math Practices and Content Standards in enVisionmath2.0

Math practices and content standards are connected within all lessons including the lessons that focus on math practices.

MATH PRACTICES WITHIN LESSONS

- **MP.1 Make sense of problems and persevere in solving them.**

  Students persevere as they try to understand problems involving subtraction and plan how to solve them. (e.g., p. 246, Item 7)

- **MP.2 Reason abstractly and quantitatively.**

  Students use reasoning as they think about how numbers in word problems are related. (e.g., p. 264)

- **MP.3 Construct viable arguments and critique the reasoning of others.**

  Students create viable arguments as they use their knowledge of part-part-whole relationships to explain different facts in fact families. (e.g., p. 282, Item 7)

- **MP.4 Model with mathematics.**

  Students model with math when they use a drawing and equations to solve problems (e.g., p. 282, Item 6)

- **MP.5 Use appropriate tools strategically.**

  Students use tools such as number lines to represent subtraction problems. (e.g., p. 234)

- **MP.6 Attend to precision.**

  Students attend to precision to solve word problems in Lesson 4–8. They choose the correct operation and symbol to represent the operation, and they calculate accurately.

- **MP.7 Look for and make use of structure.**

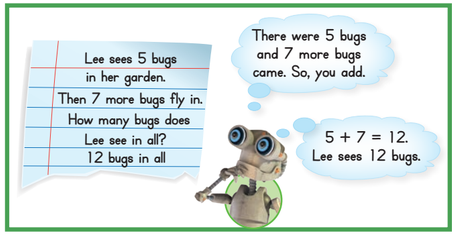
  Students look for patterns when they examine part-part-whole relationships in fact families. (e.g., p. 252)

- **MP.8 Look for and express regularity in repeated reasoning.**

  Students use repeated reasoning when they generalize how using related addition facts can help them solve subtraction problems and facts. (e.g., p. 258)

LESSON THAT FOCUSES ON MATH PRACTICES

- **Lesson 4-9** This lesson focuses on MP.2. Students use reasoning as they contextualize addition and subtraction situations (e.g., 5 + 7) with word problems, and decontextualize their own problems with equations (e.g., 5 + 7 = 12).



Revisit the information about MP.2 in these other resources:

- **Math Practices and Problem Solving Handbook** before Topic 1; includes Math Practices Proficiency Rubrics.
- **Math Practices Posters** to display in your classroom

MP **Math Practices Animations,** one for each math practice, available at PearsonRealize.com.

TOPIC 4

MAJOR CLUSTER 1.OA.B

DIFFERENTIATED INSTRUCTION

I Intervention O On-Level A Advanced

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Learn · Assessment · Tools · Games

Ongoing Intervention

During the core lesson, monitor progress, reteach as needed, and extend students' thinking.

Guiding Questions

- **In the Teacher's Edition** Guiding questions are used to monitor understanding during instruction.

Learn **Online Guiding Questions** Guiding questions are also in the online Visual Learning Animation Plus.

Prevent Misconceptions
This feature in the Teacher's Edition is embedded in the guiding questions.

Error Intervention: If... then...
This feature in the Teacher's Edition is provided during Guided Practice. It spotlights common errors and gives suggestions for addressing them.

Reteaching
Reteaching sets are at the end of the topic in the Student's Edition. They provide additional examples, reminders, and practice. Use these sets as needed before students do the Independent Practice.

Higher Order Thinking
These problems require students to think more deeply about the rich, conceptual knowledge developed in the lesson.

Strategic Intervention

At the end of the lesson, assess to identify students' strengths and needs and then provide appropriate support.

Quick Check

In the Student's Edition Assess the lesson using 3 items checked in the Teacher's Edition.

Assessment **Online Quick Check** You can also assess the lesson using 5 online, machine-scored, multiple-choice items.

Intervention Activity I
Teachers work with struggling students.

Reteach to Build Understanding I
This is a page of guided reteaching.

Technology Center I O A

Tools **Digital Math Tools Activities** reinforce the lesson content or previously taught content using a suite of digital math tools.

Games **Online Games** provide practice on the lesson content or previously taught content.

Homework and Practice I O A
Use the leveled assignment to provide differentiated homework and practice.

Additional resources to support differentiated instruction for on-level and advanced students include:

On-Level and Advanced Activity Centers O A

- **Center Games** are provided in on-level and advanced versions.
- **Math and Science Activity** is related to the topic science theme introduced at the start of the topic.
- **Problem-Solving Reading Mat** is used with a lesson-specific activity.

Intensive Intervention

As needed, provide more instruction for struggling students on or below grade level.

Math Diagnosis and Intervention System 2.0

- **Diagnosis** Use the diagnostic tests in the system. Also, use the item analysis charts given with program assessments at the start of a grade or topic, or at the end of a topic, group of topics, or the year.
- **Intervention Lessons** These two-page lessons include guided instruction followed by practice. The system includes lessons below, on, and above grade level.
- **Teacher Support** Teacher Notes provide the support needed to conduct a short lesson. The lesson focuses on vocabulary, concept development, and practice. The Teacher's Guide contains individual and class record forms and correlations to Student's Edition lessons.

Resources for Fluency Success

- A variety of print and digital resources are provided to ensure success on Common Core fluency standards. See Steps to Fluency Success on pages 75M–75P.

MAJOR CLUSTER 1.OA.B

THE LANGUAGE OF MATH

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Glossary · Games · Story · Story

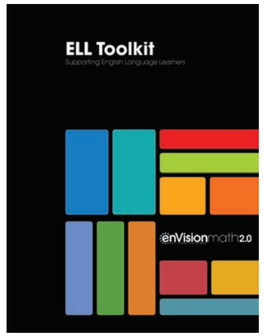
English Language Learners

Provide ELL support through visual learning throughout the program, ELL instruction in every lesson, and additional ideas in an ELL Toolkit.

Visual Learning
The visual learning that is infused in **enVision**math**2.0** provides support for English language learners. This support includes a Visual Learning Animation Plus and a Visual Learning Bridge for each lesson.

English Language Learners Instruction E L L
Lessons provide instruction for English language learners at Beginning, Intermediate, and Advanced levels of English proficiency.

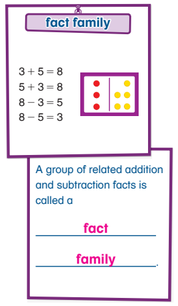
English Language Learners Toolkit
This resource provides professional development and resources for supporting English language learners.



Math Vocabulary

Build math vocabulary using the vocabulary cards, vocabulary activities, vocabulary review, and glossary plus the online glossary and vocabulary game.

My Word Cards
Vocabulary cards for a topic are provided in the Student's Edition. Students study the word on the front of the card to complete a sentence with the word on the back.



Vocabulary Activities
The Teacher's Edition provides vocabulary activities at the start of topics. These include activities for vocabulary in My Word Cards and/or activities for vocabulary in Review What You Know.

Vocabulary Review
A page of vocabulary review is provided at the end of each topic. It reviews vocabulary used in the topic.

Glossary
A glossary is provided at the back of the Student's Edition.

Animated Glossary

Glossary An online, bilingual, animated glossary uses motion and sound to build understanding of math vocabulary.

Online Vocabulary Game

Games An online vocabulary game is available in the Game Center.

Math and Reading

Connect reading and math using a data-filled reading mat for the topic with accompanying activity masters and guide. Also use topic interactive math stories.

Problem-Solving Reading Mats
There is a large, beautiful mat for each topic. At the start of the topic, help students become familiar with the mat and the vocabulary used by reading the mat aloud as students follow along. Use the Problem-Solving Reading Activity Guide for suggestions about how to use the mat.

Problem-Solving Reading Activity
At the end of some lessons, a Problem-Solving Reading Activity provides a page of math problems to solve by using the data on the mat.

Interactive Math Stories

Story Story An interactive math story provides an introduction to each topic. The story is available as an online story book and an animated story at PearsonRealize.com as well as a color-in, take-home story in the Teacher's Resource Masters.

TOPIC 4

TOPIC PLANNER

SUBTRACTION FACTS TO 20: USE STRATEGIES

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Digital

Lesson 4-1

COUNT TO SUBTRACT pp. 231–236

Content Standard **1.OA.C.5**
Mathematical Practices **MP.1, MP.2, MP.4, MP.5**

Objective Use a number line to subtract by counting on or counting back.

Essential Understanding When using a number line to subtract, you can count back the number of spaces you are subtracting or find the distance between the two numbers.

Vocabulary None

ELL Speaking: Express opinions and describe thought processes.

Materials Number Lines (Teaching Tool 22), counters (or Teaching Tool 32)

On-Level and Advanced Activity Centers
- Math and Science Activity

Lesson 4-2

MAKE 10 TO SUBTRACT pp. 237–242

Content Standard **1.OA.C.6**
Mathematical Practices **MP.3, MP.4, MP.5, MP.8**

Objective Make subtraction easier by making 10 to subtract.

Essential Understanding Some subtraction facts can be simplified by making use of the numbers' relationships to 10.

Vocabulary None

ELL Reading: Demonstrate comprehension by taking notes.

Materials Counters (or Teaching Tool 32), Double Ten-Frame Mat (Teaching Tool 12)

On-Level and Advanced Activity Centers
- Problem-Solving Reading Mat

Lesson 4-3

CONTINUE TO MAKE 10 TO SUBTRACT pp. 243–248

Content Standard **1.OA.C.6**
Mathematical Practices **MP.1, MP.2, MP.3, MP.7**

Objective Count on to subtract using 10 as a landmark.

Essential Understanding Some subtraction facts can be simplified by making use of the numbers' relationships to 10.

Vocabulary None

ELL Reading: Use visual support to enhance understanding.

Materials Counters (or Teaching Tool 32), Double Ten-Frame Mat (Teaching Tool 12)

On-Level and Advanced Activity Centers
- Center Games

Lesson 4-4

FACT FAMILIES pp. 249–254

Content Standards **1.OA.B.4, 1.OA.C.6**
Mathematical Practices **MP.4, MP.7, MP.8**

Objective Make addition and subtraction facts using the same three numbers.

Essential Understanding The inverse relationship between addition and subtraction can be used to find subtraction facts; every subtraction fact has at least one related addition fact.

Vocabulary fact family, related facts

ELL Listening: Learn new academic expressions.

Materials Counters (or Teaching Tool 32), Part-Part-Whole Mat (Teaching Tool 8)

On-Level and Advanced Activity Centers
- Center Games

Lesson 4-5

USE ADDITION TO SUBTRACT pp. 255–260

Content Standards **1.OA.B.4, 1.OA.C.6**
Mathematical Practices **MP.1, MP.2, MP.4, MP.5, MP.8**

Objective Use addition facts to find subtraction facts.

Essential Understanding The inverse relationship between addition and subtraction can be used to find subtraction facts; every subtraction fact has at least one related addition fact.

Vocabulary None

ELL Listening: Demonstrate listening comprehension by taking notes.

Materials Counters (or Teaching Tool 32), Part-Part-Whole Mat (Teaching Tool 8)

On-Level and Advanced Activity Centers
- Center Games

Lesson 4-6

CONTINUE TO USE ADDITION TO SUBTRACT pp. 261–266

Content Standards **1.OA.B.4, 1.OA.C.6**
Mathematical Practices **MP.2, MP.4, MP.8**

Objective Use addition facts to find subtraction facts.

Essential Understanding The inverse relationship between addition and subtraction can be used to find subtraction facts; every subtraction fact has at least one related addition fact.

Vocabulary None

ELL Listening: Seek clarification of spoken language.

Materials Counters (or Teaching Tool 32), Part-Part-Whole Mat (Teaching Tool 8)

On-Level and Advanced Activity Centers
- Center Games

LESSON RESOURCES

Digital
- Student's Edition
- Daily Common Core Review
- Reteach to Build Understanding
- Center Games
- Math and Science Activity
- Problem-Solving Reading Mat
- Problem-Solving Reading Activity

Print

Digital
- Listen and Look For PD Lesson Video
- Student's Edition eText
- Today's Challenge
- Solve & Share
- Visual Learning Animation Plus
- Animated Glossary
- Math Tools
- Quick Check
- Another Look Homework Video
- Math Games

TOPIC RESOURCES

Digital

Start of Topic
- Interactive Math Story
- Math and Science Project
- Home-School Connection
- Review What You Know
- My Word Cards

End of Topic
- Fluency Practice Activity
- Vocabulary Review
- Reteaching
- Topic Assessment
- Topic Performance Assessment

Print

Digital

Start of Topic
- Topic Overview PD Video

End of Topic
- Math Practices Animations
- Online Topic Assessment
- ExamView® Test Generator

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TOPIC 4

TOPIC PLANNER

SUBTRACTION FACTS TO 20: USE STRATEGIES

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Digital

Lesson 4-7

EXPLAIN SUBTRACTION STRATEGIES pp. 267–272

Content Standards 1.OA.B.4, 1.OA.C.5, 1.OA.C.6
Mathematical Practices MP.1, MP.3, MP.5, MP.8

Objective Explain strategies used to solve subtraction problems.

Essential Understanding There are different ways to solve subtraction facts. Certain strategies may be easier to use for different facts.

Vocabulary None

ELL Speaking: Share information in cooperative learning groups.

Materials Counters (or Teaching Tool 32), Double Ten-Frame Mat (Teaching Tool 12)

On-Level and Advanced Activity Centers
- Problem-Solving Reading Mat

Lesson 4-8

SOLVE WORD PROBLEMS WITH FACTS TO 20 pp. 273–278

Content Standard 1.OA.A.1
Mathematical Practices MP.1, MP.2, MP.6

Objective Solve different types of addition and subtraction problems with unknowns in different positions.

Essential Understanding Objects, drawings, and equations can help you solve different types of word problems.

Vocabulary None

ELL Speaking: Express opinions on academic topics.

Materials Counters (or Teaching Tool 32)

On-Level and Advanced Activity Centers
- Center Games

Lesson 4-9

MATH PRACTICES AND PROBLEM SOLVING: REASONING pp. 279–284

Mathematical Practices MP.2 Also MP.1, MP.3, MP.4, MP.6
Content Standard 1.OA.A.1

Objective Use reasoning to write and solve number stories.

Essential Understanding Good math thinkers know how to think about words and numbers to solve problems.

Vocabulary None

ELL Speaking: Explain content area information.

Materials Counters (or Teaching Tool 32)

On-Level and Advanced Activity Centers
- Math and Science Activity

Notes

TOPIC 4

INTERACTIVE MATH STORY

SUBTRACTION STRATEGIES

PEARSON realize.
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PDF Story

Story

FLYING SUBTRACTION

This is a story in which students use a given addition fact to help solve a subtraction problem from the same fact family.

Before the Story

PDF Story

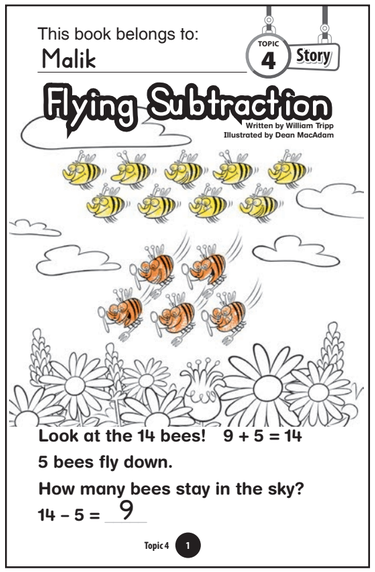
Picture Walk
Project the online PDF that contains a full-color version of the story. Read the title, author's name, and illustrator's name to the students. *What flying things do you think might be in this story? Let's take a look.* Page through the book. Together with the students, talk about the things in the sky and enjoy the humorous illustrations. Point out that in each picture some of the flying objects are coming down.

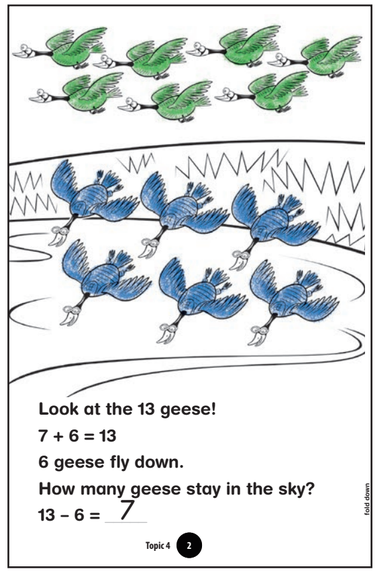
Activate Prior Knowledge
Ask a volunteer to write an addition fact on the board, for example: $3 + 7 = 10$. Point out that this addition fact can help students solve a subtraction fact in the same fact family. Ask students to complete this sentence:
If $3 + 7 = 10$, then $10 - 3 =$ ____.

Repeat the activity with equations from a different fact family.

Story Play the animated version of the story.

DURING THE STORY

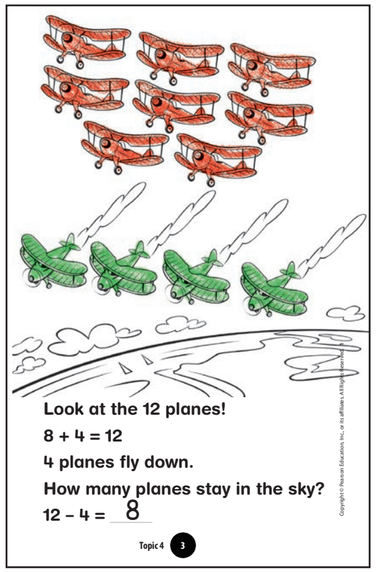


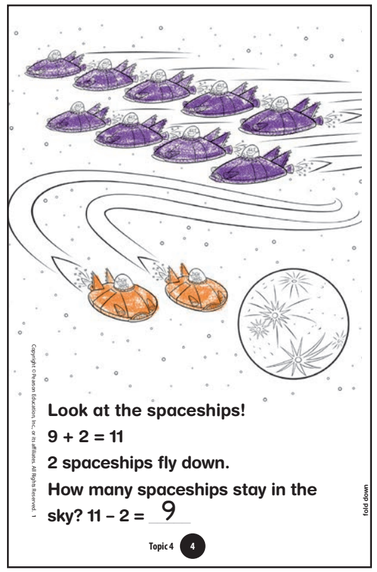


READ
Read the story aloud for enjoyment. On the first page, have students count to confirm the numbers in the addition equation. *How many bees are there?* [14] *How many bees are flying down?* [5] *How many are left in the sky?* [9] Guide students to see the relationship between the numbers in the addition equation and the numbers in the subtraction equation.

GESTURE
Reread the story. After reading the first page, invite volunteers to use a finger to "draw" a circle around the bees. *Circle the whole group of bees. Now circle the group that comes down. Circle the group that stays in the sky.* Finish reading the book, pausing after each page for volunteers to circle the groups of flying objects on that page.

COLOR
Distribute the student Interactive Math Story books. On the first page, have students use one color for the 5 bees that fly down and another color for the 9 bees that stay in the sky. Have students color the groups on the other pages in a similar manner. Colors students choose will vary.





WRITE
On each page, read and discuss the equations. *How does the addition equation on the page help you complete the subtraction equation?* [They are related facts. The missing number in the subtraction equation is one of the numbers added in the addition equation.] Then have students complete the subtraction equation at the bottom of each page.

SPEAK
Arrange for students to work in pairs. On the first page, direct one student in the pair to say the addition equation that is shown in the picture. Have the other student say the related subtraction equation that is shown. Let students continue in this manner through the remainder of the book, switching roles on alternate pages.

After the Story

Extension
Help students compile a list of other animals and objects that fly in the air. Assign the items on the list to pairs. Have each pair draw an illustration modeled after those in the Interactive Math Story book and write the related addition and subtraction equations. Assemble the pages into a class book.

You may wish to have students take home their Interactive Math Story books and share what they have learned about subtraction strategies with a family member.

TOPIC 4 OPENER

SUBTRACTION FACTS TO 20: USE STRATEGIES

TOPIC ESSENTIAL QUESTION

What strategies can you use while subtracting?

Revisit the Topic Essential Question throughout the topic, and see a note about answering the question in the Teacher's Edition for the Topic Assessment.

MATH AND SCIENCE PROJECT STEM

Science Theme The science theme for this project is **Pattern of Day and Night.** This theme will be revisited in the Math and Science Activities in Lessons 4-1 and 4-9.

Discuss with students how the sun moves across the sky from morning to night.

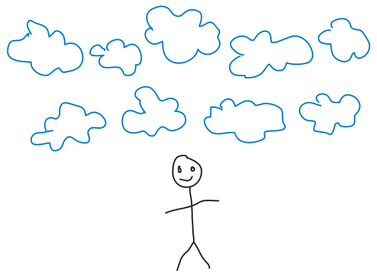
Ask students if they have noticed objects move in the night sky.

Project-Based Learning Have students work on the **Math and Science Project** over the course of several days.

EXTENSION

Have students draw a picture that relates to a subtraction problem they wrote for their books.

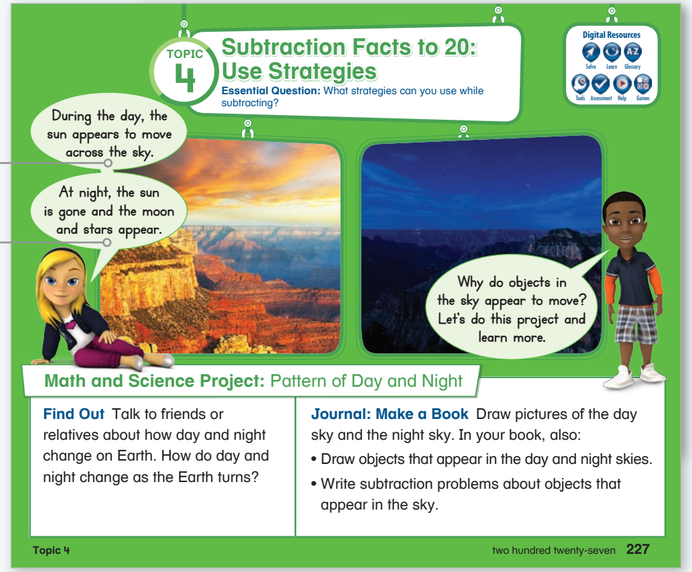
Sample Student Work for Math and Science Project



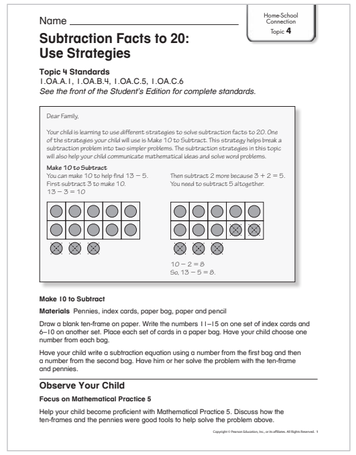
Colvin saw 9 clouds in the sky. Then 2 of them floated away. How many clouds were left?

9 – 2 = 7

7 clouds were left.



Home-School Connection



Name _____

Home-School Connection Topic 4

Subtraction Facts to 20: Use Strategies

Topic 4 Standards
1.OA.A.1, 1.OA.B.4, 1.OA.C.5, 1.OA.C.6
See the front of the Student's Edition for complete standards.

Dear Family,

Your child is learning to use different strategies to solve subtraction facts to 20. One of the strategies your child will use is Make 10 to Subtract. This strategy helps break a subtraction problem into two simpler problems. The subtraction strategies in this topic will also help your child communicate mathematical ideas and solve word problems.

Make 10 to Subtract
You can make 10 to help find 13 – 5.
First subtract 3 to make 10.
13 – 3 = 10

Then subtract 2 more because 3 + 2 = 5.
You need to subtract 5 altogether.

10 – 2 = 8
So, 13 – 5 = 8.

Make 10 to Subtract

Materials Pennies, index cards, paper bag, paper and pencil

Draw a blank ten-frame on paper. Write the numbers 11–15 on one set of index cards and 6–10 on another set. Place each set of cards in a paper bag. Have your child choose one number from each bag.

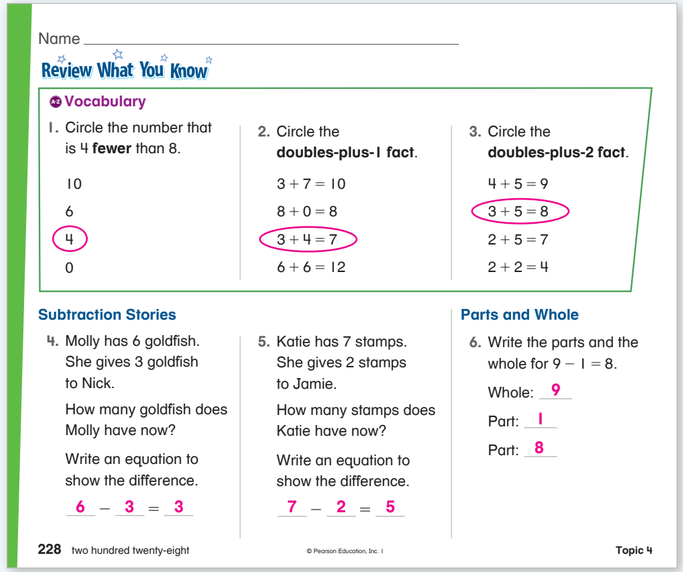
Have your child write a subtraction equation using a number from the first bag and then a number from the second bag. Have him or her solve the problem with the ten-frame and pennies.

Observe Your Child

Focus on Mathematical Practice 5

Help your child become proficient with Mathematical Practice 5. Discuss how the ten-frames and the pennies were good tools to help solve the problem above.

Send this page home at the start of Topic 4 to give families an overview of the content in the topic.



Name _____

Review What You Know

Vocabulary

1. Circle the number that is 4 **fewer** than 8.
   10
   6
   (4)
   0

2. Circle the **doubles-plus-1 fact.**
   3 + 7 = 10
   8 + 0 = 8
   (3 + 4 = 7)
   6 + 6 = 12

3. Circle the **doubles-plus-2 fact.**
   4 + 5 = 9
   (3 + 5 = 8)
   2 + 5 = 7
   2 + 2 = 4

Subtraction Stories

4. Molly has 6 goldfish. She gives 3 goldfish to Nick.
   How many goldfish does Molly have now?
   Write an equation to show the difference.
   6 – 3 = 3

5. Katie has 7 stamps. She gives 2 stamps to Jamie.
   How many stamps does Katie have now?
   Write an equation to show the difference.
   7 – 2 = 5

Parts and Whole

6. Write the parts and the whole for 9 – 1 = 8.
   Whole: 9
   Part: 1
   Part: 8

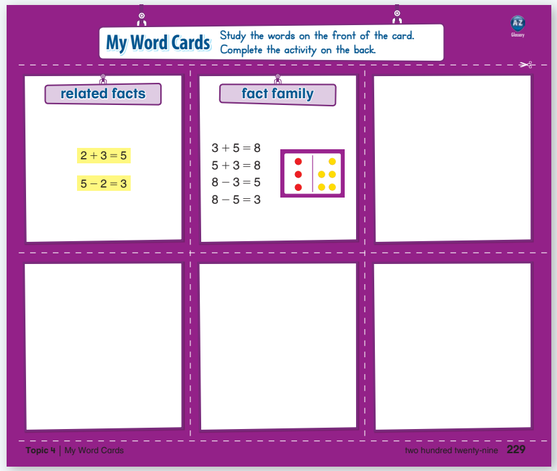
228 two hundred twenty-eight © Pearson Education, Inc. 1 Topic 4

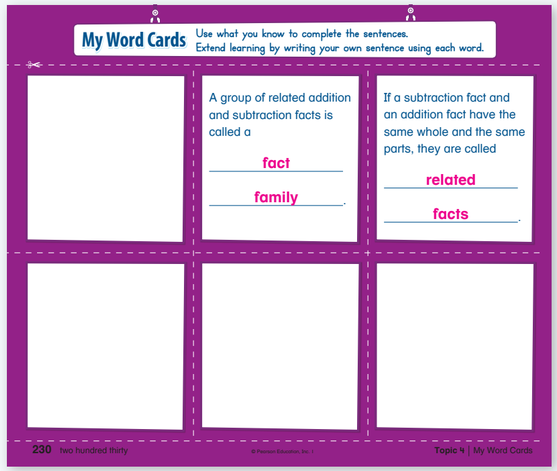
RtI Item Analysis for Diagnosis and Intervention

Items	Standard	MDIS
1	1.OA.C.6	A14
2–3	1.OA.C.6	B21
4	1.OA.A.1	B21
5	1.OA.A.1	B21
6	MP.2	B25

Topic 4 Vocabulary Words Activity

Use the Topic 1 activity on p. 3–4 with the Topic 4 words below.





LESSON 4-1

COUNT TO SUBTRACT

DIGITAL RESOURCES PearsonRealize.com

- eText — Student and Teacher eTexts
- PD — Listen and Look For Lesson Video
- Think — Today's Challenge
- Solve — Solve and Share
- Learn — Visual Learning Animation Plus
- Glossary — Animated Glossary
- Tools — Math Tools
- Assessment — Quick Check
- Help — Another Look Homework Video
- Games — Math Games

LESSON OVERVIEW FCR FOCUS • COHERENCE • RIGOR

FOCUS

Domain **1.OA** Operations and Algebraic Thinking

Cluster **1.OA.C** Add and subtract within 20.

Content Standard **1.OA.C.5** Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).

Mathematical Practices **MP.1, MP.2, MP.4, MP.5**

Objective Use a number line to subtract by counting on or counting back.

Essential Understanding When using a number line to subtract, you can count back the number of spaces you are subtracting or find the distance between the two numbers.

Materials Number Lines (Teaching Tool 22)

COHERENCE

This lesson focuses on counting to subtract. Students can either count back the number they subtract to find the difference or count on the distance between two numbers in the problem. In Lesson 2-1, students used this strategy for facts within 10. The counting strategy also ties back to Grade K work on counting, such as being able to count on from a given number (K.CC.A.2).

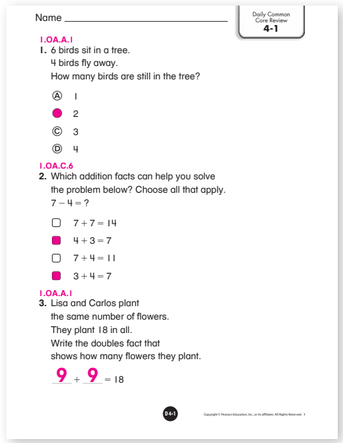
RIGOR

This lesson emphasizes **conceptual understanding** and **fluency**. Students deepen their understanding of subtraction as they use both counting back and counting on strategies to subtract. When they count on from the number they are subtracting, help them see that they are really adding to subtract. The lesson helps students begin to develop fluency for subtraction facts to 20, something they will demonstrate in Grade 2.

PD Watch the Listen and Look For Lesson Video.

MATH ANYTIME

Daily Common Core Review


Name _____ Daily Common Core Review 4-1

1.OA.A.1
1. 6 birds sit in a tree.
4 birds fly away.
How many birds are still in the tree?
Ⓐ 1
● 2
Ⓒ 3
Ⓓ 4

1.OA.C.6
2. Which addition facts can help you solve the problem below? Choose all that apply.
7 − 4 = ?
☐ 7 + 7 = 14
■ 4 + 3 = 7
☐ 7 + 4 = 11
■ 3 + 4 = 7

1.OA.A.1
3. Lisa and Carlos plant the same number of flowers. They plant 18 in all. Write the doubles fact that shows how many flowers they plant.
9 + 9 = 18

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Today's Challenge

Think Use Topic 4 problems any time during this topic.

ENGLISH LANGUAGE LEARNERS ELL

Speaking Express opinions and describe thought processes.

Use with the Solve and Share on Student's Edition p. 231.

Remind students they have used number lines for adding. Ask students to look at the number line on p. 231. Explain to the students they will now use the number line for subtracting. Ask students to share opinions about how they might use the number line for subtracting. Refer to the story problem on p. 231.

Beginning Circle 13 on the number line. Say: *Marc has 13 erasers. He gives 5 away.* Move back 5 on the number line. *Do I have to count them again?* Allow students to answer either *yes* or *no*. Ask them to show on the number line how to start at 13 and count back 5.

Intermediate Say: *Marc has 13 erasers. He gives 5 away. How can you find how many are left?* Ask students to use a sentence frame "I can find how many are left by _____."

Advanced Discuss the story problem on p. 231. Ask: *Can you use the number line to find out how many are left?* Ask the students to explain how they might use the number line to find the difference and why they used it that way.

Summarize How is a number line best used to subtract?

STEP 1 DEVELOP: PROBLEM-BASED LEARNING

COHERENCE: Engage students by connecting prior knowledge to new ideas.

Students demonstrate a way to use a number line in order to solve a subtraction problem. This prepares them for the next part of the lesson which shows how a number line can be used to count back or count on to subtract.

10–15 min

Solve

Whole Class BEFORE

1. **Pose the Solve-and-Share Problem**
MP.5 Use Appropriate Tools Strategically
Students use a number line as a tool in order to solve a subtraction problem with an unknown result.

2. **Build Understanding**
What are you asked to find? [How many erasers Marc has now] *What do you already know?* [How many erasers Marc had to start with and how many he gave Troy] *What materials do you have to help solve the problem?* [A number line and a pencil]

Small Group DURING

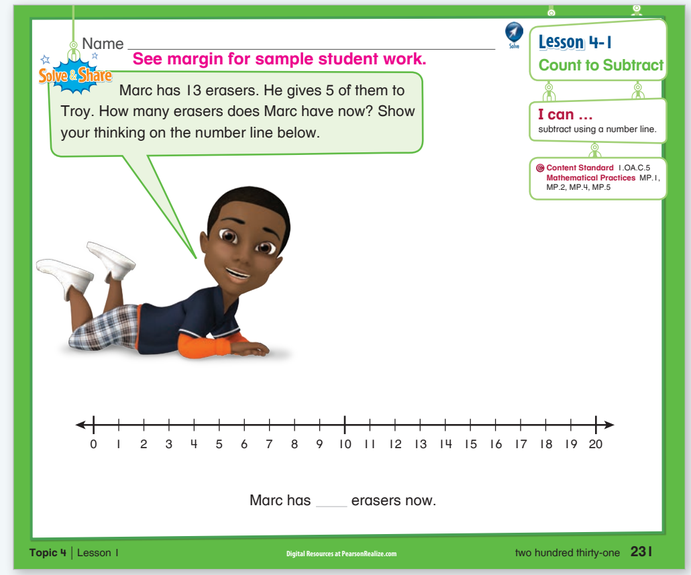
3. **Ask Guiding Questions As Needed**
Do you think Marc will have more or fewer erasers after he gives some erasers to Troy? Explain. [Sample answer: He will have fewer erasers because he is giving some away.]

Whole Class AFTER

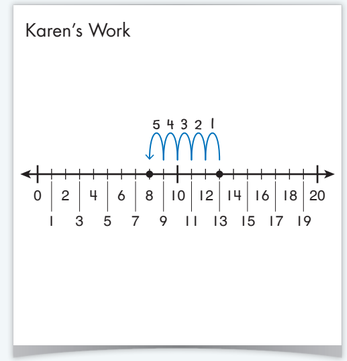
4. **Share and Discuss Solutions**
Solve Start with students' solutions. Have them share the strategies they used to solve the problem. If needed, project and analyze Karen's work to show how to count back on the number line to solve the problem.

5. **Transition to the Visual Learning Bridge**
You used a number line to show how to solve a subtraction problem. Later in this lesson, you will learn how to use a number line in order to count on or count back to solve subtraction problems.

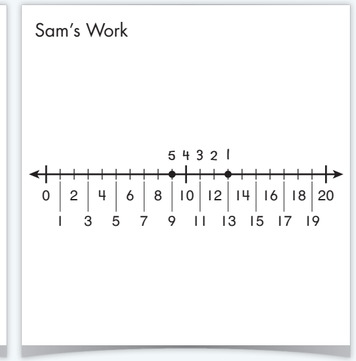
6. **Extension for Early Finishers**
Show another way to solve the problem about Marc's erasers. You can use a number line, draw a picture, write an equation, or use counters. [Check students' work.]



Analyze Student Work



Karen counts back to subtract. She explains that she started at 13, the number of erasers that Marc had to begin with, and then counted back 5, the number of erasers that Marc gave to Troy. She stops counting at 8, the number of erasers that Marc has now.



Sam counts back to subtract. He correctly explains that he started at 13, the number of erasers that Marc had to begin with, and then counted back 5, the number of erasers that Marc gave to Troy. However, Sam counted the numbers instead of the spaces, so he incorrectly said that Marc now has 9 erasers.

STEP 2

DEVELOP: VISUAL LEARNING

The *Visual Learning Bridge* connects students' thinking in Solve & Share to important math ideas in the lesson. Use the *Visual Learning Bridge* to make these ideas explicit. Also available as a *Visual Learning Animation Plus* at PearsonRealize.com

Visual Learning

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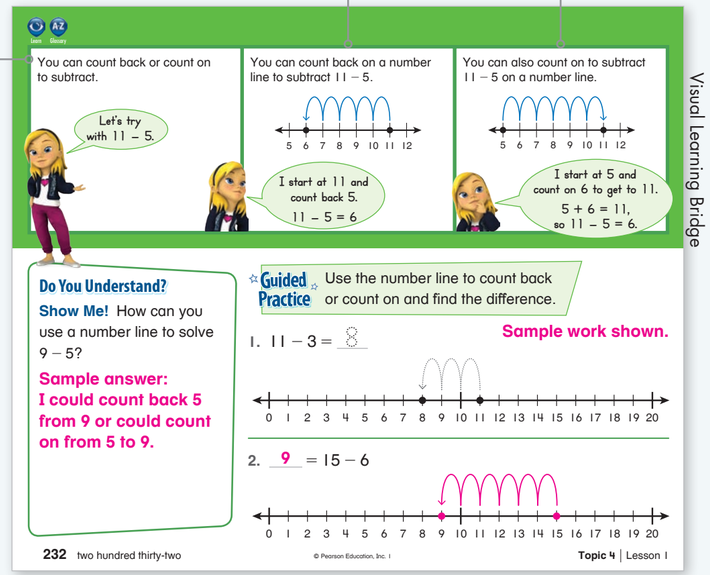
Learn Glossary

What are the two ways that you can subtract? [By counting on or counting back] *Do you think that you will get the same answer whether you count on or count back?* [Sample answer: Yes, I will get the same answer because both are ways to find 11 – 5.]

Where should you start on the number line? Why? [Sample answer: I should start at 11 because that is the number that I am subtracting from.] *How many should you count back? Explain.* [I should count back 5 because this is the number that I am subtracting.] *What is 11 – 5? How do you know?* [6; Sample answer: I know because after I counted back 5, I am at 6 on the number line.]

MP.2 Reasoning *How could you use a number line to count on to solve 11 – 5?* [Sample answer: I would start at 5. Then I would count on until I reached 11. Since I would count 6 times, I know that 11 – 5 = 6.] *Do you get the same answer if you count on or count back to find 11 – 5? Explain.* [Sample answer: Yes, the answer is the same whether I count on or count back.]



Do You Understand? Show Me! MP.5 Use Appropriate Tools Strategically

Have students use a number line as a tool to demonstrate both counting back and counting on to find the difference. Remind them that the difference is the same for either strategy. Discuss why number lines are good tools for counting on or back to subtract.

Essential Question

Ask the following Essential Question: *What are two ways you can use a number line to subtract?* [Sample answer: I can count back from the larger number, or I can count on from the smaller number.]

Error Intervention: Item 2

If students have difficulty keeping track of how many spaces they are counting on or counting back,

then have them label each jump on the number line as they count: 1, 2, 3, … 6.

RtI

Reteaching Assign Reteaching Set A, p. 287.

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Tools Assessment

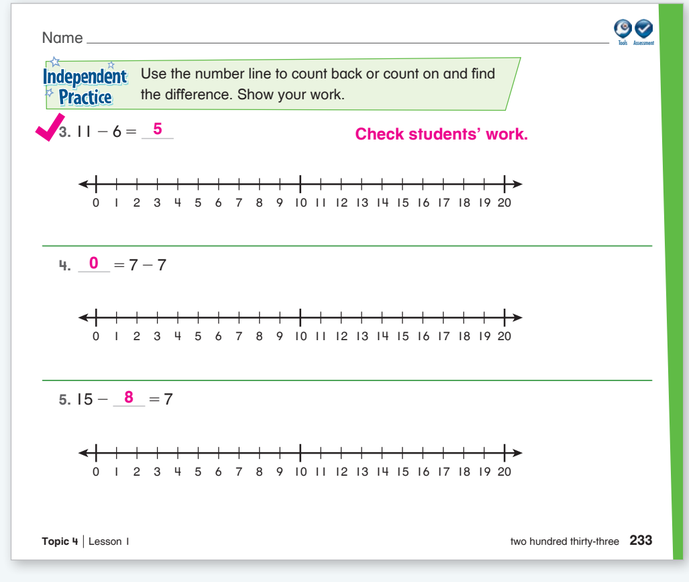
QUICK CHECK

Check mark indicates items for prescribing differentiation on the next page.
Item 3 is worth 1 point. Items 7 and 8 are each worth 2 points.

20–30 min

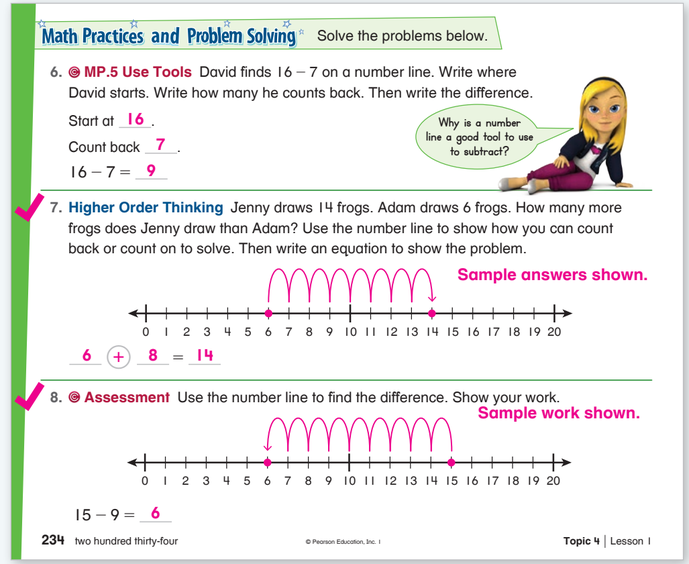
Item 3 MP.4 Model with Math Remind students that showing their work on the number line is a way of modeling their thinking. Explain that this allows a teacher or another student to see exactly how they arrived at their answer.

Item 5 In this equation, students are given the difference and are asked to find the subtrahend, or the number that is being taken away. Point out to students that they can still count on or count back to solve this problem by either counting on from 7 to 15 or by counting back 7 from 15.



Item 6 MP.5 Use Appropriate Tools Strategically You may wish to have students use a number line to find or check their answers. Then ask students to complete the following sentences for solving the problem by counting on: Start at ? [7]. Count on ? [9]. End at ? [16] 16 – 7 = ? [9] Emphasize that the difference is the same using either method.

Item 7 Guide students to use the information in the problem to determine how they will use the number line. *What do you need to find?* [How many more frogs Jenny draws than Adam] *Where will you start on the number line if you are counting back? Why?* [Sample answer: I would start at 14 because 14 is how many frogs Jenny draws.] *How many times will you count back? Explain.* [Sample answer: I will count back 6 times because 6 is how many frogs Adam draws.] *Where do you end?* [At 8] *What equation will you write for the problem?* [14 – 6 = 8] The sample answer shown shows the process for solving the problem by counting on. You also may wish to discuss the counting on method with students.



STEP 3 ASSESS AND DIFFERENTIATE

Use the **QUICK CHECK** on the previous page to prescribe differentiated instruction.

- **I Intervention** 0–3 points on the Quick Check
- **O On-Level** 4 points on the Quick Check
- **A Advanced** 5 points on the Quick Check

TIMING
The time allocated to Step 3 will depend on the teacher's instructional decisions and differentiation routines.

15–30 min

PearsonRealize.com
Help Tools Games

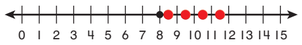
Intervention Activity I

Count on Counters!

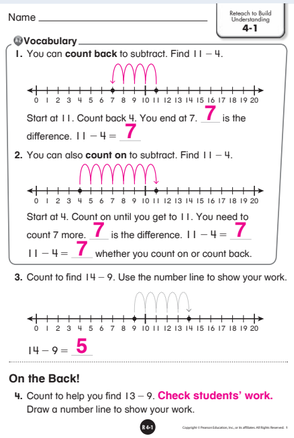
Materials

Number line (Teaching Tool 22) per student, 9 counters (or Teaching Tool 32) per student

- Write the subtraction equation $12 - 8 = ?$ on the board. *What number is being subtracted from 12?* [8] Guide students to draw a dot above 8 on their number lines.
- Remind students that they can count on to find the difference. Guide them to place counters on the number line as they count on from 8 to 12. Have students place a counter between 8 and 9, between 9 and 10, between 10 and 11, and between 11 and 12.
- *How many counters did you put on the number line?* [4] *What is 12 – 8?* [4] Write the difference on the board.
- Repeat the process for other problems such as $11 - 3$ and $13 - 5$.



Reteach I



Name _____ Reteach to Build Understanding 4-1

Vocabulary

1. You can **count back** to subtract. Find $11 - 4$.

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

Start at 11. Count back 4. You end at 7. 7 is the difference. $11 - 4 = 7$

2. You can also **count on** to subtract. Find $11 - 4$.

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

Start at 4. Count on until you get to 11. You need to count 7 more. 7 is the difference. $11 - 4 = 7$

$11 - 4 = 7$ whether you count on or count back.

3. Count to find $14 - 9$. Use the number line to show your work.

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

$14 - 9 = 5$

On the Back!

4. Count to help you find $13 - 9$. **Check students' work.** Draw a number line to show your work.

Technology Center I O A

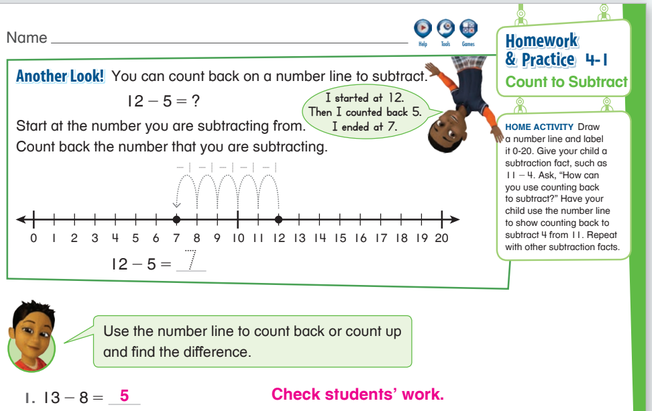
Tools Games

Math Tools and Math Games

A link to a specific math tools activity or math game to use with this lesson is provided at PearsonRealize.com.

Leveled Assignment

I Items 1–2, 4 O Items 1–4 A Items 1–4



Name _____

Another Look! You can count back on a number line to subtract.

$12 - 5 = ?$

Start at the number you are subtracting from.
Count back the number that you are subtracting.

I started at 12.
Then I counted back 5.
I ended at 7.

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

$12 - 5 = 7$

Homework & Practice 4-1
Count to Subtract

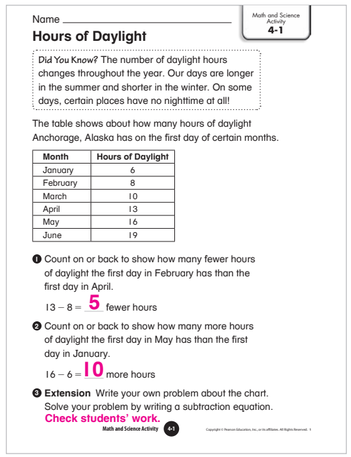
HOME ACTIVITY Draw a number line and label it 0-20. Give your child a subtraction fact, such as $11 - 4$. Ask, "How can you use counting back to subtract?" Have your child use the number line to show counting back to subtract 4 from 11. Repeat with other subtraction facts.

Use the number line to count back or count up and find the difference.

1. $13 - 8 = 5$ **Check students' work.**

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

On-Level and Advanced Activity Centers O A



Name _____ Math and Science Activity 4-1

Hours of Daylight

Did You Know? The number of daylight hours changes throughout the year. Our days are longer in the summer and shorter in the winter. On some days, certain places have no nighttime at all!

The table shows about how many hours of daylight Anchorage, Alaska has on the first day of certain months.

Month	Hours of Daylight
January	6
February	8
March	10
April	13
May	16
June	19

❶ Count on or back to show how many fewer hours of daylight the first day in February has than the first day in April.

$13 - 8 = 5$ fewer hours

❷ Count on or back to show how many more hours of daylight the first day in May has than the first day in January.

$16 - 6 = 10$ more hours

❸ **Extension** Write your own problem about the chart. Solve your problem by writing a subtraction equation. **Check students' work.**

Math and Science Activity 4-1

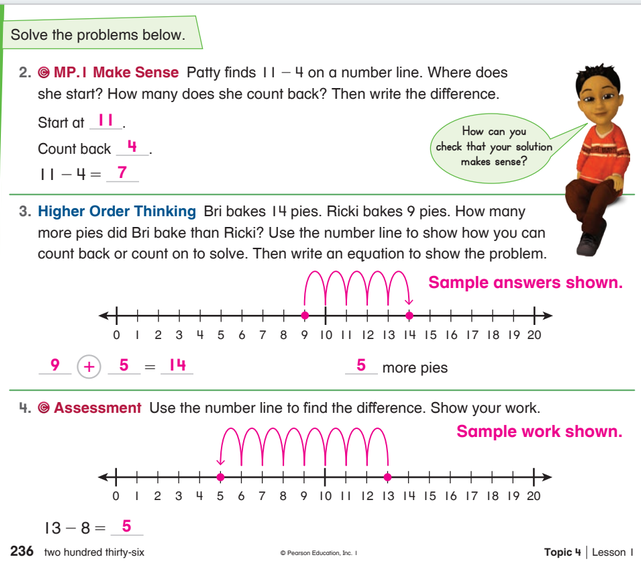
Math and Science Activity STEM

This activity revisits the science theme, **Pattern of Day and Night**, introduced on page 227 in the Student's Edition.

Sample Student Work

How many fewer hours of daylight does the first day of January have than the first day of February?

6, 7, 8 $8 - 6 = 2$ 2 fewer



Solve the problems below.

2. **MP.1 Make Sense** Patty finds $11 - 4$ on a number line. Where does she start? How many does she count back? Then write the difference.

Start at 11.
Count back 4.
$11 - 4 = 7$

How can you check that your solution makes sense?

3. **Higher Order Thinking** Bri bakes 14 pies. Ricki bakes 9 pies. How many more pies did Bri bake than Ricki? Use the number line to show how you can count back or count on to solve. Then write an equation to show the problem.

Sample answers shown.

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

$9 + 5 = 14$ 5 more pies

4. **Assessment** Use the number line to find the difference. Show your work.

Sample work shown.

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

$13 - 8 = 5$

LESSON 4-2

MAKE 10 TO SUBTRACT

DIGITAL RESOURCES PearsonRealize.com

- eText — Student and Teacher eTexts
- PD — Listen and Look For Lesson Video
- Think — Today's Challenge
- Solve — Solve and Share
- Learn — Visual Learning Animation Plus
- Glossary — Animated Glossary
- Tools — Math Tools
- Assessment — Quick Check
- Help — Another Look Homework Video
- Games — Math Games

LESSON OVERVIEW FOCUS • COHERENCE • RIGOR

FOCUS

Domain **1.OA** Operations and Algebraic Thinking

Cluster **1.OA.C** Add and subtract within 20.

Content Standard **1.OA.C.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 $6 + 6 + 1 = 12 + 1 = 13$).

Mathematical Practices **MP.3, MP.4, MP.5, MP.8**

Objective Make subtraction easier by making 10 to subtract.

Essential Understanding Some subtraction facts can be simplified by making use of the numbers' relationships to 10.

Materials Counters (or Teaching Tool 32), Double Ten-Frame Mat (Teaching Tool 12)

COHERENCE

In Topic 1 and 2, students learn to subtract within 10. In Lesson 4-1, students count to subtract. Those concepts are connected to this lesson as students make 10 to subtract by first counting back to 10 in order to make the problem easier. $13 - 7$ becomes $13 - 3 = 10$ and $10 - 4 = 6$.

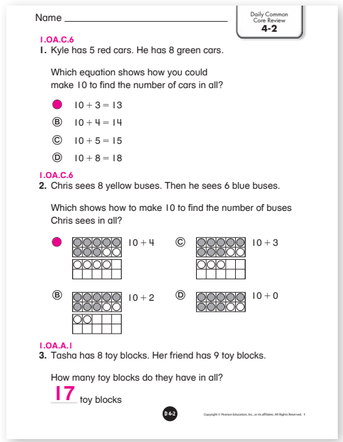
RIGOR

This lesson emphasizes **conceptual understanding** and **fluency**. As students break problems apart, they deepen their number and operation sense. They also begin to develop a key mental strategy, make 10, for fluency for subtraction facts to 20. This flexibility with numbers will help them as they deal with larger numbers and other operations.

PD Watch the Listen and Look For Lesson Video.

MATH ANYTIME

Daily Common Core Review


Name _____ Daily Common Core Review 4-2

1.OA.C.6
1. Kyle has 5 red cars. He has 8 green cars.

Which equation shows how you could make 10 to find the number of cars in all?

● 10 + 3 = 13
Ⓑ 10 + 4 = 14
Ⓒ 10 + 5 = 15
Ⓓ 10 + 8 = 18

1.OA.C.6
2. Chris sees 8 yellow buses. Then he sees 6 blue buses.

Which shows how to make 10 to find the number of buses Chris sees in all?

● 10 + 4 Ⓒ 10 + 3
Ⓑ 10 + 2 Ⓓ 10 + 0

1.OA.A.1
3. Tasha has 8 toy blocks. Her friend has 9 toy blocks.

How many toy blocks do they have in all?
17 toy blocks

Today's Challenge

Think Use Topic 4 problems any time during this topic.

ENGLISH LANGUAGE LEARNERS E L L

Reading Demonstrate comprehension by taking notes.

Use with the Visual Learning Bridge on Student's Edition p. 238.

Model taking notes for the students. Read the first frame in the Visual Learning Bridge to the students. Ask: *What is the most important information?* Write *Start with 12*. Read the second frame to the students and write the most important information on the board. Work through the Visual Learning Bridge and help them decide what is important to write down.

Beginning Point to the equation $12 - 5 = ?$ in the first panel. Say: *This is what we want to know. We can write down the important information in our notes.* Students will write notes as modeled by the teacher. Continue working through the Visual Learning Bridge activity.

Intermediate Work through the problem $12 - 5 = ?$ with two ten-frames and counters. Say: *Write how to make 10 if you have 12. You can draw two ten-frames.* Students will write $12 - 2 = 10$ in their notes.

Advanced Ask students to work in pairs. As you read through the Visual Learning Bridge, point out the two ten-frames. Ask them to write down a way to make 10 in order to subtract 12 – 5.

Summarize Why is it important to take notes when you make 10 to subtract?

STEP 1

DEVELOP: PROBLEM-BASED LEARNING

COHERENCE: Engage learners by connecting prior knowledge to new ideas.

Students use counters and a ten-frame to solve a subtraction problem. This prepares them for the next part of the lesson where they learn how making 10 can help to solve subtraction problems.

10–15 min

Solve

Whole Class BEFORE

1. **Pose the Solve-and-Share Problem**
Provide each student 15 counters.
MP.3 Construct Arguments In this problem, students construct an argument about how thinking about 10 can help them solve $13 - 7$.

2. **Build Understanding**
What does the problem ask you to do? [Think about how 10 can help solve $13 - 7$.] *What tools do you have to help you?* [Counters and a double ten-frame]

Small Group DURING

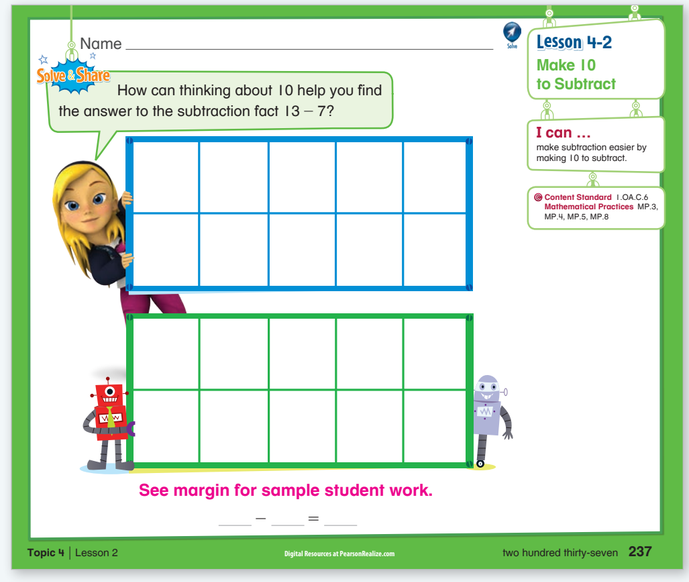
3. **Ask Guiding Questions As Needed**
How many counters do you need? How do you know? [I need 13 counters. 13 is the whole.] *How many counters fill a ten-frame?* [10]

Whole Class AFTER

4. **Share and Discuss Solutions**
Solve Start with students' solutions. Have them share the strategies they used to solve the problem. If needed, project Lucia's work to discuss how she used the ten-frame to help to solve the problem.

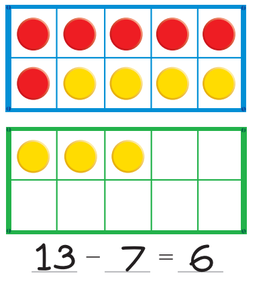
5. **Transition to the Visual Learning Bridge**
You described how thinking about 10 could help you solve a subtraction problem. Later in this lesson, you will learn how to use the making 10 strategy to subtract. By making 10, you can break a more challenging subtraction problem into two simpler problems.

6. **Extension for Early Finishers**
What two subtraction facts can you use to solve $14 - 9 = 5$? [$14 - 4 = 10$, $10 - 5 = 5$]



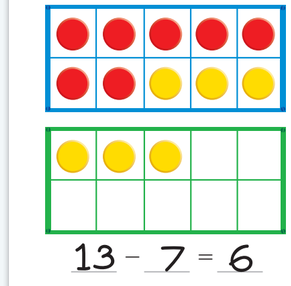
Analyze Student Work

Lucia's Work



Lucia says she started with 13 counters and then subtracted 3 to make 10. Then she subtracted 4 more because $3 + 4 = 7$. There are 6 counters left. So, $13 - 7 = 6$.

Michael's Work



Michael says he started at 7 and then added 3 to make 10. He added 3 more to make 13. $7 + 6 = 13$, so $13 - 7 = 6$. While this counting up strategy will be developed in Lesson 4-3, acknowledge this as a correct method to think about making 10 to solve this problem.

STEP 2 DEVELOP: VISUAL LEARNING

The *Visual Learning Bridge* connects students' thinking in Solve & Share to important math ideas in the lesson. Use the *Visual Learning Bridge* to make these ideas explicit. Also available as a *Visual Learning Animation Plus* at PearsonRealize.com

Visual Learning

PEARSON realize. PearsonRealize.com

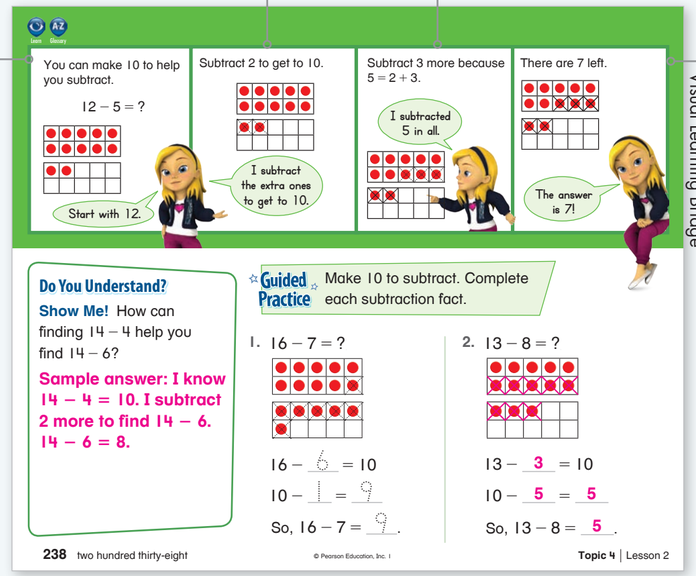
Learn Glossary

MP.5 Use Appropriate Tools Strategically *How many red counters are there?* [12] *Why is it helpful to use a ten-frame?* [Using a ten-frame makes it easier to make 10 and to find how many more counters should be taken away to subtract 5 in all.]

What subtraction problem do you get when you cross out 2 counters? [12 – 2]

How many counters are crossed out to make 10? [2] *How many more counters do you need to cross out?* [3] *Why do you cross out 3 more counters?* [So that 5 counters in all are crossed out]

How many counters are crossed out in all? Why? [5; 5 is the number subtracted from 12 in the problem.] *How many counters are left?* [7]



Do You Understand?

Show Me! How can finding 14 – 4 help you find 14 – 6?

Sample answer: I know 14 – 4 = 10. I subtract 2 more to find 14 – 6. 14 – 6 = 8.

Guided Practice Make 10 to subtract. Complete each subtraction fact.

1. 16 – 7 = ?

16 – 6 = 10

10 – 1 = 9

So, 16 – 7 = 9.

2. 13 – 8 = ?

13 – 3 = 10

10 – 5 = 5

So, 13 – 8 = 5.

238 two hundred thirty-eight

Topic 4 | Lesson 2

Do You Understand? Show Me! MP.8 Generalize

Would finding 14 – 4 also help you solve 14 – 9? Why or why not? [Yes; You would think 4 + 5 = 9 to finish solving, so you would subtract 5 more from 10.]

Coherence In the Visual Learning Bridge, students learn that they can decompose a number to make 10 to subtract. This links back to their previous work in Topic 3, where students composed a number to make 10 to add.

Essential Question

Ask the following Essential Question: *How can making 10 help you subtract?* [Sample answer: I can figure out how many I need to subtract to get to 10. Then I subtract the remaining part. By making 10, I break the problem into two easier problems.]

Error Intervention: Item 2

If students do not understand why you subtract twice,

then explain that subtracting 8 in two parts may make completing the fact easier, because the subtraction facts will be smaller and more familiar. Demonstrate using counters (or Teaching Tool 32). First subtract 3 to get to 10. To finish, subtract 5 because 3 + 5 = 8 and the subtraction fact calls for 8 to be subtracted. Show students the group of 3 and the group of 5 and let them count with you to see that you subtracted 8 altogether.

RtI 1

Reteaching Assign Reteaching Set B, page 288.

PEARSON realize. PearsonRealize.com

Tools Assessment

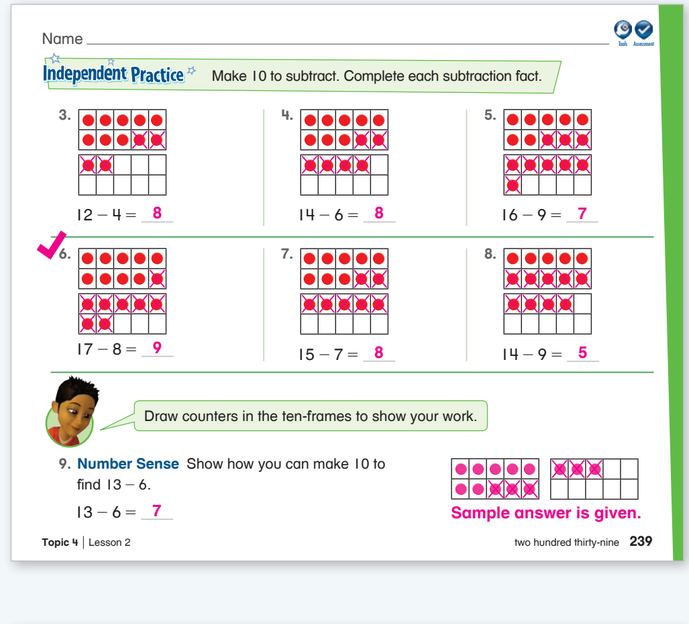
QUICK CHECK

Check mark indicates items for prescribing differentiation on the next page. Items 6 and 12 are each worth 1 point. Item 11 is worth up to 3 points.

20–30 min

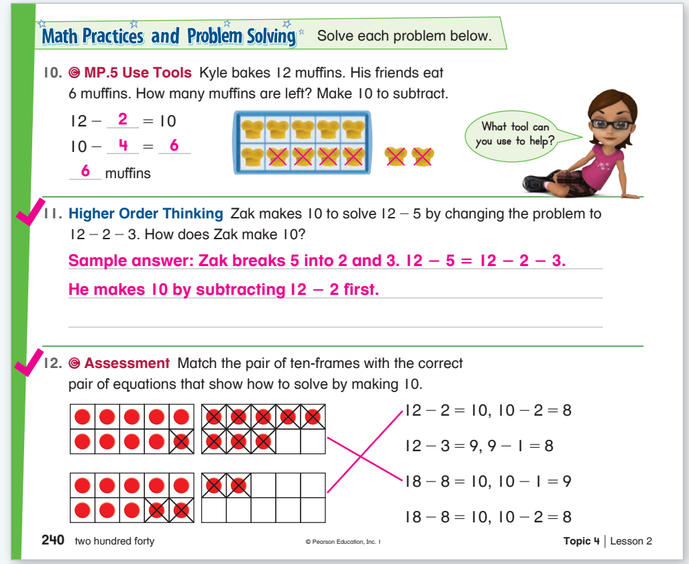
Item 3 MP.4 Model with Math If students are not sure how to start solving the problem, remind them to make 10. Have them cross out every counter in the bottom ten-frame. *How many counters will you cross out to make a 10?* [2] *How many more counters do you need to cross out to subtract 4 in all?* [2]

Item 6 After students cross out every counter in the bottom ten-frame, help them determine how many additional counters they need to cross out. *How many did you cross out?* [7] *How many more should you cross out to subtract 8 in all?* [1 more]



Item 10 MP.5 Use Appropriate Tools Strategically *What tools could you use to help solve the problem?* [Paper and pencil, counters, ten-frame] *How could you use counters and a ten-frame?* [Sample answer: I could use the counters and the ten-frame to show how to make 10 to solve 12 – 4.] *How would you show that using the ten-frame and the pictures of the muffins?* [Sample answer: I would cross off the 2 muffins outside of the ten-frame first, and then I would cross out 4 muffins in the ten-frame.]

Item 11 Students may not be familiar with a subtraction problem written as 12 – 2 – 3. You may wish to write out the problem in steps like previous problems: 12 – 2 = 10 and 10 – 3 = 7. You also could use the Visual Learning Bridge to show this problem visually. *How is 12 – 2 – 3 like 12 – 5?* [In both, you subtract 5 in all from 12.] If needed, discuss how you make 10 while subtracting 12 – 2 – 3.]



STEP 3 ASSESS AND DIFFERENTIATE

Use the **QUICK CHECK** on the previous page to prescribe differentiated instruction.

I Intervention 0–3 points on the Quick Check

O On-Level 4 points on the Quick Check

A Advanced 5 points on the Quick Check

TIMING

The time allocated to Step 3 will depend on the teacher's instructional decisions and differentiation routines.

15–30 min

PearsonRealize.com

Help Tools Games

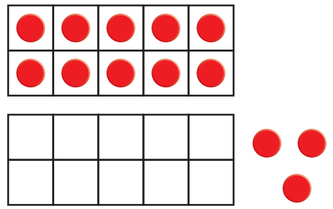
Intervention Activity I

Working Backward

Materials

Double Ten-Frame Mat (Teaching Tool 12), 16 counters (or Teaching Tool 32) per student

- Write 10 – 6 = ? on the board. Have students use the ten-frames and counters to find the difference. Complete the equation on the board.
- Below 10 – 6 = 4, write 11 – 7 = ? and have students solve by making a 10. Guide students to see that after you take away 1, you are left with the first problem. Repeat with 12 – 8 and 13 – 9.
- Repeat for other equations that begin with 10, subracting a different number each time.



Reteach I

Name _____ Reteach to Build Understanding 4-2

Vocabulary

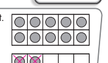
1. You can **make 10** to help you subtract.

12 – 4 = ?

Cross out counters to show 10. Then complete the subtraction sentence.

12 – 2 = 10 10 – 2 = 8

So, 12 – 4 = 8.



2. **15 – 6 = ?**

First, cross out the 5 counters in the bottom ten-frame to make a 10.

15 – 5 = 10

You need to subtract 6. You only subtracted 5. So, you need to subtract 1 more. Cross out 1 more counter.

10 – 1 = 9

How many counters are left? 9 So, 15 – 6 = 9.

On the Back! Check students' work.

3. Show how to make a 10 to subtract 14 – 7.

Technology Center I O A

Tools Games

Math Tools and Math Games

A link to a specific math tools activity or math game to use with this lesson is provided at PearsonRealize.com.

Leveled Assignment

I Items 1–4, 8 O Items 3–6, 8 A Items 4–8

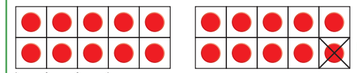
Name _____ Help Tools Games

Another Look! Breaking numbers apart to make 10 can make it easier to subtract.

13 – 4 = ?

First, take away 3 to make 10.

Then, take away 1 more because you need to subtract 4 in all.



13 – 4 is the same as 13 – 3 – 1.

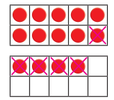
13 – 4 = 9

13 – 3 = 10 10 – 1 = 9

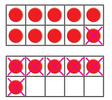
Homework & Practice 4-2 Make 10 to Subtract

HOME ACTIVITY Write 12 – 7 = ? on a piece of paper. Have your child use small objects to find the difference. Tell your child to make a 10 to subtract: by adding on to get 10 or by subtracting to get 10. Have your child explain each step of the process as he or she solves the problem.

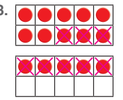
Make 10 to subtract. Complete each subtraction fact.

1. 

14 – 5 = 9

2. 

16 – 7 = 9

3. 

15 – 8 = 7

Make 10 to help you find the missing number in each problem.

4. **Algebra**

5 = 12 – 7

5. **Algebra**

14 – 6 = 8

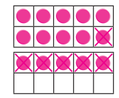
6. **Algebra**

15 – 8 = 7

7. **Higher Order Thinking** Write a story problem for 15 – 6. Show how to make 10 to solve the problem. Then complete the equation.

15 – 6 = 9

Sample answer:
I had 15 marbles.
I gave 6 to Tom. Now
I have 9 marbles left.



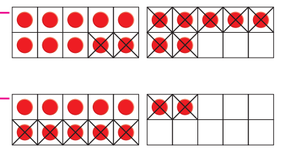
8. **Assessment** Match the pair of ten-frames with the correct pair of equations that show how to solve by making 10.

17 – 7 = 10, 10 – 2 = 8

12 – 2 = 10, 10 – 4 = 6

12 – 2 = 10, 10 – 5 = 5

17 – 8 = 9, 9 – 1 = 8



On-Level and Advanced Activity Centers O A

Problem-Solving Reading Mat

Have students read the Problem-Solving Reading Mat for Topic 4 and then complete Problem-Solving Reading Activity 4-2.

See the Problem-Solving Reading Activity Guide for other suggestions on how to use this mat.

LESSON 4-3

CONTINUE TO MAKE 10 TO SUBTRACT

DIGITAL RESOURCES PearsonRealize.com

- eText — Student and Teacher eTexts
- PD — Listen and Look For Lesson Video
- Think — Today's Challenge
- Solve — Solve and Share
- Learn — Visual Learning Animation Plus
- Glossary — Animated Glossary
- Tools — Math Tools
- Assessment — Quick Check
- Help — Another Look Homework Video
- Games — Math Games

LESSON OVERVIEW FCR FOCUS • COHERENCE • RIGOR

FOCUS

Domain **1.OA** Operations and Algebraic Thinking

Cluster **1.OA.C** Add and subtract within 20.

Content Standard **1.OA.C.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 that $12 - 8 = 4$) and creating equivalent but easier or known sums (e.g. adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).

Mathematical Practices **MP.1, MP.2, MP.3, MP.7**

Objective Count on to subtract using 10 as a landmark.

Essential Understanding Some subtraction facts can be simplified by making use of the numbers' relationships to 10.

Materials Counters (or Teaching Tool 32), Double-Ten Frame Mat (Teaching Tool 12)

COHERENCE

In Lesson 4-2 students counted back to make 10. In Lesson 4-3, students start with the number being subtracted and then count up to make 10 before counting up the remaining part of the whole. This follows directly from how students used different methods in Lesson 4-1 in order to count to subtract using the number line. As in Lesson 4-1, students learn how adding or counting on can help them subtract.

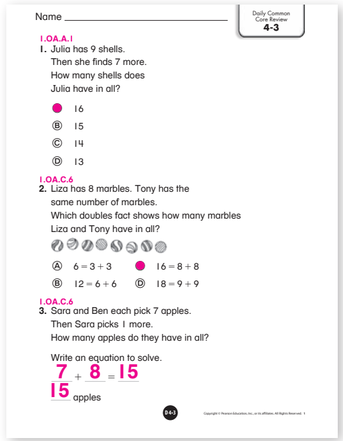
RIGOR

This lesson emphasizes **conceptual understanding** and **fluency**. Having alternate strategies to make 10 deepens students' number and operation sense. Having multiple strategies to subtract also promotes flexible thinking, a critical component of fluency.

PD Watch the Listen and Look For Lesson Video.

MATH ANYTIME

Daily Common Core Review


Name _____ Daily Common Core Review 4-3

1.OA.A.1
1. Julia has 9 shells. Then she finds 7 more. How many shells does Julia have in all?
● 16 Ⓑ 15 Ⓒ 14 Ⓓ 13

1.OA.C.6
2. Liza has 8 marbles. Tony has the same number of marbles. Which doubles fact shows how many marbles Liza and Tony have in all?
Ⓐ 6 = 3 + 3 ● 16 = 8 + 8 Ⓑ 12 = 6 + 6 Ⓓ 18 = 9 + 9

1.OA.C.6
3. Sara and Ben each pick 7 apples. Then Sara picks 1 more. How many apples do they have in all?
Write an equation to solve.
7 + 8 = 15
15 apples

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Today's Challenge

Think Use Topic 4 problems any time during this topic.

ENGLISH LANGUAGE LEARNERS ELL

Reading Use visual support to enhance understanding.

Use with Visual Learning Bridge, p. 244.

Read through the Visual Learning Bridge and discuss how the ten-frames and counters help to see how to make 10 to subtract.

Beginning Have students use counters and ten-frames to act out the Visual Learning Bridge. Read the first frame. Say: *Put 6 red counters on your ten-frame.* Read the second frame. Say: *Put four yellow counters on your ten-frame.* Read the third frame. Ask: *How many yellow counters will you add to the ten-frame?* [4]. Read the following sentence frame to the students. *I will add _____ to the ten-frame.* [4 counters]. Students will read the sentence frame to a partner.

Intermediate Have students use counters and ten-frames to act out the Visual Learning Bridge. Complete the steps from the Beginning section without providing a sentence frame for the last question.

Advanced Have students reread each frame with a partner. For the first frame, ask: *How many red counters will be put on the ten-frames? Why?* Continue with this activity for the second and third frames. Ask students to explain to their partners how the ten-frames helped them solve the problem.

Summarize How does using ten-frames and counters help you make 10 to subtract?

STEP 1

DEVELOP: PROBLEM-BASED LEARNING

COHERENCE: Engage students by connecting prior knowledge to new ideas.

Students use counters and a ten-frame to solve a subtraction problem. This prepares them for the next part of the lesson where they learn another strategy to make 10 in order to solve subtraction problems.

10–15 min

PearsonRealize.com

Solve

Whole Class BEFORE

1. Pose the Solve-and-Share Problem
Provide each student with 20 counters.

MP.3 Construct Arguments In this problem, students construct an argument about how another student could make 10 to help solve $11 - 7$. They use counters and ten-frames to help them explain their arguments.

2. Build Understanding
What are you asked to do? [Explain how Emily found $11 - 7$ by making a ten as she counts on.] *What materials do you have to help you?* [Counters and ten-frames]

Small Group DURING

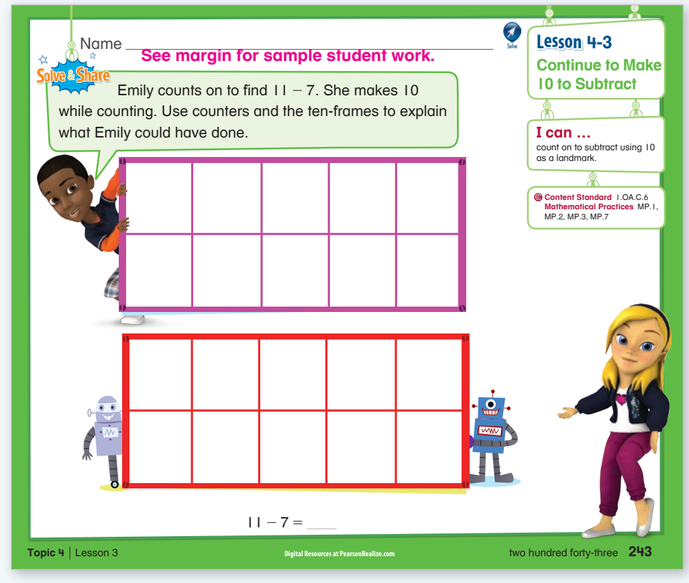
3. Ask Guiding Questions As Needed
What is one way you have learned to make 10 to subtract? How could you use that to explain what Emily could have done [Sample answer: She could subtract 11 – 1 to make 10, and then subtract 6 more to subtract 7 in all.] *Can you solve problems in different ways?* [Yes]

Whole Class AFTER

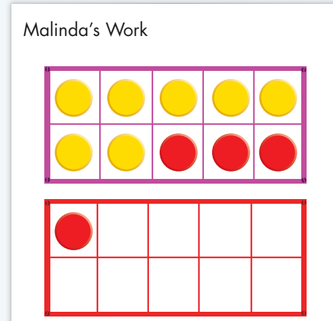
4. Share and Discuss Solutions
Solve Start with students' solutions. Have them share the strategies used to solve the problem. If needed, project and analyze Malinda's work to show how to count up from 7 to 11 using 10 as a landmark.

5. Transition to the Visual Learning Bridge
You described how someone, Emily, could make 10 to solve a problem. Later in the lesson, you will learn how to count up to make 10 in a subtraction problem.

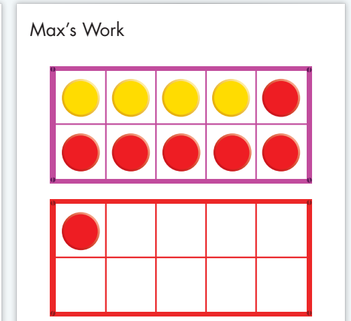
6. Extension for Early Finishers
Ask students who finish early to write their own subtraction problems and then show how to make 10 to solve the problems.



Analyze Student Work



Malinda explains that Emily could have put 7 yellow counters in the top ten-frame. Then she added 3 red counters to make 10. Last, she added 1 more red counter to the bottom ten-frame to make 11. Since Emily found that $7 + 4 = 11$, she knows that $11 - 7 = 4$.



Max explains that Emily could have subtracted $11 - 1$ to make 10. Since, $1 + 6 = 7$, Emily would have subtracted 6 more to get to 4. So, Emily found that $11 - 7 = 4$.

STEP 2 DEVELOP: VISUAL LEARNING

The *Visual Learning Bridge* connects students' thinking in Solve & Share to important math ideas in the lesson. Use the *Visual Learning Bridge* to make these ideas explicit. Also available as a *Visual Learning Animation* Plus at PearsonRealize.com

Visual Learning

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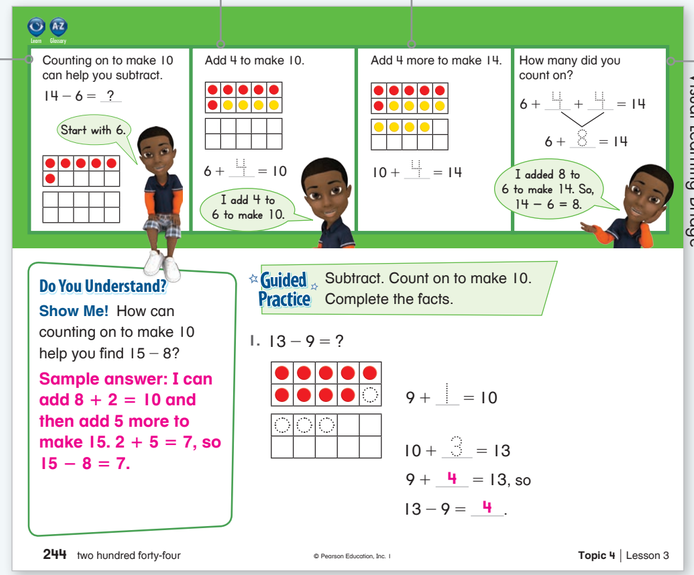
Learn Glossary

How many counters are in the ten-frame? [6] How could you find out how many more counters would make 10? [I could count up.]

How many yellow counters are in the ten-frame? [4] *How many yellow counters were added to 6 in order to make 10?* [4]

MP.2 Reasoning *How many more yellow counters were added to 10 in order to make 14?* [4] *How could you find out how many counters were added to 6 to make 14?* [Sample answer: I could find 4 + 4 = 8.]

Which equations show how many you counted on? [6 + 4 + 4 = 14 or 6 + 8 = 14] *Since you know that 6 + 8 = 14, what is 14 − 6? Explain.* [14 is the whole and 6 is one of the parts for the addition equation and the subtraction problem. So, the other part is the same for the subtraction problem. So, 14 − 6 = 8.]



Do You Understand? Show Me! MP.2 Reasoning

Would counting on to make 10 also help you find 12 − 8? Explain. [Sample answer: Yes, you would think 8 + 2 + 2 = 12 or 8 + 4 = 12. Since 8 + 4 = 12, you would know that 12 − 8 = 4.]

Essential Question

Ask the following Essential Question: *How can counting up to 10 make subtraction easier?* [Sample answer: If I count up to 10 first, it is easier to figure out how many more I need to count on to get to the number that is the whole.]

Error Intervention: Item 1

If students do not understand how the addition equation 9 + 4 = 13 can be used to solve the subtraction equation,

then have them draw lines between the numbers that are the same in both equations. Point out to students that since the whole and one part are the same, the other part is also the same.

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Tools Assessment

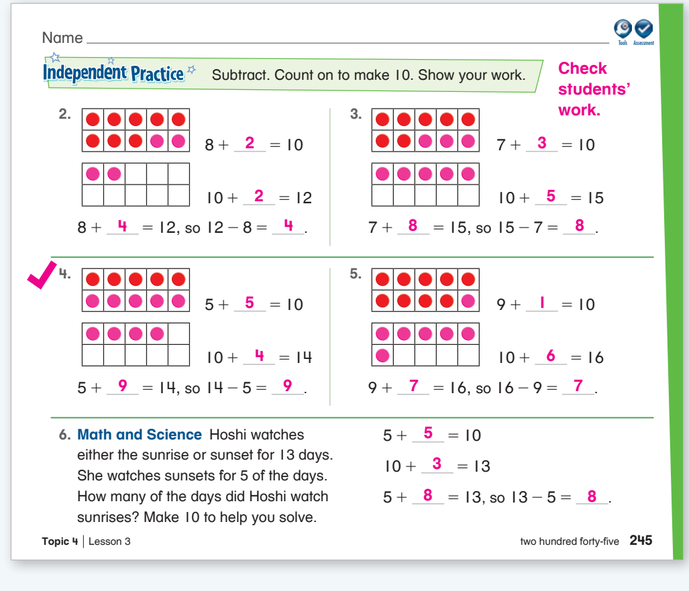
QUICK CHECK

Check mark indicates items for prescribing differentiation on the next page.
Items 4 and 9 are each worth 1 point. Item 8 is worth up to 3 points.

20–30 min

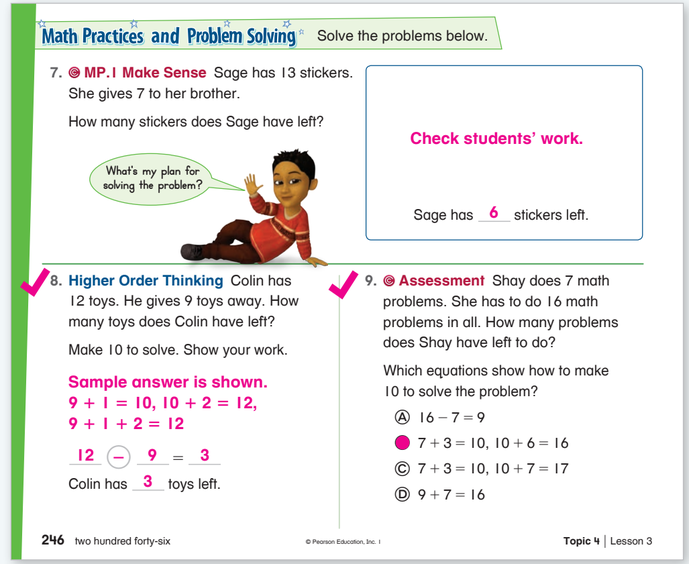
Items 2-5 MP.7 Look for Patterns Remind students that they can break each of these problems into simpler parts to solve. The first part will be to fill the remainder of the first ten-frame. The second part will be to count on until they get to the number they are subtracting from. The last step is to complete the addition and subtraction equations by identifying how the parts and the whole are the same for both equations.

Item 6 *What are you asked to find?* [The number of days that Hoshi watched sunrises] *What information do you know?* [She watches sunrises or sunsets for 13 days; she watches sunsets for 5 of those days.] Have students write equations to solve this problem. *What equation would you write to make 10?* [5 + 5 = 10] *What equation would you write next? Why?* [10 + 3 = 13; I would write this equation because 13 is the total number of days.] *So, how many days did Hoshi watch sunrises? Explain.* [Sample answer: She watched sunrises on 8 days because 5 + 8 = 13 or 13 − 5 = 8.]



Item 7 MP.1 Make Sense and Persevere Suggest to students that they can use counters, draw a picture, write equations, or write words in order to solve this problem. Discuss with students their different plans for solving the problem.

Item 9 Point out to students that even though the equation in answer choice A could be used to solve this problem, the directions ask them to identify the equations that make 10 to solve the problem. *Why couldn't you use the equations in answer choice C to solve this problem?* [Sample answer: The first equation shows how to make 10, but the second equation has a sum of 17. The problem says that Shay has 16, not 17, math problems.]



STEP 3 ASSESS AND DIFFERENTIATE

Use the **QUICK CHECK** on the previous page to prescribe differentiated instruction.

I Intervention 0–3 points on the Quick Check

O On-Level 4 points on the Quick Check

A Advanced 5 points on the Quick Check

TIMING

The time allocated to Step 3 will depend on the teacher's instructional decisions and differentiation routines.

15–30 min

PearsonRealize.com

Help Tools Games

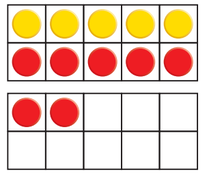
Intervention Activity I

Add to Subtract

Materials

Double Ten-Frame Mat (Teaching Tool 12), 14 counters (or Teaching Tool 32) per student

- Write $12 - 5 = ?$ on the board. Have students put 5 counters in the top ten-frame.
- Guide students to add counters to the ten-frame to make a 10. Write $5 + ? = 10$ on the board and ask a volunteer to provide the missing number. [5]
- Then have students put counters in the bottom ten-frame to make 12. Write $5 + 5 + ? = 12$ on the board and ask a volunteer to provide the missing number. Ask students how many counters in all they added to the first group of 5. [7] Below the first equation, write $5 + 7 = 12$.
- *If $5 + 7 = 12$, then what is the difference for $12 - 5 = ?$* [7].



5 + 7 = 12

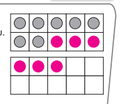
12 – 5 = 7

Reteach I

Name _____ Reteach to Build Understanding 4-3

Vocabulary

1. You can **make 10** to subtract 13 – 7. Draw counters to help you. Then complete the equations.



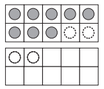
7 + 3 = 10

10 + 3 = 13

7 + 6 = 13

13 – 7 = 6

2. Make 10 to subtract 12 – 8.



Start with 8. Draw counters to make 10. How many counters did you draw? 2

Now draw more counters until you have 12. How many more counters did you draw? 2

How many counters did you draw in all? 4

8 + 4 = 12, so 12 – 8 = 4.

On the Back!

3. **12 – 8 = ?**

Make 10 to subtract. Use pictures, numbers, or words to show your work. **Check students' work.**

R63

Technology Center I O A

Tools Games

Math Tools and Math Games

A link to a specific math tools activity or math game to use with this lesson is provided at PearsonRealize.com.

Leveled Assignment

I Items 1–3, 5 O Items 2–5 A Items 2–5

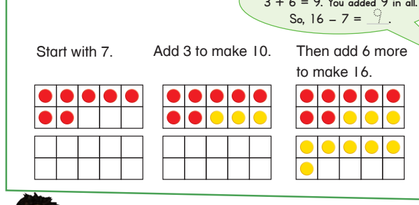
Name _____ Help Tools Games

Another Look! Counting on to make 10 can help you subtract.

16 – 7 = ?

You added 3 and then 6 more. 3 + 6 = 9. You added 9 in all. So, 16 – 7 = 9.

Start with 7. Add 3 to make 10. Then add 6 more to make 16.

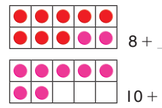


Homework & Practice 4-3
Continue to Make 10 to Subtract

HOME ACTIVITY Give your child a subtraction fact, such as 14 – 5. Ask how many you need to add to 5 to make 10. Then ask your child how many you need to add to 10 to get to 14. Ask your child to tell you how many he or she counted on in all. Repeat with different subtraction facts.

Subtract. Count on to make 10. Show your work.

1. 17 – 8 = ?



8 + 2 = 10

10 + 7 = 17

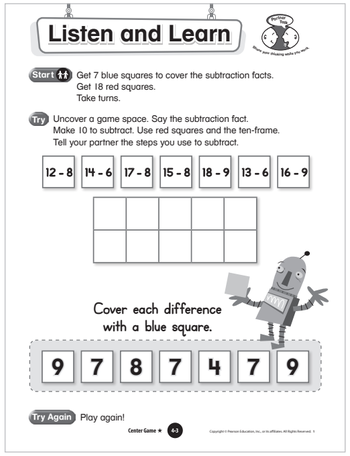
8 + 9 = 17, so 17 – 8 = 9.

On-Level and Advanced Activity Centers O A

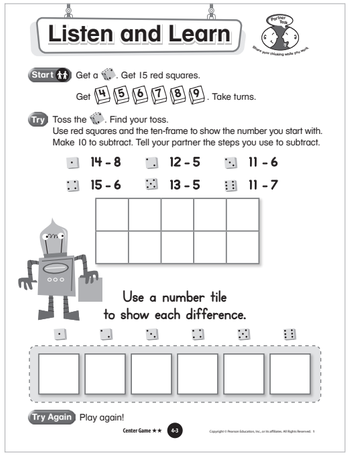
Center Games

Students work in pairs to solve subtraction facts by making 10. They describe the steps they use to their partners.

★ On-Level



★★ Advanced



Subtract. Count on to make 10. Show your work.

2. 

8 + 2 = 10

10 + 3 = 13

8 + 5 = 13, so 13 – 8 = 5.

3. 

8 + 2 = 10

10 + 5 = 15

8 + 7 = 15, so 15 – 8 = 7.

4. **Higher Order Thinking** Andrew makes 11 saves in 2 soccer games. He made 8 saves in the first game. How many saves did Andrew make in the second game?

Make 10 to solve. Show your work.

Sample answer is shown.
8 + 2 = 10, 10 + 1 = 11, 8 + 2 + 1 = 11

11 – 8 = 3

Andrew made 3 saves.

5. **Assessment** Dori writes 5 pages. She has to write 11 pages in all. How many pages does Dori have left to write?

Which equations show how to make 10 to solve the problem?

Ⓐ 5 + 5 = 10, 10 + 2 = 12

Ⓑ 11 + 5 = 16

● 5 + 5 = 10, 10 + 1 = 11

Ⓓ 10 + 5 = 15

LESSON 4-4

FACT FAMILIES

DIGITAL RESOURCES PearsonRealize.com

- eText — Student and Teacher eTexts
- PD — Listen and Look For Lesson Video
- Think — Today's Challenge
- Solve — Solve and Share
- Learn — Visual Learning Animation Plus
- Glossary — Animated Glossary
- Tools — Math Tools
- Assessment — Quick Check
- Help — Another Look Homework Video
- Games — Math Games

LESSON OVERVIEW FCR FOCUS • COHERENCE • RIGOR

FOCUS

Domain **1.OA** Operations and Algebraic Thinking

Cluster **1.OA.B** Understand and apply properties of operations and the relationship between addition and subtraction.

Content Standard **1.OA.B.4** Understand subtraction as an unknown-addend problem. Also **1.OA.C.6**

Mathematical Practices **MP.4, MP.7, MP.8**

Objective Make addition and subtraction facts using the same three numbers.

Essential Understanding The inverse relationship between addition and subtraction can be used to find subtraction facts; every subtraction fact has at least one related addition fact.

Vocabulary related facts, fact family

Materials Counters (or Teaching Tool 32), Part-Part-Whole Mat (Teaching Tool 8)

COHERENCE

In this lesson, students use part-part-whole diagrams to examine the part-whole relationships in addition and subtraction. By doing so, they see how addition and subtraction are related, inverse operations. Students studied the addition-subtraction relationship for facts within 10 in Grade 1, Topic 2, and for facts within 5 in Grade K, Topic 8. In Grade 1, Topic 11, students will use addition to check subtraction, another benefit of understanding inverse operations.

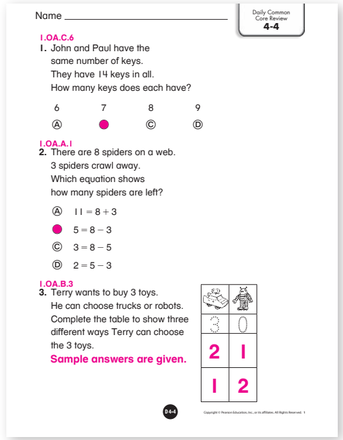
RIGOR

This lesson emphasizes **conceptual understanding** and **fluency**. A key goal of this topic and the 1.OA.B cluster is understanding the relationship between addition and subtraction. This lesson promotes this understanding and helps students further develop fluency for facts.

PD Watch the Listen and Look For Lesson Video.

MATH ANYTIME

Daily Common Core Review


Name _____

Daily Common Core Review 4-4

1.OA.C.6
1. John and Paul have the same number of keys. They have 14 keys in all. How many keys does each have?
Ⓐ 6 ● 7 Ⓒ 8 Ⓓ 9

1.OA.A.1
2. There are 8 spiders on a web. 3 spiders crawl away. Which equation shows how many spiders are left?
Ⓐ 11 = 8 + 3
● 5 = 8 − 3
Ⓒ 3 = 8 − 5
Ⓓ 2 = 5 − 3

1.OA.B.3
3. Terry wants to buy 3 toys. He can choose trucks or robots. Complete the table to show three different ways Terry can choose the 3 toys.
Sample answers are given.

3	0
2	1
1	2

Today's Challenge

Think Use Topic 4 problems any time during this topic.

ENGLISH LANGUAGE LEARNERS ELL

Listening Learn new academic expressions.

Use with the Visual Learning Bridge on Student's Edition p. 250.

Write the term *fact family*. Display a picture of a family. Say: *A family is a group that goes together. We also say they are* "related." Display 9 + 2 = 11, 2 + 9 = 11, 11 − 9 = 2, and 11 − 2 = 9. Say: *Why do you think this is a fact family?* Students will generate possible answers. Say: *All these facts have the same numbers in them. That means they are related. That is why they are a fact family.*

Beginning Point to the equation 9 + 6 = 15 in the first panel. Say: *We can move these numbers around.* Point to the equation 6 + 9 = 15. Say: *They are a fact family. Add the smaller numbers in any order.*

Students will complete the following sentence frame: Facts that use all of the same numbers are called _____ [related facts].

Intermediate Explain to students that the term *fact family* can be used to talk about addition and subtraction. Point to the last panel of the Visual Learning Bridge. Ask them to circle the 9 in each fact, underline each 6, and put a square around each 15. Ask students to define *fact families*.

Advanced Provide students with an index card with one equation that has three different numbers. Ask pairs of students to write three more facts that go in that fact family.

Summarize What is a fact family?

STEP 1

DEVELOP: PROBLEM-BASED LEARNING

COHERENCE: Engage learners by connecting prior knowledge to new ideas.

Students make addition and subtraction facts using the same three numbers. This prepares them for the next part of the lesson where they learn how to use a completed part-part-whole mat to write a fact family.

10–15 min

Solve

Whole Class BEFORE

1. **Pose the Solve-and-Share Problem**
Provide each student 20 counters.
MP. 7 Look for Patterns In this problem, students look for patterns between parts and wholes and use those patterns to write addition and subtraction facts.

2. **Build Understanding**
What does the problem ask you to do? [Write 2 addition facts and 2 subtraction facts.] *What numbers should you use to write the addition and subtraction facts?* [8, 9, and 17]

Small Group DURING

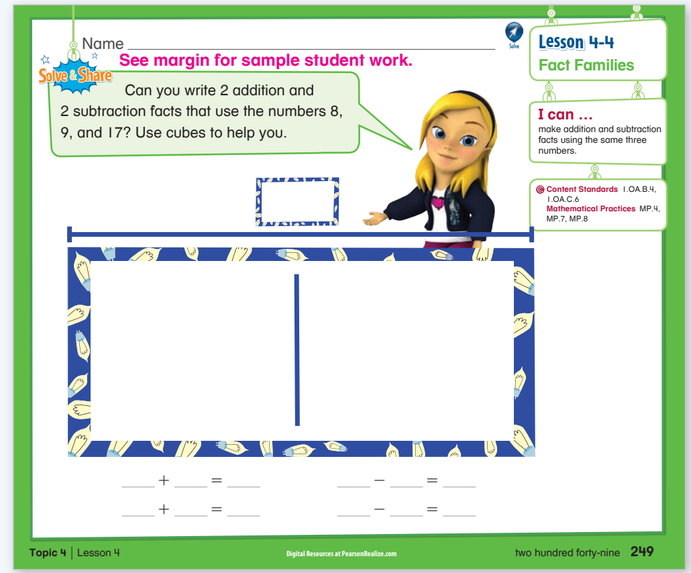
3. **Ask Guiding Questions As Needed**
What number is the whole? How do you know? What are the parts? [17 is the whole because it is the larger number. 8 and 9 are the parts.] *What number do you start with for a subtraction fact? Why?* [17; You should start with the whole.]

Whole Class AFTER

4. **Share and Discuss Solutions**
Solve Start with students' solutions. If needed, project Barry's work to discuss how he came up with his addition and subtraction facts.

5. **Transition to the Visual Learning Bridge**
You used three numbers to write 2 addition facts and 2 subtraction facts. Later in this lesson, you will learn how to use models to write related facts that make up a fact family.

6. **Extension for Early Finishers**
Can you write four equations with the numbers 8, 4, and 4? Explain. [No; The parts are the same, so you can write only one addition equation, 4 + 4 = 8, and one subtraction equation, 8 − 4 = 4.]


Name _____

Solve & Share

See margin for sample student work.

Can you write 2 addition and 2 subtraction facts that use the numbers 8, 9, and 17? Use cubes to help you.

Solve

Lesson 4-4
Fact Families

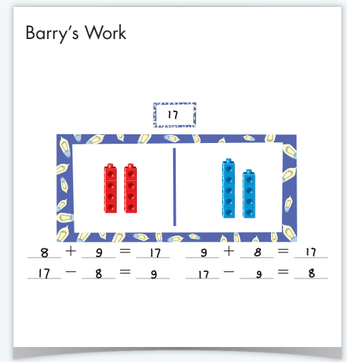
I can ...
make addition and subtraction facts using the same three numbers.

Content Standards 1.OA.B.4, 1.OA.C.6
Mathematical Practices MP.4, MP.7, MP.8

___ + ___ = ___ ___ − ___ = ___
___ + ___ = ___ ___ − ___ = ___

Topic 4 | Lesson 4 Digital Resources at PearsonRealize.com two hundred forty-nine 249

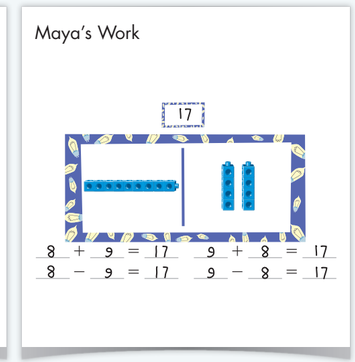
Analyze Student Work


Barry's Work

17

8 + 9 = 17 9 + 8 = 17
17 − 8 = 9 17 − 9 = 8

Barry says he identified the parts and the whole. Then he put the parts in a different order to come up with two different addition and two different subtraction facts.


Maya's Work

17

8 + 9 = 17 9 + 8 = 17
8 − 9 = 17 9 − 8 = 17

Maya says that she switched the order of the parts for each addition and subtraction fact, but she did not put the whole number in the correct position for the subtraction equations.

STEP 2 DEVELOP: VISUAL LEARNING

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Visual Learning

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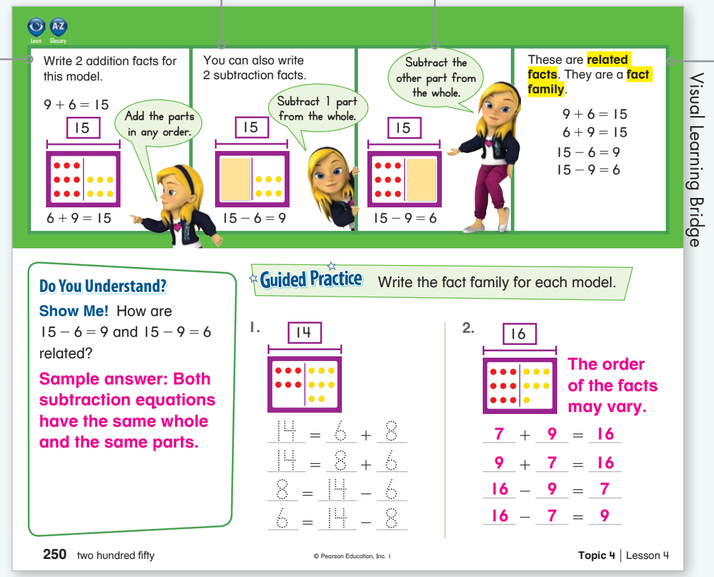
Learn Glossary

MP.8 Generalize *How are the two addition equations alike?* [They have the same three numbers.] *How are the addition equations different?* [The 6 and 9 are in different places.] *Do you get the same sum when you add the parts in a different order?* [Yes]

What is 15 in the model? [It is the whole.] *What is the part you know?* [6] *What is the part that is covered?* [9] *So 15 minus 6 equals 9.*

How is this subtraction equation like the one in the previous box? [Sample answer: It has the same three numbers.] *How is it different?* [Sample answer: The 6 and 9 are in different places; A different part is subtracted from 15.]

Why are these equations called a fact family? [Sample answer: Because they use the same numbers; Because they are related]



Do You Understand? Show Me! MP.4 Model with Math Have students make a part-part-whole mat using the numbers 6, 9, and 15. Remind students that all three numbers are used to show a subtraction fact. Point out that a subtraction fact is made by subtracting a part from the whole to get the other part.

Essential Question

Ask the following Essential Question: *How can fact families help you solve addition and subtraction problems?* [Sample answer: I know that facts in the same family have the same parts and whole. So if I know one fact in a family, I can figure out the other ones.]

Error Intervention: Item 2

If students write the sums or differences incorrectly,

then have them use counters to model the parts and the whole.

RtI **Reteaching** Assign Reteaching Set C, page 288.

QUICK CHECK

Check mark indicates items for prescribing differentiation on the next page. Item 3 is worth 1 point. Items 8 and 9 are each worth 2 points.

20–30 min

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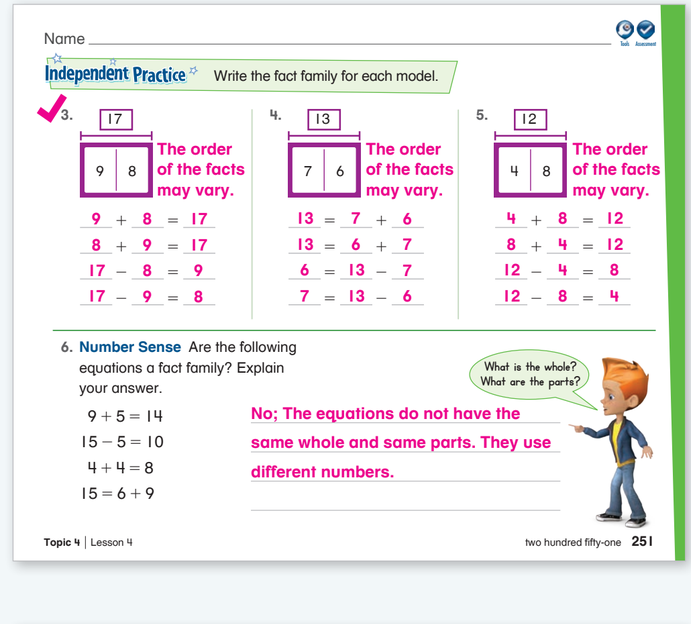
Tools Assessment

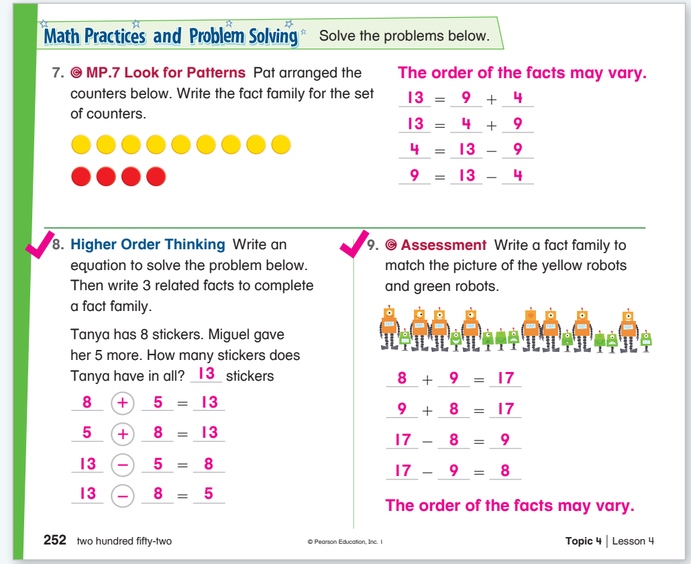
Items 3–5 MP.4 Model with Math You may provide students with counters and a part-part-whole mat to help them complete each fact family.

Item 6 Remind students that the same 3 numbers are used for each fact in a fact family.



Item 7 MP.7 Look for Patterns Use a part-part-whole model to help students analyze patterns. *What information will you use from the problem to make a part-part-whole mat?* [The parts 9 and 4] *What will you do next?* [Add the parts to make the whole. Then write the two different addition facts and the two different subtraction facts.]

Item 9 Remind students that they need to use the picture to write the fact family. *How many small robots are there?* [9] *How many large robots are there?* [8] *How many robots are there in all?* [17]



STEP 3

ASSESS AND DIFFERENTIATE

Use the **QUICK CHECK** on the previous page to prescribe differentiated instruction.

I Intervention
0–3 points on the Quick Check

O On-Level
4 points on the Quick Check

A Advanced
5 points on the Quick Check

TIMING
The time allocated to Step 3 will depend on the teacher's instructional decisions and differentiation routines.

15–30 min

PEARSON realize.
PearsonRealize.com
Help Tools Games

Intervention Activity I

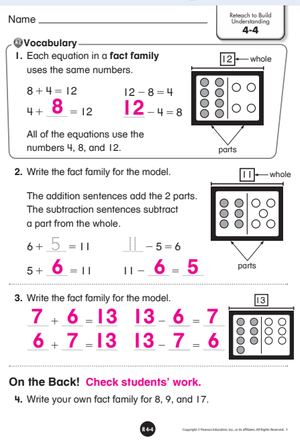
Make a Fact Family

Materials

10 counters per group (or Teaching Tool 32)

- Show and add 4 counters to 6 counters to make a group of 10.
- On the board, write 4 + 6 = 10.
- Show and add the counters in a different order, and write 6 + 4 = 10.
- Perform the same procedure for subtraction, first taking away 4 counters from the group of 10, and then taking away 6.
- Write 10 − 4 = 6. Elicit from students the other subtraction equation, 10 − 6 = 4.

Reteach I



Name _____

Reteach to Build Understanding 4-4

Vocabulary

1. Each equation in a **fact family** uses the same numbers.

8 + 4 = 12 12 − 8 = 4
4 + 8 = 12 12 − 4 = 8

All of the equations use the numbers 4, 8, and 12.

12 — whole; parts

2. Write the fact family for the model.

The addition sentences add the 2 parts. The subtraction sentences subtract a part from the whole.

11 — whole; parts

6 + 5 = 11 11 − 5 = 6
5 + 6 = 11 11 − 6 = 5

3. Write the fact family for the model.

13

7 + 6 = 13 13 − 6 = 7
6 + 7 = 13 13 − 7 = 6

On the Back! Check students' work.

4. Write your own fact family for 8, 9, and 17.

Technology Center I O A

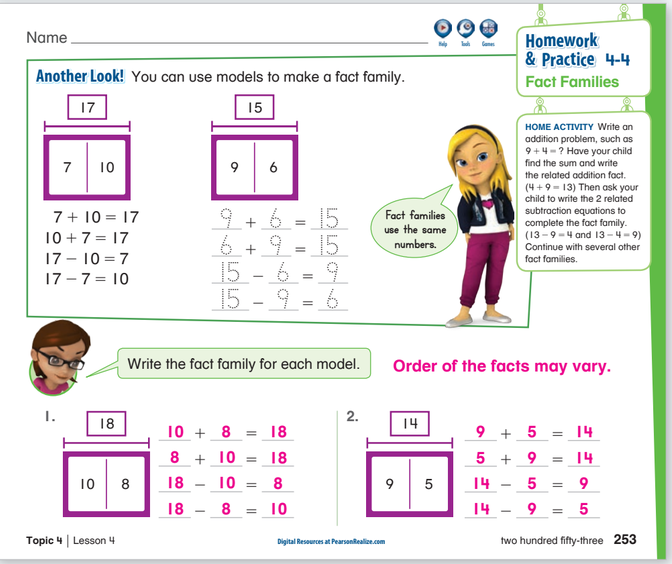
Tools Games

Math Tools and Math Games

A link to a specific math tools activity or math game to use with this lesson is provided at PearsonRealize.com.

Leveled Assignment

I Items 1–4, 6 O Items 2–6 A Items 2–6



Name _____ Help Tools Games

Another Look! You can use models to make a fact family.

17 → 7, 10

7 + 10 = 17
10 + 7 = 17
17 − 10 = 7
17 − 7 = 10

15 → 9, 6

9 + 6 = 15
6 + 9 = 15
15 − 6 = 9
15 − 9 = 6

Fact families use the same numbers.

Write the fact family for each model. **Order of the facts may vary.**

1. 18 → 10, 8

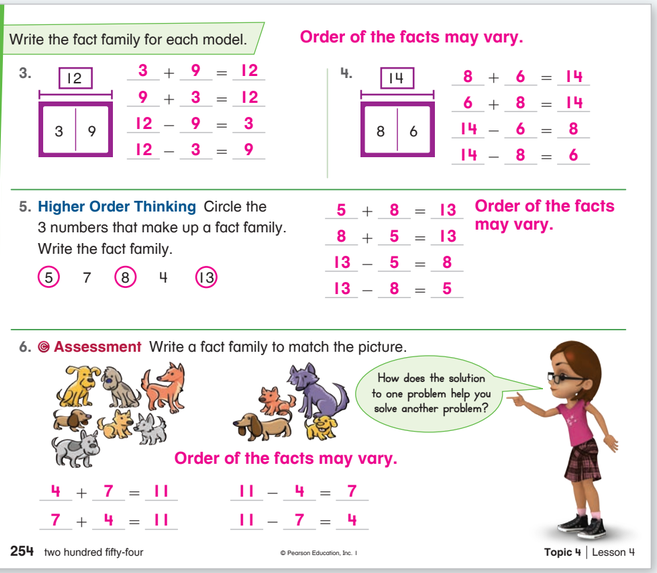
10 + 8 = 18
8 + 10 = 18
18 − 10 = 8
18 − 8 = 10

2. 14 → 9, 5

9 + 5 = 14
5 + 9 = 14
14 − 5 = 9
14 − 9 = 5

Homework & Practice 4-4
Fact Families

HOME ACTIVITY Write an addition problem, such as 9 + 4 = ? Have your child find the sum and write the related addition fact. (4 + 9 = 13) Then ask your child to write the 2 related subtraction equations to complete the fact family. (13 − 9 = 4 and 13 − 4 = 9) Continue with several other fact families.



Write the fact family for each model. **Order of the facts may vary.**

3. 12 → 3, 9

3 + 9 = 12
9 + 3 = 12
12 − 9 = 3
12 − 3 = 9

4. 14 → 8, 6

8 + 6 = 14
6 + 8 = 14
14 − 6 = 8
14 − 8 = 6

5. **Higher Order Thinking** Circle the 3 numbers that make up a fact family. Write the fact family.

(5) 7 (8) 4 (13)

5 + 8 = 13
8 + 5 = 13
13 − 5 = 8
13 − 8 = 5

Order of the facts may vary.

6. **Assessment** Write a fact family to match the picture.

How does the solution to one problem help you solve another problem?

Order of the facts may vary.

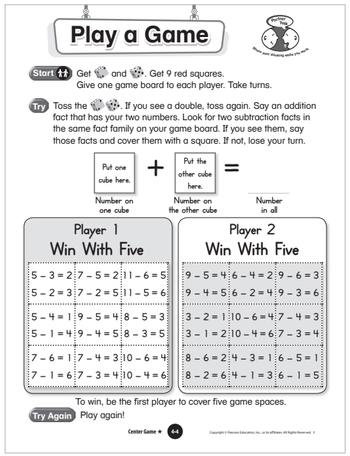
4 + 7 = 11
7 + 4 = 11
11 − 4 = 7
11 − 7 = 4

On-Level and Advanced Activity Centers O A

Center Games

Students work in pairs to learn fact families. They roll 2 number cubes and state an addition or a subtraction fact that can be made with the numbers shown. Students then match their addition or subtraction facts with the corresponding addition or subtraction facts in the same fact family on the game board.

★ On-Level



Play a Game

Start Get and . Get 9 red squares. Give one game board to each player. Take turns.

Try Toss the . If you see a double, toss again. Say an addition fact that has your two numbers. Look for two subtraction facts in the same fact family on your game board. If you see them, say those facts and cover them with a square. If not, lose your turn.

Put one cube here. + Put the other cube here. = Number in all

Number on one cube; Number on the other cube

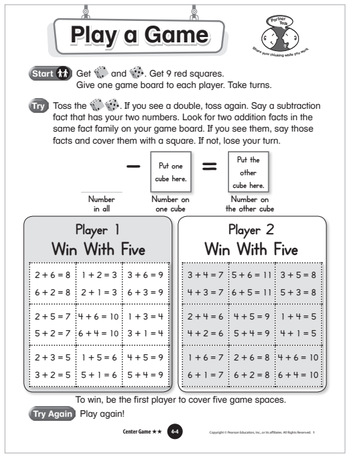
Player 1 Win With Five			Player 2 Win With Five		
5 − 3 = 2	7 − 5 = 2	11 − 6 = 5	9 − 5 = 4	6 − 4 = 2	9 − 6 = 3
5 − 2 = 3	7 − 2 = 5	11 − 5 = 6	9 − 4 = 5	6 − 2 = 4	9 − 3 = 6
5 − 4 = 1	9 − 5 = 4	8 − 5 = 3	3 − 2 = 1	10 − 6 = 4	7 − 4 = 3
5 − 1 = 4	9 − 4 = 5	8 − 3 = 5	3 − 1 = 2	10 − 4 = 6	7 − 3 = 4
7 − 6 = 1	7 − 4 = 3	10 − 6 = 4	8 − 6 = 2	4 − 3 = 1	6 − 5 = 1
7 − 1 = 6	7 − 3 = 4	10 − 4 = 6	8 − 2 = 6	4 − 1 = 3	6 − 1 = 5

To win, be the first player to cover five game spaces.

Try Again Play again!

Center Game ★ 64

★★ Advanced



Play a Game

Start Get and . Get 9 red squares. Give one game board to each player. Take turns.

Try Toss the . If you see a double, toss again. Say a subtraction fact that has your two numbers. Look for two addition facts in the same fact family on your game board. If you see them, say those facts and cover them with a square. If not, lose your turn.

Number in all − Put one cube here. = Put the other cube here.

Number on one cube; Number on the other cube

Player 1 Win With Five			Player 2 Win With Five		
2 + 6 = 8	1 + 2 = 3	3 + 6 = 9	3 + 4 = 7	5 + 6 = 11	3 + 5 = 8
6 + 2 = 8	2 + 1 = 3	6 + 3 = 9	4 + 3 = 7	6 + 5 = 11	5 + 3 = 8
2 + 5 = 7	4 + 6 = 10	1 + 3 = 4	2 + 4 = 6	4 + 5 = 9	1 + 4 = 5
5 + 2 = 7	6 + 4 = 10	3 + 1 = 4	4 + 2 = 6	5 + 4 = 9	4 + 1 = 5
2 + 3 = 5	1 + 5 = 6	4 + 5 = 9	1 + 6 = 7	2 + 6 = 8	4 + 6 = 10
3 + 2 = 5	5 + 1 = 6	5 + 4 = 9	6 + 1 = 7	6 + 2 = 8	6 + 4 = 10

To win, be the first player to cover five game spaces.

Try Again Play again!

Center Game ★★ 64

LESSON 4-5

USE ADDITION TO SUBTRACT

DIGITAL RESOURCES PearsonRealize.com

- eText: Student and Teacher eTexts
- PD: Listen and Look For Lesson Video
- Think: Today's Challenge
- Solve: Solve and Share
- Learn: Visual Learning Animation Plus
- Glossary: Animated Glossary
- Tools: Math Tools
- Assessment: Quick Check
- Help: Another Look Homework Video
- Games: Math Games

LESSON OVERVIEW

FOCUS • COHERENCE • RIGOR

FOCUS

Domain 1.OA Operations and Algebraic Thinking

Cluster 1.OA.B Understand and apply properties of operations and the relationship between addition and subtraction.

Content Standard 1.OA.B.4 Understand subtraction as an unknown-addend problem. Also **1.OA.C.6**

Mathematical Practices MP.1, MP.2, MP.4, MP.5, MP.8

Objective Use addition facts to find subtraction facts.

Essential Understanding The inverse relationship between addition and subtraction can be used to find subtraction facts; every subtraction fact has at least one related addition fact.

Materials Counters (or Teaching Tool 32), Part-Part-Whole Mat (Teaching Tool 8)

COHERENCE

Students studied part-whole and addition-subtraction relationships in Topic 2 and in Lesson 4-4 as part of fact families. In Lessons 4-1 and 4-3, students counted up or added on to subtract. In Lesson 4-5, students further apply this knowledge by using addition to solve subtraction in a more abstract and efficient way.

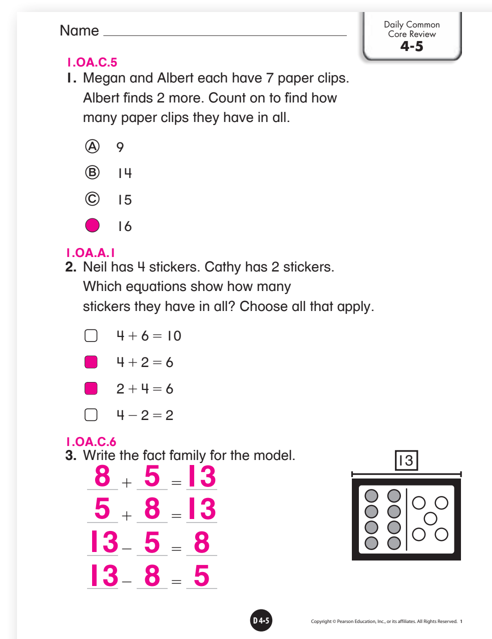
RIGOR

This lesson emphasizes **conceptual understanding** and **fluency**. By deepening students' understanding of the addition-subtraction relationship, this lesson further develops fluency as students are guided to use previously learned addition facts in order to solve subtraction problems.

PD Watch the Listen and Look For Lesson Video.

MATH ANYTIME

Daily Common Core Review


Name ______________

Daily Common Core Review 4-5

1.OA.C.5

1. Megan and Albert each have 7 paper clips. Albert finds 2 more. Count on to find how many paper clips they have in all.

Ⓐ 9
Ⓑ 14
Ⓒ 15
● 16

1.OA.A.1

2. Neil has 4 stickers. Cathy has 2 stickers. Which equations show how many stickers they have in all? Choose all that apply.

☐ $4 + 6 = 10$
■ $4 + 2 = 6$
■ $2 + 4 = 6$
☐ $4 - 2 = 2$

1.OA.C.6

3. Write the fact family for the model.

$8 + 5 = 13$
$5 + 8 = 13$
$13 - 5 = 8$
$13 - 8 = 5$

13

D 4-5

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Today's Challenge

Think Use Topic 4 problems any time during this topic.

ENGLISH LANGUAGE LEARNERS

Listening Demonstrate listening comprehension by taking notes.

Use with the Do You Understand on Student's Edition p. 256.

Read the Do You Understand section to the students. Emphasize the numbers 16 and 9 and speak them slowly. Ask students to write down each number that they hear.

Beginning Ask students to look at the numbers they wrote down. Say: *What numbers did you write?* [16 and 9] *How can you solve 16 – 9 with addition?* Ask students to draw or write to solve this problem. [Students should draw a part-part-whole mat like the ones used in the lesson.]

Intermediate Ask students to work with a partner. Ask them to write notes to tell how they can solve 16 – 9. Ask: *What is the whole?* [16] *What is a part?* [9] *What is another part?* [7]

Advanced Ask students to think about the problem 16 – 9. Say: *What do you know? What do you want to know? How would you use addition to solve this problem?* Students will write notes to respond to each question in their notes.

Summarize How can taking notes help you use addition to subtract?

STEP 1 DEVELOP: PROBLEM-BASED LEARNING

COHERENCE: Engage learners by connecting prior knowledge to new ideas. Students use a part-part-whole mat to solve a subtraction problem. This prepares them for the next part of the lesson where they learn how writing a related addition fact can help solve a subtraction problem.

10–15 min

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Solve

Whole Class BEFORE

1. Pose the Solve-and-Share Problem
Provide each student 20 counters.
MP.4 Model with Math In this problem, students model the mathematical relationship between parts and wholes.

2. Build Understanding
What are you asked to do? [Use a related addition fact to solve 12 – 9.]
What tools do you have to help you solve the problem? [Counters and the work mat]

Small Group DURING

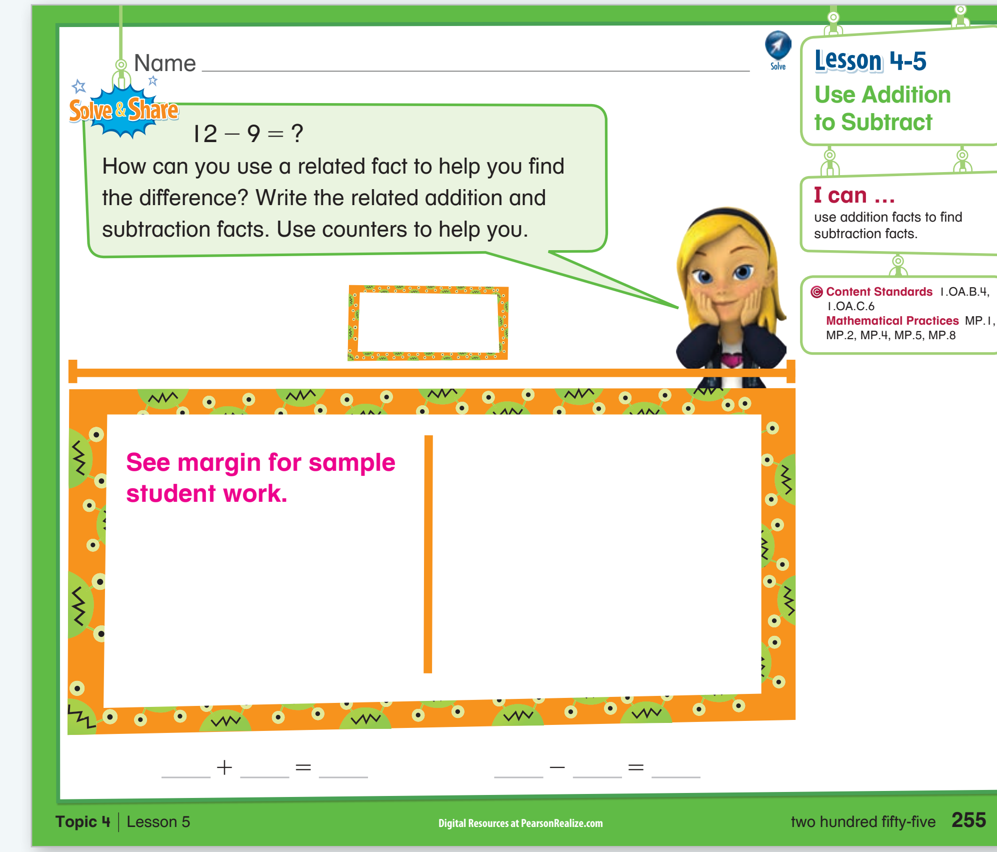
3. Ask Guiding Questions As Needed
What number will be the sum of your related addition fact? [12] *So what number can you add to 9 to get 12?* [3]

Whole Class AFTER

4. Share and Discuss Solutions
Solve Start with students' solutions. Have them share the strategy they used to solve the problem. If needed, project Sarah's work to discuss how the related addition fact helped to solve the problem.

5. Transition to the Visual Learning Bridge
You used an addition fact to help you solve a related subtraction fact. Later in this lesson, you will learn how to complete a part-part-whole model in order to solve a subtraction fact. By completing models, many of you can easily solve subtraction facts by solving related addition facts.

6. Extension for Early Finishers
If you know that 8 + 9 = 17, what two subtraction problems can you solve? [17 – 8 = 9 and 17 – 9 = 8]


Name ______________

Solve & Share

$12 - 9 = ?$

How can you use a related fact to help you find the difference? Write the related addition and subtraction facts. Use counters to help you.

See margin for sample student work.

___ + ___ = ___   ___ – ___ = ___

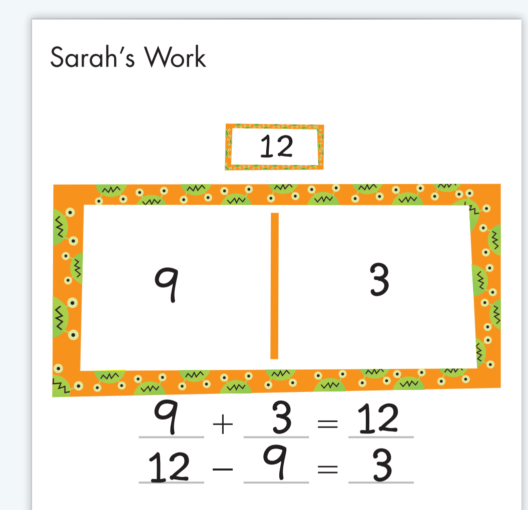
Lesson 4-5 Use Addition to Subtract

I can … use addition facts to find subtraction facts.

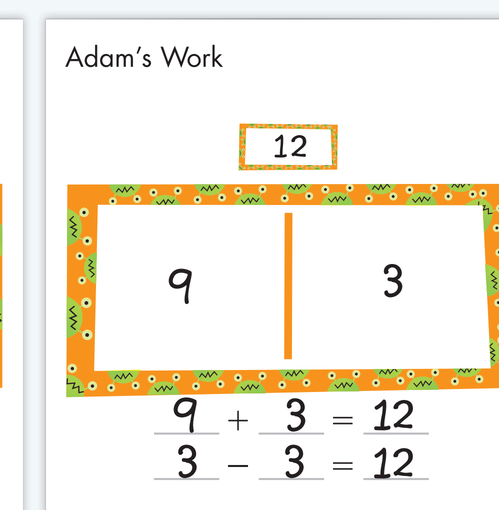
Content Standards 1.OA.B.4, 1.OA.C.6 Mathematical Practices MP.1, MP.2, MP.4, MP.5, MP.8

Topic 4 | Lesson 5   Digital Resources at PearsonRealize.com   two hundred fifty-five 255

Analyze Student Work



Sarah explains that she started with 9 and then counted on to 12. Knowing that 9 + 3 = 12, she knew the related subtraction fact was 12 – 9 = 3.



Adam found the unknown part for the addition and subtraction facts but did not write the whole in the correct place for the subtraction equation.

STEP 2 DEVELOP: VISUAL LEARNING

The *Visual Learning Bridge* connects students' thinking in Solve & Share to important math ideas in the lesson. Use the *Visual Learning Bridge* to make these ideas explicit. Also available as a *Visual Learning Animation Plus* at PearsonRealize.com

Visual Learning

PEARSON realize. PearsonRealize.com

Learn Glossary

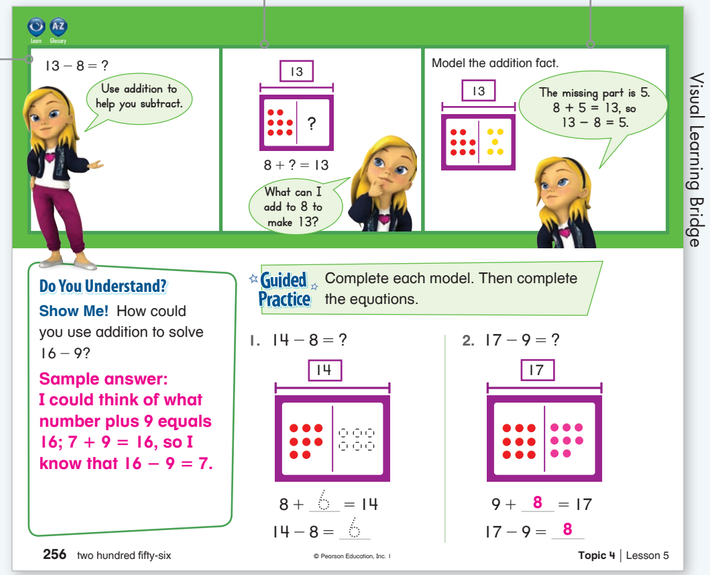
MP.2 Reasoning *To solve 13 – 8, do you need to find a part or a whole?* [A part] *What number is the whole?* [13] *What is the part you know?* [8]

Which number is the sum in this addition problem? [13] Students should notice that the part missing in the addition problem is the same as the missing part in the subtraction problem in the previous box.

What equations does this model show? [13 – 8 = 5 and 8 + 5 = 13] *What are the parts in the model?* [8 and 5] *Which number in the part-part-whole model was missing in both equations?* [5]

Prevent Misconceptions RtI

If students do not see the relationship between the subtraction and addition equations with the same missing part, then have them draw lines between the given numbers in each type of problem. Point out that the missing number is the same in both equations.



Do You Understand? Show Me! **MP.5 Use Appropriate Tools Strategically** If needed, have students use counters and a part-part-whole mat to show how addition could be used to solve 16 – 9. Have students explain why these are good tools for showing the relationship between addition and subtraction.

Essential Question

Ask the following Essential Question: *How can you use addition facts you know to help you solve subtraction facts?* [Sample answer: If I know the two parts that make a whole, I can tell what part will be left over when one part is subtracted from the whole.]

Error Intervention: Item 2

If students have trouble completing the equation,

then have them identify which numbers represent the parts and which number represents the whole.

RtI **Reteaching** Assign Reteaching Set D, page 289.

PEARSON realize. PearsonRealize.com

Learn Glossary

QUICK CHECK

Check mark indicates items for prescribing differentiation on the next page.
Item 3 is worth 1 point. Items 10 and 11 are each worth 2 points.

20–30 min

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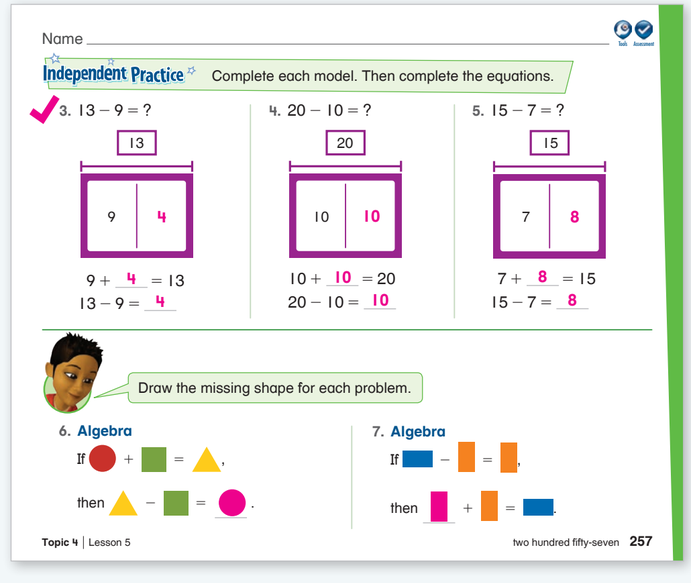
Tools Assessment

Items 3–5 **MP.1 Make Sense and Persevere** Students may have difficulty finding the missing part. Guide them to count on. For example, in Item 5, say the numbers 7, 8, 9, 10, … . Then encourage students to continue counting on until they reach the number in the box showing the whole.

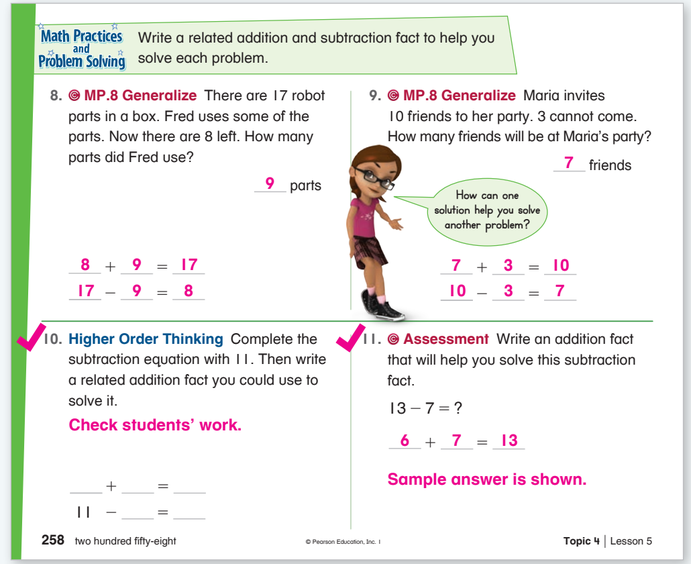
Items 6–7 If the symbols are too abstract for some students, substitute them with numbers. For example, have students consider the equations 2 + 3 = 5 and 5 – 3 = ?. Write the numbers in the corresponding shapes.



Item 8 Encourage students to represent the subtraction using a part-part-whole mat with 8 counters as a part and 17 as the whole. *What do the 8 counters represent?* [The number of robot parts that are left] *What does the number 17 represent?* [The total number of robot parts in the box] *How can you find the missing part?* [Add the number of counters that, when added to 8, equal 17.]

Item 9 **MP.8 Generalize** Tell students that they can use addition to help solve subtraction word problem situations, too. *What addition equation can you use to find the number of friends who will come to the party?* [Sample answer: ? + 3 = 10]

Coherence In Item 9, students solve a subtraction problem by finding the missing addend in an addition problem. This connects to their previous work in Topic 2, where students use addition to solve related subtraction problems.



STEP 3 ASSESS AND DIFFERENTIATE

Use the **QUICK CHECK** on the previous page to prescribe differentiated instruction.

- **I Intervention** 0–3 points on the Quick Check
- **O On-Level** 4 points on the Quick Check
- **A Advanced** 5 points on the Quick Check

TIMING
The time allocated to Step 3 will depend on the teacher's instructional decisions and differentiation routines.

15–30 min

PearsonRealize.com
Help Tools Games

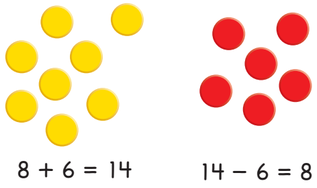
Intervention Activity I

Make Fact Families

Materials

18 counters per student (or Teaching Tool 32)

- Have one student put a number of counters, such as 14, on the table with the yellow side up.
- Have another student turn over some of those counters, such as 6, to red and write the fact 8 + 6 = 14.
- Move away the group of red counters and show students how they can use the addition fact and counters to write the related subtraction fact: 14 − 6 = 8.
- Have students repeat the activity using a different number of counters.



8 + 6 = 14 14 − 6 = 8

Reteach I

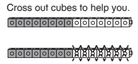
Name _____ Reteach to Build Understanding 4-5

Vocabulary

1. **Related facts** are addition and subtraction facts that have the same numbers.

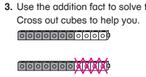
6 + 5 = 11 11 − 5 = 6

2. Use the addition fact to solve the related subtraction fact. Cross out cubes to help you.



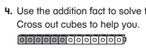
8 + 7 = 15
15 − 7 = 8

3. Use the addition fact to solve the related subtraction fact. Cross out cubes to help you.



7 + 4 = 11
11 − 4 = 7

4. Use the addition fact to solve the related subtraction fact. Cross out cubes to help you.



6 + 7 = 13
13 − 7 = 6

On the Back! Check students' work.

5. Use 2 colors of cubes to make a cube train. Write an addition fact and a related subtraction fact to match your cube train.

Technology Center I O A

Tools Games

Math Tools and Math Games

A link to a specific math tools activity or math game to use with this lesson is provided at PearsonRealize.com.

Leveled Assignment

I Items 1, 2, 6–7 O Items 2, 3, 5–7 A Items 3–7

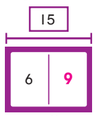
Name _____ Help Tools Games

Another Look! You can use an addition fact to help you solve a related subtraction fact.

18 − 8 = ?

8 + 10 = 18
18 − 8 = 10

15 − 6 = ?



6 + ? = 15
15 − 6 = ?

Homework & Practice 4-5
Use Addition to Subtract

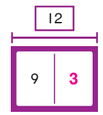
HOME ACTIVITY Write a subtraction problem for your child to solve. Have him or her say a related addition fact to help solve the subtraction problem. Provide pennies or other small objects to be used as counters, if necessary. Repeat using different subtraction problems.

Complete each model.
Then complete the equations.

1. 11 − 6 = ?

6 + 5 = 11
11 − 6 = 5

2. 12 − 9 = ?



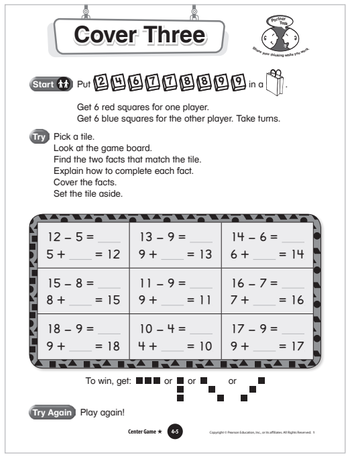
9 + 3 = 12
12 − 9 = 3

On-Level and Advanced Activity Centers O A

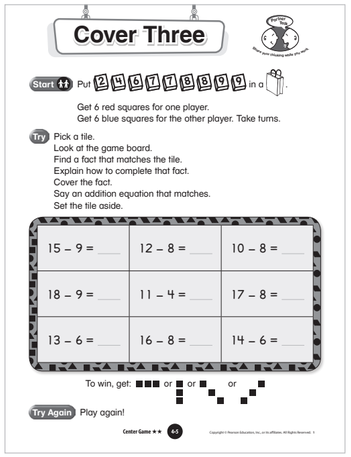
Center Games

Students work in pairs to pull tiles and place them on a game board showing related addition and subtraction facts. Students then find the missing number in the related facts and say it aloud.

★ On-Level

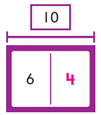


★★ Advanced



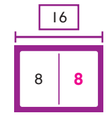
Complete each model. Then complete the equations.

3. What addition fact can Amy use to find 10 − 6?



6 + 4 = 10
10 − 6 = 4

4. What addition fact can Dan use to find 16 − 8?



8 + 8 = 16
16 − 8 = 8

5. **Higher Order Thinking** Draw the missing shape. Then explain how you know your answer is correct.

If ▱ + ○ = △,
then △ − ▱ = ○.

Sample answer: I know that the triangle is the whole. So the other 2 shapes are the parts.

6. **Assessment** Write an addition fact that will help you solve 14 − 9.

Sample answer is shown.
5 + 9 = 14

7. **Assessment** Which addition fact will help you solve 18 − 10?

Sample answer is shown.
10 + 8 = 18

LESSON 4-6

CONTINUE TO USE ADDITION TO SUBTRACT

DIGITAL RESOURCES PearsonRealize.com

- eText — Student and Teacher eTexts
- PD — Listen and Look For Lesson Video
- Think — Today's Challenge
- Solve — Solve and Share
- Learn — Visual Learning Animation Plus
- Glossary — Animated Glossary
- Tools — Math Tools
- Assessment — Quick Check
- Help — Another Look Homework Video
- Games — Math Games

LESSON OVERVIEW FCR FOCUS • COHERENCE • RIGOR

FOCUS

Domain **1.OA** Operations and Algebraic Thinking

Cluster **1.OA.B** Understand and apply properties of operations and the relationship between addition and subtraction.

Content Standard **1.OA.B.4** Understand subtraction as an unknown-addend problem. Also **1.OA.C.6**

Mathematical Practices **MP.2, MP.4, MP.8**

Objective Use addition facts to find subtraction facts.

Essential Understanding The inverse relationship between addition and subtraction can be used to find subtraction facts; every subtraction fact has at least one related addition fact.

Materials Counters (or Teaching Tool 32), Part-Part-Whole Mat (Teaching Tool 8)

COHERENCE

In previous lessons, students used part-part-whole diagrams and counters to see how addition and subtraction are related. The diagram and counters helped students use addition to subtract. In this lesson, students are expected to think addition to subtract mentally. When given a subtraction problem like $15 - 7 = ?$, students have to think 7 plus what number equals 15.

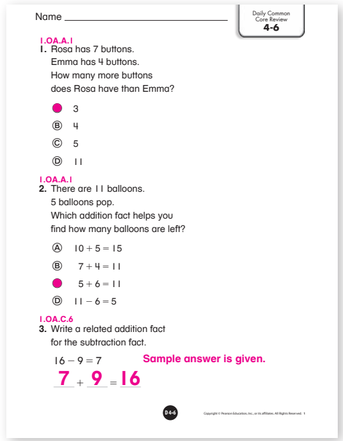
RIGOR

This lesson emphasizes **conceptual understanding** and **fluency**. The focus is on the addition-subtraction relationship again. The lesson helps further build fluency with subtraction facts by asking students to think addition as a strategy for solving subtraction problems.

PD Watch the Listen and Look For Lesson Video.

MATH ANYTIME

Daily Common Core Review


Name _____ Daily Common Core Review 4-6

1.OA.A.1
1. Rosa has 7 buttons.
Emma has 4 buttons.
How many more buttons does Rosa have than Emma?
● 3
Ⓑ 4
Ⓒ 5
Ⓓ 11

1.OA.A.1
2. There are 11 balloons.
5 balloons pop.
Which addition fact helps you find how many balloons are left?
Ⓐ $10 + 5 = 15$
Ⓑ $7 + 4 = 11$
● $5 + 6 = 11$
Ⓓ $11 - 6 = 5$

1.OA.C.6
3. Write a related addition fact for the subtraction fact.
$16 - 9 = 7$ Sample answer is given.
$7 + 9 = 16$

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Today's Challenge

Think Use Topic 4 problems any time during this topic.

ENGLISH LANGUAGE LEARNERS ELL

Listening Seek clarification of spoken language.

Use with the Visual Learning Bridge on Student's Edition p. 262.

Write *facts, related,* and *fact families* on the board. Say: *Remember, facts that are related are in the same fact family.* Write $7 + 8 = 15$ and $15 - 7 = 8$. Say: *These facts are related.* Write an addition fact and a related subtraction fact. Ask students to fill in the sentence frame: The facts are _____. They are part of the same _____.

Beginning Write the following equations on the board: $10 - 6 = 4$, $4 + 6 = 10$, $10 - 4 = 6$ and $6 + 4 = 10$. Ask: *Are these facts related?* If students answer "yes," ask students to point to the numbers that show they are related.

Intermediate Provide students with an addition fact. Ask: *Can you write a subtraction fact with these numbers? What do you know about it?*

Advanced Provide students with note cards with 9, 5, and 14 on them. Ask students to make four different number sentences with the numbers. Say: *Ask me a question to help you get started.*

Summarize How can you use addition facts to help you find subtraction facts?

STEP 1 DEVELOP: PROBLEM-BASED LEARNING

COHERENCE: Engage learners by connecting prior knowledge to new ideas.

Students use a related addition fact to help them complete a subtraction fact. This prepares them for the next part of the lesson where they learn how to independently identify an addition fact that will help solve a subtraction problem.

10–15 min

Solve

Whole Class BEFORE

1. **Pose the Solve-and-Share Problem**
MP.8 Generalize In the problem, students make generalizations as they analyze the inverse relationship between related addition and subtraction facts.

2. **Build Understanding**
What does the problem ask you to do? [Complete the subtraction facts.] *What tools do you have to help you?* [The completed addition facts on the right]

Small Group DURING

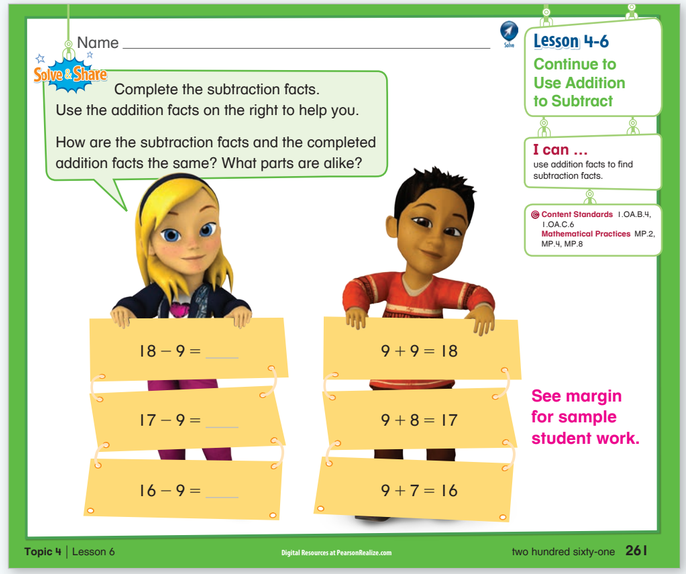
3. **Ask Guiding Questions As Needed**
How can the addition facts help you? [Sample answer: The addition fact with the same numbers as the subtraction fact can help me find the missing part.]

Whole Class AFTER

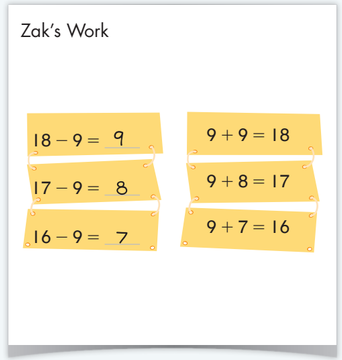
4. **Share and Discuss Solutions**
Solve Start with students' solutions. If needed, project Zak's work to discuss how the parts of the related addition and subtraction facts are the same.

5. **Transition to the Visual Learning Bridge**
You used addition facts to help you solve subtraction facts. Later in this lesson, you will learn how to use a related addition fact to solve a subtraction fact. By using related addition facts, many of you can solve subtraction facts quickly.

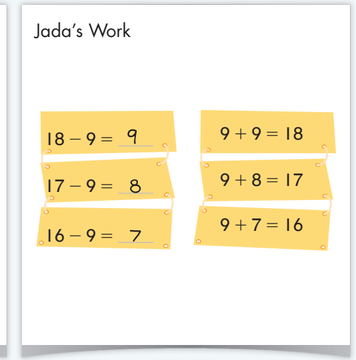
6. **Extension for Early Finishers**
If you know that $8 + 17 = 25$, what two subtraction problems can you solve?
[$25 - 8 = 17$ and $25 - 17 = 8$]



Analyze Student Work



Zak completes the subtraction facts and explains that the whole and the parts are the same in the related facts.



Jada completes the subtraction facts but does not mention how the related facts are the same.

STEP 2 DEVELOP: VISUAL LEARNING

The *Visual Learning Bridge* connects students' thinking in Solve & Share to important math ideas in the lesson. Use the *Visual Learning Bridge* to make these ideas explicit. Also available as a *Visual Learning Animation Plus* at PearsonRealize.com

Visual Learning

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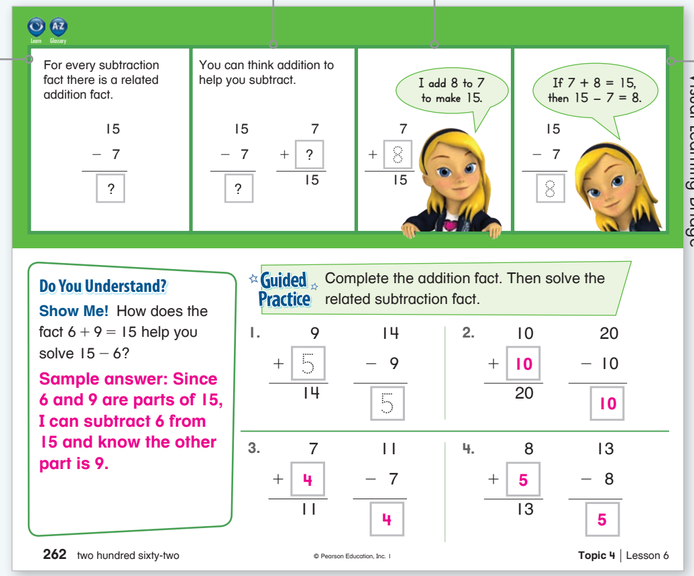
Learn Glossary

When you solve 15 – 7, are you trying to find the whole or a part? [A part] *What numbers will be in the related addition fact for 15 – 7?* [15 and 7]

Why does it help to think about addition to subtract? [It makes it easier to find the missing part.] *What is missing from the addition problem, a part or a whole?* [A part]

MP.2 Reasoning *How do you know that 8 is the missing number in the addition problem?* [Sample answer: I know that 8 is the number I add to 7 to make 15.]

Is this the same subtraction problem you saw in the first box? [Yes] *Have you found what you need to solve it?* [Yes; 8] *So, how does the addition help you subtract?* [Sample answer: I know that 7 + 8 = 15; I know that when I subtract 7 from 15, 8 is the other part.]



Do You Understand?

Show Me! How does the fact 6 + 9 = 15 help you solve 15 – 6?

Sample answer: Since 6 and 9 are parts of 15, I can subtract 6 from 15 and know the other part is 9.

Guided Practice Complete the addition fact. Then solve the related subtraction fact.

1.	9 + 5 = 14	14 − 9 = 5
2.	10 + 10 = 20	20 − 10 = 10
3.	7 + 4 = 11	11 − 7 = 4
4.	8 + 5 = 13	13 − 8 = 5

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Do You Understand? Show Me! MP.4 Model with Math Have students draw and display a part-part-whole mat to represent the equation 6 + 9 = 15. Point out that a fact family of 2 related addition facts and 2 related subtraction facts can be made using the completed part-part-whole mat.

Essential Question

Ask the following Essential Question: *How can you use addition facts you know to help you solve subtraction facts?* [Sample answer: If I know the 2 parts that make a whole, I can tell what part will be left over when one part is subtracted from a whole.]

Error Intervention: Item 2

If students do not know how to write a related addition fact to solve a subtraction problem,

then model how to use counters and a part-part-whole mat to show the whole, the known part, and the missing part. Then have students count on from the known part of the whole.

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Tools Assessment

QUICK CHECK

Check mark indicates items for prescribing differentiation on the next page. Items 11 and 17 are each worth 1 point. Item 16 is worth up to 3 points.

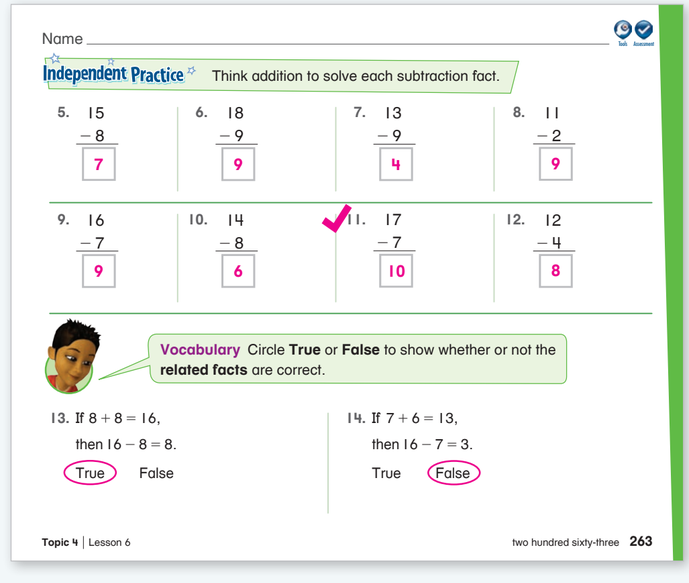
20–30 min

Items 5–12 MP.4 Model with Math If students have difficulty finding the differences, have them write an addition problem that could be used to help solve the subtraction problem. For example, in Item 7, students could write:

$$\begin{array}{r} 9 \\ +\ ? \\ \hline 13 \end{array}$$

What number completes this addition fact? [4] *So, what number solves the subtraction fact?* [4] *Explain how you know.* [Sample answer: The facts are related and they have the same whole and parts.]

Items 13–14 Encourage students to explain how they can determine if the equations are false.


Name _____

Independent Practice Think addition to solve each subtraction fact.

5. 15 − 8 = 7	6. 18 − 9 = 9	7. 13 − 9 = 4	8. 11 − 2 = 9
9. 16 − 7 = 9	10. 14 − 8 = 6	11. 17 − 7 = 10	12. 12 − 4 = 8

Vocabulary Circle **True** or **False** to show whether or not the **related facts** are correct.

13. If 8 + 8 = 16, then 16 − 8 = 8. (True) False

14. If 7 + 6 = 13, then 16 − 7 = 3. True (False)

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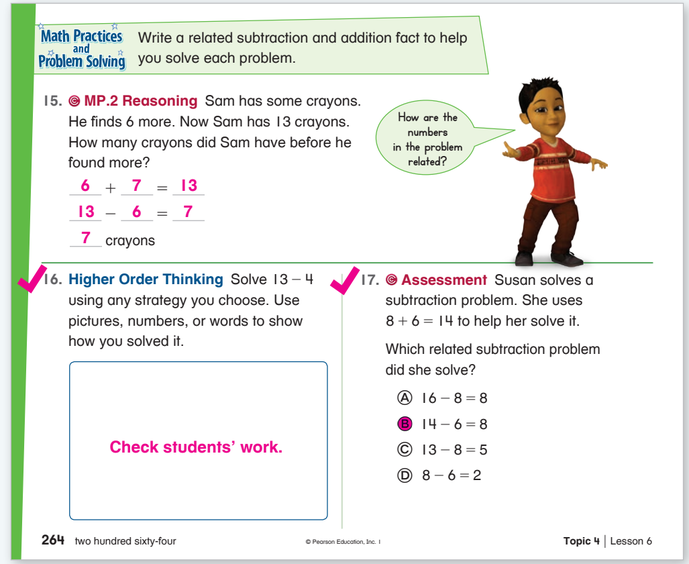
Item 15 MP.2 Reasoning Remind students that a subtraction fact shows that the whole minus a part equals the other part. The related addition fact shows that the same parts added together equal the same whole.

Item 16 Encourage students to explain the strategies they used to solve the subtraction fact. Suggest that students check their answers by using another strategy.


Math Practices and Problem Solving Write a related subtraction and addition fact to help you solve each problem.

15. **MP.2 Reasoning** Sam has some crayons. He finds 6 more. Now Sam has 13 crayons. How many crayons did Sam have before he found more?

6 + 7 = 13

13 − 6 = 7

7 crayons

How are the numbers in the problem related?

16. **Higher Order Thinking** Solve 13 − 4 using any strategy you choose. Use pictures, numbers, or words to show how you solved it.

Check students' work.

17. **Assessment** Susan solves a subtraction problem. She uses 8 + 6 = 14 to help her solve it.

Which related subtraction problem did she solve?

Ⓐ 16 − 8 = 8
Ⓑ 14 − 6 = 8
Ⓒ 13 − 8 = 5
Ⓓ 8 − 6 = 2

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STEP 3

ASSESS AND DIFFERENTIATE

Use the **QUICK CHECK** on the previous page to prescribe differentiated instruction.

- **I Intervention** 0–3 points on the Quick Check
- **O On-Level** 4 points on the Quick Check
- **A Advanced** 5 points on the Quick Check

TIMING
The time allocated to Step 3 will depend on the teacher's instructional decisions and differentiation routines.

15–30 min

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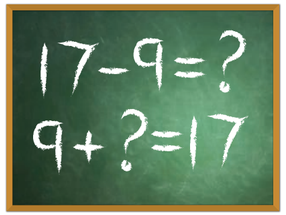
Help Tools Games

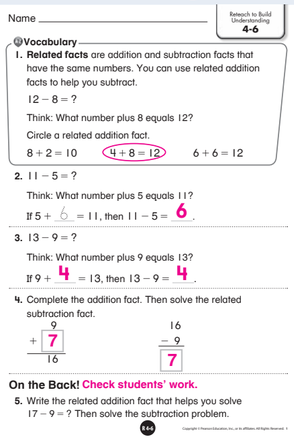
Intervention Activity I

Using Addition to Subtract

- On the board, write $17 - 9 = ?$ in horizontal form.
- Below the subtraction equation, write $9 + ? = 17$ in horizontal form.
- *What do you notice about the numbers in both problems?* [They use the same numbers, 17 and 9, but in different order.]
- *Which number plus 9 makes 17?* [8] Write 8 in the addition problem. *What is the missing part in $17 - 9 = ?$* [8] Write 8 in the subtraction problem.
- Repeat the activity with problems such as $18 - 9 = ?$ and $9 + ? = 18$.



Reteach I



Name _____

Reteach to Build Understanding 4-6

Vocabulary

1. **Related facts** are addition and subtraction facts that have the same numbers. You can use related addition facts to help you subtract.
   $12 - 8 = ?$
   Think: What number plus 8 equals 12?
   Circle a related addition fact.
   $8 + 2 = 10$ $\quad 4 + 8 = 12$ $\quad 6 + 6 = 12$

2. $11 - 5 = ?$
   Think: What number plus 5 equals 11?
   If $5 + \underline{6} = 11$, then $11 - 5 = \underline{6}$.

3. $13 - 9 = ?$
   Think: What number plus 9 equals 13?
   If $9 + \underline{4} = 13$, then $13 - 9 = \underline{4}$.

4. Complete the addition fact. Then solve the related subtraction fact.
   $9 + 7 = 16$ $\quad 16 - 9 = 7$

On the Back! Check students' work.

5. Write the related addition fact that helps you solve $17 - 9 = ?$ Then solve the subtraction problem.

Technology Center I O A

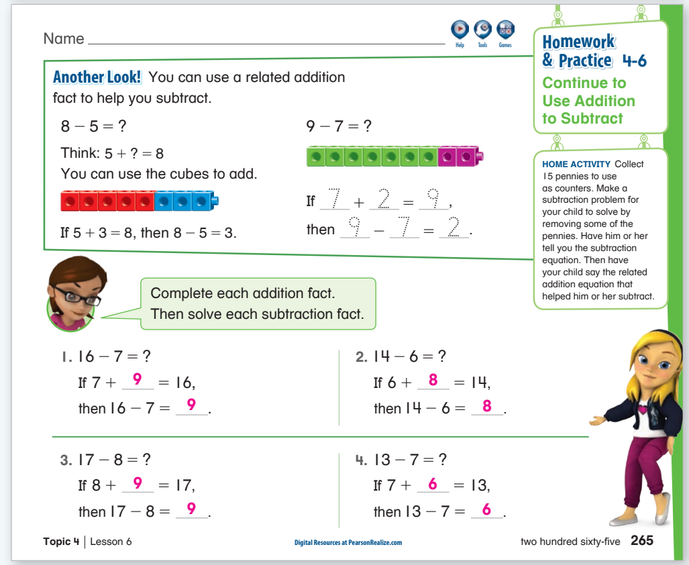
Tools Games

Math Tools and Math Games

A link to a specific math tools activity or math game to use with this lesson is provided at PearsonRealize.com.

Leveled Assignment

I Items 1–4, 7 O Items 3–7 A Items 4–8



Name _____ Help Tools Games

Another Look! You can use a related addition fact to help you subtract.

$8 - 5 = ?$
Think: $5 + ? = 8$
You can use the cubes to add.
If $5 + 3 = 8$, then $8 - 5 = 3$.

$9 - 7 = ?$
If $\underline{7} + \underline{2} = \underline{9}$,
then $\underline{9} - \underline{7} = \underline{2}$.

Complete each addition fact. Then solve each subtraction fact.

1. $16 - 7 = ?$
   If $7 + \underline{9} = 16$,
   then $16 - 7 = \underline{9}$.

2. $14 - 6 = ?$
   If $6 + \underline{8} = 14$,
   then $14 - 6 = \underline{8}$.

3. $17 - 8 = ?$
   If $8 + \underline{9} = 17$,
   then $17 - 8 = \underline{9}$.

4. $13 - 7 = ?$
   If $7 + \underline{6} = 13$,
   then $13 - 7 = \underline{6}$.

Homework & Practice 4-6 Continue to Use Addition to Subtract

HOME ACTIVITY Collect 15 pennies to use as counters. Make a subtraction problem for your child to solve by removing some of the pennies. Have him or her tell you the subtraction equation. Then have your child say the related addition equation that helped him or her subtract.

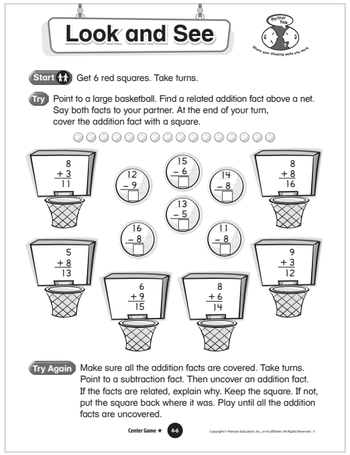
Topic 4 | Lesson 6 Digital Resources at PearsonRealize.com two hundred sixty-five 265

On-Level and Advanced Activity Centers O A

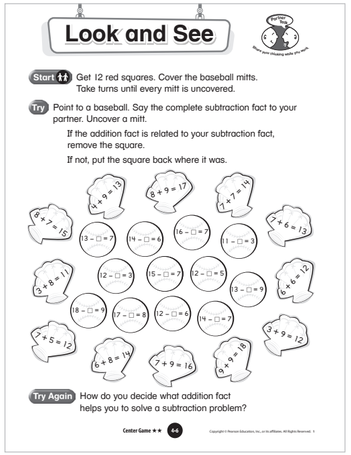
Center Games

Students work in pairs to find related addition and subtraction facts.

★ On-Level

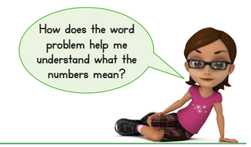


★★ Advanced



Write a related subtraction and addition fact to help you solve each problem.

5. **MP.2 Reasoning** Josh has 12 pencils. He gives some of them to his friends. Now he has 7 pencils left. How many pencils did Josh give to his friends?
   $\underline{5} + \underline{7} = \underline{12}$
   $\underline{12} - \underline{5} = \underline{7}$
   $\underline{5}$ pencils



6. **Higher Order Thinking** Your friend says he can use the related fact $4 + 7 = 11$ to help find $11 - 3$. Is your friend correct?
   Explain your answer.
   Sample answer: No; The addition problem 4 + 7 is not a related fact for 11 − 3. It does not use the same numbers.

7. **Assessment** Which related addition fact helps you solve $12 - 3 = ?$
   Ⓐ $10 + 3 = 13$
   Ⓑ $3 + 6 = 9$
   Ⓒ $2 + 10 = 12$
   Ⓓ $3 + 9 = 12$

8. **Assessment** Which related addition fact helps you solve $17 - 7 = ?$
   Ⓐ $6 + 7 = 13$
   Ⓑ $7 + 8 = 15$
   Ⓒ $10 + 7 = 17$
   Ⓓ $10 + 4 = 14$

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LESSON 4-7

EXPLAIN SUBTRACTION STRATEGIES

DIGITAL RESOURCES PearsonRealize.com

- eText — Student and Teacher eTexts
- PD — Listen and Look For Lesson Video
- Think — Today's Challenge
- Solve — Solve and Share
- Learn — Visual Learning Animation Plus
- Glossary — Animated Glossary
- Tools — Math Tools
- Assessment — Quick Check
- Help — Another Look Homework Video
- Games — Math Games

LESSON OVERVIEW FOCUS • COHERENCE • RIGOR

FOCUS

Domain **1.OA** Operations and Algebraic Thinking

Cluster **1.OA.B** Understand and apply properties of operations and the relationship between addition and subtraction.

Content Standard **1.OA.B.4** Understand subtraction as an unknown-addend problem. Also **1.OA.C.5, 1.OA.C.6**

Mathematical Practices **MP.1, MP.3, MP.5, MP.8**

Objective Explain strategies used to solve subtraction problems.

Essential Understanding There are different ways to solve subtraction facts. Certain strategies may be easier to use for certain facts.

Materials Counters (or Teaching Tool 32), Double Ten-Frame Mat (Teaching Tool 12)

COHERENCE

This lesson pulls together the subtraction strategies throughout the Topic—counting, making 10, and thinking addition. Students use these—or a strategy of their own—to explain how they solve subtraction problems. Students similarly explained addition strategies they used in Lesson 3-8.

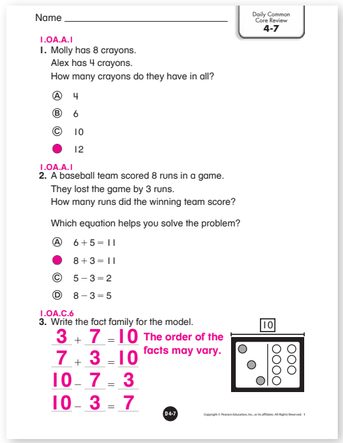
RIGOR

This lesson emphasizes **conceptual understanding** and **fluency**. When students can explain their strategy choices and work, they more fully demonstrate their understanding of these strategies. Having different strategies to solve subtraction facts also builds fluency.

PD Watch the Listen and Look For Lesson Video.

MATH ANYTIME

Daily Common Core Review


Name _____ Daily Common Core Review 4-7

1.OA.A.1
1. Molly has 8 crayons.
Alex has 4 crayons.
How many crayons do they have in all?
Ⓐ 4
Ⓑ 6
Ⓒ 10
● 12

1.OA.A.1
2. A baseball team scored 8 runs in a game.
They lost the game by 3 runs.
How many runs did the winning team score?
Which equation helps you solve the problem?
Ⓐ 6 + 5 = 11
● 8 + 3 = 11
Ⓒ 5 − 3 = 2
Ⓓ 8 − 3 = 5

1.OA.C.6
3. Write the fact family for the model.
3 + 7 = 10 The order of the facts may vary.
7 + 3 = 10
10 − 7 = 3
10 − 3 = 7
10
842

Today's Challenge

Think Use Topic 4 problems any time during this topic.

ENGLISH LANGUAGE LEARNERS

Speaking Share information in cooperative learning groups.

Use with the Solve & Share on Student's Edition p. 267.

Gather students in small cooperative groups to work through the problem in the Solve & Share section. Encourage each group to discuss additional ways they can solve the story problem.

Beginning Pair Beginning students with Advanced proficiency level students. Have the Advanced students guide the Beginning students through the problem in order to act out how many apples are left.

Intermediate Read the problem aloud slowly. Provide students with counters to help them, or pencils or crayons to draw a model. Ask: *How many did Jeff have?* [12] *How many did he give away?* [6] *How can you show how many are left?* [Cross off apples in the drawing, or take counters away.] Ask student groups to work together to act out the story using counters. Ask them to represent the problem together and explain how they solved it.

Advanced Pair students with Beginning proficiency level students. Ask students to point to the numbers they will act out with the counters or draw on paper. Ask them to represent the problem together and explain how they solved it.

Summarize How can you explain a way to solve a subtraction story?

STEP 1

DEVELOP: PROBLEM-BASED LEARNING

COHERENCE: Engage learners by connecting prior knowledge to new ideas.

Students explore different ways to solve subtraction problems and communicate their thinking. This prepares them for the next part of the lesson where they will use strategies such as count, make 10, and think addition to help solve subtraction problems and communicate their reasoning.

10–15 min

PEARSON realize. PearsonRealize.com

Solve

Whole Class BEFORE

1. **Pose the Solve-and-Share Problem**
Provide each pair 20 counters.
MP.3 Explain Students choose a strategy and show their work using objects, drawings, or writing. They then explain their strategy for solving the problem.

2. **Build Understanding**
What does the problem ask you to find? [How many of the 12 apples are left after Jeff gives 6 apples away] *What tools do you have?* [Counters, pencil]

Small Group DURING

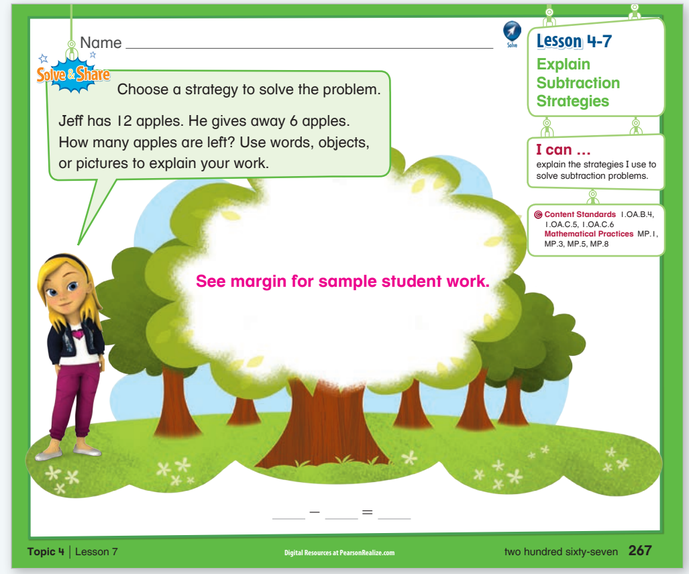
3. **Ask Guiding Questions As Needed**
Should you add or subtract? Why? [Subtract; Jeff gives away 6 apples, so you subtract 6.] *Is there only one way to show how to find the answer?* [No, there is more than one way.]

Whole Class AFTER

4. **Share and Discuss Solutions**
Solve Start with students' solutions. Pick pairs of students who show different ways to solve and explain their answers. If needed, project Linda's work to discuss making 10 to subtract, a strategy students may or may not have used themselves.

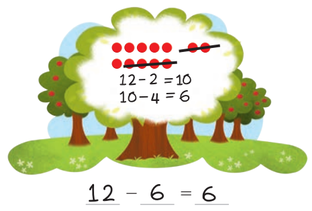
5. **Transition to the Visual Learning Bridge**
You chose a strategy to solve a word problem and explained how you solved it. Later in this lesson, you will learn how you can use different strategies to solve subtraction facts and word problems. By using different strategies, you can solve problems quickly because you can choose strategies that you know and are easy to use.

6. **Extension for Early Finishers**
What if Jeff had 13 apples and he gave away 6? How could you use knowing that 12 − 6 = 6 to help you solve 13 − 6? [Sample answer: 13 is 1 more than 12, so the answer is 1 more than 6.]



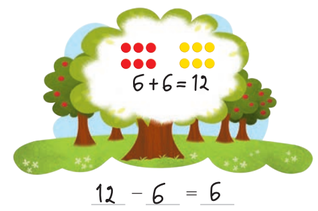
Analyze Student Work

Linda's Work



Linda makes 10 to subtract. She says that she first subtracted 12 − 2 = 10 and then 10 − 4 = 6 to subtract all 6 apples. Linda says 6 apples are left.

Ben's Work



Ben uses the doubles fact 6 + 6 = 12 to solve 12 − 6 = 6. Ben says that he knows that 6 + 6 = 12, and he can use that fact to find 12 − 6 = 6. Ben says 6 apples are left.

STEP 2 DEVELOP: VISUAL LEARNING

The *Visual Learning Bridge* connects students' thinking in Solve & Share to important math ideas in the lesson. Use the *Visual Learning Bridge* to make these ideas explicit. Also available as a *Visual Learning Animation Plus* at PearsonRealize.com

Visual Learning

PEARSON realize. PearsonRealize.com

Learn Glossary

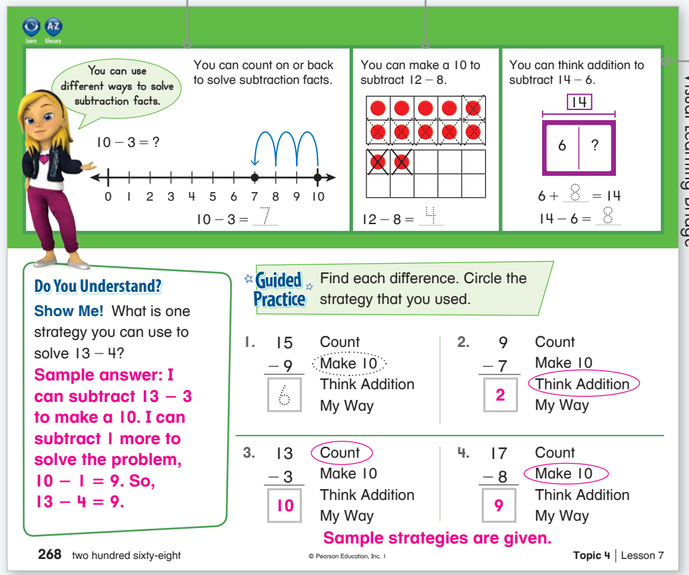
MP.5 Use Appropriate Tools Strategically *How would you count back to solve 10 – 3?* [I would start at 10 and then count back three numbers: 9, 8, 7] *If you counted on to subtract 10 – 3, would you count on from 10 or 3?* [3] *How many hops would it take you to get to 10?* [7 hops] *So, what is 10 – 3?* [7] *How does a number line help with the counting strategy?* [Sample answer: It shows the numbers you count on or back.]

Prevent Misconceptions RtI

If students have difficulty remembering the count on strategy, show how to count on from 3 to 10 using a number line.

How many counters are in the ten-frames? [12] *How many should you cross out to make 10?* [2] *How many more counters should you cross out to solve the problem? Why?* [6; 2 + 6 = 8. 8 should be subtracted from 12.]

What numbers are the same in related addition and subtraction facts? [The parts are the same. The whole is the same.] *What related addition equation can you write for 14 – 6 = ?* [6 + ? = 14 or ? + 6 = 14] *What is the missing part?* [8]



Visual Learning Bridge

Do You Understand? Show Me! **MP.5 Use Appropriate Tools Strategically** Encourage students to use tools such as a double ten-frame and counters to solve the subtraction problem. Discuss how these tools could help with a strategy like make 10. *How many counters go in the ten-frames?* [13] *How many counters should you take away to make 10?* [3] *How many more do you need to take away?* [1] *How many did you take away in all?* [4] *How many counters are left?* [9]

Coherence In the Visual Learning Bridge, students learn that they can use different strategies to solve a subtraction problem. This links back and pulls together their previous work in Topic 4 where students used the strategies of counting on, make 10 to subtract, and using the relationship between addition and subtraction.

Essential Question

Ask the following Essential Question: *What are some different ways to solve subtraction facts? How do you decide which strategy to use?* [Sample answer: Certain strategies work better for solving certain facts. For example, if the number you subtract is 1, 2, or 3, counting back would be an easy strategy to use.]

Error Intervention: Item 2

If students have trouble deciding which strategy to use,

then remind them that they are starting with 9, so it would not make sense to use the Make 10 strategy and that they should consider other strategies.

RtI **Reteaching** Assign Reteaching Set E, page 289.

QUICK CHECK

Check mark indicates items for prescribing differentiation on the next page.
Items 7 and 20 are each worth 1 point. Item 19 is worth up to 3 points.

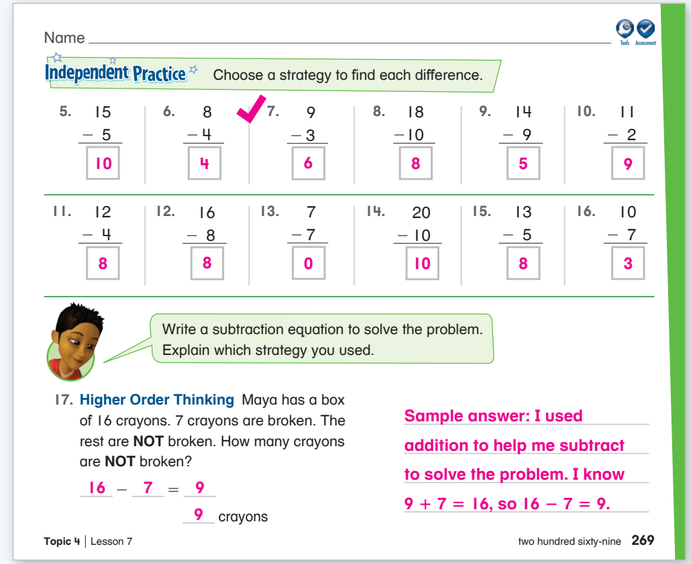
20–30 min

PEARSON realize. PearsonRealize.com

Tools Assessment

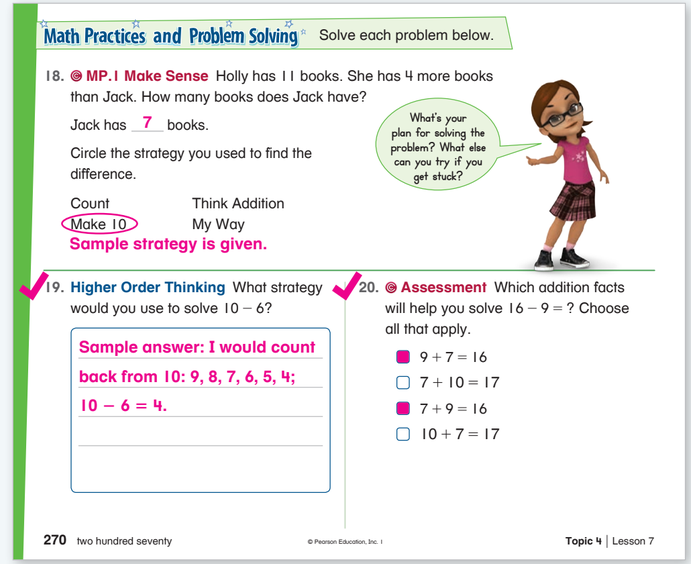
Items 5–16 **MP.8 Generalize** Ask students to discuss the strategies they use. Do they have a favorite strategy? Do they use certain strategies for certain problems? Do they have their own strategy to subtract?

Item 17 Remind students that they need to write a subtraction equation to find the missing part. *What is the missing part in this problem?* [The number of crayons that are not broken] *How can you find the missing part?* [Sample answer: By subtracting 7, the known part and the number of crayons that are broken, from 16]



Item 18 **MP.1 Make Sense and Persevere** If students have trouble deciding which strategy to use, have them read the list of possible strategies and explain how they would use one of them.

Item 20 Remind students that related facts use the same 3 numbers. Encourage them to look for all of the answer choices that use the same numbers as the subtraction fact.



STEP 3

ASSESS AND DIFFERENTIATE

Use the **QUICK CHECK** on the previous page to prescribe differentiated instruction.

I Intervention
0–3 points on the Quick Check

O On-Level
4 points on the Quick Check

A Advanced
5 points on the Quick Check

TIMING
The time allocated to Step 3 will depend on the teacher's instructional decisions and differentiation routines.

15–30 min

PearsonRealize.com
Help Tools Games

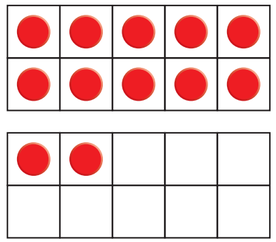
Intervention Activity I

Fish Stories

Materials

Double Ten-Frame Mat (Teaching Tool 12), 16 counters (or Teaching Tool 32) per student

- Write this subtraction story problem on the board: *There are 12 fish. 4 fish swim away. How many fish are left?*
- Guide students to identify 12 as the whole and 4 as a part and write the equation $12 - 4 = ?$ that represents the story.
- Ask students to use their counters and double ten-frame to act out the story to find the missing part. *How many fish are left?* [8]
- Now have students write an addition equation that relates to the story. Make sure students understand that, for the equations to be related, they must use the same 3 numbers.
- Write another fish subtraction story problem on the board and have students repeat the activity.



Reteach I

Name _____ Reteach to Build Understanding 4-7

Vocabulary

1. A **related fact** can help you solve a subtraction problem.

Related facts use the same numbers. Think addition to find the missing number.

Since $3 + \underline{8} = 11$, $11 - 3 = \underline{8}$.

2. You can also make 10 to solve a subtraction problem. You can use counters to help you.

$14 - 5 = ?$

$14 - \underline{4} = \underline{10}$

$10 - \underline{1} = \underline{9}$

$14 - 5 = \underline{9}$

3. Use a related addition fact, counting, or make 10 to complete the equation. Show your work. **Check students' work.**

$11 - 2 = \underline{9}$

On the Back! **Check students' work.**

4. Find $15 - 9$. Use a related addition fact, counting, or make 10 to solve the subtraction fact.

Technology Center I O A

Tools Games

Math Tools and Math Games

A link to a specific math tools activity or math game to use with this lesson is provided at PearsonRealize.com.

Leveled Assignment

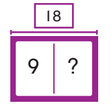
I Items 1–4, 7 O Items 2–5, 7 A Items 3–7

Name _____ Help Tools Games

Another Look! You can use different strategies to solve problems.

Use an addition fact to solve a related subtraction problem.

$18 - 9 = ?$

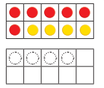


$9 + 9 = 18$

$18 - 9 = 9$

Count on to make 10.

$14 - 6 = ?$



$6 + \underline{4} = 10$

$10 + \underline{4} = 14$

$14 - 6 = \underline{8}$

Homework & Practice 4-7
Explain Subtraction Strategies

HOME ACTIVITY Write a subtraction equation like $19 - 9 = ?$ Ask your child to solve the problem. Ask what strategy he or she used to solve the problem, for example, making 10, using a related addition fact, counting, or another strategy.

Find each difference. Circle the strategy that you used.

1. 11 − 5 = 6 — Think: 11 is close to 10. Count | (Make 10) | Think Addition My Way

2. 15 − 9 = 6 — Think: Can an addition fact I know help me? Count | Make 10 | (Think Addition) My Way

Find each difference. Circle the strategy that you used.

3. 15 − 7 = 8 — Count | (Make 10) | Think Addition My Way

4. 14 − 5 = 9 — (Count) | Make 10 | Think Addition My Way

5. 14 − 9 = 5 — Count | Make 10 | (Think Addition) My Way

Sample strategies are given.

6. **Higher Order Thinking** Use pictures, numbers, or words to solve the problem.

Beth finds 13 dolls in her room.
4 of the dolls have curly hair.
How many dolls do **NOT** have curly hair?

Check students' work.

13 − 4 = 9 dolls

7. **Assessment** Ben has 10 baseballs. Andy has 2 fewer than Ben. How many baseballs does Andy have?

Which addition facts could help you solve the problem? Choose all that apply.

- ☐ $10 + 0 = 10$
- ☑ $8 + 2 = 10$
- ☐ $9 + 1 = 10$
- ☑ $2 + 8 = 10$

On-Level and Advanced Activity Centers O A

Problem-Solving Reading Mat

Have students read the Problem-Solving Reading Mat for Topic 4 and then complete Problem-Solving Reading Activity 4-7.

See the Problem-Solving Reading Activity Guide for other suggestions on how to use this mat.

LESSON 4-8

SOLVE WORD PROBLEMS WITH FACTS TO 20

DIGITAL RESOURCES PearsonRealize.com

- eText — Student and Teacher eTexts
- PD — Listen and Look For Lesson Video
- Think — Today's Challenge
- Solve — Solve and Share
- Learn — Visual Learning Animation Plus
- Glossary — Animated Glossary
- Tools — Math Tools
- Assessment — Quick Check
- Help — Another Look Homework Video
- Games — Math Games

LESSON OVERVIEW FOCUS • COHERENCE • RIGOR

FOCUS

Domain **1.OA** Operations and Algebraic Thinking

Cluster **1.OA.A** Represent and solve problems involving addition and subtraction.

Content Standard **1.OA.A.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.

Mathematical Practices **MP.1, MP.2, MP.6**

Objective Solve different types of addition and subtraction problems with unknowns in different positions.

Essential Understanding Objects, drawings, and equations can help you solve different types of word problems.

Materials Counters (or Teaching Tool 32)

COHERENCE

In Grade K, students were exposed to four basic types of word problems — add to, result unknown; take from, result unknown; put together/take apart, total unknown, and both addends unknown. This lesson pulls together students' work so far in Grade 1 which expands problem types to include comparison situations and problems with unknowns in different positions.

RIGOR

This lesson emphasizes **application**. Students apply their knowledge and understanding of addition and subtraction to solve word problems of different types. Students will encounter many types of mathematical problems in life. The different problem types in this lesson will begin to prepare them for math problems they will encounter later both inside and outside of school.

PD Watch the Listen and Look For Lesson Video.

MATH ANYTIME

Daily Common Core Review

Name _____ Daily Common Core Review 4-8

1.OA.C.6
1. Which doubles-plus-2 fact does the picture show?

- Ⓐ 5 + 2 = 7
- ● 6 + 8 = 14
- Ⓒ 7 + 9 = 17
- Ⓓ 8 + 10 = 18

1.OA.A.1
2. 5 cats sit on a fence.
0 cats run away when they see a bird.
How many cats are still on the fence?

- Ⓐ 0 cats
- Ⓑ 2 cats
- Ⓒ 4 cats
- ● 5 cats

1.OA.C.6
3. Write an equation to solve the problem.
Jenna and Max each eat 7 cherries.
Then Jenna eats 1 more.
How many cherries did they eat in all?

7 + 8 = 15 cherries

Today's Challenge

Think Use Topic 4 problems any time during this topic.

ENGLISH LANGUAGE LEARNERS ELL

Speaking Express opinions on academic topics.

Use with the Solve and Share in Student's Edition, p. 273.

Read the Solve and Share to the students. Ask students to think about which way is best for solving the problem and then turn and talk to a partner to share their opinions.

Beginning Reread the Solve and Share to the students. Discuss each of the methods mentioned in the last sentence to solve the problem. Say: *How could we use objects to find how many books were on the shelf to start?* Act out with students and repeat with drawings and an equation. Ask student to share their favorite method.

Intermediate Read the Solve and Share with the students. Ask: *In your opinion, which way is the best way to solve the problem? Why?* Students will share their opinions with the group using the following sentence frame: _____ is best because _____.

Advanced Students will read the Solve and Share with partners. Ask the students to think about the best way for solving the problem and why that method is the best. Students will share their opinions with partners.

Summarize You can use objects, drawings, or equations to help solve problems.

STEP 1

DEVELOP: PROBLEM-BASED LEARNING

COHERENCE: Engage students by connecting prior knowledge to new ideas.

Students solve an add to, start unknown problem in the Solve and Share. This prepares them for later in the lesson where they will solve other more challenging problem types.

10–15 min

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Solve

Whole Class BEFORE

1. **Pose the Solve-and-Share Problem**
Provide each student 20 counters.
MP.1 Make Sense Students solve a more challenging start unknown problem. They need to see how a drawing, objects, or an equation can help them make sense of the situation.

2. **Build Understanding**
What are you asked to find? [How many books there were in the beginning] *What do you already know?* [I know that Aiden put 4 more books on the shelf and now there are 12 books.] *What materials do you have to help solve the problem?* [I can use counters or a pencil.]

Small Group DURING

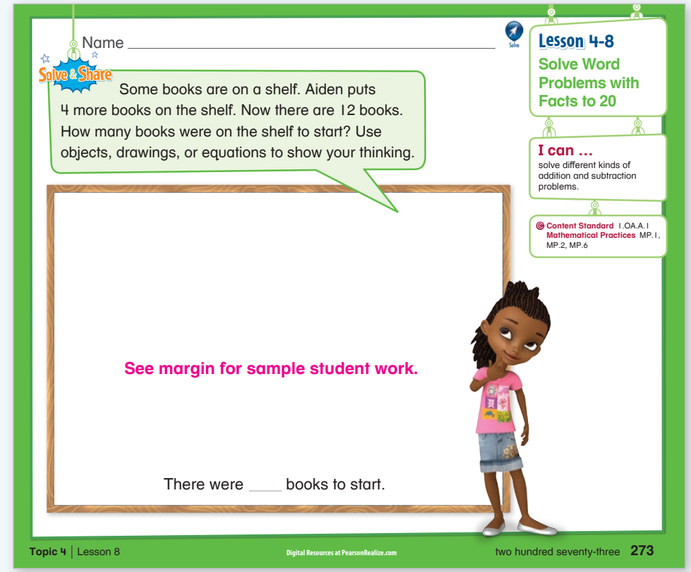
3. **Ask Guiding Questions As Needed**
How could you show the number of books on the shelf at the end with counters? [I could use 12 counters.] *How many of those counters would show the number of books Aiden put on the shelf?* [4]

Whole Class AFTER

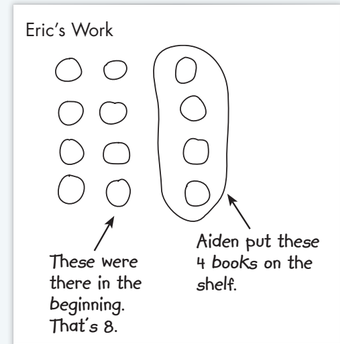
4. **Share and Discuss Solutions**
Solve Start with students' solutions. Have them share the strategies used to solve the problem. If needed, project and analyze Eric's work to show how using manipulatives can help solve this problem.

5. **Transition to the Visual Learning Bridge**
You solved a problem where you did not know the starting number. You used objects, drawings, and equations to help. Later in the lesson, you will solve different types of problems where you can use drawings and objects to help.

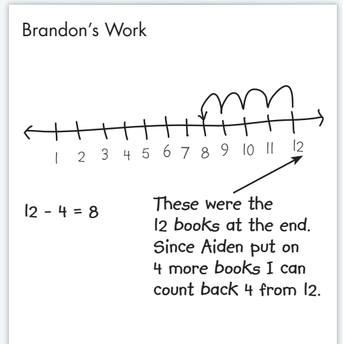
6. **Extension for Early Finishers**
Students who finish early should be encouraged to write an equation with an unknown to match what happens in the word problem.



Analyze Student Work



Eric uses a drawing of counters and words to show his thinking. He starts on the right with the 4 books Aiden puts on the shelf. He counts up from 4 to 12 to show the 8 books that were on the shelf at the beginning.



Brandon decides to use a number line and subtraction to find how many books were on the shelf to start. He begins with the 12 books and then counts back the 4 books that Aiden put on the shelf. While his method does not directly model an addition-based start unknown problem like Eric's method, his explanation and method make sense.

STEP 2 DEVELOP: VISUAL LEARNING

The *Visual Learning Bridge* connects students' thinking in Solve & Share to important math ideas in the lesson. Use the *Visual Learning Bridge* to make these ideas explicit. Also available as a *Visual Learning Animation Plus* at PearsonRealize.com

Visual Learning

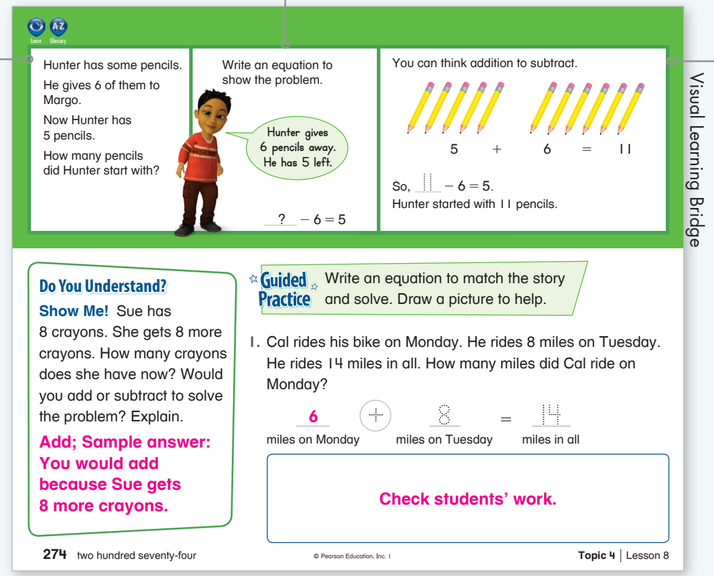
PEARSON realize. PearsonRealize.com

Learn Glossary

What are you asked to find? [How many pencils Hunter had in the beginning] *What do you already know?* [I know that he gave Margo 6 pencils and that he had 5 in the end.]

MP.2 Reasoning *Should Hunter have more or less than 5 pencils in the beginning of the story?* [More because he gave some away and now he has 5] *How can you tell if this problem is an addition or subtraction situation?* [Sample answer: Since Hunter gave away 6 pencils, we have to subtract to find out how many he had in the beginning.]

How does 5 + 6 = 11 help you find __ – 6 = 5? [Sample answer: I know that 5 and 6 make 11; I also know from the subtraction problem that one part of 11 is 5 and the other part is 6, so the starting number of pencils must be 11.]


Learn Glossary

Hunter has some pencils.
He gives 6 of them to Margo.
Now Hunter has 5 pencils.
How many pencils did Hunter start with?

Write an equation to show the problem.

Hunter gives 6 pencils away. He has 5 left.

? – 6 = 5

You can think addition to subtract.

5 + 6 = 11

So, 11 – 6 = 5.
Hunter started with 11 pencils.

Visual Learning Bridge

Do You Understand?

Show Me! Sue has 8 crayons. She gets 8 more crayons. How many crayons does she have now? Would you add or subtract to solve the problem? Explain.

Add; Sample answer: You would add because Sue gets 8 more crayons.

Guided Practice Write an equation to match the story and solve. Draw a picture to help.

1. Cal rides his bike on Monday. He rides 8 miles on Tuesday. He rides 14 miles in all. How many miles did Cal ride on Monday?

6 (miles on Monday) + 8 (miles on Tuesday) = 14 (miles in all)

Check students' work.

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Do You Understand? Show Me! **MP.6 Be Precise** Have students use precise language to explain their thinking. See if they communicate their answers clearly to others. Have them tell which operation symbol they would use to solve the problem after deciding to add or subtract.

Coherence The above problem about Hunter's pencils shows coherence by connecting word problems in this lesson to subtraction strategies learned earlier in this topic and grade. Student's use the Think Addition strategy to help solve a take from, start unknown problem.

Essential Question

Ask the following Essential Question: *How can objects, drawings, and equations help you solve different types of word problems?* [Sample answer: They can help you show the problem so you understand it. Once you understand the problem, you can solve it.]

Error Intervention: Item 1

If students have difficulty completing the equation,

then have them use counters to act out the problem situation.

RtI **Reteaching** Assign Reteaching Set F, p. 290.

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Tools Assessment

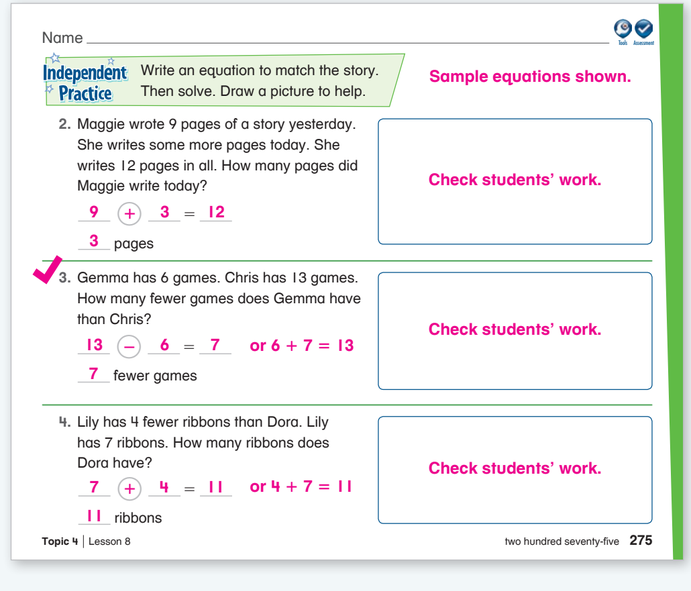
QUICK CHECK

Check mark indicates items for prescribing differentiation on the next page.
Items 3 and 7 are each worth 1 point. Item 6 is worth up to 3 points.

20–30 min

Items 2–4 *How does drawing a picture help you solve a problem?* [Sample answer: I can use my drawing to solve and check the answer to my equation.]

Item 4 **MP.2 Reasoning** The word *fewer* may make this seem like a subtraction problem to students. Discuss the problem with students so they see how addition is used to solve this comparison problem. *Does Lily have more or fewer ribbons than Dora?* [Lily has fewer ribbons than Dora.] *How many fewer ribbons does Lily have than Dora?* [4] *If Lily has 4 fewer ribbons than Dora, how many more ribbons does Dora have than Lily?* [Dora has 4 more ribbons than Lily.] *Lily has 7 ribbons. Dora has 4 more ribbons than Lily. Do you add or subtract to find how ribbons Dora has?* [Add.]


Name _____ Tools Assessment

Independent Practice Write an equation to match the story. Then solve. Draw a picture to help.

Sample equations shown.

2. Maggie wrote 9 pages of a story yesterday. She writes some more pages today. She writes 12 pages in all. How many pages did Maggie write today?

9 + 3 = 12

3 pages

Check students' work.

3. Gemma has 6 games. Chris has 13 games. How many fewer games does Gemma have than Chris?

13 – 6 = 7 or 6 + 7 = 13

7 fewer games

Check students' work.

4. Lily has 4 fewer ribbons than Dora. Lily has 7 ribbons. How many ribbons does Dora have?

7 + 4 = 11 or 4 + 7 = 11

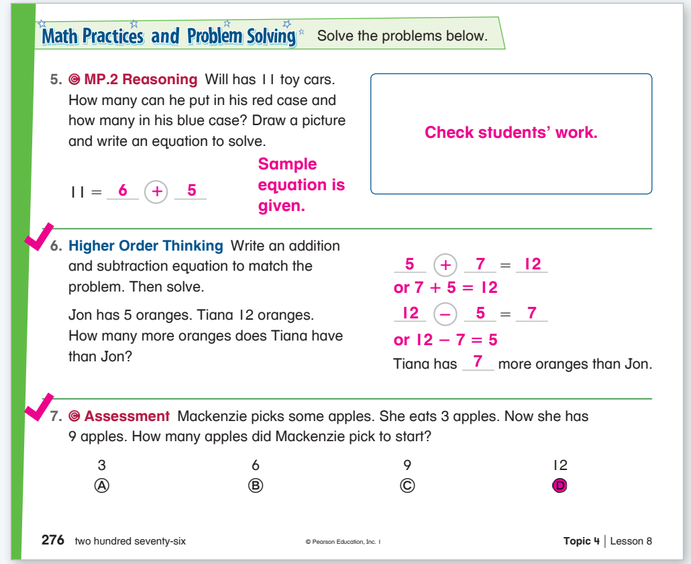
11 ribbons

Check students' work.

Topic 4 | Lesson 8 two hundred seventy-five 275

Item 5 **MP.2 Reasoning** Have students think about the parts and the whole to solve this problem. *What do you know?* [Will has 11 toy cars; he wants to put some in his red case and some in his blue case.] *What do you need to find?* [How many toys Will puts in each case] *What is your plan for solving the problem?* [Sample answer: I will draw a picture to help me find the parts, and then I will write an equation to match the problem.]

Item 6 Students may solve this comparison problem at first by writing a subtraction equation. Have them think addition to write the related addition equation.


Math Practices and Problem Solving Solve the problems below.

5. **MP.2 Reasoning** Will has 11 toy cars. How many can he put in his red case and how many in his blue case? Draw a picture and write an equation to solve.

11 = 6 + 5

Sample equation is given.

Check students' work.

6. **Higher Order Thinking** Write an addition and subtraction equation to match the problem. Then solve.

Jon has 5 oranges. Tiana 12 oranges. How many more oranges does Tiana have than Jon?

5 + 7 = 12 or 7 + 5 = 12

12 – 5 = 7 or 12 – 7 = 5

Tiana has 7 more oranges than Jon.

7. **Assessment** Mackenzie picks some apples. She eats 3 apples. Now she has 9 apples. How many apples did Mackenzie pick to start?

3	6	9	12
Ⓐ	Ⓑ	Ⓒ	Ⓓ

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STEP 3 ASSESS AND DIFFERENTIATE

Use the **QUICK CHECK** on the previous page to prescribe differentiated instruction.

I Intervention
0–3 points on the Quick Check

O On-Level
4 points on the Quick Check

A Advanced
5 points on the Quick Check

TIMING
The time allocated to Step 3 will depend on the teacher's instructional decisions and differentiation routines.

15–30 min

PearsonRealize.com
Help Tools Games

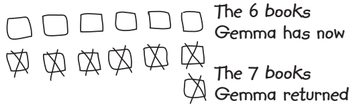
Intervention Activity I

Two Methods

- Have students work in pairs or in groups of 3.
- Read students this problem.

Gemma has some library books. She returns 7 books. Now she has 6 books.
How many books did Gemma have to start?

- Have students work together to solve the problem and to write a matching equation. Ask students to show their work.



_____ – 7 = 6

6 + 7 = 13

So, 13 – 7 = 6.

Gemma had 13 books to start.

Reteach I

Name _____ Reteach to Build Understanding 4-8

Vocabulary

1. You can write an **equation** to match a word problem.

Sharon has 5 green marbles.
She has 8 blue marbles.
How many marbles does she have in all?

Write an addition equation to match this problem.
5 (Green Marbles) + 8 (Blue marbles) = 13 (Marbles in All)
Sharon has 13 marbles in all.

2. Add to solve the problem. Show your work.

Maria reads some pages in her book on Wednesday. She reads 9 pages in her book on Thursday. She reads 19 pages in all. How many pages does she read on Wednesday?
Sample answer is shown
10 + 9 = 19
10 pages on Wednesday

Check students' work.

On the Back!

3. Write a number story for 16 – 8 = ?. Then solve the equation. **Check students' work.**

Technology Center I O A

Tools Games

Math Tools and Math Games

A link to a specific math tools activity or math game to use with this lesson is provided at PearsonRealize.com.

Leveled Assignment

I Items 1–2, 4 O Items 2–4 A Items 2–4

Name _____ Help Tools Games

Another Look! You can solve word problems even when you do not know the starting number.

Carrie works on Monday and Tuesday.
She works 10 hours on Tuesday.
She works 20 hours in all.
How many hours did Carrie work on Monday?

I start with 10 and count on until I get to 20.

Write an equation to show the problem.

10 (Hours on Monday) + 10 (Hours on Tuesday) = 20 (Hours in All)

Carrie worked 10 hours on Monday.

Homework & Practice 4-8
Solve Word Problems with Facts to 20

HOME ACTIVITY Give your child the following problem: I have some pennies in my hand. I put 3 in a piggy bank. Now I have 8 pennies in my hand. How many pennies did I have to start with? Think of other word problems or ask your child to come up with a problem that involves adding to or subtracting from an unknown amount.

Write an equation to match the story. Then solve. Draw a picture to help.

1. Jim picks some red flowers. He also picks 7 yellow flowers. He picks 15 flowers in all. How many red flowers did Jim pick?

8 + 7 = 15
8 red flowers

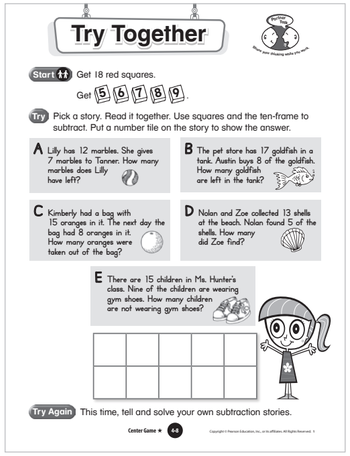
Check students' work.

On-Level and Advanced Activity Centers O A

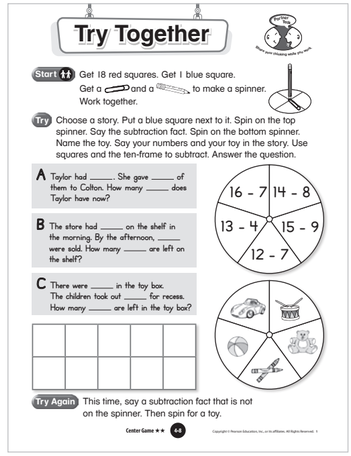
Center Games

Students work in pairs in the On-Level version to solve word problems. They work in pairs in the Advanced version to complete word problems based on an equation.

★ On-Level



★★ Advanced



Add or subtract to solve each problem.

2. **MP.2 Reasoning** Sloane has 13 dollars. She spends 5 dollars at the store. How many dollars did Sloane have left? Draw a picture and write an equation to solve.

13 – 5 = 8
8 dollars
Sample equation shown.

Check students' work.

3. **Higher Order Thinking** Write an addition and a subtraction equation to match the problem. Then solve.

Li has 14 crackers. Joe has 8 crackers. How many more crackers does Li have than Joe?

8 + 6 = 14
14 – 6 = 8
Li has 6 more crackers than Joe.

4. **Assessment** Charlie makes some muffins for a bake sale. Then he makes 8 more muffins. Now he has 11 muffins. How many muffins did Charlie make at first?

19 Ⓐ 11 Ⓑ 8 Ⓒ 3 Ⓓ

MATH PRACTICES AND PROBLEM SOLVING | LESSON 4-9

REASONING

DIGITAL RESOURCES PearsonRealize.com

- eText — Student and Teacher eTexts
- PD — Listen and Look For Lesson Video
- Think — Today's Challenge
- Solve — Solve and Share
- Learn — Visual Learning Animation Plus
- MP — Math Practices Animations
- Glossary — Animated Glossary
- Tools — Math Tools
- Assessment — Quick Check
- Help — Another Look Homework Video
- Games — Math Games

LESSON OVERVIEW FCR FOCUS • COHERENCE • RIGOR

FOCUS

Mathematical Practices

MP.2 Reason abstractly and quantitatively. Also **MP.1, MP.3, MP.4, MP.6**

Content Standard 1.OA.A.1

Objective Use reasoning to write and solve number stories.

Essential Understanding Good math thinkers know how to think about words and numbers to solve problems.

Materials Counters (or Teaching Tool 32)

COHERENCE

Students have used MP.2 throughout the program prior to this lesson. Use this lesson to stop and focus on the Thinking Habits good problem solvers use when they reason about quantities. In this lesson, students show such reasoning by being able to contextualize an addition or subtraction situation with a story and decontextualize the story by completing a matching equation. Instruction during this lesson should focus on reasoning and understanding rather than computational skills.

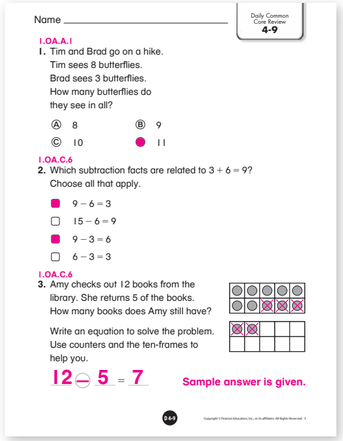
RIGOR

This lesson emphasizes **application**. Rigorous mathematics instruction calls for the selection, use, and management of multiple mathematical practices. All of the problems in this lesson elicit the use of multiple mathematical practices. Use the thinking habits shown in the Solve & Share task to help focus thinking on MP.2 in the lesson.

PD Watch the Listen and Look For Lesson Video.

MATH ANYTIME

Daily Common Core Review


Name _____ Daily Common Core Review 4-9

1.OA.A.1
1. Tim and Brad go on a hike. Tim sees 8 butterflies. Brad sees 3 butterflies. How many butterflies do they see in all?
Ⓐ 8 Ⓑ 9 Ⓒ 10 ● 11

1.OA.C.6
2. Which subtraction facts are related to 3 + 6 = 9? Choose all that apply.
● 9 − 6 = 3
□ 15 − 6 = 9
● 9 − 3 = 6
□ 6 − 3 = 3

1.OA.C.6
3. Amy checks out 12 books from the library. She returns 5 of the books. How many books does Amy still have?
Write an equation to solve the problem. Use counters and the ten-frames to help you.
12 − 5 = 7
Sample answer is given.

Today's Challenge

Think Use Topic 4 problems any time during this topic.

ENGLISH LANGUAGE LEARNERS ELL

Speaking Explain content area information.

Use with the Visual Learning Bridge on Student's Edition p. 280.

Read the Visual Learning Bridge to the students. Help them make up their math stories by asking questions such as: *What will your story be about?* Providing information can help give them encouragement to translate visuals they may see in their heads to spoken words that relate to the problems.

Beginning Point to the equation 5 + 7 = 12 on the Visual Learning Bridge. Then read the example story. Say: *This story is about bugs. What will your story be about?* Help students to replace words in the story with words that match students' new ideas.

Intermediate Underline words in the Visual Learning Bridge story that can be replaced, such as *bugs, fly* and *garden*. Help students to replace these words with words about a new topic. Ask students to retell their math stories.

Advanced Ask students to describe what they would like their story to be about. Encourage them to dictate their own story to you as you write it.

Summarize How can you write a story to match an equation?

STEP 1 **DEVELOP:** PROBLEM-BASED LEARNING

COHERENCE: Engage learners by connecting prior knowledge to new ideas.

Students write a number story for a subtraction fact and then write an equation to match their story. This prepares them for the next part of the lesson where they learn how to write number stories and complete equations for both addition and subtraction problems.

10–15 min

Solve

Whole Class **BEFORE**

1. **Pose the Solve-and-Share Problem**
MP.2 Reasoning In the problem, students write a number story for a subtraction problem. To do this, they will need to create a context while attending to the meanings of the quantities that are given.

2. **Build Understanding**
What are you asked to do? [Write a number story for 14 − 8, and then write an equation to match the story] *What operation will your story show, addition or subtraction?* [Subtraction]

Small Group **DURING**

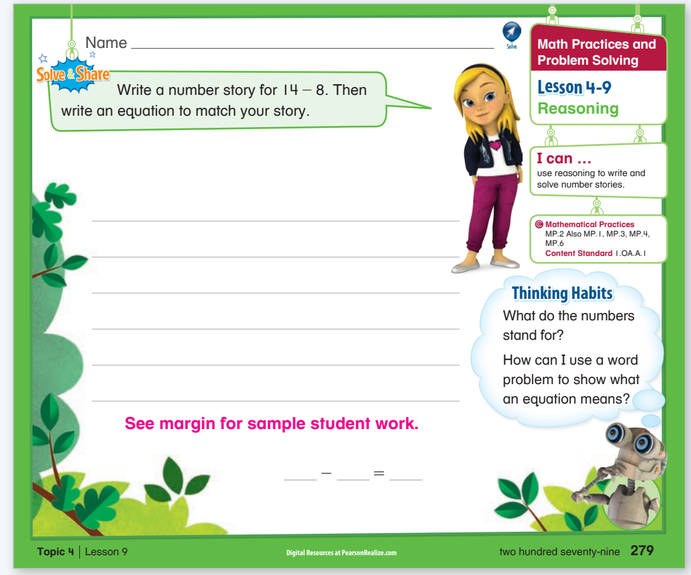
3. **Ask Guiding Questions As Needed**
What numbers should you use in your subtraction story? [14 and 8] *What is one way to think of or act out subtraction?* [Sample answer: You can think of taking or giving away something.]

Whole Class **AFTER**

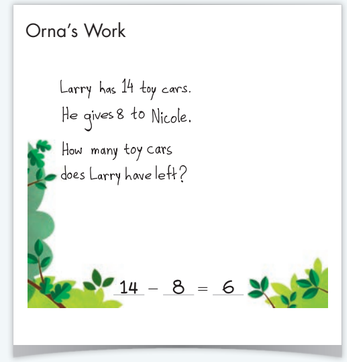
4. **Share and Discuss Solutions**
Solve Start with students' solutions. Have them share the stories they created. If needed, project Orna's work to discuss how she created a story problem and wrote an equation for her story.

5. **Transition to the Visual Learning Bridge**
You wrote a number story for a subtraction fact and then wrote an equation to match your number story. Later in this lesson, you will learn how to think about what the numbers and symbols in a problem mean in order to write a number story.

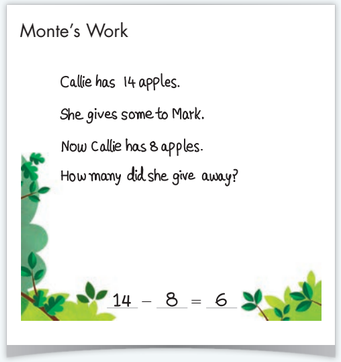
6. **Extension for Early Finishers**
Write a number story about a doubles fact. [Answers will vary.]



Analyze Student Work



Orna writes a take from subtraction problem. She correctly writes an equation to match the story.



Monte also writes a take from problem, but his problem has the change unknown. The problem can be more accurately modeled with the equation 14 − 6 = 8, but Monte should be credited with writing a challenging word problem.

STEP 2

DEVELOP: VISUAL LEARNING

The *Visual Learning Bridge* connects students' thinking in Solve & Share to important math ideas in the lesson. Use the *Visual Learning Bridge* to make these ideas explicit. Also available as a *Visual Learning Animation Plus* at PearsonRealize.com

Visual Learning

PEARSON realize. PearsonRealize.com

Learn Glossary

Look at the problem. What kind of story will you write, an addition story or a subtraction story? [Addition story]

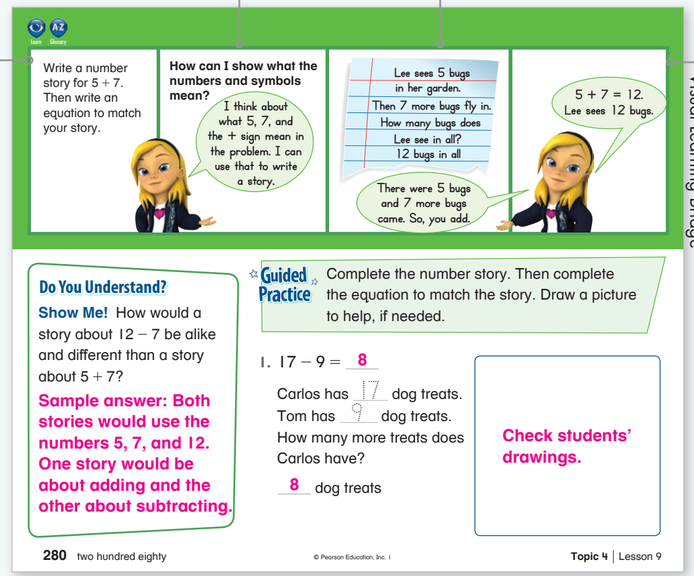
MP.2 Reasoning *What does the symbol, +, mean?* [It is the plus sign and it means that I am going to add.] *What numbers will you add in this problem?* [5 and 7] *What kind of number story can you write?* [I can write a problem about joining or a problems about two parts of a whole.]

Prevent Misconceptions RtI

Some students may have difficulty creating story problems. Encourage them to model the equations with counters before they write their stories.

Is this the only story problem for 5 + 7 = 12? Explain. [No; there are other stories. Accept other reasonable stories.]

MP.6 Be Precise *How could you check the story?* [By seeing if the number story matches the equation 5 + 7 = 12]



Do You Understand? Show Me! **MP.2 Reasoning** Ask students to tell a story for 12 − 7 and a story for 5 + 7. Then have other students describe how the stories are alike and how they are different.

Essential Question

Ask the following Essential Question: *How can you write a word problem for an equation?* [Sample answer: First decide what action can be shown by the operation in the equation (getting more, taking away, and so on). Then use the numbers in the problem to write an equation.]

Error Intervention: Item 1

If students have trouble completing the number story and the equation,

then suggest that they draw a picture or use counters to act out the number story.

RtI **Reteaching** Assign Reteaching Set G, page 290.

PEARSON realize. PearsonRealize.com

Tools Assessment

QUICK CHECK

Check mark indicates items for prescribing differentiation on the next page. Items 3 and 4 are each worth 1 point. The Performance Assessment on page 282 is worth up to 3 points.

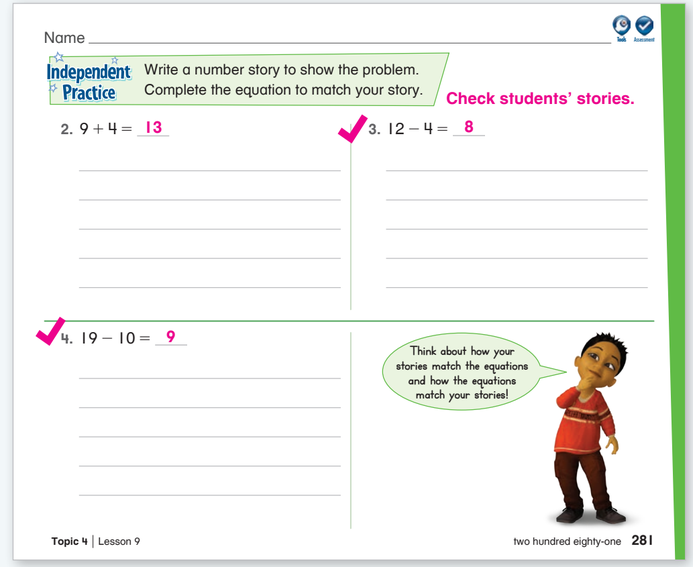
20–30 min

MP.2 Reasoning Listen and look for these behaviors as evidence that students are exhibiting proficiency with MP.2.

- identifies and understands the quantities in the problem
- shows and explains how quantities are related
- translates real-world contexts correctly to numbers, expressions, equations, or concrete or pictorial representations
- connects numbers, expressions, equations, or concrete or pictorial representations back to real-world contexts

Items 2–4 **MP.1 Make Sense and Persevere** Remind students to read the equations and decide whether their stories or drawings will be about joining or taking away. If students have difficulty choosing a subject for their stories or drawings, encourage them to think about their activities or interests outside of school.

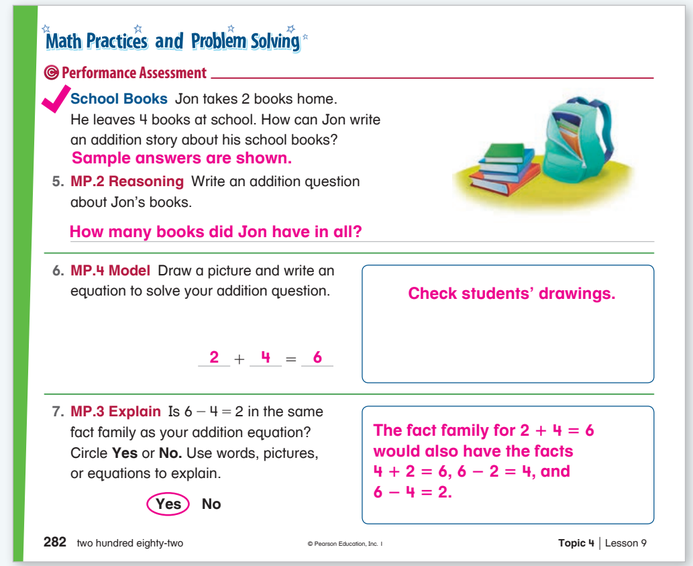
Items 2–4 If students have difficulty completing the equation, remind them that they can draw a picture or use counters to help them.



Item 5 **MP.2 Reasoning** Encourage students to gather information from the text that they will need in order to write an addition question. *How many books does Jon take home?* [2] *How many books does Jon leave at school?* [4] *How could you show addition with the books?* [Sample answer: Join them together.]

Item 6 **MP.4 Model with Math** If students are having difficulty drawing a picture for their addition question, you may wish to have them first model the question using counters or actual books.

Item 7 **MP.3 Construct Arguments** Ask students to identify the whole and the parts in each equation. *What is the whole in 6 − 2 = 4?* [6] *What are the parts in your equation?* [2 and 4] *What is the whole in your equation in Item 6?* [6] *Are the parts and the whole the same in each equation?* [Yes] *Are the two equations in the same fact family?* [Yes]



STEP 3

ASSESS AND DIFFERENTIATE

Use the **QUICK CHECK** on the previous page to prescribe differentiated instruction.

I Intervention
0–3 points on the Quick Check

O On-Level
4 points on the Quick Check

A Advanced
5 points on the Quick Check

TIMING
The time allocated to Step 3 will depend on the teacher's instructional decisions and differentiation routines.

15–30 min

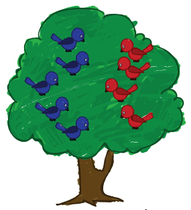
PearsonRealize.com
Help Tools Games

Intervention Activity I

How Many Animals?

Materials
12 counters per pair (Teaching Tool 32)

- On the board, write 4 + 5 = 9.
- Ask students to help you make up an animal story about the equation. *Do the animals join together or are some taken away?* [They join together.]
- Work with students to write a story on the board. Then have them use counters to act out the story. Have students draw a picture to show how many animals in all.



Reteach I

Name _____ Reteach to Build Understanding 4-9

Vocabulary

1. 4 + 6 = 10 is an **equation**. An equation can also show subtraction. Solve this equation.
10 − 6 = 4

2. You can use counters to model an equation.
6 + 7 = 13
You can write a story to describe the addition or subtraction. Fill in the blanks to complete this story.
Mary has 6 books. She buys 7 more.
How many books does Mary have now? 13

3. Write a story to match the equation and the model.
11 − 4 = 7
Check students' stories.

On the Back!

4. Write an equation. Then write a story to match.
Check students' work.

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Technology Center I O A

Tools Games

Math Tools and Math Games

A link to a specific math tools activity or math game to use with this lesson is provided at PearsonRealize.com.

Leveled Assignment

I Items 1–5 (with help as needed) O Items 1–5 A Items 1–5

Name _____ Help Tools Games

Homework & Practice 4-9
Reasoning

HOME ACTIVITY Write problems such as 15 − 9 = ___ and 7 + 9 = ___. Ask your child to write or say a number story about the problem. Then have him or her complete the equation to match the story.

Another Look! You can write a number story for each problem. Then you can complete the equation to match.

12 − 5 = 7
Cindy picks 12 lemons.
She gives 5 away.
How many lemons does Cindy have now?
Now Cindy has 7 lemons.

9 + 5 = 14
Sarah picks 9 flowers.
Then she picks 5 more.
How many flowers does Sarah pick in all?
Sarah picks 14 flowers in all.

Write a number story to show the problem. Complete the equation to match your story.

1. 14 − 8 = 6
Check students' work.

2. 8 + 8 = 16
Check students' work.

Topic 4 | Lesson 9 Digital Resources at PearsonRealize.com two hundred eighty-three 283

On-Level and Advanced Activity Centers O A

Name _____ Math and Science Activity 4-9

Pictures in the Sky

Did You Know? There are more stars than anyone can count. Sometimes the stars form pictures in the sky called constellations.

Use the table to solve the problems below.

Constellation	Cepheus	Cassiopeia	Ursa Major	Ursa Minor	Draco
Number of Stars	5	6	12	7	14

1. How many more stars does Ursa Major have than Ursa Minor? Write an equation to show.
12 − 7 = 5
Ursa Major has 5 more stars.

2. How many fewer stars does Cassiopeia have than Draco? Write an equation to show.
8 + 14 − 6 = 8
Cassiopeia has 8 fewer stars.

3. How many fewer stars does Cepheus have than Ursa Minor? Write an equation to show.
7 − 5 = 2
Cepheus has 2 fewer stars.

4. **Extension** Write a comparison story about two constellations in the table. Solve your number story. Write an equation to show your work. Check students' work.

Math and Science Activity 4-9 Copyright © Pearson Education, Inc., or its affiliates. All Rights Reserved.

Math and Science Activity STEM

This activity revisits the science theme, **Pattern of Day and Night**, introduced on page 227 in the Student's Edition.

Sample Student Work

How many more stars does Ursa Major have than Cassiopeia?

6 + 6 = 12, so 12 − 6 = 6.

Ursa Major has 6 more

Performance Assessment

Socks Melissa finds 5 blue socks. Then she finds 3 purple socks. She writes addition and subtraction stories about the socks.

3. **MP.2 Reasoning** Melissa writes this question about the socks:
How many socks did I find in all?
Write an equation to solve Melissa's question. **Sample answers shown.**
5 + 3 = 8 8 socks

4. **MP.2 Reasoning** Melissa writes another question about the socks:
How many more blue socks than purple socks did I find?
Write an equation to solve Melissa's question.
5 − 3 = 2 2 more blue socks

5. **MP.3 Explain** Melissa says the addition and subtraction equations for her problems are related facts. Is Melissa correct? Circle **Yes** or **No.** Use words, pictures, or equations to explain.
Yes (No)
5 + 3 = 8 and 5 − 3 = 2 don't use the same numbers.

284 two hundred eighty-four © Pearson Education, Inc. 1 Topic 4 | Lesson 9

FLUENCY PRACTICE ACTIVITY

Students practice fluently adding and subtracting within 10 during a partner activity that reinforces mathematical practices.

Common Core Standards

Content Standard **1.OA.C.6** Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.

Mathematical Practices **MP.6, MP.7, MP.8**

Getting Started Ask students to work with a partner. Provide crayons of the colors needed for the activity. Tell students to record their answers and color the squares on their own page. Go over the directions.

Remind students to find all of the sums and differences on the page.

As Students Do the Activity Remind students that each color reveals a letter. When all of the letters are colored correctly, a word is revealed. Tell students that if the squares they have colored do not do this, then there is an error and they need to double check their work. Remind students to compare and discuss their answers.

Another Activity Ask students to write a new addition or subtraction problem that has the same sum or difference as the original problem shown in each square. Have students record their problems along with the answers on a separate sheet of paper.

Extra Challenge *Look at the original problem and the answer you wrote in each square. If the problem is an addition problem, use the same numbers to write a correct subtraction problem. If the problem is a subtraction problem, use the numbers to write a correct addition problem. Work with a partner. Record your problems on a separate sheet of paper.*

Steps to Fluency Success To ensure all students achieve fluency, see pages 75M–75P for additional resources including practice/assessment masters on fluency subskills. You can also use the ExamView® CD-ROM to generate worksheets with multiple-choice or free-response items on fluency subskills.

Games **Online Game** The Game Center at PearsonRealize.com provides opportunities for fluency practice.

Name _____

Show the Word

Color these sums and differences. Leave the rest white.

6 7 4

TOPIC 4 Fluency Practice Activity

I can ... add and subtract within 10.

Content Standard 1.OA.C.6

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

The word is T O P

Topic 4 | Fluency Practice Activity two hundred eighty-five 285

TOPIC 4 Vocabulary Review

A-Z Glossary

Word List
- difference
- doubles fact
- fact family
- related facts

Understand Vocabulary

1. Cross out the numbers below that do **NOT** show the difference for 18 − 8.

~~16~~ ~~14~~ ~~11~~ 10

2. Cross out the problems below that do **NOT** show a doubles fact.

~~4 + 5~~ ~~6 + 4~~ 4 + 4 ~~5 + 4~~

3. Write the related fact.

12 − 7 = 5

12 = 5 + 7

4. Write the related fact.

10 + 9 = 19

19 − 9 = 10

5. Write the related fact.

6 = 14 − 8

8 + 6 = 14

Sample answers are given.

Use Vocabulary in Writing

6. Write equations using the numbers shown in the model. Then explain what the equations are called using a word from the Word List.

6 + 9 = 15
9 + 6 = 15
15 − 6 = 9
15 − 9 = 6

These equations are called a fact family; Check students' responses.

286 two hundred eighty-six © Pearson Education, Inc. 1 Topic 4 | Vocabulary Review

VOCABULARY REVIEW

Students review vocabulary words used in the topic.

Oral Language Before students do the page, you might reinforce oral language through a class discussion involving one or more of the following activities.

- Have students define the terms in their own words.
- Have students say math sentences or math questions that use the words.
- Play a "What's My Word?" guessing game in which you or a student thinks about one of the words and says a clue that others listen to before they guess the word.
- Play a "Right or Wrong?" game in which you or a student says a sentence that uses one of the words correctly or incorrectly. Then others say "right" or "wrong."

Writing in Math After students do the page, you might further reinforce writing in math by doing one or more of the following activities.

- Tell students to close their books. Then you say the words and have students write them. Students trade papers to check if the words are spelled correctly.
- Have students work with a partner. Each partner writes a math question that uses one of the words. Then they trade papers and give a written answer that uses the word.

Games **Online Game** The Game Center at PearsonRealize.com includes a vocabulary game that students can access anytime.

TOPIC 4

RETEACHING

SUBTRACTION FACTS TO 20: USE STRATEGIES

Item Analysis for Diagnosis and Intervention

Reteaching Sets	Standards	Student Book Lessons	MDIS
Set A	1.OA.C.5	4-1	B23
Set B	1.OA.C.6	4-2	A18
Set C	1.OA.B.4, 1.OA.C.6	4-4	B35
Set D	1.OA.B.4, 1.OA.C.6	4-5	B34
Set E	1.OA.B.4, 1.OA.C.5, 1.OA.C.6	4-7	B23, B34, B39
Set F	1.OA.A.1	4-8	B32, B33, E19
Set G	1.OA.A.1, MP.2	4-9	E35

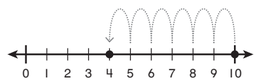
Name _____

TOPIC 4 Reteaching

Set A

You can count back on a number line to subtract.

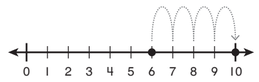
Find 10 − 6.



Start at 10 and count back 6 to get to 4.

10 − 6 = 4

You can also count on to subtract.



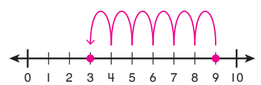
Start at 6 and count on 4 to get to 10.

6 + 4 = 10, so 10 − 6 = 4.

10 − 6 = 4

Use the number line to count back or count on and find the difference.

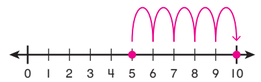
1. Find 9 − 6.



9 − 6 = 3

Sample answers are shown.

2. Find 10 − 5.

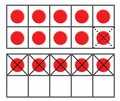


10 − 5 = 5

Set B

You can make 10 to subtract.

15 − 6 = ?



First subtract 5 from 15 to get to 10.

15 − 5 = 10

Then take away 1 more to get to 6.

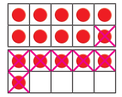
15 − 6 = 9

Make 10 to subtract. Then complete the subtraction fact.

3. 16 − 7 = 9

16 − 6 = 10

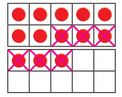
10 − 1 = 9



4. 13 − 6 = 7

13 − 3 = 10

10 − 3 = 7



Set C

You can write a fact family to match the model.

14 = 6 + 8

14 = 8 + 6

6 = 14 − 8

8 = 14 − 6

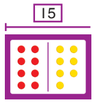
Write a fact family to match the model.

5. 8 + 7 = 15

7 + 8 = 15

15 − 8 = 7

15 − 7 = 8



Name _____

TOPIC 4 Reteaching Continued

Set D

You can use addition to help you subtract.

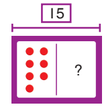
15 − 7 = ?

Think:

7 + 8 = 15

The missing part is 8.

So, 15 − 7 = 8.



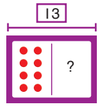
Use addition to subtract. Complete the equations.

6. 13 − 8 = ?

Think:

8 + 5 = 13

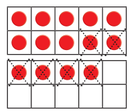
So, 13 − 8 = 5.



Set E

You can use different strategies to subtract 14 − 6.

Think Addition



Make 10

Sample anwers given.

Find each difference. Circle the strategy that you used.

7. 12 − 4 = 8

Count
Think Addition
Make 10
My Way

8. 17 − 8 = 9

Count
Think Addition
Make 10
My Way

Set F

You can write an equation to show a word problem.

Jaime mows some lawns on Saturday and Sunday. He mows 8 lawns on Sunday. He mows 13 lawns in all. How many lawns did Jaime mow on Saturday?

5 + 8 = 13

5 lawns

9. Davis has some pens. He gives 4 to Glenn. Now he has 7 pens. How many pens did Davis start with? Write an equation to solve. Draw a picture to help.

11 − 4 = 7

11 pens

Sample answer given.

Check students' work.

Set G

Thinking Habits

Reasoning

What do the numbers stand for?

How can I use a word problem to show what an equation means?

Write a number story for the problem. Then complete the equation.

10. 9 + 4 = 13 Sample answer is given.

Sage drew 9 blue flowers. Then she drew 4 red flowers. How many flowers did Sage draw in all?

Response to Intervention

Ongoing Intervention

- Lessons with guiding questions to assess understanding
- Support to prevent misconceptions and to reteach

Strategic Intervention

- Targeted to small groups who need more support
- Easy to implement

Intensive Intervention

- Instruction to accelerate progress
- Instruction focused on foundational skills

TOPIC 4

TOPIC ASSESSMENT

SUBTRACTION FACTS TO 20: USE STRATEGIES

ONLINE TOPIC ASSESSMENT
An auto-scored Topic Assessment is provided at PearsonRealize.com.

EXAMVIEW® TEST GENERATOR
ExamView can be used to create a blackline-master Topic Assessment with multiple-choice and free-response items.

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Assessment

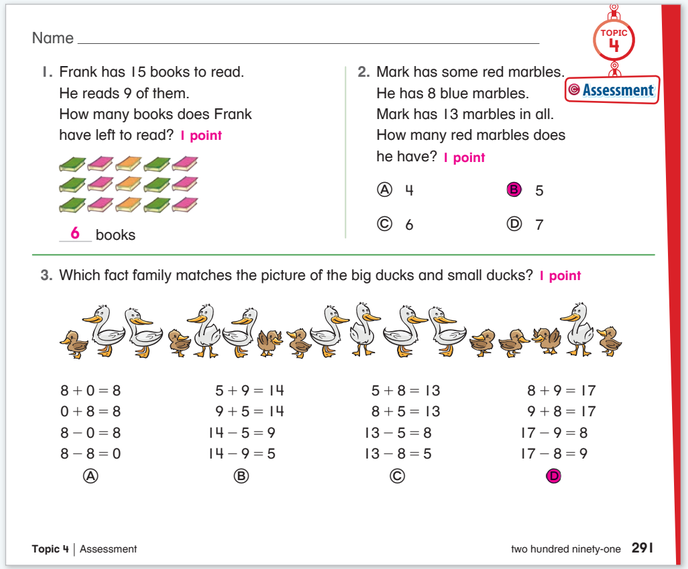
ANSWERING THE TOPIC ESSENTIAL QUESTION

What strategies can you use while subtracting?

Restate the Topic Essential Question from the Topic Opener.

Ask students to answer the Essential Question (verbally or in writing) and give examples that support their answers. The following are key elements of the answer to the Essential question. Be sure these are made explicit when discussing students' answers.

- Make 10 to subtract to 20.
  Example: Nadia has 14 pencils. She gives 6 pencils to Tom. How many pencils does Nadia have left?
  $14 - 4 = 10$ $\quad 10 - 2 = 8$
  Nadia has 8 pencils left.
- Count on or back to subtract to 20.
  Example: Find $13 - 5$.
  Start at 13. Count back 5.
  12, 11, 10, 9, 8. $\quad 13 - 5 = 8$
- Use related facts in a fact family to subtract to 20.
  Example: If you know $9 + 7 = 16$, write the other related facts to complete the fact family.
  $7 + 9 = 16$
  $16 - 9 = 7$
  $16 - 7 = 9$
- Use the inverse relationship between addition and subtraction to subtract to 20.
  Example: Write an equation that will help you complete the subtraction equation $14 - 9 = ?$.
  $9 + 5 = 14$ so, $14 - 9 = 5$.



Name _____

TOPIC 4 Assessment

1. Frank has 15 books to read. He reads 9 of them. How many books does Frank have left to read? 1 point

6 books

2. Mark has some red marbles. He has 8 blue marbles. Mark has 13 marbles in all. How many red marbles does he have? 1 point

Ⓐ 4 Ⓑ 5 Ⓒ 6 Ⓓ 7

3. Which fact family matches the picture of the big ducks and small ducks? 1 point

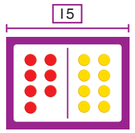
Ⓐ	Ⓑ	Ⓒ	Ⓓ
$8 + 0 = 8$	$5 + 9 = 14$	$5 + 8 = 13$	$8 + 9 = 17$
$0 + 8 = 8$	$9 + 5 = 14$	$8 + 5 = 13$	$9 + 8 = 17$
$8 - 0 = 8$	$14 - 5 = 9$	$13 - 5 = 8$	$17 - 9 = 8$
$8 - 8 = 0$	$14 - 9 = 5$	$13 - 8 = 5$	$17 - 8 = 9$

Topic 4 | Assessment two hundred ninety-one 291

Name _____

TOPIC 4 Assessment

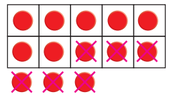
4. Which related subtraction fact can be solved using $7 + 8 = 15$? 1 point



Ⓐ $15 - 8 = 7$
Ⓑ $14 - 7 = 7$
Ⓒ $8 - 7 = 1$
Ⓓ $8 - 8 = 0$

5. There are 13 birds in a tree. Then 6 birds fly away. How many birds are still in the tree?

Make 10 to solve. Use the counters and ten-frame. 2 points

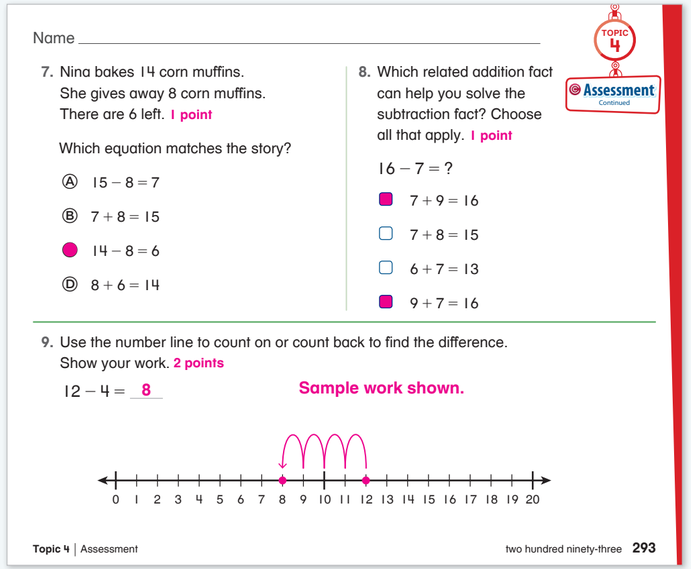


$13 - \underline{3} = 10$
$10 - \underline{3} = \underline{7}$
$13 - 6 = \underline{7}$

6. Gloria has 7 yellow pencils. She has 9 red pencils. Which strategy would **NOT** help you find $9 - 7$? 1 point

Ⓐ Make 10
Ⓑ Think Addition
Ⓒ Count to Subtract
Ⓓ My Way

292 two hundred ninety-two Topic 4 | Assessment



Name _____

TOPIC 4 Assessment Continued

7. Nina bakes 14 corn muffins. She gives away 8 corn muffins. There are 6 left. 1 point

Which equation matches the story?

Ⓐ $15 - 8 = 7$
Ⓑ $7 + 8 = 15$
Ⓒ $14 - 8 = 6$
Ⓓ $8 + 6 = 14$

8. Which related addition fact can help you solve the subtraction fact? Choose all that apply. 1 point

$16 - 7 = ?$

- [x] $7 + 9 = 16$
- [ ] $7 + 8 = 15$
- [ ] $6 + 7 = 13$
- [x] $9 + 7 = 16$

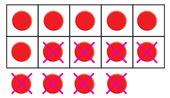
9. Use the number line to count on or count back to find the difference. Show your work. 2 points

$12 - 4 = \underline{8}$ **Sample work shown.**

Topic 4 | Assessment two hundred ninety-three 293

10. Ming has 14 books. She sells 8 books. How many books does she have left? 1 point

Make 10 to solve. Use counters and the ten-frame.



6 books

11. A box has 16 skateboard parts. Maria used some of the parts. Now there are 7 parts left. Write a subtraction equation to show how many parts Maria used. 2 points

Sample equation shown.

$\underline{16} - \underline{9} = \underline{7}$ Maria used $\underline{9}$ parts.

12. Write a number story for $19 - 10$.

Then write an equation to match your story and solve the problem. 3 points

Sample answer: David has 19 pens. He gives 10 of them to Lee. How many pens does David have now? $19 - 10 = 9$; 9 pens.

294 two hundred ninety-four Topic 4 | Assessment

RtI Item Analysis for Diagnosis and Intervention

Item	Standards	DOK	MDIS
1	1.OA.A.1, 1.OA.C.6	1	B37
2	1.OA.A.1	1	B32, B33, E19
3	1.OA.B.4	1	B35
4	1.OA.B.4	1	B35
5	1.OA.A.1, 1.OA.C.6	2	A18
6	1.OA.B.4, 1.OA.C.5, 1.OA.C.6	1	B37, B38, B39
7	1.OA.A.1, 1.OA.C.6, MP.2	1	B32, B33, E19
8	1.OA.B.4	1	B35
9	1.OA.C.5	2	B23
10	1.OA.A.1, 1.OA.C.6	1	A18
11	1.OA.A.1	1	B32, B33, E19
12	1.OA.A.1, MP.2	3	E35

The Topic Assessment Masters assess the same content item for item as the Topic Assessment in the Student's Edition.

TOPIC 4

TOPIC ASSESSMENT

SUBTRACTION FACTS TO 20: USE STRATEGIES

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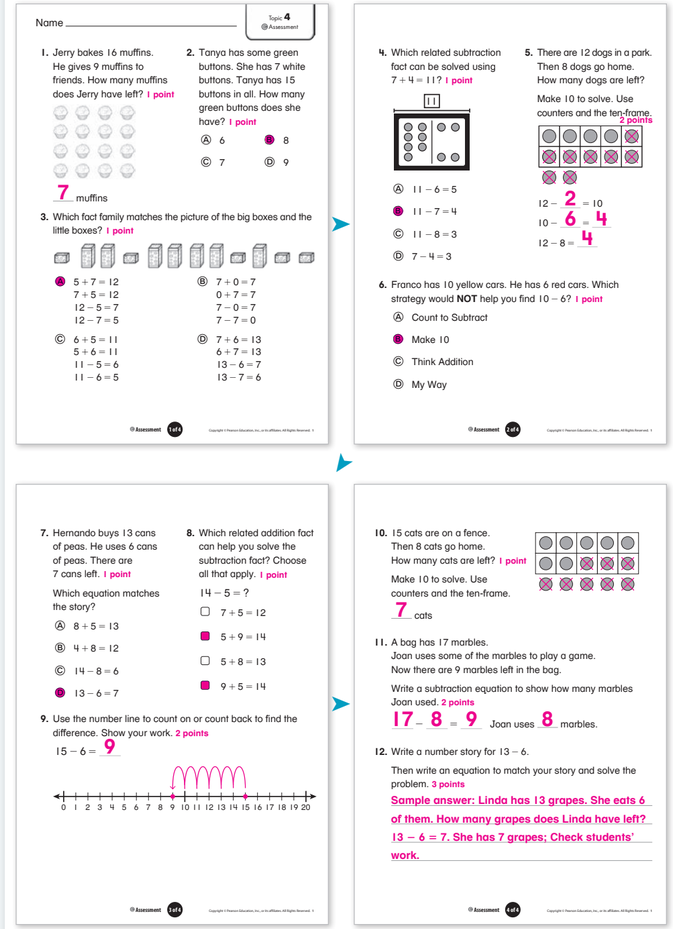
Assessment

Topic Assessment Masters



Name _____ Topic 4 Assessment

1. Jerry bakes 16 muffins. He gives 9 muffins to friends. How many muffins does Jerry have left? 1 point

7 muffins

2. Tanya has some green buttons. She has 7 white buttons. Tanya has 15 buttons in all. How many green buttons does she have? 1 point

Ⓐ 6 ● 8 Ⓒ 7 Ⓓ 9

3. Which fact family matches the picture of the big boxes and the little boxes? 1 point

● 5 + 7 = 12, 7 + 5 = 12, 12 − 5 = 7, 12 − 7 = 5

Ⓑ 7 + 0 = 7, 0 + 7 = 7, 7 − 0 = 7, 7 − 7 = 0

Ⓒ 6 + 5 = 11, 5 + 6 = 11, 11 − 5 = 6, 11 − 6 = 5

Ⓓ 7 + 6 = 13, 6 + 7 = 13, 13 − 6 = 7, 13 − 7 = 6

1 of 4 Assessment

4. Which related subtraction fact can be solved using 7 + 4 = 11? 1 point

Ⓐ 11 − 6 = 5 ● 11 − 7 = 4 Ⓒ 11 − 8 = 3 Ⓓ 7 − 4 = 3

5. There are 12 dogs in a park. Then 8 dogs go home. How many dogs are left?

Make 10 to solve. Use counters and the ten-frame. 2 points

12 − 2 = 10, 10 − 6 = 4, 12 − 8 = 4

6. Franco has 10 yellow cars. He has 6 red cars. Which strategy would **NOT** help you find 10 − 6? 1 point

Ⓐ Count to Subtract ● Make 10 Ⓒ Think Addition Ⓓ My Way

2 of 4 Assessment

7. Hernando buys 13 cans of peas. He uses 6 cans of peas. There are 7 cans left. 1 point

Which equation matches the story?

Ⓐ 8 + 5 = 13 Ⓑ 4 + 8 = 12 Ⓒ 14 − 8 = 6 ● 13 − 6 = 7

8. Which related addition fact can help you solve the subtraction fact? Choose all that apply. 1 point

14 − 5 = ?

☐ 7 + 5 = 12 ■ 5 + 9 = 14 ☐ 5 + 8 = 13 ■ 9 + 5 = 14

9. Use the number line to count on or count back to find the difference. Show your work. 2 points

15 − 6 = 9

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

3 of 4 Assessment

10. 15 cats are on a fence. Then 8 cats go home. How many cats are left? 1 point

Make 10 to solve. Use counters and the ten-frame.

7 cats

11. A bag has 17 marbles. Joan uses some of the marbles to play a game. Now there are 9 marbles left in the bag.

Write a subtraction equation to show how many marbles Joan used. 2 points

17 − 8 = 9 Joan uses 8 marbles.

12. Write a number story for 13 − 6.

Then write an equation to match your story and solve the problem. 3 points

Sample answer: Linda has 13 grapes. She eats 6 of them. How many grapes does Linda have left? 13 − 6 = 7. She has 7 grapes; Check students' work.

4 of 4 Assessment

Scoring Guide

Item	Points	Topic Assessment (Student Edition and Masters)
1	1	Correct choice selected
2	1	Correct choice selected
3	1	Correct choice selected
4	1	Correct choice selected
5	2	Correct difference AND correct steps for making 10
	1	Correct difference OR correct steps for making 10
6	1	Correct choice selected
7	1	Correct choice selected
8	1	Both correct choices selected
9	2	Correct difference AND correct number line to illustrate the problem
	1	Correct difference OR correct number line to illustrate the problem
10	1	Correct difference
11	2	Correct equation AND correct solution to the problem
	1	Correct equation OR correct solution to the problem
12	3	Coherent number story uses the correct numbers AND explanation clearly explains student's thinking.
	2	Coherent number story uses the correct numbers AND explanation is brief or incomplete.
	1	Number story is incoherent OR uses the numbers incorrectly. Explanation is incorrect but matches the story.

TOPIC 4

TOPIC PERFORMANCE ASSESSMENT

SUBTRACTION FACTS TO 20: USE STRATEGIES

Scoring Guide

Item	Points	Topic Performance Assessment in the Student's Edition
1	1	Difference is correct.
2	2	Equation is correct AND number of cloud stickers is correct.
	1	Equation is correct OR number of cloud stickers is correct.
3	2	Addition AND subtraction equations are correct.
	1	Addition OR subtraction equations are correct.
4	2	Equation is correct AND number of rainbow stickers is correct.
	1	Equation is correct OR number of rainbow stickers is correct.
5	3	Story shows correct operation and numbers; drawing AND equation match story.
	2	Story shows correct operation and numbers; drawing OR equation match story.
	1	Story shows correct operation and numbers, but drawing and equation do not match story.

RtI Item Analysis for Diagnosis and Intervention

Item	Standard	DOK	MDIS
1	1.OA.A.1, 1.OA.C.6	1	B37, B39
2	1.OA.A.1, MP.2	2	B32, B33
3	1.OA.B.4, 1.OA.C.6	2	B35
4	1.OA.A.1	2	E19
5	1.OA.A.1, MP.4	3	E35

Name _____

TOPIC 4 Performance Assessment

Maria's Stickers

Maria collects stickers.
The chart shows the different stickers she has.

Maria's Stickers	
Type of Sticker	Number of Stickers
	15
	7
	9
	8
	12

1. How many more moon stickers than sun stickers does Maria have?

   Count, make 10, or think addition to solve. 1 point

   6 more moon stickers

2. Maria gives some cloud stickers to Tom. Now she has 5 cloud stickers. How many cloud stickers did Maria give away?

   Write an equation to solve the problem. 2 points

   7 − 5 = 2

   2 cloud stickers

   Sample equation is shown.

3. Complete the fact family using the number of cloud and rainbow stickers. 2 points

7 + 8 = 15

8 + 7 = 15

15 − 7 = 8

15 − 8 = 7

4. Wendy gives Maria 3 more rainbow stickers. How many rainbow stickers does Maria have now? Complete the equation to solve. 2 points

   8 + 3 = 11

   11 rainbow stickers

5. Write a story to show and solve 12 − 8. Make your problem about star stickers. Draw a picture and write an equation to match your story. 3 points

Sample answer: Maria has 12 star stickers. She gives 8 star stickers to Pat. How many star stickers does she have now?

Check students' drawings.

12 − 8 = 4

Topic Performance Assessment Masters

Name _____ Topic 4 Performance Assessment

Bob's Beads

Bob uses beads to make a necklace.
The chart shows the different beads he uses.

Bob's Beads	
Type of Bead	Number of Beads
	8
	13
	6
	16
	9

1. How many fewer star beads than square beads does Bob use? 1 point

   8 fewer star beads

2. Bob has some triangle beads. He gives away 3 triangle beads. Now he has 9 triangle beads. How many triangle beads did Bob have before?

   Write an equation to solve the problem. 2 points

   12 − 3 = 9

   12 triangle beads

3. Complete the fact family using the number of star and striped beads. 2 points

   14 − 6 = 8

   14 − 8 = 6

   6 + 8 = 14

   8 + 6 = 14

Bob's Beads	
Type of Bead	Number of Beads
	8
	6

4. Bob buys 9 more striped beads.
   How many striped beads does he have now?

   Complete the equation. Then solve the problem. 2 points

   6 + 9 = 15

   15 striped beads

5. Write a subtraction story about beads and 13 − 9.
   Draw a picture or write an equation to solve your story. 3 points

Sample answer: Bob has 13 dotted beads. He gives 9 of them away. How many dotted beads does Bob have left?

Check students' work.
The solution should be 4.

RtI Item Analysis for Diagnosis and Intervention

Item	Standard	DOK	MDIS
1	1.OA.C.6	1	B37, B38, B39
2	1.OA.A.1, MP.2	2	E19
3	1.OA.B.4, 1.OA.C.6	2	B35
4	1.OA.A.1	2	E19
5	1.OA.A.1, MP.4	3	E35

Scoring Guide

Item	Points	Topic Performance Assessment Masters
1	1	Difference is correct.
2	2	Equation is correct AND number of triangle beads is correct.
	1	Equation is correct OR number of triangle beads is correct.
3	2	Subtraction AND addition equations are correct.
	1	Subtraction OR addition equations are correct.
4	2	Equation is correct AND number of striped beads is correct.
	1	Equation is correct OR number of striped beads is correct.
5	3	Story shows correct operation and numbers, drawing or equation is correct, and solution is correct.
	2	One math error in story, drawing or equation, or solution.
	1	Two math errors in story, drawing or equation, or solution.

NOTES