Lesson 17
Subtract Within 5

Lesson Objectives

Content Objectives

- Solve take-away subtraction word problems within 5 using pictures or objects.
- Recognize take-away situations as subtraction problems.

Language Objectives

- Describe subtraction problems.
- Model take-away subtraction word problems using fingers and counters.
- Count objects and write the number counted.
- Explain what it means to subtract or "take away."

Prerequisite Skills

- Count up to 5 objects.
- Recognize the minus sign (−).
- Recognize the equal sign (=).

Lesson Vocabulary

There is no new vocabulary. Review the following key terms.

- **equal, equal to, same as** the same quantity or amount.
- **subtract** take away or remove.
- **minus (−)** the math term and symbol that means subtract.
- **number sentence** equation.

Learning Progression

In Kindergarten children learn about the meaning of addition and subtraction and apply this understanding to add and subtract numbers and solve word problems.

In this lesson children explore real-world or story situations that involve taking away one part of a group and determining how much is left. Children describe subtraction situations shown in a picture, and then learn to represent subtraction more abstractly by crossing out pictures to represent the action of taking away. They connect this with a subtraction number sentence, and complete that number sentence to record the result of the subtraction.

In later lessons children will work with subtraction within 10 and practice both addition and subtraction facts together. This work leads to developing fluency with addition and subtraction within 5.

In Grade 1 children will use their understanding of the meaning of subtraction to develop strategies to learn addition and subtraction facts and to understand subtraction with larger numbers.

Lesson Pacing Guide

Whole Class Instruction

Day 1
45–60 minutes

Introduction
Use What You Know
• Activity *35 min*
• Building Fluency *10 min*

Day 2
45–60 minutes

Modeled Instruction
Explore Together
• Problem *15 min*
• Talk About It *5 min*
• Hands-On Activity *10 min*
• Problem Solving Connection *15 min*

Practice and Problem Solving
Assign pages 143–144.

Day 3
45–60 minutes

Guided Practice
Practice Together
• Problems *20 min*
• Talk About It *10 min*
• Hands-On Activity *15 min*

Practice and Problem Solving
Assign pages 145–146.

Day 4
45–60 minutes

Guided Practice
Practice Together
• Problems *15 min*
• Talk About It *5 min*
• Hands-On Activity *15 min*
• Fluency Practice *10 min*

Practice and Problem Solving
Assign pages 147–148.

Day 5
45–60 minutes

Independent Practice
Practice by Myself
• Problem *10 min*
• Talk About It *5 min*
• Hands-On Activity *10 min*
• Quick Check and Remediation *10 min*
• Hands-On or Challenge Activity *10 min*

Teacher-Toolbox: Lesson Quiz
Lesson 17 Quiz

Materials for Lesson Activities

Per child: 5 two-color counters, 5 connecting cubes, 1 index card
Activity Sheet 13

Per pair: none

For display: none

Small Group Differentiation

Teacher-Toolbox.com

Teacher-led Activities
Tools for Instruction *15–20 min*

Grade K *(Lesson 17)*
• One Less

Student-led Activities
Math Center Activities *30–40 min*

Grade K *(Lesson 17)*
• K.27 Solve and Color

Personalized Learning

i-Ready.com

Independent
i-Ready Lessons* *10–20 min*

Grade K *(Lesson 17)*
• Taking Away to Subtract

*We continually update the Interactive Tutorials. Check the Teacher Toolbox for the most up-to-date offerings for this lesson.

👥 Introduction

Activity Act Out Subtraction Problems

Objective
Act out subtraction word problems and find the solution.
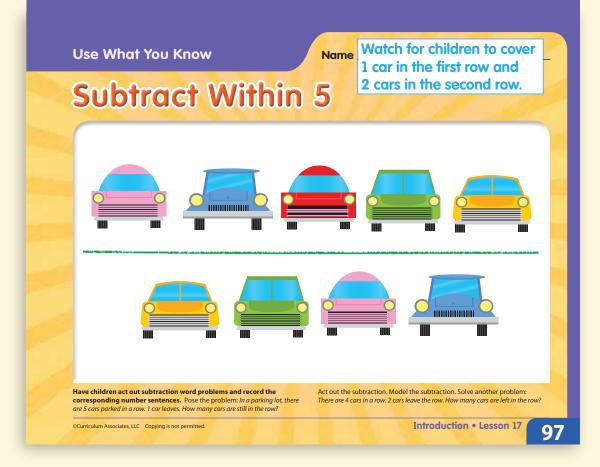
Materials for each child
• index card
• 4 counters

Overview
Children act out subtraction word problems and make connections to corresponding number sentences. Then children use counters and fingers to model other subtraction problems.

Use What You Know

Name _____

> Watch for children to cover 1 car in the first row and 2 cars in the second row.

Subtract Within 5

Have children act out subtraction word problems and record the corresponding number sentences. Pose the problem: *In a parking lot, there are 5 cars parked in a row. 1 car leaves. How many cars are still in the row?*

Act out the subtraction. Model the subtraction. Solve another problem: *There are 4 cars in a row. 2 cars leave the row. How many cars are left in the row?*

Introduction • Lesson 17   **97**

Step By Step

• **Pose the problem.** Say: *In a parking lot, there are 5 cars parked in a row. 1 car leaves. How many cars are still in the row? How can you find out?*

• **Act out the subtraction.** Invite 5 children to the front of the class and have them stand in a line.

• Repeat the story problem and write the subtraction sentence "$5 - 1 = $ ___" on the board. Read it aloud: *5 take away 1 equals what number?* Point out the symbols and remind children of the meaning of each.

• Ask: *How do you show this subtraction?* Discuss responses, then ask 1 child to sit down. Lead the class in counting the 4 children that are still standing, and write the answer in the blank. Say: *5 take away 1 is 4. There are 4 children still in a row.*

• **Model the subtraction.** Have the 4 children sit down. Repeat the story problem once more and have children count the pictures of the cars in the first row on the Student Book page. Then have children cover the picture of 1 car with the index card.

• Ask them to count the number of cars remaining. Say: *5 take away 1 is 4.*

• **Solve another problem.** Say: *Now there are 4 cars in a row. 2 cars leave the row. How many cars are left in the row?*

• Invite children to tell you the subtraction sentence to write on the board. [$4 - 2 = $ ___]

• Draw children's attention to the second problem on the Student Book page. Repeat the story problem and have children first count the total number of cars in the second row. Then have them cover the pictures of 2 cars with the index card. Ask: *How many cars are left?* [2] Reinforce the result by saying: *4 take away 2 is 2. 2 cars are left in the row.* Write the number 2 on the line to complete the number sentence.

Use What You Know
Subtract Within 5

Watch for children to model the first crayon problem by showing 4 counters and removing 1 to get the answer 3. For the second problem, watch for students to show 5 fingers and fold down 2 to get the answer 3.

Children use counters and their fingers to model other subtraction problems. Say: *Adam has 4 crayons. He gives 1 to his sister. How many crayons does Adam have left?* Ask children to use counters to show the subtraction.

Repeat, saying: *Adam has 5 crayons. He gives 2 to his sister. How many crayons does Adam have left now?* Ask children to use their fingers to model and solve the problem.

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Step By Step

- **Pose a new problem.** Say: *Adam has 4 crayons. He gives 1 to his sister. How many crayons does Adam have left for himself?*
- Have children place 4 counters on the workmat on the Student Book page.
- **Lead the class in discussion.** Lead the class in discussing what they could do to use the counters to show the story problem. Listen for children who say removing 1 counter from the workmat shows 4 take away 1 is 3. Write "4 − 1 = 3" on the board.
- **Pose another problem.** Now ask children to hold up 5 fingers. Say: *Adam has 5 crayons. He gives 2 to his sister. How many crayons does Adam have left for himself?* Invite children to act out the story problem with their fingers.
- Watch to see who is confident and who looks around to copy the others.

   Error Alert Note which children end with 2 fingers, the number of crayons given to the sister, instead of 3, the number of crayons that are left. These children may benefit from the Hands-On Activities in this lesson.

▶ **Building Fluency**

▶ **Building Fluency**

Practice rote counting to 80.
Give children a benchmark of 80 counts to clean up, get to their seats, etc. Children count aloud. When they reach 80, they should be finished with the task.

Practice one-to-one correspondence counting to 10.
During daily activities and routines have children count objects, pictures, themselves, and so on. You might also have children do action counting. While they are waiting in line or at circle time, tell them to "jump 5," "clap 8," "march 10," etc.

👥 Modeled Instruction

Step By Step

- **Encourage children to describe subtraction problems for each group of objects.** Remind children of the subtraction story problems they solved in the Activity about the cars during the Introduction.

- **Provide the example: *There were 5 candles but 4 are gone. Now there's only 1 candle left.*** Have children count all of the candles. [5] Ask: *How many have been taken off the cake? How many are left on the cake?* [4 taken away; 1 left]

- **Have children circle the groups of objects that show 5 minus 2.** Observe to see if children circle both the pieces of cake and the presents. Ask them to describe the take-away situations for both groups of objects.

- Invite children to tell about other take-away situations shown in the party scene. Guide them to see that there were 5 balloons, but 1 popped. So, there are 4 good balloons left. There were 3 parts to the cake and 1 part was taken away. So only 2 parts are left.

- Encourage children to tell a subtraction sentence related to each take away situation. Write the subtraction sentences on the board and discuss what each number represents.

▶ **Mathematical Discourse 1 and 2**

▶ **Hands-On Activity**

> **SMP TIP Reason Quantitatively**
> Children make sense of quantities and their relationships when they tell about the subtraction situations in the picture. Encourage children to describe subtraction situations throughout the day. *(SMP 2)*

📗 Ready **Mathematics**
PRACTICE AND PROBLEM SOLVING

Assign *Practice and Problem Solving* **pages 143–144** after students have completed this section.

Explore Together
Subtract Within 5

Children circle the group of presents and group of pieces of cake.

Encourage children to describe subtraction problems for each group of objects. Provide the example: *There were 5 candles but 4 are gone. Now there's only 1 candle left.* Have children circle the groups of objects that show 5 minus 2.

Talk About It If somebody eats another slice of cake, how many will be left?

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Modeled Instruction • Lesson 17 **99**

▶ **Mathematical Discourse**

1 *How do you know which items show 5 take away 2?*

Responses might indicate first looking for items that show 5 and then looking to see if 2 of the 5 items are different in some way.

2 **Talk About It** When children have completed the page, ask: *If somebody eats another slice of cake, how many will be left?*

Children should mention that 2 slices will be left since 3 take away 1 is 2.

▶ **Hands-On Activity**

Use fingers to model subtraction stories.

Materials For display: various classroom objects

- Present subtraction story problems involving objects in the classroom, such as pencils, crayons, markers, and jackets. Write the subtraction number sentence on the board and have children use their fingers to model it.

- For example, say: *There were 4 crayons in the box. Tara takes 1 crayon. How many crayons are still in the box?* Guide children to show 4 fingers and then turn one down. Then have them count the extended fingers and write the difference on the board. Repeat with more stories.

Problem Solving Connection

Teacher-Toolbox.com

Subtract Within 5 **Problem Solving Connection**   Problem 1

There are 5 pieces of cake.

3 pieces of cake are eaten.

How many pieces of cake are there now?

Read the problem as a class. Have children work independently to solve the problem, allowing sufficient time for them to work through the problem on their own. Invite children to share their answers and discuss as a class.
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Subtract Within 5 **Problem Solving Connection**   Problem 2

There are 4 hats standing.

2 hats fall over.

How many hats are still standing?

Read the problem as a class. Have children work independently to solve the problem, allowing sufficient time for them to work through the problem on their own. Invite children to share their answers and discuss as a class.
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Subtract Within 5 **Problem Solving Connection**   Problem 3

There are 5 balloons.

Some pop.

Now there are 4 balloons left.

How many balloons popped?

Read the problem as a class. Have children work independently to solve the problem, allowing sufficient time for them to work through the problem on their own. Invite children to share their answers and discuss as a class.
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At A Glance

Children solve and discuss subtraction problem-solving situations. The problems are located on the online Teacher-Toolbox as individual PDFs for use as whole class instruction.

These provide problem-solving opportunities beyond the Student Book. They may be used along with the *Explore Together* scene in the Student Book. They may also be used with the corresponding black-and-white scene in *Practice and Problem Solving* for a more open-ended approach.

Step By Step

- **Read the problem as a class.** Display a problem and read it aloud. Discuss the problem with children to make sure they understand what it is asking before having them think about ways to solve it.

- **Have children work independently to solve the problem, allowing sufficient time for them to work through the problem on their own.**

> **SMP TIP** **Persevere in Problem Solving**
> Allowing children sufficient time to think through the problem on their own encourages them to try different approaches if their first or second attempt does not work. This builds confidence in finding ways to use what they learned from those attempts to revise their thinking on subsequent attempts. *(SMP 1)*

- **Invite children to share their answers and discuss as a class.** Encourage children to explain how their answers are alike and how they are different. Ask if anyone got a different answer to assess understanding and help children avoid common errors.

Solutions

Problem 1
Take From, result unknown
$5 - 3 = \boxed{2}$

Problem 2
Take From, result unknown
$4 - 2 = \boxed{2}$

Problem 3
Take From, change unknown (Challenge)
$5 - \boxed{1} = 4$

👥 Guided Practice

Step By Step

- **Guide children to compare each number sentence to the subtraction picture, then count and write the number left.** Before beginning this page, provide opportunities for children to connect number sentences to subtraction situations with activities such as Hands-On Activity 1.

▶ **Hands-On Activity 1**

- Direct attention to the first problem. Say: *There were 4 balloons and 1 popped.* Tell children to compare the picture to the number sentence. Have children count and write the number of balloons that are left.

- **Have them read the completed number sentence aloud. Help children connect the written numbers with the number of objects shown.** Children should understand that 4 is the whole group of balloons, 1 is the popped balloon, and 3 is the number of good balloons left. Guide children in completing the other 3 problems.

> **SMP TIP Model with Mathematics**
> Representing a story problem with objects and a number sentence is modeling with mathematics. Encourage children to use objects and number sentences to represent subtraction situations when they share things with family members and friends. *(SMP 4)*
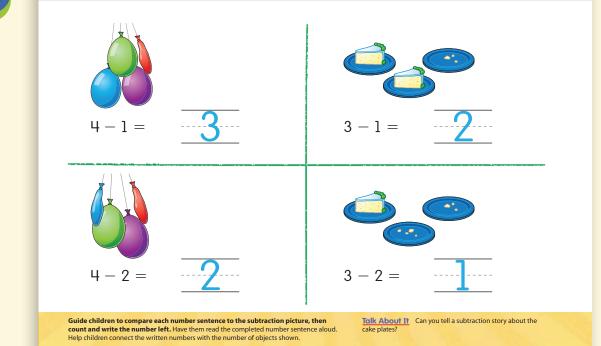
- Have children look at the pair of problems about the balloons or the pair of problems about the cake and note the similarities. Children might note that the problems begin with the same number of balloons or pieces of cake. First 1 item is taken away, then 2, and so on.

▶ **Mathematical Discourse 1–3**

Ready **Mathematics**
PRACTICE AND PROBLEM SOLVING

Assign *Practice and Problem Solving* **pages 145–146** after students have completed this section.

Practice Together
Subtract Within 5

$4 - 1 =$ **3**

$3 - 1 =$ **2**

$4 - 2 =$ **2**

$3 - 2 =$ **1**

Guide children to compare each number sentence to the subtraction picture, then count and write the number left. Have them read the completed number sentence aloud. Help children connect the written numbers with the number of objects shown.

Talk About It Can you tell a subtraction story about the cake plates?

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▶ **Mathematical Discourse**

1 *How are 4 − 2 and 3 − 1 alike?*
Children should note that they both have 2 left or that both show 2 items left.

2 *How can you find 4 − 2 if you know 4 − 1?*
Since 2 is 1 more than 1, the difference of 4 − 2 is 1 less than the difference of 4 − 1.

3 **Talk About It** When children have completed the page, ask: *Can you tell a subtraction story about the cake plates?*
Possible response: Jim has 3 cake plates. 1 plate has a piece of cake on it. How many plates are empty?
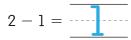
▶ **Hands-On Activity 1**

Break apart cube trains to model subtraction word problems.

Materials For each child: 5 connecting cubes

- Say: *Peter blew up 5 balloons.* Tell children to make a cube train with 5 connecting cubes. Then say: *2 balloons popped.* Have children break off 2 cubes from the train. Ask: *How many balloons are left?* Children count the 3 cubes that are left.

- Write the number sentence that shows the subtraction situation on the board. Discuss what each number and symbol represents.

- Present other subtraction story problems for children to model with cube trains.

Practice Together
Subtract Within 5

Name _____

🎁 ❌ $2 - 1 = \underline{1}$

🥤🥤❌❌ $4 - 2 = \underline{2}$

🎈🎈❌❌❌ $5 - 3 = \underline{2}$

Guide children to make up a story problem for each situation. Then count and write the number left. Have children read the completed number sentence aloud and connect the written numbers with the story problem.

Talk About It Work with a partner. Tell two different stories about the balloon problem.

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Guided Practice • Lesson 17 **101**

Step By Step

- **Guide children to make up a story problem for each situation. Then count and write the number left.** Before beginning this page, provide opportunities for children to model subtraction story problems with activities such as Hands-On Activity 2.

▶ Hands-On Activity 2

- Direct attention to the picture of the presents. Explain that the X shows what is taken away. Invite children to share stories about the presents. Then present this example aloud: *You have 2 presents to open. You open 1. How many are left to open?* Tell children to use the picture to complete the number sentence.

- **Have children read the completed number sentence aloud and connect the written numbers with the story problem.** Guide them to understand that 2 presents minus 1 opened present leaves 1 present left to open.

- Solve the remaining problems in a similar manner.

▶ Mathematical Discourse 4 and 5

▶ Fluency Practice

📦 **Ready** Mathematics
PRACTICE AND PROBLEM SOLVING

Assign *Practice and Problem Solving* **pages 147–148** after students have completed this section.

▶ Hands-On Activity 2

Model story problems with two-color counters.

Materials For each child: 5 two-color counters

- Say: *You have 5 cups. You fill 3 with juice. How many cups do you have left to fill?* Invite children to line up 5 counters with the red side showing to represent the cups.

- Ask them to turn over 3 counters to stand for the cups that are filled with juice. Then ask children to count the remaining red counters to find out how many cups are left to fill. Repeat with other story problems to show $4 - 1$, $3 - 2$, and $5 - 4$.

▶ Mathematical Discourse

4 *What two problems have the same answer? What do you notice about the numbers in these problems?*

Children should note that $4 - 2$ and $5 - 3$ have the same answer of 2. They should also notice that the numbers 5 and 3 are each 1 more than the numbers 4 and 2.

5 **Talk About It** When children have completed the page, say: *Work with a partner. Tell two different stories about the balloon problem.*

Possible responses: There are 5 balloons. 3 balloons pop. How many balloons are left?

Hannah has 5 balloons. She gives 3 to her sister. How many balloons does Hannah have left?

▶ Fluency Practice

Practice subtraction facts within 5.

- Have children model subtraction problems with their fingers. Say: *Show me 4 fingers. Take away 1. What is 4 minus 1?* [3]

- Continue with $2 - 1$, $3 - 1$, $3 - 2$, $4 - 2$, $5 - 1$, $5 - 2$, $5 - 3$, and $5 - 4$.
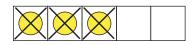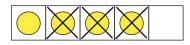
👤 **Independent Practice**

Step By Step

- **Have children complete each number sentence.** Before beginning this page, provide opportunities for children to model subtraction situations with counters on a 5-frame and find the result. Use activities such as the Hands-On Activity.
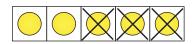
▶ **Hands-On Activity**

- Invite children to look at the counters at the top of the page. Ask: *How many counters are there?* [3] Then have children trace the Xs and count. Ask: *How many counters are taken away?* [3]

- Point out the subtraction sentence. Then ask: *How many counters are left?* Have children write the number 0 on the lines.

- **Afterward, ask children to tell how they found the answers. Some may have used the pictures, and some may have used other strategies.** Allow children to use concrete materials if they find that this strategy works best.

- Have children complete the other two problems on their own by tracing the Xs and completing the number sentences.

  Misconception Alert Some children may need more modeling, while others may have trouble reading the number sentences. Read aloud the subtraction sentences. Check to see if children understand the meaning of "taking away" or if they are simply having trouble reading.

▶ **Mathematical Discourse 1 and 2**

Practice by Myself
Subtract Within 5

$3 - 3 = 0$

$4 - 3 = 1$

$5 - 3 = 2$

Have children complete each number sentence. Afterward, ask children to tell how they found the answers. Some may have used the pictures, and some may have used other strategies.

Talk About It What pattern do you see when you look at your answers? What pattern do you see when you look at the pictures?

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▶ **Mathematical Discourse**

1 *How do the pictures help you complete each number sentence?*

The pictures show what is subtracted and what is left.

2 **Talk About It** When children have completed the page, ask: *What pattern do you see when you look at your answers? What pattern do you see when you look at the pictures?*

Responses should indicate 3 being subtracted each time and the answers increasing by 1.

▶ **Hands-On Activity**

Model subtraction with counters on a 5-frame.

Materials For each child: 5 counters, 5-Frames (Activity Sheet 13)

- Present this problem aloud: *There are 4 apples. Matthew eats 1. How many apples are left?* Guide children to show 4 counters on the 5-frame, take 1 away, and count that there are 3 left.

- Write the subtraction sentence on the board, connecting each number to the story. Then present other story problems for children to model on the 5-frame. They take away counters and tell what is left. Ask them to identify the number sentence as you write it on the board.

Differentiated Instruction

▶ Quick Check and Remediation

Materials Number Cards 0 to 9—Small (Activity Sheet 5)

• Pose a subtraction word problem. For example, say: *There are 4 cans on the shelf. Joe takes 3 cans. How many cans are left on the shelf?* Ask children to first answer orally. Then write the subtraction sentence on the board with a blank for the result. Children write the completed number sentence. [4 − 3 = 1]

• For children who are still struggling, use the chart below to guide remediation.

• After providing remediation, check children's understanding by posing another problem. For example, say: *There are 5 cans on the shelf. Joe takes 2 cans. How many cans are left on the shelf?* Follow the instructions for the first problem. [5 − 2 = 3]

If the error is . . .	Children may . . .	To remediate . . .
an answer greater than 4	be adding instead of subtracting.	Provide more work with the language of subtraction word problems and have children act them out with real objects.
3	not understand the relationship between the amount taken away and the result.	Provide practice in linking numbers in a number sentence to pictorial representations. For example, have the child draw lines from each number in a number sentence to the quantity it represents in the picture.
saying 1, but writing a different numeral	not know the symbols for numbers or how to write numbers.	Provide practice matching quantities with number cards (Activity Sheet 5) and writing numerals for quantities named orally.

▶ Hands-On Activity

Match counters to number sentences.

Materials For each child: 5 two-color counters

• Write "4 − 1" on the board. Invite children to use their counters to model the subtraction. Guide them to show the red side of 4 counters and then take 1 counter away or flip 1 counter to the yellow side. Ask: *How many are left?* Complete the number sentence as children suggest.

• Write other subtraction expressions on the board, such as 5 − 2, 3 − 1, and 5 − 3. Have children model with counters and complete the number sentences.

▶ Challenge Activity

Solve subtraction problems where the amount taken away is unknown.

Materials Optional: 5 connecting cubes or two-color counters

• Say: *Sam had 5 pretzel sticks and now he has 4. How many pretzel sticks did he eat?* Suggest that children use connecting cubes or counters to model the problem as they determine that one pretzel stick was eaten, or taken away.

• Present children with more story problems in which the starting number and the result are given, but the amount taken away is unknown.

Lesson 17
Subtract Within 5

Overview

Assign the Lesson 17 Quiz and have children work independently to complete it.

Use the results of the quiz to assess children's understanding of the content of the lesson and to identify areas for reteaching. See the Lesson Pacing Guide at the beginning of the lesson and the Differentiated Instruction activities for suggested instructional resources.
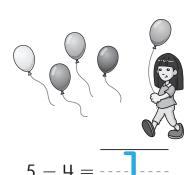
Tested Skills

Problems on this quiz require children to be able to solve take-away subtraction situations within 5 using pictures. Children will also need to be familiar with counting up to 5 objects and understand the minus ($-$) and equal ($=$) signs.
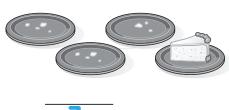
Ready® Mathematics

Lesson 17 Quiz Answer Key

Name _____

$3 - 1 = \underline{2}$

$5 - 4 = \underline{1}$

$\underline{1} = 4 - 3$

$\underline{3} = 5 - 2$

Have children compare each number sentence to the subtraction picture. Then have children complete the number sentence.

Kindergarten Lesson 17 Subtract Within 5

1

Common Misconceptions and Errors

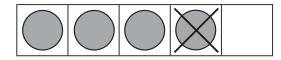Errors may result if children:

- do not understand the subtraction situations represented in the pictures.
- add instead of subtract.
- confuse the number being taken away with the result.
- write numbers incorrectly or miscount.

Lesson 17 Quiz Answer Key continued

Name _____

$3 - 2 = 1$

$5 - 1 = 4$

$3 = 4 - 1$

Have children compare each number sentence. Then have children complete the number sentence.

Kindergarten Lesson 17 Subtract Within 5

2

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