

The following pages have been designed with you in mind. Flip through this book to find exciting, hands-on ideas for introducing and reinforcing subtraction skills with a pocket chart! (LER 2206) Dear Teachers, Pocket Chart Math – Subtraction has been developed to provide creative teaching ideas and reproducible activities to support the use of a pocket chart. Suggested activities are designed to attract all types of learners. They encourage listening, speaking, observing and manipulating number, symbol, word, and cards to teach children to recognize subtraction mathematical Symbols, subtract one and two-digit numbers, solve simple word problems, and much more. In addition, this book contains 136 readyto-use cards to aid you as you teach subtraction. The cards display numbers, symbols, pictures, or words to use within each lesson, and are color-coded for handy organization. A Cardo-At-A-Glance chart shows what is pictured on each card, and is located in the back of the book for easy reference. Also included is a Reading List to help

you build a classroom library filled with children's literature about This book quickly becomes a compact storage filel Tear out the sheets of cards along the perforated lines. Laminate the cards for extra durability, cut them, and store them in the pocket provided on subtraction. the back cover of the book. As you use them, tear out the blackline master pages for photocopying, then use the folder pocket on the inside front cover for storage.

Pocket Chart Math Subtraction

Introduction Strategies

- **1.** Foster your students' number sense, by counting, reviewing the mathematical operation symbols (+, -, <, >, =), and making reference to "more than," "less than," "take-away," and "fewer," when comparing sets of items.
- 2. Provide students with real-life examples of addition and subtraction ("If we have four library books checked-out, and we return two of them, how many library books are

left?"). Invite your students to think of ways

subtraction could be useful in daily life, or interview their classmates, parents, or friends, and draw pictures of Subtraction In Action to post in your classroom.

- **3.** Start to explore the language of subtraction by comparing terms like *minus*, less than, and take away to terms of addition (plus, more than, add). By using concepts that are familiar to your students as a point of comparison to new concepts, you will boost their mathematical confidence and help them transfer their knowledge easily.
- **4.** Assess each student's familiarity with addition and subtraction by asking them to demonstrate a range of adding and subtracting tasks using counters as you observe their techniques and accuracy. Keep the evaluation informal by using instances such as, "My dog has six bones, and buries two of them in the yard. How many bones does my dog have left?").

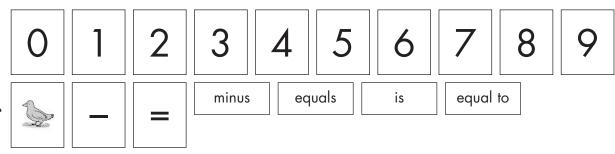
Notes about the book:

- 1. All of the subtraction activities in this book are written using small, simple numbers. To boost the difficulty level of the exercises, substitute more challenging numbers.
- 2. Three sets of the numeral cards (0-9) included in this book have the same numeral printed on the front and back side, so a situation does not arise causing you to need the number that appears on both the front and the back side of a card. A fourth and fifth set of number cards are printed with different numbers on the front and back of each card. Be aware that you may find it easier to do most activities with the first three sets of number cards, but can use the fourth and fifth sets to supplement the number cards as much as possible.

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Teaching Notes: Addition Review and Subtraction Terminology

Cards needed: (red 🔆)



Presenting the concept:

Conduct a simple review of addition using the bird cards and the numerals 1-10. Place a few horizontal addition problems in the pocket chart (1 + 2 =, 5 + 0 =, and 4 + 6 = will work nicely) and place the appropriate number of bird counting cards below each numeral (for example, for the first problem, place one bird card below the 1, and two bird cards below the 2). Ask students to count the birds to figure out the sum in each addition problem, and place the appropriate numeral card in the sum position after the equals sign. Ask students to read each number sentence aloud for their classmates to hear. Then repeat this activity using vertical addition problems (place the bird cards next to the numerals for vertical addition problems in a pocket chart).

Note: You will need to create an "equals bar" (the horizontal line that separates the addends from the sum in a vertical addition problem). Using a recipe card or piece of poster board, cut narrow rectangles in two sizes: 0.5" x 5.5" and 0.5" x 8.5". The longer cards will be used as the "equals bar" in two-digit vertical addition or subtraction problems, and the shorter bar will be used with single-digit vertical addition or subtraction problems. Color your equals bars so they are visible in the pocket chart.

Because vertical addition problems do not read from left to right, it may be more difficult for children to "read" the problems as number sentences, as they did with the horizontal problems. Build a simple vertical addition problem in the pocket chart, positioning an equals bar under the second addend (in the same pocket). Explain that the equals bar is the same as the equals sign or the words "is equal to" or "equals." Show students where to put their answer (under the equals bar) in a vertical addition problem.

Extending the activity:

Preface your lesson by explaining that subtraction means taking numbers away. Place the – symbol card in the pocket chart, and ask students to describe what they see (many of them may recognize this mathematical sign). Explain that the – is called a *minus sign*, and place the *minus* word card in the chart near the –. Tell students that when we subtract a number from another, we place the – between the two numbers. Demonstrate this concept by placing number cards on either side of the – (for example, 3 - 1). Say the words: "three minus one," to represent the numbers you have displayed in the pocket chart.

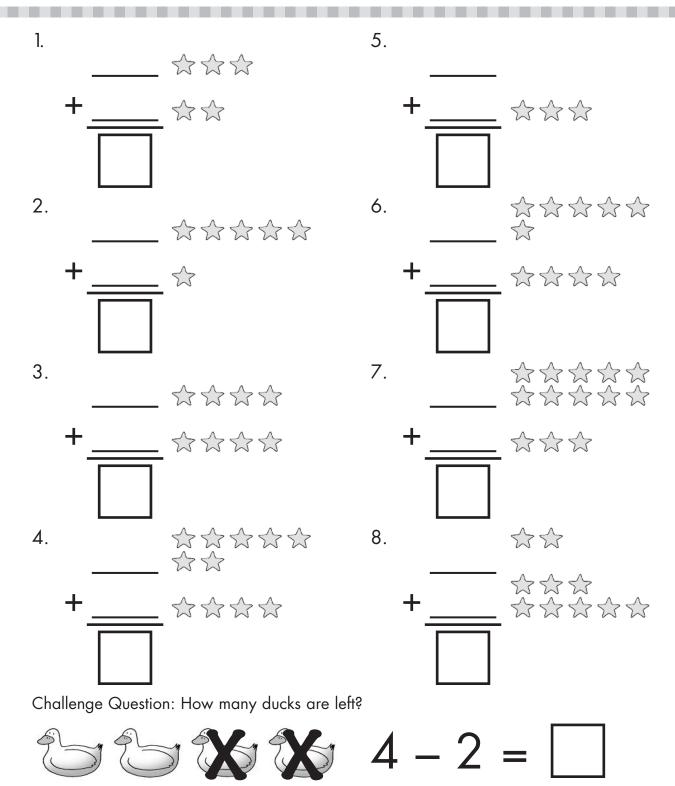
Place the = behind the number sentence you created earlier (3 - 1 =), and read the sentence to the students: "three minus one equals." Can anyone fill in the answer? Explain that the answer (2) is called the *difference*. Build additional horizontal and vertical subtraction sentences for the students to practice reading aloud. (Vertical subtraction problems may be more difficult for students to "read".)

Note to teachers: Because many of your students may be non-readers, you may need to read the instructions on each activity sheet aloud and explain the activities clearly.

Name

Warm-Up With Adding

Directions: Count the groups of stars. Form an addition problem for the groups by writing numbers on the lines. Then solve the addition problem by writing the answer in the box.



Teaching Notes: Horizontal Subtraction

Cards needed: (orange 🔆)



Presenting the concept:

Locate the number and operations cards and use them to build a simple subtraction problem horizontally in the pocket chart (for example, 6 - 4 = 2). Above the numeral cards, place the appropriate number of bird cards (six birds, four birds, and two birds). Ask a student volunteer to read the subtraction number sentence aloud ("six minus four equals two") pointing to the numbers and symbols as he or she reads them. Draw the students' attention to the bird cards, which serve as a pictorial representation of the numbers being subtracted, and the difference of these two numbers. Ask students to count the bird cards with you. Count six birds, then remove four of the bird cards from the chart, and count the number of bird cards that remain. Explain that you just subtracted four from six, to get a difference of two. Repeat this activity with other simple number sentences such as:

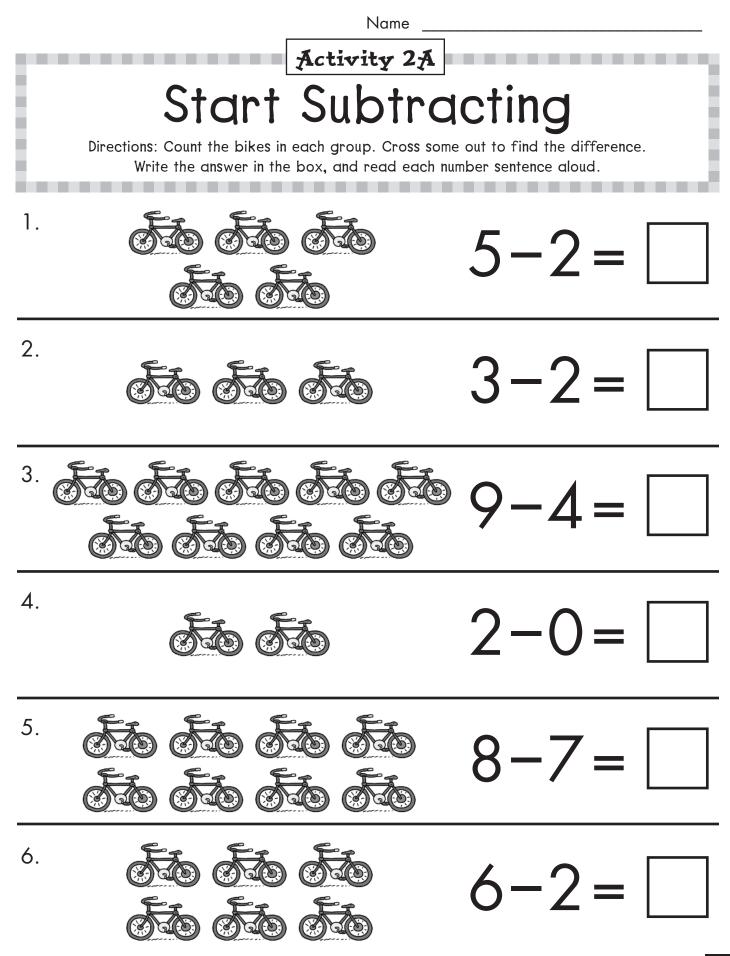
2 - 1 = 1	7 – 2 = 5	3 - 0 = 3
9 - 5 = 4	6 - 4 = 2	1 - 1 = 0

Extending the activity:

Build a series of number sentences in the pocket chart, using the number and operations cards. Leave a space for the answer, and invite students to read the number sentence and subtract to figure out the difference. The problems below are suggestions, but all of them cannot be built simultaneously, due to limited quantities of number and operations cards.

3 - 1 = 2	4 - 4 = 0	5 - 0 = 5	9 - 7 = 2	10 - 9 = 1
7 - 6 = 1	6 - 3 = 3	6 - 1 = 5	8 - 2 = 6	10 - 4 = 6

Note: Invite students to use a number line, bird cards, or a set of counters (such as buttons, pennies, or checkers) to calculate the differences in a tangible way. Higher-level students may be ready for subtraction problems that feature a missing integer, such as $8 - __= 4$. Be sure that students have mastered basic subtraction before introducing this more advanced sort of problem.



Name

Keep Subtracting

Directions: Subtract the numbers in each number sentence. Write the difference on the line, and read each number sentence aloud. Use counters to help you subtract, if you need to.

1. 9. 3-1 9 - 6 =10. 2. -() =9-/= 11. 5-2= 3. 8-() 12. 4. 5 - 48 - 3 =5. ^{13.} 4 - 1 =2 - 2 = $^{14.}7-6=$ 6. 6 - 5 =^{7.} 4-2=15. 3 - 3 =

16.

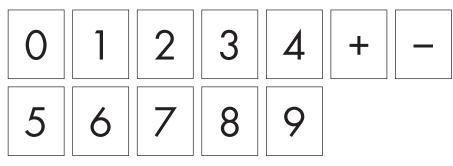
10 - 8 =

^{8.} 7-2=

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Teaching Notes: Vertical Subtraction

Cards needed: (yellow 🔆)



Presenting the concept:

Remind students of the format of vertical (up and down) subtraction by building a simple vertical subtraction problem in the pocket chart, using the equals bar you created in lesson two. Remind students that the equals bar is the same as the equals sign or the words "is equal to" or "equals." Show students where to put their answer (under the equals bar) in a vertical subtraction problem.

Extending the activity:

One set at a time, build pairs of vertical subtraction problems with the same differences in the pocket chart, side by side, based on the following list. Ask students to solve the problems and place the correct answer card into the chart. Then invite students to post their own subtraction problems in the pocket chart for their classmates to solve.

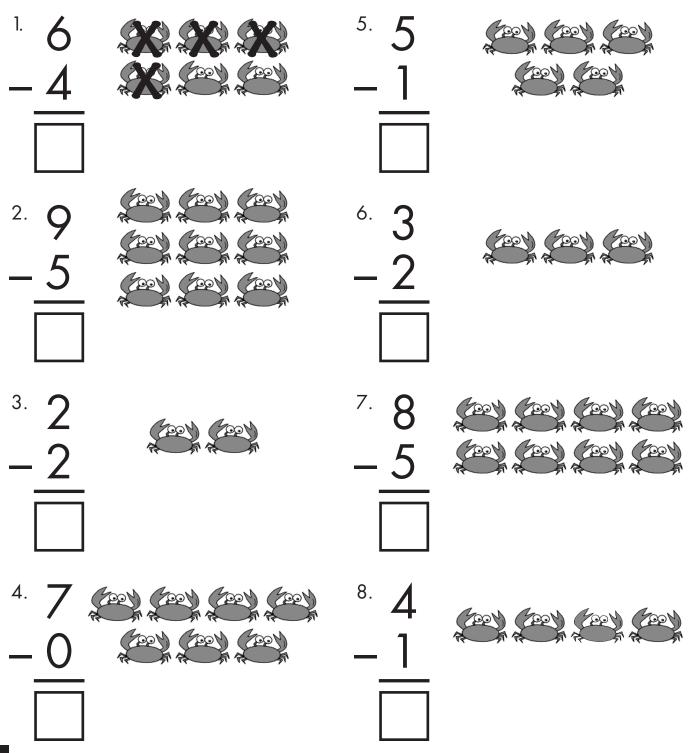
8	6	9	7	3	8	6	7
_4 -	-2	-6	-4	-2 -	-7	_ 1	-2

After you feel students have had ample practice with vertical subtraction in the pocket chart, try a Subtractathon! Fill the pocket chart with as many vertical subtraction problems as you can fit. Divide your students into two or three teams, and invite each team to take a turn completing all of the subtraction problems in the pocket chart as quickly and accurately as possible. For example, start a timer, and instruct one team to send its members, one at a time, to the chart to complete one problem each, rotating through the team members until all problems have been solved correctly. Time the team to see how long it takes for it to complete all of the problems. Then fill the chart with new problems (or the same ones, in different order) and time the next team as it completes the problems in the same fashion. Congratulate the speediest subtracters, and help the slower ones brush up on their skills.

Name

Subtraction Up and Down

Directions: Count the crabs. Then cross out some of them to find the difference. Write the answer in the box. The first problem is done for you.



Name Activity 3B

More Subtraction Up and Down

Directions: Subtract and write the answer in the box.

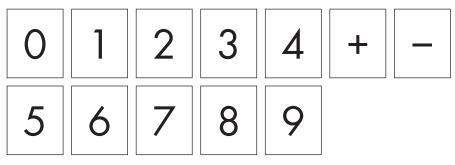
1. 5. 9. 5 3 ^{13.} **9**

2. 8	^{3.} 2	^{4.} 4
- 8	- 0	- 3
^{6.} 8	^{7.} 6	^{8.} 9
- 2	- 1	-7
^{10.} 9	^{11.} 6	^{12.} 7
- 0	- 3	- 6
^{14.} 3	^{15.} 4	^{16.} 5
- 3	- 0	- 2

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Teaching Notes: Advanced Subtraction

Cards needed: (green 🔆)



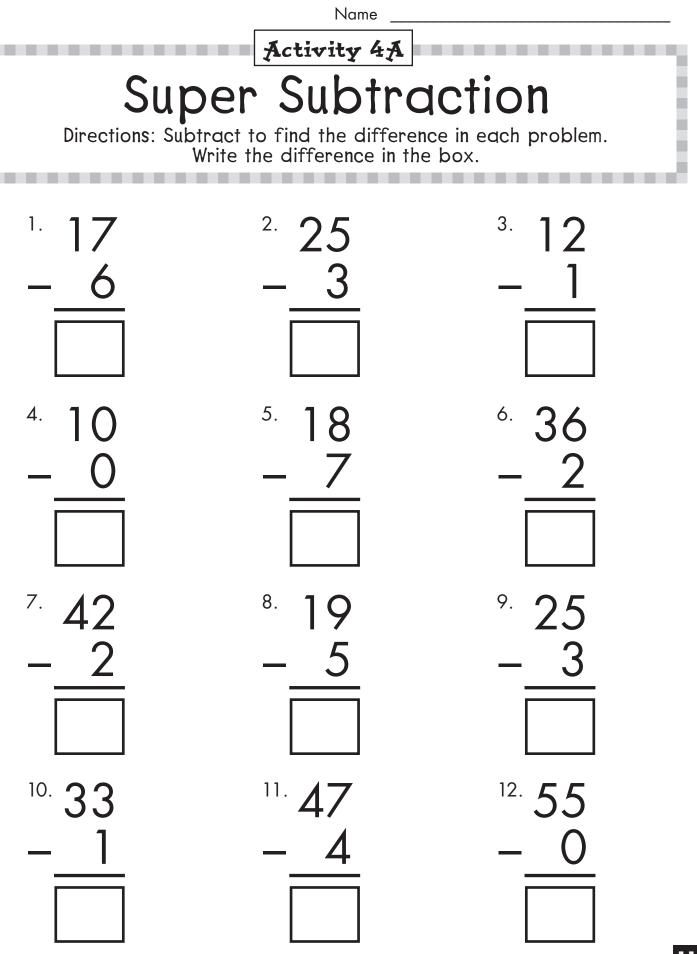
Presenting the concept:

After students have mastered basic subtraction, introduce them to the concept of subtracting 2-digit numbers! Post a subtraction problem such as 18 - 7, in the pocket chart vertically (don't forget your equals bar). Ask students to describe how they would approach a problem like this that includes a two-digit number and a one-digit number. Use counters such as paperclips, buttons, or chips to model "18," then take away "7" and invite students to count the remaining counters to see what the difference is. Repeat this sort of tangible, visual subtraction process with other two-digit/one-digit subtraction problems (17 - 5, 11 - 1, 24 - 3). Note: Small 2-digit numbers have been used in these examples to reduce the number of counters you will need for demonstrating the problems. Next, model two-digit/two-digit subtraction problems using your counters (16 - 15, 21 - 10, 19 - 12). Remind students that subtraction problems with these types of two-digit numbers (namely, ones that do not require "borrowing" in order to subtract) are approached the same way as the more simple one-digit numbers they have already been subtracting.

Extending the activity:

Post vertical subtraction problems in the pocket chart, beginning with subtraction of a one-digit number from a two-digit number, and advancing to the subtraction of two two-digit numbers. Work through several of the problems together as a class, explaining that students should first find the difference between the numbers in the ones column and write it in that column below the equals bar, and then subtract to find the difference between the numbers in the tens column and write it below the equals bar in that column. The numeral cards in this book and your classroom pocket chart are perfect for two-digit subtraction without borrowing, which is a more advanced skill, and may not be well-illustrated using a pocket chart. The problems below are a good place to start.

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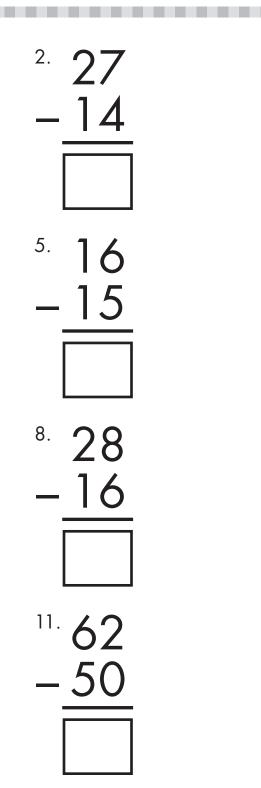
Name

Splendid Subtraction

Directions: Subtract to find the difference in each problem. Write the difference in the box.

1. 63 -214. 6 7. 35 -33 ^{10.} **74** - 62

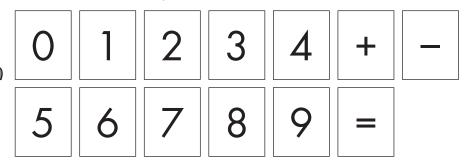
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3. 59 37 6. Д() 9. 45 24 ^{12.} **93** 92

Teaching Notes: Subtraction Story Problems

Cards needed: (blue 🔆)



Presenting the concept:

Incorporating subtraction into the format of a story problem can spice up your math lesson, and help students extract mathematical data from an everyday situation to create a math problem. Most students will be familiar with story problems from their learning experiences with addition, but it may be helpful to do a warm-up activity to remind them of the story problem format.

Ask for student participation in the creation of a personalized story problem for your classroom. Ask seven of your students to place a personal article (such as a shoe, backpack, or wristwatch) on a desk for all of your students to see. Model a story problem about those items aloud, using addition first, by giving three of the items to one student, and four of the items to another, saying "Sarah (insert a student's name here) has three backpacks. Sam (insert a student's name here) has four backpacks. If Sam gives Sarah his backpacks, how many backpacks will Sarah have? (7) How many backpacks will Sam have?" (0). Then modify this story problem example to use subtraction. "If Sarah has seven backpacks, and Sam takes five of them away from her, how many backpacks does Sarah have left?" (2).

Extending the activity:

Using the following subtraction story problems, ask students to use the number and operations cards to build corresponding horizontal or vertical subtraction equations. (Note: The problems get progressively more difficult, so you may wish to skip or modify some of them, depending on the readiness of your class.) As a fun extension to the activity, encourage students to illustrate each story problem to help them visualize it more effectively. (For example, for problem 1 below, students could draw eight purple grapes in a bowl, and cross out three of them.)

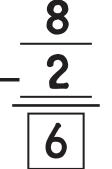
- 1. Megan had 8 grapes in her bowl, but she ate 3 of them. How many are left? (5)
- 2. Mr. Cheng rolled down 4 windows in his car, but closed 2 of them after it became too windy. How many windows were left open? (2)
- 3. In her box of markers, Emma has a blue one, a red one, a black one, a purple one, a yellow one, and an orange one. She lends her red marker to Lindsey, and her purple marker to Sean. How many markers are left in Emma's box? (4)
- 4. In the mailman's bag there were 7 letters to deliver. He puts 2 of them in your mailbox, and 5 of them in your neighbor's mailbox. How many letters are left in his bag? (0)
- 5. There are 2 chocolate doughnuts and 3 jelly doughnuts in the box. Mike eats a jelly doughnut. How many doughnuts are left? (4)
- 6. Julia folds 4 white shirts, and puts them on the shelf. Her sister takes 1 of the shirts, and her brother takes 2 of the shirts. How many shirts are left on the shelf? (1)
- 7. Grant sees 12 monkeys swinging in the tree. 10 of the monkeys drop to the ground to eat some bananas. How many monkeys are left in the tree? (2)
- 8. Molly's dog has 16 puppies. 6 of the puppies are males, and the rest of them are females. How many of the puppies are females? (10)

Name

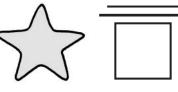
Subtract and Solve!

Directions: Read each story problem and write the numbers in the blanks. Then subtract to find the difference, and write the difference in the box.

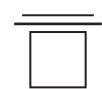
 In her basket, Grandma has 8 ears of corn. She shucks 2 of them, and asks us to do the rest. How many ears of corn still need to be shucked?



 Maria sees 13 stars twinkling in the night sky.
2 of the stars are bright, and the rest of them are dim. How many stars are dim?



 Ben baked 12 cookies and ate 1 of them. How many cookies does Ben have left?



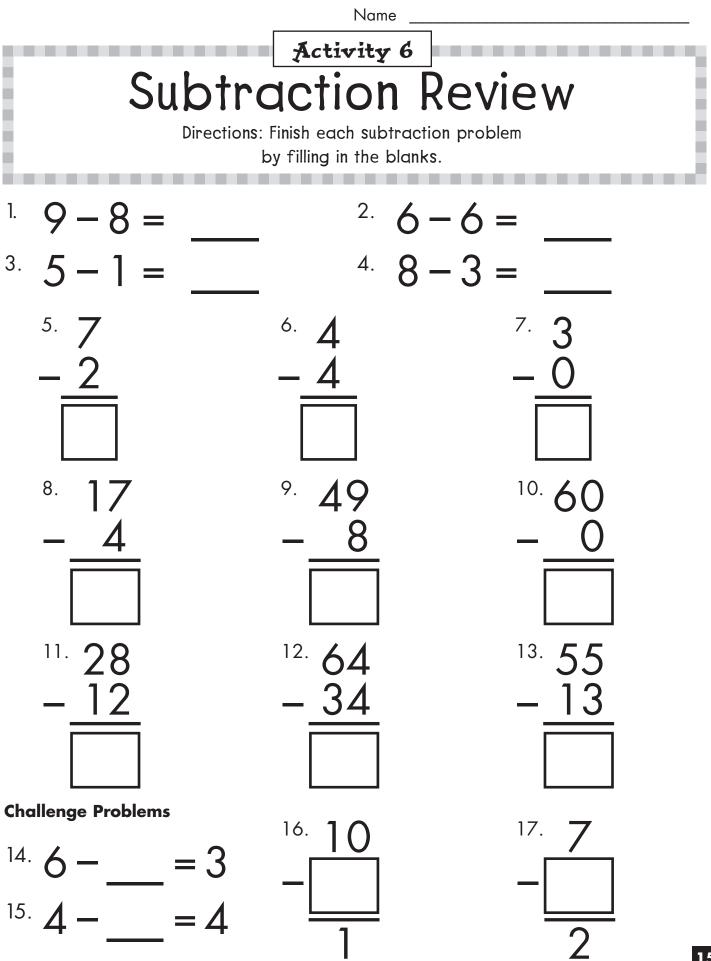
4. In the band there are 6 shiny tubas. 3 tubas are broken. How many tubas can be played?





- 5. There are 2 blue flowers and 8 red flowers in the vase. Alison gives 3 red flowers to her mother. How many flowers are left in the vase?
- 6. Megan took 4 cupcakes to school. She gave 3 of them to her friends. How many cupcakes did Megan have left?
- 7. To unlock the gate, Dan uses a key ring with 17 keys. He has tried 10 of the keys so far. How many keys does Dan have left to try?
- 8. At the store Jane buys 22 bags of birdseed. She puts 11 of them in the trunk of her car. How many bags are left?

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Reading List

Elevator Magic Stuart J. Murphy HarperCollins, NY: 1997

Lights Out! Lucille Recht Penner Kane Press, NY: 2000

Mmmm—Cookies! Monica Weiss Troll Associates, Mahwah, NJ: 1992

Monster Musical Chairs Stuart J. Murphy HarperCollins, NY: 2000

More Bugs? Less Bugs? Don L. Curry Capstone Curriculum Pub., Mankato, MN: 2000

One Less Fish Kim Michelle Toft Charlesbridge, Watertown, MA: 1998

Sea Sums Joy N. Hume Hyperion Books for Children, NY: 1996

Shark Swimathon Stuart J. Murphy HarperCollins, NY: 2001

Subtraction Alison Wells Benchmark Books, NY: 1996

Subtraction Action Loreen Leedy Holiday House, NY: 2000

Twenty Is Too Many Kate Duke Dutton's Children's Books, NY: 2000

		Cards
1		7
2		8
3		9
4		1
5		2
6		3
7		4
8		5
9		6
0		7
0		8
0		9
1		1
2		1
3		2
4		2
5		3
6		3
	3 4 5 6 7 8 9 0 0 0 0 1 2 3 4 5	3 4 5 6 7 8 9 0 0 0 1 2 3 4 5

Cards-At-A-Glance Cards are shown as front-to-back pairs.

7

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A-1	Ž	K-	
A-4	Se la construction de la constru	K-	
2-1	Z	R.	
2	Z	K.	
min	US	take aw	ay
equals		minus	;
take away		is	
is		equal	to