



## Tier 2 Mathematics Intervention

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Module: *Addition & Subtraction of Whole Numbers (ASWN)*

# Teacher Lesson Booklet



The Meadows Center  
FOR PREVENTING EDUCATIONAL RISK  
THE UNIVERSITY OF TEXAS AT AUSTIN  
COLLEGE OF EDUCATION

Mathematics Institute for Learning Disabilities and Difficulties

[www.meadowscenter.org](http://www.meadowscenter.org)

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Total Time: 25 minutes  
Instructional Time: 19 minutes  
Independent Practice: 6 minutes

Module: Addition & Subtraction of Whole Numbers  
Lesson 1

# Count On and Count Back Strategy

<b>Lesson Objectives</b>	<ul style="list-style-type: none"> <li>• The student will solve addition and subtraction facts using the count on and count back strategy.</li> <li>• The student will use the strip diagram to solve addition and subtraction problems.</li> <li>• The student will apply and explain a variety of appropriate strategies to solve problems.</li> </ul>	
<b>Vocabulary</b>	<p><b>count on:</b> to recite numerals in ascending order, up (for example: to count on 3 more than 5; 5, 6, 7, 8)</p> <p><b>count back:</b> to recite numeral in descending order, down (for example to count back 3 less than 5; 5, 4, 3, 2)</p> <p><b>sum:</b> the result of adding 2 or more numbers (for example: <math>1 + 2 = 3</math>)</p> <p><b>difference:</b> the result when 1 number is subtracted from another number (for example: <math>7 - 4 = 3</math>)</p>	
<b>Reviewed Vocabulary</b>	addition, equation, subtraction	
<b>Instructional Materials</b>	<b>Teacher</b>	<b>Student</b>
	<ul style="list-style-type: none"> <li>• Teacher Masters (pp. 1-10)</li> <li>• Strip Diagram Mat (in sheet protector)</li> <li>• Dry erase marker</li> </ul>	<ul style="list-style-type: none"> <li>• Student Booklet (pp. 1-4)</li> <li>• Strip Diagram Mat (in sheet protector; 1 per student)</li> <li>• Dry erase marker</li> </ul>

## Preview

**Say:** Today we will review the count on and count back strategy to solve addition and subtraction facts.

## Engage Prior/Informal Knowledge

Time: 3 min

Have students complete the *Engaged Practice Sheet* to review identifying what number comes before or next in a number sequence.

Ask questions and give instructions such as:

- What number comes before/next in the sequence? (*answers will vary*)
- How did you figure out what number comes before? (*counted back 1 more; subtracted 1*)
- How did you figure out what number comes next? (*counted on 1 more; added 1*)
- Count to 20.
- Count back from 20.

## Modeled Practice

Time: 8 min

1. Students will use the count on strategy to solve addition facts.

Use the *Strip Diagram Mat* and dry erase marker. The top of the diagram represents the whole. The bottom of the strip diagram represents the parts of the whole. Students will work along with the teacher using the same materials. Allow students time to complete the steps.

**Say:** This is a strip diagram. It can be used to identify the operation needed to solve. What is it used to solve? (*addition and subtraction problems*)

Point to the whole.

**Say:** The top of the diagram represents the whole, or the total. What does it represent? (*the whole or total*)

Point to the parts.

**Say:** **The bottom of the diagram represents the parts of the whole.**  
**What does it represent?** (*the parts of the whole*)

**How many parts are below the whole?** (2)

**Teacher Note**

Use the count on strategy to solve problems when adding 1, 2, or 3 to a part. Use the count back strategy to solve problems when subtracting 1, 2, or 3 from a whole.

Write “ $6 + 3 =$ ” on the line below the strip diagram.

**Say:** **Read the equation.** ( $6 + 3 =$ ) **Write it.**

**What 2 parts are we adding together?** (*6 and 3*)

**Write “6” and “3” in the parts below the whole.**

**Teacher Note**

Have students draw 3 dots to assist in counting on, if needed.

**Say:** **When we add 1, 2, or 3 to a part, we use the count on strategy.**  
**When do we use the count on strategy?** (*when we add 1, 2, or 3 to a part*)

**We start with the greater number and count on. Which number is greater: 6 or 3?** (6)

**Start with 6 and count on 3 more. Ready, count: “7, 8, 9.”**

**What is  $6 + 3$ ?** (9)

**Where do we write 9?** (*in the whole; in the top*) **Write 9 in the whole.**

The *sum* is the answer or result of the parts being added together. What number represents the *sum* in the problem? (9)

9 is the *sum*.

Erase the mat. Have students do the same. Write “ $2 + 15 =$ ” on the line below the strip diagram.

**Say:** Read the equation. ( $2 + 15 =$ ) Write it.

What strategy can we use to solve the problem? (*the count on strategy*)

Why? (*we are adding 2 to a part*)

Do we write 15 in the whole? (*no*) Why not? (*15 is a part*)

Does it matter if we write 15 first and then 2? (*no*)

Write 2 and 15 in the parts below the whole.

When we use the count on strategy, what number do we start with? (*15, the greater number*)

Why 15? (*it is the greater number*)

Start with 15 and count on 2. Ready, count: “16, 17.”

Where do we write 17? (*in the whole; in the top*) Write it.

What is the *sum* of  $2 + 15$ ? (17)

Give an example of a problem where you would use the count on strategy. (*answers will vary; problems adding 1, 2, or 3 to a part*)

2. Students will use the count back strategy to solve subtraction facts.

Erase the mat. Have students do the same. Write “ $9 - 2 =$ ” on the line below the strip diagram. Allow students time to complete the steps.

**Say:** Read the equation. ( $9 - 2 =$ )

**To solve, do we add or subtract? (subtract) How do you know?**  
(the minus or subtraction sign)

**Write the equation on the line.**

**When we subtract, we start with the whole and then take away a part. The answer, or *difference*, is the other part.**

**What number is the whole: 9 or 2? (9) How do you know? (it is a subtraction problem; we start with the whole)**

**Write “9” in the whole.**

**What part are we subtracting or taking away from the whole? (2) Write “2” in the part.**

**When we subtract 1, 2, or 3 from the whole, we use the count back strategy. When do we use the count back strategy? (when we subtract 1, 2, or 3 from the whole)**

**We start with the whole 9 and count back the part.**

**How many do we count back? (2)**

**Ready, count: “8, 7.” What is  $9 - 2$ ? (7)**

**Where do we write “7”? (in the other part) Write it.**

**The *difference* is the answer when 1 number is subtracted from another number. What number represents the *difference*? (7)**

Erase the mat. Tell students to do the same.

**Say: Listen carefully as I read the next problem. Tyron has 16 counters. He gave 3 counters to his math partner. How many counters does Tyron have left?**

**What are we solving for? (how many counters Tyron has left after he gave away some counters)**

**To find how many counters Tyron has left, do we add or subtract? (subtract) How do you know? (he had some and then gave some away)**

**How many counters did Tyron start with? (16)**

**Where do we write “16” in the strip diagram? (in the whole)**

**Write it.**

**How many did he give to his math partner? (3)**

**Where do we write “3”? (in the part) Write it.**

**Write an equation on the line that represents the problem. (16**

**– 3 =)**

**What strategy can we use to solve  $16 - 3$ ? (the count back strategy)**

**Why? (you are subtracting 3 from the whole)**

**Solve the problem on your own.**

Check students’ work.

**Say: How many counters does Tyron have left? (13)**

**In the subtraction equation  $16 - 3 = 13$ , what is 13 called? (the difference)**

## Practice

**Time: 8 min**

Activity 1: Students will solve a word problem using the count on and count back strategy. Have students turn to the *Practice Sheet* on page 2. Students will work with a math partner to complete the activity.

**Say: Solve the first problem on your own. After we discuss the answer, you will work with your math partner to solve the rest of the problems.**

Monitor students’ work and provide corrective feedback when necessary. Allow students to explain how they solved the problem.

Ask questions and give instructions such as:

- What are we solving for in the problem? (*how many cats are left after some were adopted*)

- Do we add or subtract to solve? (*subtract*) How do you know? (*some cats were adopted*)
- Read the equation. ( $12 - 3 =$ )
- What strategy will you use to solve? (*count back*) Why? (*subtracting 3 from the whole*)
- How many cats are left? (*9*)
- Give an example of a problem where you would not use the count back strategy. (*answers will vary; problems subtracting 4 or more from the whole*)

Have students complete the rest of the problems with a partner.

Activity 2: Have students turn to the *Practice Sheets* on pages 3 and 4. Students will play *Count On and Count Back Five in a Row* in pairs. Read the directions together. Decide which player will be first and which will be second. Solve using the count on or count back strategy. The player who first solves correctly 5 in a column, row, or diagonal, wins. If time permits, play an additional game.

## Independent Practice

Time: 6 min

1. For 5 minutes: Have students turn to the *Independent Practice Sheets* and complete as many items as possible.

**Say:** You will work independently for 5 minutes. Complete as many as you can. At the end of 5 minutes, we will discuss our answers as a group.

2. For the remaining time: Have students share their answers with the group. Provide corrective feedback using mathematical language from the lesson. Have students mark the total number correct at the top of the page.



Total Time: 25 minutes  
Instructional Time: 19 minutes  
Independent Practice: 6 minutes

# Module: Addition & Subtraction of Whole Numbers

## Lesson 2

### Doubles Facts

<b>Lesson Objectives</b>	<ul style="list-style-type: none"> <li>• The student will identify and solve doubles facts.</li> <li>• The student will write a subtraction fact for the doubles fact.</li> <li>• The student will apply and explain a variety of appropriate strategies to solve problems.</li> </ul>	
<b>Vocabulary</b>	<b>doubles:</b> a fact that adds the same number to itself (for example: $7 + 7 = 14$ )	
<b>Reviewed Vocabulary</b>	addition, count back, count on, difference, even numbers, odd numbers, skip count, subtraction, sum	
<b>Instructional Materials</b>	<b>Teacher</b>	<b>Student</b>
	<ul style="list-style-type: none"> <li>• Teacher Masters (pp. 11-20)</li> <li>• Strip Diagram Mat (in sheet protector)</li> <li>• Dry erase marker</li> <li>• 20 counters</li> <li>• Count On and Count Back Five in a Row card (in sheet protector)</li> <li>• Doubles cards</li> </ul>	<ul style="list-style-type: none"> <li>• Student Booklet (pp. 6-10)</li> <li>• Strip Diagram Mat (in sheet protector; 1 per student)</li> <li>• Dry erase marker</li> <li>• 20 counters (per student)</li> <li>• Doubles Bingo cards (each card in sheet protector; 1 card per student)</li> </ul>

## Preview

**Say:** Today we will solve doubles facts.

## Engage Prior/Informal Knowledge

**Time: 3 min**

Have students review the count on and count back strategy. Use 1 dry erase marker and the *Count On and Count Back Five in a Row card* in a sheet protector. The teacher will write the answers on the card. Read the directions together. The teacher will play against the students and take turns solving a problem. The first to solve 5 in a column, row, or diagonal correctly wins.

Ask questions such as:

- What is the sum/difference? (*answers will vary for each problem*)
- Which strategy did you use: count on or count back? (*answers will vary for each problem*)
- When do you use the count on strategy? (*when you add 1, 2, or 3 to a part*)
- When do you use the count back strategy? (*when you subtract 1, 2, or 3 from a whole*)

## Modeled Practice

**Time: 8 min**

1. Students will identify doubles facts.

Use *Modeled Practice Sheet #1*.

**Say:** A **doubles** is a fact that adds the same number to itself. What is a **doubles**? (*a fact that adds the same number to itself*)

**1 + 1 and 2 + 2 are doubles facts. Circle the doubles facts on your sheet.**

Circle the correct doubles facts while students work. Call out the correct doubles facts and tell students to check and correct their work. ( $7 + 7$ ,  $6 + 6$ ,  $1 + 1$ ,  $3 + 3$ ,  $5 + 5$ ,  $8 + 8$ ,  $9 + 9$ )

2. Students will solve doubles facts using counters.

Use the *Strip Diagram Mat*, dry erase markers, and counters. The teacher will model using the materials while the students work along. Allow students time to complete each step. Check their work.

**Say:** Put 3 counters in 1 part and 3 counters in the other part on the *Strip Diagram Mat*.

**Teacher Note**

Briefly review the Strip Diagram Mat, if needed. The top represents the whole and the bottom represents the parts of the whole.

**Say:** What *doubles* fact did we model with the counters? ( $3 + 3$ )

The *doubles* fact is  $3 + 3$ .

How many in all? Count on from 3. Ready, count: “4, 5, 6.”

What is  $3 + 3$ ? (6) Write “6” in the whole.

There is also a corresponding subtraction fact for this *doubles* fact.

When we subtract, we start with the whole and then subtract a part. The answer, or difference, is the other part. What is the whole? (6) Place 6 counters in the top diagram.

Now subtract and place 3 counters in the first part. What is the difference? What is left in the whole? (3)

Start with the whole 6 and count back 3. Ready, count: “5, 4, 3.”

What is the subtraction fact that goes with the *doubles* fact  $3 + 3$ ? ( $6 - 3 = 3$ )

Write the subtraction fact “ $6 - 3 = 3$ ” on the line.

Now add 1 more counter to each part. Do not erase 6 in the whole. How many counters are in each part now? (4)

What is the *doubles* fact? ( $4 + 4$ )

Instead of counting each 1 count by groups of 2. Ready, count: “2, 4 ... 8.”

How many groups of 2? (4)

We counted by 2s 4 times.

What is the sum of  $4 + 4$ ? (8) Write “8” in the whole after the 6.

What is the subtraction fact that goes with the *doubles* fact  $4 + 4$ ? ( $8 - 4 = 4$ )

Add 1 more counter to each part. How many counters are in each part? (5)

What is the *doubles* fact? ( $5 + 5$ )

Count by groups of 2. Ready, count: “2, 4 ... 10.”

How many groups of 2 are there? (5)

We counted by 2s 5 times.

What is  $5 + 5$ ? (10) Write “10” in the whole next to the 8.

What is the subtraction fact that goes with this *doubles*? ( $10 - 5 = 5$ )

Model the *doubles* fact “ $6 + 6$ ” with the counters.

How many counters are in each part (6)

Count by 2s. Ready, count: “2, 4 ... 12.”

What is  $6 + 6$ ? (12) Write “12” in the whole next to the 10.

How would we solve  $7 + 7$ ? (skip count by 2s 7 times, add 2 to 12)

What is sum  $7 + 7$ ? (14) Write “14” in the whole.

Read the numbers written in the whole. (6, 8, 10, 12, 14)

**What do you notice about 6, 8, 10, 12, 14?** (*the sums skip count by 2s*)

**The sums of *doubles* skip count by 2s. Are 6, 8, 10, 12, and 14 odd or even numbers?** (*even*)

**The sums of *doubles* are even.**

3. Students will write the sums of doubles facts in the table.

Tell students to turn to *Modeled Practice Sheet #2*. Students may continue to use the *Strip Diagram Mat* and counters to solve doubles if needed.

**Say:** Write the sum of the *doubles* in pairs.

Check students' work.

**Say:** How did you solve  $8 + 8$ ? (*skip count by 2s 8 times, add 2 to 14*)

**What is  $8 + 8$ ?** (*16*)

**What is the subtraction fact that goes with the *doubles* fact  $8 + 8$ ?** ( *$16 - 8 = 8$* ) **How do you know?** (*the whole is 16 and if we subtract a part, 8, then the difference is 8*)

**How did you solve  $9 + 9$ ?** (*skip count by 2s 9 times, add 2 to 16*)

**What is the sum of  $9 + 9$ ?** (*18*)

**Read the sums going down the table.** (*2, 4, 6, 8, 10, 12, 14, 16, 18*)

## Practice

Time: 8 min

Activity 1: Students will solve a word problem using doubles facts. Have students turn to the *Practice Sheet* on page 8. Students will work with a math partner to complete the activity.

**Say:** Solve the first problem on your own. After we discuss the answer, you will work with your math partner to solve the rest of the problems.

Monitor students' work and provide corrective feedback when necessary. Allow students to explain how they solved the problem.

Ask questions and give instructions such as:

- What are we solving for in the problem? (*how many trees were planted altogether*)
- Do we add or subtract to solve? (*add*)
- What is the *doubles* fact used to solve the problem? ( $9 + 9$ )
- How many trees were planted? (*18*)

Have students complete the rest of the problems with a partner.

Activity 2: Students will play *Doubles Bingo* with the teacher. Use the dry erase marker, *Doubles Bingo cards* (4 different cards), and *Doubles cards*. Students may play individually or in pairs (1 card per pair). The teacher will show and call out the doubles fact on the *Doubles card*. Students will mark the square with the correct sum using the dry erase marker. The first player to have 6 in a column, row, or diagonal wins. Play again, if time permits. Tell students to keep or trade their *Doubles Bingo card* before beginning the next game.

## Independent Practice

Time: 6 min

1. For 5 minutes: Have students turn to the *Independent Practice Sheets* and complete as many items as possible.
 

**Say:**     **You will work independently for 5 minutes. Complete as many as you can. At the end of 5 minutes, we will discuss our answers as a group.**
2. For the remaining time: Have students share their answers with the group. Provide corrective feedback using mathematical language from the lesson. Have students mark the total number correct at the top of the page.



Total Time: 25 minutes  
Instructional Time: 19 minutes  
Independent Practice: 6 minutes

## Module: Addition & Subtraction of Whole Numbers Lesson 3

# Doubles +1 Facts

<b>Lesson Objectives</b>	<ul style="list-style-type: none"> <li>• The student will identify and solve doubles +1 facts.</li> <li>• The student will write a subtraction fact for the doubles +1 fact.</li> <li>• The student will apply and explain a variety of appropriate strategies to solve problems.</li> </ul>	
<b>Vocabulary</b>	<b>number family:</b> a set of corresponding addition and subtraction facts.	
<b>Reviewed Vocabulary</b>	addition, count back, count on, difference, doubles, even numbers, odd numbers, skip count, subtraction, sum	
<b>Instructional Materials</b>	<b>Teacher</b>	<b>Student</b>
	<ul style="list-style-type: none"> <li>• Teacher Masters (pp. 21-30)</li> <li>• Doubles cards</li> <li>• Doubles +1 cards</li> <li>• Number line</li> </ul>	<ul style="list-style-type: none"> <li>• Student Booklet (pp. 11-15)</li> <li>• Dry erase marker</li> <li>• Doubles Bingo cards (each card in sheet protector; 1 card per student)</li> </ul>

## Preview

**Say:** Today we will solve doubles +1 facts using the number line and our knowledge of doubles facts.

## Engage Prior/Informal Knowledge

Time: 3 min

Have students review the doubles facts. Play *Doubles Bingo* with students. Use the dry erase marker, *Doubles Bingo cards*, and *Doubles cards*. The teacher will show and call out the doubles fact on the *Doubles Card*. Students will mark the square with the correct sum using the dry erase marker. The first player to have 6 in a column, row, or diagonal wins. Play again, if time permits. Students may play in pairs (1 card per pair).

Ask questions such as:

- What is the sum? (*answers will vary for each problem*)
- What do you notice about the sums of doubles? Are they odd or even? (*the sums of doubles are even*)
- How did you solve the doubles? (*skip count by 2s, added 2*)
- What is the subtraction fact that goes with the doubles? (*answers will vary for each problem*)

## Modeled Practice

Time: 8 min

1. Students will identify doubles +1 facts.

Use the *Doubles cards* and *Doubles +1 cards*. Have a **number line** ready to reinforce and show numbers 1 more than another number. Shuffle the cards into 1 stack. Categorize the cards into doubles facts or doubles +1 facts with students.

**Say:** What is a doubles fact? (*the same numbers added together*)

**Give me an example of a doubles fact.** (*allow a variety of answers, such as  $1 + 1$ ,  $3 + 3$* )

**A doubles +1 fact has a number 1 more than the other number.**

**What is a doubles +1 fact?** (*a fact that has a number 1 more than the other number*)

**What is 1 more than 6?** (7) **What is 1 more than 5?** (6)

**5 + 6 and 9 + 8 are doubles +1 facts. Look at the fact on the card and determine if the fact is a doubles or doubles +1.**

Continue until all cards are sorted.

- Students will solve doubles +1 facts using the number line.

Use *Modeled Practice Sheet #1*. The teacher will model using the number line on the sheet while the students work along. Check their work.

**Say:** **Read the problem.** ( $3 + 4$ )

**Is this a doubles or doubles +1 fact?** (*doubles +1*)

**How do you know?** (*4 is 1 more than 3*)

**First we double the least number. Then add 1.**

**Which number is less: 3 or 4?** (3)

**Double 3. What's the 3 doubles fact?** ( $3 + 3$ ) **What is 3 + 3?** (6)

**Jump from 3 to 6 on the number line.**

**After we double the least number we add 1 more. What is 6 + 1 more?** (7) **What number is next to 6 on the number line?** (7)

**Show a jump from 6 to 7 on the number line.**

**What is 3 + 4?** (7)

**7 is the sum. Write it on the line.**

**Read the next problem.** ( $5 + 4$ )

**Are 5 and 4 next to each other on the number line?** (*yes*)

**What kind of fact is 5 + 4?** (*doubles +1*)

**What do we do first?** (*double the least number*)

**What number is less: 5 or 4?** (4)

**What do we do to 4?** (*double 4*)

**What is the 4 doubles fact?** ( $4 + 4$ ) **Where do we start on the number line?** (4)

**What is  $4 + 4$ ?** (8) **Make a jump from 4 to 8 to show the doubles fact.**

**After we double the least number we add 1 more. What do we do next?** (*add 1 more*) **What is  $8 + 1$  more?** (9) **Make a jump from 8 to 9 on the number line. Are 8 and 9 next to each other on the number line?** (*yes*)

**Write 9 in the sum.**

**Is  $9 + 9$  a doubles or doubles +1 fact?** (*doubles*) **How do you know?** (*it's the same number*)

**Read the next problem.** ( $5 + 6$ )

**What kind of fact is this?** (*doubles +1*) **How do you know?** (*6 is 1 more than 5*)

**Do we double 5 or 6?** (5) **What is  $5 + 5$ ?** (10) **What is 10 plus 1 more?** (11) **Write it.**

**If we change the order of the numbers to  $6 + 5$ , will the sum equal 11?** (*yes*) **Why?** (*you can change the order of the parts and the sum or the whole number is the same*)

**$5 + 6$  and  $6 + 5$  equals 11. Write the 2 addition facts on the line.**

Check students' work.

3. Students will identify addition and subtraction facts in a number family.

Continue using *Modeled Practice Sheet #1*.

**Say:** These 2 addition facts belong to a *number family*.

**A *number family* is a set of corresponding facts: 2 addition and 2 subtraction facts. Each fact in a *number family* has the 3 same numbers.**

**What is a *number family*? (a set of corresponding facts, 2 addition and 2 subtraction facts) Are the numbers the same in each fact? (yes)**

**What 2 subtraction facts belong in this *number family*? ( $11 - 5 = 6$  and  $11 - 6 = 5$ ) Write them on the line.**

**Which 3 numbers are in each fact of this *number family*? (5, 6, 11)**

**Read the next doubles +1 fact. ( $7 + 6$ ) What doubles fact helps us solve  $7 + 6$ ? ( $6 + 6$ )**

**What is  $6 + 6$ ? (12) What is 12 plus 1 more? (13)**

**What is  $7 + 6$ ? (13) Write it.**

**If we change the order of the numbers to  $6 + 7$ , what is the sum? (13)**

**What 2 subtraction facts belong to this *number family*? ( $13 - 6 = 7$  and  $13 - 7 = 6$ )**

**Does  $6 - 13$  belong to this *number family*? (no) Why not? ( $6 - 13$  does not equal 7; each fact in the number family has the same numbers)**

**Which 3 numbers are in each fact of this *number family*? (6, 7, 13) Write them.**

**Read the next problem. ( $7 + 8$ ) What doubles fact helps us solve  $7 + 8$ ? ( $7 + 7$ )**

**What is  $7 + 7$ ? (14) Plus 1 more? (15) Write 15 in the sum.**

**Read the sums of the doubles +1 facts. (7, 9, 11, 13, 15)**

**Are the sums 7, 9, 11, 13, 15 odd or even?** (*the sums are odd*)

**The sums of doubles +1 are odd.**

**What do we know about the sums of doubles?** (*the sums are even*)

**Is  $3 + 14$  a doubles +1 fact?** (*no*) **How do you know?** (*14 is not 1 more than 3*)

**What strategy would you use to solve  $3 + 14$ ?** (*count on*)

**Why count on?** (*use count on when adding 1, 2, or 3*)

**What type of fact is  $8 + 9$ ?** (*doubles + 1*)

**What is  $8 + 9$ ?** (*17*)

Wait 3-5 seconds for students to work.

**Say:** **How did you solve it?** (*double the least number 8 and add 1 or double 8 by counting by 2s 8 times and add 1*)

**Is 17 odd or even?** (*odd*)

## Practice

**Time: 8 min**

Activity 1: Students will solve a word problem using doubles +1 facts. Have students turn to the *Practice Sheet* on page 12. Students will work with a math partner to complete the activity.

**Say:** **Solve the first problem on your own. After we discuss the answer, you will work with your math partner to solve the rest of the problems.**

Monitor students' work and provide corrective feedback when necessary. Allow students to explain how they solved the problem.

Ask questions and give instructions such as:

- What are we solving for in the problem? (*how many books were checked out*)

- Do we add or subtract to solve? (*add*) Explain why.
- How many books were checked out by the third grade teacher? (*8 books*)
- How many books were checked out by the fourth grade teacher? (*7*)
- What is the doubles +1 fact used to solve the problem? (*8 + 7 or 7 + 8*)
- How many books were checked out altogether? (*15*)

Have students complete the rest of the problems with a partner.

Activity 2: Have students turn to the *Practice Sheet* on page 13. Students will play *Doubles +1 Tic Tac Toe* in pairs. Read the directions together. Players will take turns selecting a doubles plus 1 problem and then will write the doubles fact used to help solve it and the sum in the box. If the sum is correct, the player will mark the box with “X” or “O.” The player who first has 4 in a column, row, or diagonal wins.

## Independent Practice

Time: 6 min

1. For 5 minutes: Have students turn to the *Independent Practice Sheets* and complete as many items as possible.

**Say:** You will work independently for 5 minutes. Complete as many as you can. At the end of 5 minutes, we will discuss our answers as a group.

2. For the remaining time: Have students share their answers with the group. Provide corrective feedback using mathematical language from the lesson. Have students mark the total number correct at the top of the page.



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Instructional Time: 19 minutes  
Independent Practice: 6 minutes

Module: Addition & Subtraction of Whole Numbers  
Lesson 4

# Make 10 Plus More Strategy

<b>Lesson Objectives</b>	<ul style="list-style-type: none"> <li>• The student will solve and write addition facts that equal 10.</li> <li>• The student will identify and write facts in a number family.</li> <li>• The student will solve addition and subtraction facts using the Make 10 Plus More Strategy.</li> <li>• The student will apply and explain a variety of appropriate strategies to solve problems.</li> </ul>	
<b>Vocabulary</b>	<b>No new words are introduced.</b>	
<b>Reviewed Vocabulary</b>	addition, count back, count on, difference, number family, subtraction, sum	
<b>Instructional Materials</b>	<b>Teacher</b>	<b>Student</b>
	<ul style="list-style-type: none"> <li>• Teacher Masters (pp. 31-36)</li> <li>• Ten Frame Mat (in sheet protector)</li> <li>• Strip Diagram Mat (in sheet protector)</li> <li>• Dry erase marker</li> <li>• 20 counters</li> </ul>	<ul style="list-style-type: none"> <li>• Student Booklet (pp. 16-18)</li> <li>• Ten Frame Mat (in sheet protector; 1 per student)</li> <li>• Strip Diagram Mat (in sheet protector; 1 per student)</li> <li>• Dry erase marker</li> <li>• 20 counters (per student)</li> </ul>

## Preview

**Say:** Today we will solve facts using the **Make 10 Plus More Strategy**.

## Engage Prior/Informal Knowledge

**Time: 3 min**

Have students review the Make 10 Strategy. Students will break apart 10. Use the *Strip Diagram Mat* and 10 counters to solve.

Ask questions and give instructions such as:

- How many counters do you have? (10) Put 2 counters in 1 part. Move the rest to the other part. How many more make 10? (8)
- Put 4 counters in one part. How many more make 10? (6)
- Put 5 counters in one part. How many more make 10? (5)
- Put 10 counters in the whole. Break apart 10 into 3 and 7. What is  $3 + 7$ ? (10) What number plus 3 equals 10? (7) What number plus 7 equals 10? (3)
- Move 10 counters to the whole. Take away 3. How many are left? (7) What is  $10 - 3$ ? (7) What is  $10 - 7$ ? (3)
- What is a set of corresponding addition and subtraction facts called? (*a number family*)

If time permits, tell students to use the Make 10 Strategy using different numbers. Use the counters and write a number family. Allow students to share their work.

## Modeled Practice

Time: 8 min

- Students will solve facts using the Make 10 Plus More Strategy.

Use the *Ten Frame Mat* and 20 counters. The teacher will model using the materials while the students work along. Check their work.

**Say:** This is the Ten Frame Mat. How many rectangles are there? (2)

Each rectangle is divided into how many parts? (10)

Write “ $8 + 5 =$ ” on the line on the *Ten Frame Mat*.

**Say:** Read the problem. ( $8 + 5 =$ )

Is this a doubles fact? (no)

How do you know? (not adding the same numbers together)

Is it a doubles +1 fact? (no)

How do you know? (8 and 5 are not next to each other on the number line; not 1 away from each other)

Can we use the count on strategy to solve? (no) Why not? (we are not adding 1, 2, or 3)

We are going to use the Make 10 Plus More Strategy.

Put 8 counters in the first rectangle.

How many do we put in the other rectangle? (5) Do it.

First we make the greater number 10. Which number is greater: 8 or 5? (8)

We are going to move some counters to the rectangle of 8 to make 10. How many more do we need to make 10? (2)

$8 +$  what number equal 10? (2)

Move 2 counters.

We made 10. How many are left in the other rectangle? (3)

**Start with 10 and count on 3 more. Ready, count: “11, 12, 13.”**

**10 plus 3 equals 13. What is  $8 + 5$ ? (13)**

Write “13” in the sum.

**Say: We made 10 starting with the greater number 8.**

**Can we start with 5 instead and make 10? (yes)**

**Move the counters back to 8 in 1 rectangle and 5 in the other.**

**In the rectangle of 5, how many more do we need to make 10?  
(5) Do it.**

**What did we make? (10) How many are left? (3)**

**What is  $10 + 3$ ? (13)**

**Does the order of the numbers added together change the sum?  
(no) Why? (when adding we can change the order of the parts)**

**$5 + 8$  and  $8 + 5$  both equal 13. What is the whole number? (13)**

**What are the subtraction facts for this number family? ( $13 - 5 = 8$  or  $13 - 8 = 5$ )**

Erase the last problem and write “ $9 + 6 =$ ” on the line on the *Ten Frame Mat*.

**Say: Read the problem. ( $9 + 6 =$ ) Put the correct number of counters in each rectangle.**

Check students’ work.

**Say: What kind of fact? (Make 10 Plus More fact) How do you know? (accept reasonable answers; not adding a 1, 2 or 3; the numbers are not the same) What strategy do we use to solve? (Make 10 Plus More)**

**First we make the greater number 10. What is the first step? (make the greater number 10) What is the greater number? (9)**

**9 plus what number is 10, or how many more do we need to make 10?** (1)

**Move 1 counter. How many are left?** (5)

**What is  $10 + 5$ ? (15) Then what is  $9 + 6$ ?** (15)

**Next solve  $15 - 6$ . Think of 6 as  $5 + 1$ .**

**Take away 5 counters. How many are left?** (10)

**We made 10. Then take away 1 more. What is left?** (9)

**What is  $15 - 6$ ?** (9)

**9 is the difference.**

**What other subtraction fact is in this number family?** ( $15 - 9 = 6$ )

**Is  $9 - 6$  in this number family?** (no) **Why not?** (the difference, 3, is not a number in this number family)

Erase the last problem and write " $4 + 8 =$ " on the line on the *Ten Frame Mat*.

**Say:** **Read the problem.** ( $4 + 8 =$ )

**What kind of fact?** (*Make 10 Plus More*)

**How do you know?** (*not a count on because we are not adding 1, 2 or 3; not a doubles fact or a doubles+1*)

**Put the correct number of counters in each rectangle.**

**What is the first step to solving Make 10 Plus More facts?**  
(*make the greater number 10*)

**8 plus what number is 10, or how many more do we need to make 10?** (2)

**Move 2 counters.**

**What did we make?** (10)

**How many are left?** (2)

**What is  $10 + 2$ ?** (12)

**What is the sum of  $8 + 4$ ?** (12)

**Next solve  $12 - 8$ . Think of 8 as 5 plus what?** (3)

**Take away 5. How many are left?** (7)

**What is  $7 - 3$ ?** (4)

**What is  $12 - 8$ ?** (4)

**What other subtraction fact is in this number family?** ( $12 - 4 = 8$ )

Erase the last problem and write " $7 + 9 =$ " on the line on the *Ten Frame Mat*.

**Say:** **Read the problem.** ( $7 + 9 =$ )

**What kind of fact?** (*Make 10 Plus More*)

**Put the correct number of counters in each rectangle.**

**What is the first step?** (*make the greater number 10*)

**9 plus what number equals 10?** (1)

**Move 1 counter. What do we add to 10?** (6)

**What is  $10 + 6$ ?** (16)

**What is the sum of  $7 + 9$ ?** (16)

Erase the last problem and write " $5 + 7 =$ " on the line on the *Ten Frame Mat*.

**Say:** **What strategy can you use to solve  $5 + 7$ ?** (*Make 10 Plus More*)

**Use the counters and solve.**

Wait 5-7 seconds for students to work. Tell students to discuss and demonstrate how to solve the problems with a partner.

**Say:**     **What did you add to 10?** (2)

**What is  $5 + 7$ ?** (12)

## Practice

**Time: 8 min**

Activity 1: Students will solve facts using the Make 10 Plus More Strategy. Have students work with partners, using the *Ten Frame Mat* and 20 counters. Write the following problems on the whiteboard:

- $4 + 9 =$
- $8 + 6 =$
- $7 + 4 =$
- $8 + 3 =$

Monitor students' work and provide corrective feedback when necessary. Ask questions and give instructions such as:

- What kind of fact? (*make 10 plus more*)
- How did you and your partner solve this problem?
- What other facts are in this number family?

Activity 2: Students will solve a word problem using the Make 10 Plus More Strategy. Have students turn to the *Practice Sheet* on page 16. Students will work with a math partner to complete the activity. Monitor students' work and provide corrective feedback when necessary. Allow students to explain how they solved the problem.

## Independent Practice

Time: 6 min

1. For 5 minutes: Have students turn to the *Independent Practice Sheets* and complete as many items as possible.

**Say:**     **You will work independently for 5 minutes. Complete as many as you can. At the end of 5 minutes, we will discuss our answers as a group.**

2. For the remaining time: Have students share their answers with the group. Provide corrective feedback using mathematical language from the lesson. Have students mark the total number correct at the top of the page.



**Total Time: 25 minutes**  
Instructional Time: 19 minutes  
Independent Practice: 6 minutes

**Module: Addition & Subtraction of Whole Numbers**  
Lesson 5

# Make 10 Plus More Strategy

<b>Lesson Objectives</b>	<ul style="list-style-type: none"> <li>• The student will solve addition and subtraction facts using the Make 10 Plus More Strategy.</li> <li>• The student will identify and write corresponding facts in a number family.</li> <li>• The student will apply and explain a variety of appropriate strategies to solve problems.</li> </ul>	
<b>Vocabulary</b>	<b>No new words are introduced.</b>	
<b>Reviewed Vocabulary</b>	addition, count back, count on, difference, number family, subtraction, sum	
<b>Instructional Materials</b>	<b>Teacher</b>	<b>Student</b>
	<ul style="list-style-type: none"> <li>• Teacher Masters (pp. 37-48)</li> <li>• Ten Frame Mat (in sheet protector)</li> <li>• Dry erase marker</li> <li>• 20 counters</li> </ul>	<ul style="list-style-type: none"> <li>• Student Booklet (pp. 19-24)</li> <li>• Ten Frame Mat (in sheet protector; 1 per student)</li> <li>• Dry erase marker</li> <li>• 20 counters (per student)</li> </ul>

## Preview

**Say:** Today we will review solving facts using the **Make 10 Plus More Strategy**.

## Engage Prior/Informal Knowledge

**Time: 3 min**

Have students review the Make 10 Plus More Strategy using the *Ten Frame Mat* and counters.

Ask questions such as:

- How many more do you need to make 10? (*answers will vary*)
- What is  $9 + 4$ ? (*13*) What 3 numbers are in this number family? (*9, 4, 13*)
- What are the addition and subtraction facts in this number family? ( $4 + 9 = 13$ ,  $13 - 9 = 4$ ,  $13 - 5 = 4$ )
- Does the order of the numbers added together change the sum? (*no*) Why? (*in addition, you can change the order of the parts and the whole is the same*)
- What is  $5 + 8$ ? (*13*) What is the difference of  $13 - 8$ ? (*5*)
- What is the sum of  $9 + 7$ ? (*16*)
- What is  $6 + 9$ ? (*15*) What is the difference of  $15 - 6$ ? (*9*)
- What is the sum of  $8 + 4$ ? (*12*)

## Modeled Practice

**Time: 8 min**

1. Students will solve facts using the Make 10 Plus More Strategy using the number line.

Use *Modeled Practice Sheet #1*. Students will work along with the teacher.

**Say:** Read the first problem. ( $8 + 6 =$ ) **Are we adding 7, 8, or 9?** (*yes*)  
**Are we adding 7, 8, or 9 to a number greater than 3?** (*yes*)

**What kind of fact is  $8 + 6$ ?** (*Make 10 Plus More fact*)

**When do you use the Make 10 Plus More Strategy?** (*when you add 7, 8, or 9 to a number*)

**Place your finger on 8 on the number line. How many more to 10?** (2)

**$8 + 2 = 10$ . To make 10 we take 2 away from 6. What is  $6 - 2$ ?** (4)

### Teacher Note

To solve  $6 - 2$  students should be encouraged to use the count back strategy. Start with the greater number in their head and then count back 2.

**Say:** **Add 10 plus 4. What is the sum?** (14) **Then what is  $8 + 6$ ?** (14)  
**Write it.**

**State 1 subtraction fact using the numbers in this number family.** ( $14 - 6 = 8$  or  $14 - 8 = 6$ )

**Read the next problem.** ( $7 + 9 =$ ) **Are we adding 7, 8, or 9?** (yes)

**What strategy do we use?** (*Make 10 Plus More*)

**Why not count on?** (*we are not adding 1, 2, or 3*)

**Where do we start on the number line?** (*at 9*)

**Start at 9. How many more to 10?** (1)

**What do we subtract from 7?** (1) **Why 1?** (*because to make 10 we need 1 more*)

**We subtract 1 from 7 because we need 1 more to make 10.**

**What is  $7 - 1$ ?** (6)

**Add 6 to 10. What is the sum?** (16) **Then what is  $7 + 9$ ?** (16)

**Write it. What are the parts?** (7 and 9) **What is the whole?** (16)

**Change the order of the parts. What is  $9 + 7$ ? (16)**

**$7 + 9$  and  $9 + 7$  belong to what? (a number family)**

**Is  $9 - 7$  a fact in this number family? (no) Why not? (because  $9 - 7$  does not equal 16; 2 is not a number in the number family)**

**What 2 corresponding subtraction facts are in this number family? ( $16 - 7 = 9$  and  $16 - 9 = 7$ )**

**Think. What strategy would you use to solve  $9 + 2$ ? (count on) Why the count on strategy? (we are adding 2) What is  $9 + 2$ ? (11)**

**Read the next problem. ( $5 + 7 =$ ) What strategy do we use? (Make 10 Plus More) How do you know? (we are adding 7)**

**Where do we start on the number line? (at 7)**

**How many more to 10? (3)**

**What do we subtract from 5? (3) Why 3? (to make 10 we need 3 more)**

**What is  $5 - 3$ ? (2)**

**What is the  $10 + 2$ ? (12) Then what is  $5 + 7$ ? (12) Write it.**

2. Students will solve facts using the Make 10 Plus More Strategy.

Use *Modeled Practice Sheet #2*.

**Say: Read the problem. ( $9 + 5 =$ )**

**What is the best strategy to solve this problem? (Make 10 Plus More)**

**When do we use the Make 10 Plus More Strategy? (when we are adding 7, 8, or 9 to a number)**

**Think about 9. How many more do we need to make 10? (1)**

**We need 1 more to make 10. Draw a line through 9 and write 10 below it.**

**What do we subtract from 5? (1) Why 1?** (*we need 1 more to make 10*)

**How many are left? (4) Write 4 below 5.**

**Now add 10 plus 4 more. What is  $10 + 4$ ? (14) Write it. Then what is  $9 + 5$ ? (14)**

**Read the next problem. ( $4 + 7 =$ ) What are we adding to 4? (7)**

**What is the best strategy to solve this problem?** (*Make 10 Plus More*)

**Think about 7. How many more do we need to make 10? (3)**

**Draw a line through 7 and write 10 below it.**

**What do we subtract from 4? (3) Why 3?** (*we need 3 more to make 10*)

**What is  $4 - 3$ ? (1) Write 1 below 4.**

**What is  $1 + 10$ ? (11) Write it. Then what is  $4 + 7$ ? (11)**

**Solve  $4 + 9$ .**

Wait 5-7 seconds for students to work. Check students' work.

**Say:** **What are we adding to 4? (9)**

**What did you subtract from 4? (1)**

**What is  $4 + 9$ ? (13)**

## Practice

**Time: 8 min**

Activity 1: Students will solve a word problem using the Make 10 Plus More Strategy. Have students turn to the *Practice Sheet* on page 21. Students will work with a math partner to complete the activity.

**Say:** **Solve the first problem on your own. After we discuss the answer, you will work with your math partner to solve the rest of the problems.**

Monitor students' work and provide corrective feedback when necessary. Allow students to explain how they solved the problem.

Ask questions and give directions such as:

- What are we solving for in the problem? (*how many cartons of milk were sold*)
- What is the important information we need to solve the question? (*5 cartons of chocolate milk, 8 cartons of vanilla milk*) Circle it.
- How many cartons of chocolate milk were sold? (5)
- How many cartons of vanilla milk were sold? (8)
- How many cartons of chocolate and vanilla milk were sold in all? (13)

Have students complete the rest of the problems with a partner.

Activity 2: Have students turn to the *Practice Sheet* on page 22. Students will play *Make 10 Plus More Tic Tac Toe* in pairs. Players will take turns selecting a problem. Students will then write the sum in the box. If the sum is correct, the player will mark the box with "X" or "O." The player who first has 4 in a column, row, or diagonal wins.

## Independent Practice

Time: 6 min

1. For 5 minutes: Have students turn to the *Independent Practice Sheets* and complete as many items as possible.

**Say:** You will work independently for 5 minutes. Complete as many as you can. At the end of 5 minutes, we will discuss our answers as a group.

2. For the remaining time: Have students share their answers with the group. Provide corrective feedback using mathematical language from the lesson. Have students mark the total number correct at the top of the page.



Total Time: 25 minutes  
Instructional Time: 19 minutes  
Independent Practice: 6 minutes

Module: Addition & Subtraction of Whole Numbers  
Lesson 6

# Missing Number

<b>Lesson Objectives</b>	<ul style="list-style-type: none"> <li>• The student will find the missing number in addition equations through sums of 20.</li> <li>• The student will identify and write facts in a number family.</li> <li>• The student will apply and explain a variety of appropriate strategies to solve problems.</li> </ul>	
<b>Vocabulary</b>	<p><b>unknown:</b> the variable in the equation to be solved, represented by a letter, such as <math>n</math>, that represents an unknown number in a mathematical expression</p>	
<b>Reviewed Vocabulary</b>	<p>addition, count back, count on, difference, equation, number family, subtraction, sum</p>	
<b>Instructional Materials</b>	<b>Teacher</b>	<b>Student</b>
	<ul style="list-style-type: none"> <li>• Teacher Masters (pp. 49-60)</li> <li>• Strip Diagram Mat (in sheet protector)</li> <li>• Dry erase marker</li> <li>• Base-10 materials: 20 ones</li> </ul>	<ul style="list-style-type: none"> <li>• Student Booklet (pp. 25-30)</li> <li>• Strip Diagram Mat (in sheet protector; 1 per student)</li> <li>• Dry erase marker</li> <li>• Base-10 materials: 20 ones (per student)</li> </ul>

## Preview

**Say:** Today we will solve for the missing part in an addition equation.

## Engage Prior/Informal Knowledge

**Time: 3 min**

Have students review the Make 10 Strategy using the strip diagram. Students will break apart 10. Use the *Strip Diagram Mat* and 10 ones to solve.

Ask questions and give instructions such as:

- Put 7 ones in 1 part. How many more make 10? (3) What number plus 7 makes 10? (3)
- Put 8 ones in 1 part. How many more make 10? (2) What number plus 8 makes 10? (2)
- Put 10 ones in the whole. Take away 4 and put them into 1 part. How many are left? (6) What is  $10 - 4$ ? (6) What is  $10 - 6$ ? (4) What number plus 4 equals 10? (6) What number plus 6 equals 10? (4)
- What is a set of corresponding addition and subtraction facts called? (*a number family*)
- If time permits, tell students to make a number family using the 10 ones and write the facts on the mat. Allow students to share their work.

## Modeled Practice

**Time: 8 min**

1. Students will solve for the missing number.

Use *Modeled Practice Sheet #1*, the *Strip Diagram Mat*, and ones. Continue to add ones as needed for each problem. Students will work along with the teacher.

**Say:** Read the problem on your sheet. ( $3 + n = 12$ )

**What do you notice about the problem?** (*accept reasonable answers, such as there is a letter  $n$ , the problem is missing a number, the problem is missing a part*)

**What operation is used? (*addition*) Is a part missing or the whole? (*part*) How do you know? (*in addition, you add the 2 parts, and 1 part is missing*)**

**This problem is missing a part. What letter represents the missing number or part? (*n*) Put a box around *n*.**

**The *n* is called an *unknown*. What is *n* called? (*unknown*) The *unknown* represents a number to be solved.**

**The *unknown* can be represented using any letter like *x*, *p*, *a*, or *t*.**

**In the problem  $3 + n = 12$ , what is the whole? (*12*) How do you know? (*it is the answer or sum*)**

**Put 12 ones in the whole on your mat.**

**The missing part is the *unknown*. Write the letter “*n*” in the *unknown* part.**

**What part are we adding to *n*? (*3*)**

**To find *n*, do we add  $12 + 3$ ? (*no*) Why not? ( $12 + 3 = 15$ ;  $15 + 3$  does not equal 12)**

**$3 + n = 12$  is an addition problem. Think about number families. What operation should we use to find *n*? (*subtraction*)**

**Since we know the whole and 1 part, we use subtraction to find the *unknown* part.**

**What subtraction fact will help us solve for *n*? ( $12 - 3$ )**

**Take 3 away from 12. How many are left? (*9*)**

**Move 3 ones to 1 part and 9 ones to the *unknown* part.**

**What number, or part, plus 3 equals 12? (*9*)**

**What is *n*? (*9*)  $n = 9$ . Write it on your sheet.**

**Our knowledge of number families can help us solve for the *unknown*.**

**Which 3 numbers are in each fact of this number family? (3, 9, 12)**

**What other subtraction fact belongs in this number family? (12 - 9 = 3) Write it on your sheet.**

**Read the next problem. ( $15 = n + 9$ )**

**What is missing: the whole or a part? (a part)**

**We are missing a part. What is the whole? (15)**

**Put 15 ones in the whole on your mat. Write “*n*” in 1 of the parts. A number or part plus 9 equals 15.**

**What operation can we use to solve? (subtraction) How do you know? (we know the whole and a part)**

**What subtraction fact will help us solve for *n*, the *unknown*? (15 - 9)**

**How many do we take away from 15? (9)**

**Take away 9 and move them to 1 part.**

**How many are left? (6)**

**Where do these 6 belong? (in the missing or unknown part)**

**Move the 6 ones to the *unknown* part.**

**What is *n*? (6) Write it on your sheet. Read the equation. ( $15 = 6 + 9$ )**

**What 3 numbers are in this number family? (15, 9, 6) Write them.**

**Does  $15 + 6$  belong to this number family? (no) Why not? ( $15 + 6 = 21$ ; 21 does not belong to this number family)**

**What is the other addition fact in this number family?** ( $15 = 9 + 6$ ) **Write it.**

**What are the subtraction facts in this number family?** ( $15 - 6 = 9$  and  $15 - 9 = 6$ ) **Write it.**

2. Students will solve for the missing number using the number line.

Use *Modeled Practice Sheet #2*.

**Say:** **Read the problem.** ( $12 + n = 16$ )

**What is missing: the whole or a part?** (*a part*)

**We are going to use the number line to find  $n$ .**

**Where do we start on the number line?** ( $12$ ) **We start at 12** because we are adding 12 to  $n$ . **Where do we stop?** ( $16$ ) **We stop at 16, the whole.**

**Start at 12 and draw the jumps. Ready, count on: “1, 2, 3, 4.”**  
**How many jumps?** ( $4$ )

**What is  $n$ ?** ( $4$ ) **Write it: “ $12 + 4 = 16$ .”**

**Using your knowledge of number families, what subtraction fact can also help us solve for  $n$ ?** ( $16 - 12 = 4$ )

**Read the next problem.** ( $13 = 5 + n$ )

**What is missing: the whole or a part?** (*a part*)

**Where do we start on the number line?** ( $5$ ) **Why 5?** (*we are adding 5 to  $n$* )

**Where do we stop?** ( $13$ ) **Why?** (*it is the whole*)

**Start at 5 and draw the jumps. Ready, count on: “1, 2 ... 8.”**  
**How many jumps?** ( $8$ )

**What is  $n$ ?** ( $8$ ) **Write it.**

Can you start at 13 and jump back on the number line to find  $n$ ? (yes)

Use your finger. Start at 13 and jump backwards 5 times. Ready, count back. “5, 4, ... 1.” What did we land on? (8)  
What is  $n$ ? (8)

Read the next problem together. Ready, read: “Sara has 14 fish, 3 hamsters, and 1 dog. 8 of the fish are blue and the rest are red. How many fish are red?”

What are we solving for in this problem? (how many fish are red)

We are going to use the strip diagram to help us solve this problem. How many fish does Sara have in all? (14)

Is 14 the whole or part? (whole) Write “14” in the whole.

What part of the fish are blue? (8) Write “8” in the part.

What are we trying to find? (how many red fish)

Write “ $r$ ” in the *unknown* part to remind us we are solving for the number of red fish. What does  $r$  represent? (the number of red fish)

Write an equation using  $r$  that represents the problem. ( $14 = 8 + r$  or  $8 + r = 14$ )

Use the number line to solve.

Wait for students to work. Check students’ work.

**Say:** How did you use the number line to solve? (started at 8 and jumped 6 times to 14 or started at 14 and jumped backwards 8 times to 6)

Can you count on or count back on the number line to solve for  $r$  the *unknown*? (yes)

The variable  $r$  is equal to what? (6) What does the 6 mean? (6 red fish)

**Practice**

**Time: 8 min**

Activity 1: Students will find the missing number using the number line. Have students turn to the *Practice Sheet* on page 27. Students will work with a math partner to complete the activity.

**Say:**     **Solve the first problem on your own. After we discuss the answer, you will work with your math partner to solve the rest of the problems.**

Monitor students' work and provide corrective feedback when necessary. Allow students to explain how they solved the problem.

Ask questions and give instructions such as:

- What are we solving for in the problem? (*how many students chose basketball as their favorite sport*)
- How many students voted? (17) Is this the whole or a part? (*the whole*) How do you know? (*17 students voted in all*)
- How many chose football as their favorite sport? (11) Is this the whole or a part? (*part*) How do you know? (*of the students who voted, a part of them chose football*)
- Write an equation to solve the problem. Use  $b$  to represent the number of students who chose basketball. ( $17 = 11 + b$  or  $11 + b = 17$ )
- Explain how you solved the problem using the number line. (*answers will vary*)
- What does  $b$  equal? (6) What does 6 mean? (*how many chose basketball as their favorite sport*)
- How can you check your work? (*use number families*)

Have students complete the rest of the problems with a partner.

Activity 2: Have students turn to the *Practice Sheet* on page 28. Students will play *Missing Number Tic Tac Toe* in pairs. Players will take turns selecting a problem. They will use the number line to find the missing number. Then students will write it in the box. If the answer is correct, the player will mark the box with “X” or “O.” The player who first has 3 in a column, row, or diagonal wins. Play another game of *Missing Number Tic Tac Toe* in the other student booklet if time permits.

## Independent Practice

Time: 6 min

1. For 5 minutes: Have students turn to the *Independent Practice Sheets* and complete as many items as possible.

**Say:**     **You will work independently for 5 minutes. Complete as many as you can. At the end of 5 minutes, we will discuss our answers as a group.**

2. For the remaining time: Have students share their answers with the group. Provide corrective feedback using mathematical language from the lesson. Have students mark the total number correct at the top of the page.



**Total Time: 25 minutes**  
Instructional Time: 19 minutes  
Independent Practice: 6 minutes

**Module: Addition & Subtraction of Whole Numbers**  
Lesson 7

## Finding the Unknown in Word Problems

<b>Lesson Objectives</b>	<ul style="list-style-type: none"><li>• The student will write an equation to solve for an unknown in a word problem.</li><li>• The student will use knowledge of number families and corresponding equations to check solutions.</li><li>• The student will apply and explain a variety of appropriate strategies to solve problems.</li></ul>	
<b>Vocabulary</b>	<b>No new words are introduced.</b>	
<b>Reviewed Vocabulary</b>	addition, count back, count on, difference, equation, number family, subtraction, sum, unknown	
<b>Instructional Materials</b>	<b>Teacher</b>	<b>Student</b>
	<ul style="list-style-type: none"><li>• Teacher Masters (pp. 61-78)</li></ul>	<ul style="list-style-type: none"><li>• Student Booklet (pp. 31-39)</li></ul>

## Preview

**Say:** Today we will read a word problem, write an equation, and solve for the unknown.

## Engage Prior/Informal Knowledge

Time: 3 min

Have students review solving for the missing number using the number line. Use the *Engaged Practice Sheet*.

Ask questions and give instructions such as:

- Read the problem. ( $18 = 6 + s$ )
- What is missing: the whole or a part? (*part*)
- What is  $s$  called? (*unknown*)
- Can you count on or count back on the number line to solve for the unknown  $s$ ? (*yes*)
- If you start at 6 and count on, where do you stop? (*18*)
- If you start at 18 how many times do you count back? (*6 times or jump backwards 6 times*)
- What is  $s$ ? (*12*)
- What subtraction fact could help us solve for  $s$ ? ( $18 - 6 = 12$ )
- Read the next problem and solve. ( $14 + x = 20$ )
- What is  $x$ ? (*6*)
- How did you use the number line to solve? (*started at 14 and jumped 6 times to 20 or started at 20 and jumped backwards 14 times to 6*)

## Modeled Practice

Time: 8 min

1. Students will use the strip diagram to solve a word problem and write an equation. Students will solve for the unknown using the number line.

Use *Modeled Practice Sheet #1*. Students will work along with the teacher.

**Say:** Read the problem. Ready, read: “James has 8 toy cars. Nikki gave James some toy cars and 2 racetracks. Now he has 11 toy cars. How many toy cars did Nikki give James?”

**What are we solving for?** (*how many toy cars Nikki gave James*)

**What is the important information we need to solve the question?** (*8 toy cars, 11 toy cars*) **Circle it.**

**What about the 2 racetracks, is this important?** (*no*) **Why?** (*it does not help us in finding out how many toy cars were given to James*)

**How many toy cars did James have before Nikki gave him some more?** (*8*)

**Where do we write “8”?** **In the whole or part?** (*in the part*) **Write “8” in one of the parts.**

**James had 8 cars and then he was given some more. Did the amount of James’ cars change?** (*yes*) **How many toy cars does James have in all?** (*11*)

**Is 11 the whole or a part?** (*the whole*)

**11 represents the total number of toy cars James has. Write “11” in the whole.**

**What is missing?** (*a part*)

**Write “ $t$ ” in the unknown part to remind us that we are solving for the number of toy cars Nikki gave James.**

**What does  $t$  represent?** (*the number of toy cars Nikki gave James*)

**Write an equation using  $t$  to represent the problem.** ( $t + 8 = 11$   
or  $11 = 8 + t$ )

**To solve for  $t$ , do we add 11 and 8?** (no) **Why not?** (19 does not  
make sense;  $8 + 19$  does not equal 11)

**We can use our knowledge of number families to solve for  $t$ .**  
**What is the corresponding subtraction fact using  $t$ ?** ( $11 - 8 = t$ )

**We are going to solve for  $t$  using both addition and  
subtraction.**

**First start at 8 on the number line. Where do we stop?** (11)

**Draw the jumps. Ready, count on: “1, 2, 3.” How many jumps?**  
(3)

**Can you count back on the number line to solve for the  
unknown  $t$ ?** (yes)

**Where do we start?** (11) **Put your finger on 11.**

**How many times would you count back?** (8) **Do it.**

**What number did you land on?** (3)

**$t$  is equal to what?** (3) **3 what?** (3 toy cars) **Write it.**

**How many toy cars did Nikki give James?** (3)

**What numbers are in this number family?** (3, 8, 11) **Write them.**

**What are the subtraction facts in this number family?** ( $11 - 8 =$   
 $3$  and  $11 - 3 = 8$ ) **Write them on the line.**

**We can see in the subtraction facts that  $t$  equals 3.**

2. Students will use the strip diagram to solve a word problem and write an equation. Students will solve for the unknown using the number line.

Use *Modeled Practice Sheet #2*.

**Say:** Read the problem. Ready, read: “Kim needs to save \$20 to fix her skateboard. She earned \$5 for mowing the lawn. She also earned money for watering the neighbor’s garden. Kim made a total of \$17. How much money did Kim earn for watering the garden?”

**What are we solving for?** (*how much money Kim earned for watering the garden*)

**What important information will help us to solve the question?** (*earned \$5, total was \$17*) **Circle it.**

**What is the total amount of money Kim made?** (*\$17*)

**Is \$17 the whole or a part?** (*the whole*) **How do you know?** (*she had money and is trying to earn more, she got more money that equaled \$17*) **Write it in the whole.**

**How much money does she need to save to fix her skateboard?** (*\$20*)

**Do we need this information from the problem?** (*no*) **Why not?** (*it is not related to how much money she earned*)

**How much did she earn for mowing the lawn?** (*\$5*)

**\$5 is a part of the total amount of money she earned. Write “\$5” in one of the parts.**

**Are we solving for the whole or a part?** (*a part*)

**Write “ $w$ ” in the unknown part to remind us that we are solving for how much money Kim earned for watering the garden.**

**Write an equation using  $w$  to represent the problem.** ( $17 = w + 5$  or  $5 + w = 17$ )

**Use the number line to solve for  $w$ . Write your answer.**

**Turn to your math partner and share how you solved the problem using the number line.** (*answers will vary; counting on from 5 to 17 or counting back from 17 to 5*)

**$w$  is equal to what? (12) 12 what? (12 dollars) Write it.**

**In the equation we wrote using  $w$ , does 12 make the equation true? (yes) How do you know? (accept reasonable answers, such as  $12 + 5 = 17$ , added 12 + 5 and it equals 17)**

**How much money did Kim earn for watering the garden? (\$12)**

3. Students will use the strip diagram to solve a word problem and write an equation. Students will solve for the unknown using the number line.

Use *Modeled Practice Sheet #3*. Students will work along with the teacher.

**Say: Read the problem. Ready, read: “15 shirts, 20 pants, and 9 shoes are on sale. 7 shirts are yellow and the rest are purple. How many shirts on sale are purple?”**

**What are we solving for? (how many shirts on sale are purple)**

**What is the important information we need to answer the question? (15 shirts, 7 yellow shirts) Circle it.**

**What about the number of pants and shoes, is this important? (no) Why? (it does not help us solve the question)**

**Complete the strip diagram on your own. What letter would help us to remember what we are trying to find? (allow a variety of answers, such as  $p$  for purple) Let’s use  $p$  to represent the number of purple shirts on sale.**

**How many shirts are on sale? (15) Is 15 the whole or part? (whole) How do you know? (there was a total of 15 shirts for sale)**

**How many shirts are yellow? (7) Is 7 a whole or part? (part)**

**Write an equation using  $p$ . ( $15 = 7 + p$  or  $p + 7 = 15$ )**

**Solve it using the number line.**

**$p$  is equal to what? (8) 8 what? (purple shirts)**

**How many shirts on sale are purple? (8)**

**In the equation we wrote using  $p$ , does 8 make the equation true? (yes) How do you know? (accept reasonable answers, such as  $7 + 8 = 15$ , added  $8 + 7$  and it equals 15)**

**Practice**

**Time: 8 min**

Activity 1: Students will solve word problems using a strip diagram. Have students turn to the *Practice Sheet* on page 35. Students will work with a math partner to complete the activity.

**Say: Solve the first problem on your own. After we discuss the answer, you will work with your math partner to solve the rest of the problems.**

Monitor students' work and provide corrective feedback when necessary. Allow students to explain how they solved the problem.

Ask questions and give instructions such as:

- What are we solving for in the problem? (*how many girls signed up for swim lessons*)
- How many children signed up for swim lessons? (19) Is this the whole or a part? (*whole*) How do you know? (*it's the total number of students who signed up for swim lessons*)
- How many boys signed up for swim lessons? (4) Is this the whole or a part? (*part*) How do you know? (*it's part of the total number of children who signed up for lessons*)
- Write an equation. Use  $g$  to represent the number of girls who signed up. ( $19 = g + 4$  or  $4 + g = 19$ )
- Explain how you can check your work using number families. (*answers will vary*)
- How many girls signed up for swim lessons? (15)

Have students complete the rest of the problems with a partner.

Activity 2: Have students turn to the *Practice Sheet* on page 36. Students will write equations to solve for the unknown in word problems. Students will work in pairs and discuss their answers.

### Independent Practice

Time: 6 min

1. For 5 minutes: Have students turn to the *Independent Practice Sheets* and complete as many items as possible.

**Say:**     **You will work independently for 5 minutes. Complete as many as you can. At the end of 5 minutes, we will discuss our answers as a group.**

2. For the remaining time: Have students share their answers with the group. Provide corrective feedback using mathematical language from the lesson. Have students mark the total number correct at the top of the page.



Total Time: 25 minutes  
Instructional Time: 19 minutes  
Independent Practice: 6 minutes

Module: Addition & Subtraction of Whole Numbers  
Lesson 8

# 2-Digit and 3-Digit Addition and Subtraction With No Regrouping

<b>Lesson Objectives</b>	<ul style="list-style-type: none"> <li>• The student will add and subtract 2-digit and 3-digit numbers with no regrouping.</li> <li>• The students will solve word problems involving 2-digit and 3-digit addition and subtraction with no regrouping.</li> <li>• The student will apply and explain a variety of appropriate strategies to solve problems.</li> </ul>	
<b>Vocabulary</b>	<b>No new words are introduced.</b>	
<b>Reviewed Vocabulary</b>	addition, difference, hundreds, ones, subtraction, sum, tens	
<b>Instructional Materials</b>	<b>Teacher</b>	<b>Student</b>
	<ul style="list-style-type: none"> <li>• Teacher Masters (pp. 79-94)</li> <li>• Place Value Mat</li> <li>• Base-10 materials: 10 hundreds, 10 tens, 20 ones</li> </ul>	<ul style="list-style-type: none"> <li>• Student Booklet (pp. 40-47)</li> <li>• Place Value Mat</li> <li>• Base-10 materials: 10 hundreds, 10 tens, 20 ones (per student pair)</li> </ul>

## Preview

**Say:** Today we will add and subtract 2-digit and 3-digit numbers with no regrouping.

## Engage Prior/Informal Knowledge

Time: 3 min

Have students review place value and model numbers using the base-10 materials and the *Place Value Mat*.

Ask questions such as:

- Which base-10 material represents ones? (*the ones*) Tens? (*the tens*) Hundreds? (*the hundreds*)
- How many ones are equal to 1 ten? (*10*) How many tens are equal to 1 hundred? (*10*) How many hundreds are equal to 1 thousand? (*10*)
- Make 47 on the mat. How many ones are in the ones column? (*7*) How many tens are in the tens column? (*4*) What is the value of 4 tens? (*40*) How do you know? (*count by 10s; 10 + 10 + 10 + 10 = 40; 10 × 4 = 40*)
- Make 523 on the mat. How many ones are in the ones column? (*3*) How many tens are in the tens column? (*2*) What is the value of 2 tens? (*20*) How many hundreds are in the hundreds column? (*5*) What is the value of 5 hundreds? (*500*)
- If time permits continue modeling the following numbers using the base-10 materials: 56, 70, 639, and 804.

## Modeled Practice

Time: 8 min

1. Students will model the addition of 2-digit and 3-digit numbers with no regrouping.

Use the *Place Value Mat* and base-10 materials. Students will work along with the teacher. Allow students time to complete each step.

**Say:** Make 26. How many tens are in the tens place? (*2*) How many ones? (*6*)

**Leave 26 on the mat. Make 43 below 26.**

**How many tens in 43? (4) How many ones? (3)**

**Combine the tens. 2 tens plus 4 tens equals how many total tens? (6 tens)**

**What is the value of 6 tens? (60)**

**Combine the ones. 6 ones plus 3 ones equals how many ones? (9)**

**Count how many in all on your own.**

**How many in all? (69)**

**How did you count it?** *(counted the ones first, then the tens; counted the tens first, then the ones)*

**It is easier to count the tens first than the ones. Try it. Ready, count: “10, 20 ... 60.” Now count the ones: “61, 62 ... 69.”**

$$26 + 43 = 69.$$

**Clear your mat. Make 272. How many hundreds? (2) How many tens? (7) How many ones? (2)**

**Add 117 below 272. How many hundreds? (1) How many tens? (1) How many ones? (7)**

**Combine the hundreds, tens, and ones.**

**How many total hundreds? (3)**

**What is the value of 3 groups of hundreds? (300)**

**How many tens? (8)**

**What is the value of 8 tens? (80)**

**How many ones? (9)**

**Count the hundreds first. Ready, count: “100, 200, 300,” now the tens: “310, 320 ... 380, 381, 382 ... 389.”**

**What is the total?** *(389)*

**In the addition equation  $272 + 117 = 389$ , what is 389?** *(the sum)*

**Think: what will happen to the sum if we switch or change the order of the numbers in the problem to  $117 + 272$ ?** *(accept reasonable answers; sum will stay the same; answer will still be 389; it is the same as  $272 + 117$ )*

**On your mat make 117 first and 272 below it. Then count it on your own.**

**Is the sum the same?** *(yes)*

**If we switch or change the order of the numbers in an addition problem, the sum will be the same.**

2. Solve a word problem involving addition with no regrouping. Use *Modeled Practice Sheet #1*.

Students will continue using the *Place Value Mat* and base-10 materials.

**Say: Read the problem. Ready, read: “There are 86 red marbles, 24 green marbles, and 154 white marbles. How many green and white marbles are there?”**

**What are we solving for?** *(how many green and white marbles there are)*

**What important information do we need to solve?** *(24 green marbles, 154 white marbles)* **Circle it.**

**Are 24 green marbles a part or the whole?** *(part)* **Write “24” in the part.**

**Is 154 white marbles the whole?** *(no)* **What is 154 marbles?** *(part)*

**Do we write “86” in the whole?** *(no)* **Why?** *(accept reasonable answers; 86 does not represent white or green marbles; we are not solving for red marbles)*

**What does the whole represent?** *(how many green and white marbles there are)*

**How do we find how many green and white marbles there are?** *(add the parts,  $24 + 154$ )*

**Use the base-10 materials to represent 24 green marbles.**

**How many tens?** *(2)* **Ones?** *(4)*

**Use the base-10 materials to represent 154 white marbles.**

**How many hundreds?** *(1)* **How many tens?** *(5)* **Ones?** *(4)*

**Count it together. Ready, count:** “100, 110, ... 170, 171, 172 ... 178.”

**Write “178” in the whole.**

**How many green and white marbles are there?** *(178)*

3. Students will model subtraction of 2-digit and 3-digit numbers with no regrouping using base-10 materials.

**Say:** **Make 95 on your mat. How many tens in 95?** *(9)* **How many ones?** *(5)*

**Now take away 3 tens and 2 ones.**

**What number did we subtract from 95?** *(32)*

**How many tens are left?** *(6)*

**What is the value of 6 tens?** *(60)*

**How many ones are left?** *(3)*

**What is the difference? Ready, count:** “10, 20 ... 60, 61, 62, 63.”

**What is  $95 - 32$ ? (63)**

**Clear your mat. Make 745.**

**How many hundreds? (7) How many tens? (4) How many ones? (5)**

**Subtract 324. How many hundreds do we take away? (3) Do it.**

**How many hundreds are left? (4)**

**How many tens do we take away? (2) Do it.**

**How many tens are left? (2)**

**How many ones do we take away? (4) Do it.**

**How many ones are left? (1)**

**Count how much is left. Ready, count: “100, 200 ... 400, 410, 420, 421.”**

**What is  $745 - 324$ ? (421)**

**What is the answer 421 called? (the difference)**

4. Students will solve a word problem involving subtraction with no regrouping. Use *Modeled Practice Sheet #2*.

Continue using the *Place Value Mat* and base-10 materials.

**Say: Read the problem. Ready, read: “There are 389 markers and 237 pencils in the box. 26 pencils were taken out. How many pencils are left?”**

**What are we solving for? (how many pencils are left)**

**What important information will help us solve the question? (237 pencils in the box, 26 pencils taken out) Circle it.**

**How many markers are in the box? (389) Do we need this information from the problem? (no) Why not? (we are solving for how many pencils are left)**

**How many pencils are in the box to start?** (237)

**Is 237 the whole or part?** (*whole*) **How do you know?** (*it started with 237, some were removed and now there are less*) **Write “237” in the whole.**

**How many pencils were taken out?** (26) **Is 26 a whole or part?** (*a part*)

**When we are given the whole and 1 part and need to find a part, what operation do we use?** (*subtraction*)

**How would you solve the problem?** (*237 – 26 or subtract a part, 26, from the whole, 237*)

**Use the base-10 materials and solve it on your own.**

**How many pencils are left?** (211)

**Write “211” in the part.**

## Practice

Time: 8 min

Activity 1: Students will solve 2-digit and 3-digit addition and subtraction problems with no regrouping. Have students turn to the *Practice Sheet* on page 42. Use base-10 materials to solve. Students will work with a math partner to complete the activity.

**Say:** **Solve the first problem on your own. Use the strip diagram to help you think about how to solve the problem. After we discuss the answer, you will work with your math partner to solve the rest of the problems.**

Monitor students’ work and provide corrective feedback when necessary. Allow students to explain how they solved the problem.

Ask questions and give instructions such as:

- Do we add or subtract? (*add*) Why? (*finding how many granola bars were sold in all*)

- How many peanut butter granola bars were sold? (56) Is this the whole or part? (*part*)
- How many tens and ones in 56? (*5 tens and 6 ones*)
- How many honey granola bars were sold? (43) Is this the whole or part? (*part*)
- How many tens and ones in 43? (*4 tens and 3 ones*)
- What is the total number of granola bars sold? (99)

Have students complete the rest of the problems with a partner.

Activity 2: Have students turn to the *Practice Sheets* on pages 43 and 44. Students will play *Addition and Subtraction Five in a Row* in pairs. Players will solve a problem in the box and then write the sum or difference. Use the base-10 materials to solve. The player who first solves 5 correctly in a column, row, or diagonal wins. Play another game if time permits.

### Independent Practice

Time: 6 min

1. For 5 minutes: Have students turn to the *Independent Practice Sheets* and complete as many items as possible.

**Say:** You will work independently for 5 minutes. Complete as many as you can. At the end of 5 minutes, we will discuss our answers as a group.

2. For the remaining time: Have students share their answers with the group. Provide corrective feedback using mathematical language from the lesson. Have students mark the total number correct at the top of the page.



Total Time: 25 minutes  
Instructional Time: 19 minutes  
Independent Practice: 6 minutes

Module: Addition & Subtraction of Whole Numbers  
Lesson 9

## 2-Digit Addition with Regrouping

<b>Lesson Objectives</b>	<ul style="list-style-type: none"> <li>• The student will add 2-digit numbers with regrouping.</li> <li>• The students will solve word problems involving 2-digit addition with regrouping.</li> <li>• The student will apply and explain a variety of appropriate strategies to solve problems.</li> </ul>	
<b>Vocabulary</b>	<p><b>regroup:</b> to change or to make a new group while performing addition and subtraction operations (for example: regroup 10 ones to 1 group of 10 or 10 tens to 1 hundred)</p>	
<b>Reviewed Vocabulary</b>	addition, difference, hundreds, ones, subtraction, sum, tens	
<b>Instructional Materials</b>	<b>Teacher</b>	<b>Student</b>
	<ul style="list-style-type: none"> <li>• Teacher Masters (pp. 95-104)</li> <li>• Place Value Mat</li> <li>• Base-10 materials: 10 hundreds, 10 tens, 20 ones</li> </ul>	<ul style="list-style-type: none"> <li>• Student Booklet (pp. 48-52)</li> <li>• Place Value Mat</li> <li>• Base-10 materials: 10 hundreds, 10 tens, 20 ones (per student)</li> </ul>

## Preview

**Say:** Today we will add 2-digit numbers with regrouping.

## Engage Prior/Informal Knowledge

**Time: 3 min**

Have students review 2-digit and 3-digit addition with no regrouping. Have students use the *Place Value Mat* and base-10 materials to solve the problems.

Ask questions such as:

- How many ones are equal to 1 ten? (10) How many tens are equal to 1 hundred? (10) Think: how many hundreds are equal to 1 thousand? (10)
- Make 44 and 35 on your mat. How many ones in all? (9) How many tens in all? (7) What is the value of 7 tens? (70) What is  $70 + 4$ ? (74) What is  $44 + 35$ ? (79)
- What is the sum of  $158 + 531$ ? (689)
- What is  $76 - 21$ ? (55)
- What is  $969 - 530$ ? (439)
- What is the answer in a subtraction problem called? (*difference*)

## Modeled Practice

**Time: 8 min**

1. Demonstrate regrouping using the base-10 materials and the *Place Value Mat*. Students will work along with the teacher using the same materials.

**Say:** Put 10 ones in the ones column. 10 ones is the same as what? (1 ten)

**Move the 10 ones aside and trade it for 1 group of 10. Put the group of 10 in the tens column on your mat.**

**This is what *regrouping* looks like. To *regroup* means to change or to make a new group. What does *regroup* mean? (to change or to make a new group)**

**We regrouped 10 ones to 1 group of 10. What did we regroup?**  
(10 ones to 1 group of 10)

**Put 9 more tens in the tens place. How many tens are there?**  
(10)

**What is the value of 10 tens?** (100)

**We can regroup 10 tens to what?** (1 hundred)

**Move the 10 tens aside and trade it for 1 hundred. Where do we put the 1 hundred?** (in the hundreds place)

**This is another example of what regrouping looks like. We regrouped 10 tens to 1 hundred. What did we regroup 10 tens to?** (1 hundred)

2. Demonstrate 2-digit addition with and without regrouping using the base-10 materials and *Place Value Mat*.

**Say:** We are going to add 54 and 27. What numbers? (54 and 27)

**Make 54 on your mat. How many tens? (5) Ones? (4)**

**Below 54, make 27. How many tens? (2) Ones? (7)**

**Start in the ones place. How many ones are there in all?** (11)

**Can we keep 11 ones in the ones place?** (no) **As soon as you have 10 or more you need to regroup. When do we regroup?**  
(10 or more)

**Do we regroup the ones?** (yes) **Why?** (more than 10 ones)

**Regroup 10 ones to 1 group of 10.**

**How many ones are left?** (1)

**How many tens now?** (8)

**Do we regroup 8 tens to 1 hundred?** (no) **Why not?** (accept reasonable answers; there are not enough tens; we need 2 more tens to regroup to 1 hundred; 8 tens is equal to 80 not 100)

**What is the value of 8 tens?** (80)

**What is  $80 + 1$ ?** (81) **What is  $54 + 27$ ?** (81)

**Why did we *regroup* in this problem?** (there are 11 ones)

**If we change the order of the numbers to  $27 + 54$ , what will the sum be?** (the same or 81)

**Why?** (in addition, changing the order of numbers does not change the sum)

**Clear your mat. Add  $45 + 28$ . What numbers?** (45 and 28) **Make the numbers on your mat.**

**Start in the ones place. How many ones are there in all?** (13)

**Do we *regroup*?** (yes) **Why?** (there are 13 ones)

**What do we *regroup* 10 ones to?** (1 group of 10)

***Regroup* 10 ones to 1 group of 10.**

**How many ones are left?** (3)

**How many tens are there now?** (7)

**What is the value of 7 tens?** (70)

**How many ones do we add to 70?** (3)

**What is  $70 + 3$ ?** (73) **What is  $45 + 28$ ?** (73)

**Clear the mat. Use the base-10 materials to add  $38 + 51$ .**

**Do we *regroup* in this problem?** (no) **Why not?** (accept reasonable answers; there are only 9 ones in the ones place and 8 tens in the tens place; there are not enough ones or tens to regroup)

**What is the sum?** (89)

3. Solve a word problem using 2-digit addition with regrouping.

Use the *Modeled Practice Sheet*. Continue using the base-10 materials and the *Place Value Mat*.

**Say:** Read the problem. Ready, read: “Mr. Garza’s class collected 65 cans for the food drive. Mrs. Johnson’s class collected 39 cans. Mrs. Pearson’s class collected 77 cans. How many cans were collected from Mr. Garza’s and Mrs. Johnson’s classes?”

**What are we solving for?** (*how many cans were collected from Mr. Garza’s and Mrs. Johnson’s classes*)

**What is the important information?** (*65 cans, 39 cans*) **Circle it.**

**How many cans did Mr. Garza’s class collect?** (*65*)

**Is 65 a part or the whole?** (*part*) **Write “65” in the part.**

**How many cans did Mrs. Johnson’s class collect?** (*39*)

**Is 39 a part or the whole?** (*a part*) **Write “39” in the other part.**

**We are given 2 parts and need to find the whole, so what operation do we use?** (*addition*)

**How will we find the total number of cans collected, or the whole?** (*add 65 and 39*)

**How do you know?** (*we only have the parts and need to find the whole*)

**Make 65 and 39 on your mat.**

**How many tens?** (*9*) **How many ones?** (*14*)

**Start in the ones column. Do we *regroup*?** (*yes*) **Why?** (*there are 14 ones*) **Do it.**

**How many ones are left?** (*4*)

**How many tens are there now?** (*10*)

**What is the value of 10 tens?** (100)

**Do we *regroup* 10 tens?** (yes) **What do we *regroup* 10 tens to?** (1 hundred)

***Regroup* 10 tens to 1 hundred.**

**How many tens are left?** (0) **Why?** (because we regroup all 10 tens to 1 hundred)

**How many hundreds are there?** (1)

**What is the sum of  $100 + 4$ ?** (104)

**How many total cans were collected?** (104)

## Practice

Time: 8 min

Activity 1: Have students turn to the *Practice Sheet* on page 49. Students will solve 2-digit addition problems with regrouping. Use base-10 materials and the *Place Value Mat* to solve.

**Say:** **Solve the first problem on your own. After we discuss the answer, you will work with your math partner to solve the rest of the problems.**

Monitor students' work and provide corrective feedback when necessary. Allow students to explain how they solved the problem.

Ask questions and give directions such as:

- What are we solving for? (how many fourth and fifth graders enrolled in summer camp)
- What important information did you circle? (39 fourth graders, 27 fifth graders)
- What information is not needed? (93 third graders)
- Is 27 the whole or part? (part)
- Is 39 the whole or part? (part)

- How do we solve the problem? (*add the parts 27 + 39*)
- Do we *regroup*? (*yes*) Why? (*there are 16 ones*)
- What is the whole? (*66*) 66 represents what? (*how many fourth and fifth graders enrolled in summer camp*)

Have students complete the rest of the problems with a partner.

Activity 2: Have students turn to the *Practice Sheet* on page 50. Use base-10 materials and the *Place Value Mat*. Students will review solving 2-digit addition problems with and without regrouping. Students will work in pairs and discuss situations where regrouping is and is not needed.

### Independent Practice

Time: 6 min

1. For 5 minutes: Have students turn to the *Independent Practice Sheets* and complete as many items as possible.

**Say:**     **You will work independently for 5 minutes. Complete as many as you can. At the end of 5 minutes, we will discuss our answers as a group.**

2. For the remaining time: Have students share their answers with the group. Provide corrective feedback using mathematical language from the lesson. Have students mark the total number correct at the top of the page.



Total Time: 25 minutes  
Instructional Time: 19 minutes  
Independent Practice: 6 minutes

Module: Addition & Subtraction of Whole Numbers  
Lesson 10

## 2-Digit Subtraction With Regrouping

<b>Lesson Objectives</b>	<ul style="list-style-type: none"> <li>• The student will subtract 2-digit numbers with regrouping.</li> <li>• The students will solve word problems involving 2-digit subtraction with regrouping.</li> <li>• The student will apply and explain a variety of appropriate strategies to solve problems.</li> </ul>	
<b>Vocabulary</b>	<b>No new words are introduced.</b>	
<b>Reviewed Vocabulary</b>	addition, difference, hundreds, ones, regroup, subtraction, sum, tens,	
<b>Instructional Materials</b>	<b>Teacher</b>	<b>Student</b>
	<ul style="list-style-type: none"> <li>• Teacher Masters (pp. 105-112)</li> <li>• Place Value Mat</li> <li>• Strip Diagram Mat (in sheet protector)</li> <li>• Dry erase marker</li> <li>• Base-10 materials: 10 hundreds, 10 tens, 20 ones</li> </ul>	<ul style="list-style-type: none"> <li>• Student Booklet (pp. 53-56)</li> <li>• Place Value Mat</li> <li>• Base-10 materials: 10 hundreds, 10 tens, 20 ones (per student)</li> </ul>

## Preview

**Say:** Today we will subtract 2-digit numbers with regrouping.

## Engage Prior/Informal Knowledge

**Time: 3 min**

Have students review 2-digit addition with regrouping. Have students use the *Place Value Mat* and base-10 materials to solve the problems.

Ask questions and give instructions such as:

- What does regroup mean? (*accept reasonable answers; to change or to make a new group; trade or regroup 10 ones to 1 group of 10 or 10 tens to 1 hundred*)
- Find the sum of  $38 + 48$ . How many tens in 38? (3) Ones? (8) How many tens in 48? (4) Ones? (8) How many ones are there in all? (16) Do we need to regroup? (*yes*) What do we regroup 16 ones to? (*1 group of 10*) How many ones are left? (6) How many tens are there now? (8) What is the value of 8 tens? (80) What is  $80 + 6$ ? (86) What is the sum of  $38 + 48$ ? (86)
- Find the sum of 61 and 27. How many tens in 61? (6) Ones? (1) How many tens in 27? (2) Ones? (7) How many ones in all? (8) How many tens in all? (8) Do we need to regroup the ones or tens? (*no*) Why not? (*not enough ones or tens to regroup*) What is  $61 + 27$ ? (88) Do we need to regroup in every addition problem? (*no*) When do you need to regroup? (*when there are 10 ones or more or 10 tens or more*)

## Modeled Practice

**Time: 8 min**

1. Demonstrate 2-digit subtraction with regrouping using the base-10 materials and the *Place Value Mat*.

**Say:** We are going to find the difference between 27 and 8. What operation do we complete to find the difference? (*subtraction*)

**Make 27 on your mat. How many tens? (2) How many ones? (7)**

**We are going to subtract 8 ones from 27. Do we have enough ones to subtract 8? (*no*)**

**Why not?** *(accept reasonable answers; there are only 7 ones; there are not enough ones to subtract 8)*

**We need more ones. How many ones are in 1 group of 10?** *(10)*

**Regroup 1 ten to 10 ones. Put aside 1 ten and trade it for 10 ones. Where do we put the 10 ones?** *(in the ones column)*

**How many ones do we have now?** *(18)*

**How many tens do we have left?** *(1)*

**Do we still have 28 in all?** *(yes)*

**Can we subtract 8 ones now?** *(yes)*

**Take away 8 ones. How many are left?** *(9)*

**Do we need to subtract any tens?** *(no)* **How do you know?**  
*(accept reasonable answers; 8 is a 1-digit number; there are no tens in the number 8)*

**What is  $27 - 8$ ?** *(19)*

**In subtraction, what is 19 called?** *(difference)*

2. Demonstrate 2-digit subtraction with regrouping using the base-10 materials and the *Place Value Mat*.

**Say:** **What is  $72 - 49$ ? Use your base-10 materials to make 72. How many tens?** *(7)* **Ones?** *(2)*

**What are we subtracting from 72?** *(49)* **How many tens in 49?**  
*(4)* **How many ones?** *(9)*

**Start in the ones place. Can we subtract 9 ones from 2?** *(no)*  
**Why not?** *(there are not enough ones)*

**What do we need to do?** *(regroup 1 ten to 10 ones)* **Do it.**

**How many tens are left?** *(6)*

**How many ones are there? (12) Are there enough ones to subtract 9 now? (yes)**

**Subtract 9 ones. How many ones are left? (3)**

**How many tens do we subtract? (4) Do it.**

**What is  $72 - 49$ ? (23)**

**Clear your mat. We are going to solve  $67 - 46$ .**

**Make 67 on your mat.**

**Subtract 46. How many ones do we take away? (6)**

**Do we have enough ones to subtract 6 or do we need to regroup 1 ten? (we have enough ones)**

**Subtract 6 ones. How many are left? (1)**

**How many tens do we take away? (4) Do it.**

**How many tens are left? (2)**

**What is  $67 - 46$ ? (21)**

**Do we need to regroup in every subtraction problem? (no) How do we know when to regroup? (accept reasonable answers; when we need more ones)**

3. Solve a word problem using 2-digit subtraction with regrouping.

Use the *Modeled Practice Sheet*. Continue using the base-10 materials and the *Place Value Mat*.

**Say: Read the problem. Ready, read: “Chris saved \$88 doing chores over the last 13 weeks. He donated \$59 to an animal shelter. How much money does Chris have left?”**

**What are we solving for? (how much money Chris has left)**

**Are we solving for the whole or part? (part) How do you know?**  
(accept reasonable answers; we know how much he saved in all and how much he donated)

**What information is important?** (saved \$88, donated \$59)

**What information is not important?** (13 weeks)

**How much did Chris save? (\$88) Is 88 the whole or part?**  
(whole)

**Write “88” in the whole.**

**How much did he donate? (\$59) Is 59 the whole or a part? (part)**  
**Write “59” in the part.**

**What operation do we use to find a part when we are given the whole?** (subtraction)

**Write the subtraction problem.** ( $88 - 59 =$ )

**Make 88 on your mat. How many tens? (8) Ones? (8)**

**Start in the ones place. Do we have enough ones to take away 9?** (no)

**What do we need to do?** (regroup 1 ten to 10 ones) **Do it.**

**How many tens are left?** (7)

**How many ones are there now? (18) How many in all? (88)**

**Do we have enough ones to subtract 9?** (yes) **Subtract 9 ones.**

**How many ones are left?** (9)

**How many tens do we subtract?** (5) **Do it.**

**How many tens left?** (2)

**How much money does Chris have left?** (\$29)

**Write “29” in the other part.**

**Practice**

**Time: 8 min**

Activity 1: Have students turn to the *Practice Sheet* on page 54. Students will solve 2-digit subtraction problems with regrouping. Use base-10 materials and the *Place Value Mat* to solve.

**Say:**     **Solve the first problem on your own. After we discuss the answer, you will work with your math partner to solve the rest of the problems.**

Monitor students' work and provide corrective feedback when necessary. Allow students to explain how they solved the problem.

Ask questions and give instructions such as:

- What are we solving for? (*how much more money the school needs to raise for new playground equipment*)
- What information is important? (*\$83 needed, \$28 raised*)
- What information is not important? (*\$100 donated to soccer field*)
- How much money does the school need to raise for new playground equipment? (*\$83*) Is 83 the whole or part? (*whole*) How do you know? (*it is how much money the school needs to raise*)
- How much money did the school recently raise from the bake sale? (*\$28*) Is 28 the whole or part? (*part*) How do you know? (*it is part of the money raised*)
- How would you solve this problem? ( *$\$83 - \$28$* )
- How much more money does the school need for new playground equipment? (*\$55*)

Have students complete the rest of the problems with a partner.

Activity 2: Have students continue on page 54. Use base-10 materials and the *Place Value Mat*. Students will review solving 2-digit subtraction problems with and without regrouping. Students will work in pairs and discuss situations where regrouping is and is not needed.

## Independent Practice

Time: 6 min

1. For 5 minutes: Have students turn to the *Independent Practice Sheets* and complete as many items as possible.  
  
**Say:**     **You will work independently for 5 minutes. Complete as many as you can. At the end of 5 minutes, we will discuss our answers as a group.**
2. For the remaining time: Have students share their answers with the group. Provide corrective feedback using mathematical language from the lesson. Have students mark the total number correct at the top of the page.



Total Time: 25 minutes  
Instructional Time: 19 minutes  
Independent Practice: 6 minutes

Module: Addition & Subtraction of Whole Numbers  
Lesson 11

### 3-Digit Addition With Regrouping

<b>Lesson Objectives</b>	<ul style="list-style-type: none"> <li>• The student will add 3-digit numbers with regrouping.</li> <li>• The student will solve word problems involving 3-digit addition with regrouping.</li> <li>• The student will apply and explain a variety of appropriate strategies to solve problems.</li> </ul>	
<b>Vocabulary</b>	<b>No new words are introduced.</b>	
<b>Reviewed Vocabulary</b>	addition, difference, hundreds, ones, regroup, subtraction, sum, tens	
<b>Instructional Materials</b>	<b>Teacher</b>	<b>Student</b>
	<ul style="list-style-type: none"> <li>• Teacher Masters (pp. 113-132)</li> <li>• Place Value Mat (in sheet protector)</li> <li>• Dry erase marker</li> <li>• Base-10 materials: 10 hundreds, 10 tens, 20 ones</li> </ul>	<ul style="list-style-type: none"> <li>• Student Booklet (pp. 57-66)</li> <li>• Place Value Mat (in sheet protector)</li> <li>• Dry erase marker</li> <li>• Base-10 materials: 10 hundreds, 10 tens, 20 ones (per student)</li> </ul>

## Preview

**Say:** Today we will add 3-digit numbers with regrouping.

## Engage Prior/Informal Knowledge

**Time: 3 min**

Have students review 2-digit addition with regrouping. Have students use the *Place Value Mat* and base-10 materials to solve the problems.

Ask questions and give instructions such as:

- What does regroup mean? (*accept reasonable answers; to change or to make a new group; trade or regroup 10 ones to 1 group of 10 or 10 tens to 1 hundred*)
- When do we regroup in addition? (*when we have 10 or more*)
- When do we regroup in subtraction? (*when we do not have enough to subtract from*)
- Find the sum of 75 and 42.
- How many tens in 75? (7) Ones? (5) How many tens in 42? (4) Ones? (2) How many ones in all? (7)
- How many tens in all? (11) Do we need to regroup the ones or tens? (*tens*) Why? (*there are 11 tens*)
- How many tens in 1 hundred? (10) Regroup 10 tens to make 1 new hundred.
- Count to find the sum. What is  $75 + 42$ ? (117) Do we need to regroup in every addition problem? (*no*) When do you need to regroup? (*when there are 10 ones or more or 10 tens or more*)
- If we change the order of the numbers in an addition problem, does the sum change? (*no it does not change*)

If time permits, find the sum of 87 and 22.

## Modeled Practice

Time: 8 min

1. Demonstrate 3-digit addition with regrouping using model drawings.  
Use the *Place Value Mat* and dry erase marker. Students will work along with the teacher using the same materials.

**Say:** Write “ $349 + 238$ ” at the top of your mat. We are going to use model drawings to represent numbers.

**A square represents 1 hundred. What does a square represent?**  
(1 hundred)

**A line represents 1 ten. What does a line represent?** (1 ten)

**A dot represents one. What does a dot represent?** (one)

**In 349, how many hundreds?** (3 hundreds) **How do you know?**  
(first digit; digit in the hundreds place) **Draw 3 squares in the hundreds column.**

**How many tens?** (4 tens) **Draw 4 lines in the tens column.**

**How many ones?** (9) **Draw 9 dots in the ones column.**

**In 238, how many hundreds?** (2 hundreds) **Draw 2 squares below the 3 hundreds.**

**How many tens?** (3 tens) **Draw 3 lines below the 4 tens.**

**How many ones?** (8) **Draw 8 dots below the 9 ones.**

**When adding many digits, start in the ones place. Where do we begin to add?** (in the ones place) **How many ones in all?** (17)

**Do we regroup?** (yes) **Why?** (there are 17 ones)

**Regroup 10 ones to 1 group of 10 by circling 10 of the ones. Draw 1 new ten in the tens column.**

**Then cross out the 10 ones you circled.**

**How many ones are left?** (7)

**What are we adding in the tens place?** *(1 + 4 + 3)* **How many tens are there now?** *(8)*

**Do we regroup the tens?** *(no)* **Why not?** *(accept reasonable answers; there are only 8 tens; not enough tens to regroup)*

**What is the value of 8 tens?** *(80)*

**How many hundreds are there?** *(5)*

**Count to find the sum. Start with the hundreds. Ready, count:**  
“100, 200 ... 500, 510, 520 ... 580, 581, 582 ... 587.”

**What is  $349 + 238$ ?** *(587)*

**If we change the order of the numbers to  $238 + 349$ , what is the sum?** *(587)*

2. Solve a word problem using 3-digit addition with regrouping. Use model drawings.

Use *Modeled Practice Sheet #1*.

**Say:** **Read the problem. Ready, read:** “In a poll, 165 students chose pizza as their favorite food. 254 students chose hamburgers. How many students took the poll?”

**What are we solving for?** *(how many students took the poll)*

**What information is important?** *(165 students chose pizza and 254 students chose hamburgers)* **Circle it.**

**Is 254 a part or whole?** *(part)* **How do you know?** *(we are trying to find how many total students, or the whole; this is only a part of the total number of students who took the poll)* **Write “254” in the part.**

**Is 165 a part or whole?** *(part)* **Write “165” in the other part.**

**What does the whole represent?** *(how many students in all took the poll)*

**When we are given 2 parts, what operation do we use to find the whole?** (*addition*)

**Write “s” in the whole to remind us we are solving for how many students took the poll. Using your strip diagram, what is the addition problem?** ( $254 + 165 = s$ ) **Write it.**

**How many hundreds, tens, and ones are in 254?** (*2 hundreds, 5 tens, 4 ones*) **Draw it on the place value mat on the sheet.**

**How many hundreds, tens, and ones are in 165?** (*1 hundred, 6 tens, 5 ones*) **Draw it.**

**In what place do we start when adding?** (*in the ones place*) **How many ones in all?** (*9*)

**Do we regroup 9 ones for 1 ten?** (*no*) **Why?** (*not more than 10*)

**How many tens are there?** (*11*) **Do we need to regroup?** (*yes*) **Why?** (*more than 10 tens*)

**What is the value of 11 tens?** (*110*)

**How many tens in 1 hundred?** (*10*) **Circle 10 tens.**

**We regroup 10 tens to make 1 new hundred. Draw it.**

**Then cross out the 10 tens you circled.**

**How many hundreds are there now?** (*4*)

**Count to find how many students took the poll. Ready, count:**  
“100, 200 ... 400, 410, 411 ... 419.”

**How many students took the poll?** (*419*) **Write it.**

- Solve a word problem using 3-digit addition with regrouping. Use model drawings.

Use *Modeled Practice Sheet #2*.

**Say:** **Read the problem. Ready, read: “The recycling center collected 636 plastic bottles and 284 plastic bags. The plastic bottles**

were packaged into 20 boxes. How many plastic bottles and bags were collected?”

**What are we solving for?** (*how many plastic bottles and bags were collected*)

**How many plastic bottles were collected?** (636) **Is 636 the whole or part?** (*part*) **How do you know?** (*accept reasonable answers; it is 1 of the items collected, but not all*)

**Write “636” in the part.**

**How many plastic bags?** (284) **Is 284 the whole or part?** (*part*)

**Write “284” in the other part.**

**What does the whole represent?** (*how many plastic bottles and bags were collected*) **What operation do we use to solve?** (*addition*) **Write a “p” in the whole to remind us we are solving for the total number of plastic bottles and bags recycled.**

**Using your strip diagram, what is the addition problem?** ( $636 + 284 = p$ ) **Write it.**

**How many hundreds, tens, and ones are in 636?** (*6 hundreds, 3 tens, 6 ones*) **Draw it.**

**How many hundreds, tens, and ones are in 284?** (*2 hundreds, 8 tens, 4 ones*) **Draw it.**

**How many ones in all?** (10) **Do we regroup?** (*yes*)

**Circle 10 ones and draw 1 new ten.**

**How many ones are left?** (0)

**How many tens are there now?** (12)

**What is the value of 12 tens?** (120)

**Do we regroup?** (*yes*)

**How many tens do we circle?** (10)

**We regroup 10 tens to make 1 new hundred. Draw it.**

**How many tens are left? (2)**

**How many hundreds are there now? (9)**

**Count to find how many plastic bottles and bags were collected. Ready, count: “100, 200 ... 900, 910, 920.”**

**How many plastic bottles and bags were collected? (920)**

**Write “920” in the whole.**

## Practice

**Time: 8 min**

Activity 1: Have students turn to the *Practice Sheet* on page 59. Students will solve 3-digit addition problems with regrouping. Use model drawings to solve.

**Say: Solve the first problem on your own. After we discuss the answer, you will work with your math partner to solve the rest of the problems.**

Monitor students’ work and provide corrective feedback when necessary. Allow students to explain how they solved the problem.

Ask questions and give instructions such as:

- What are we solving for? (*how many emails did the cable company send*) Does this represent the whole or part? (*whole*)
- What information is not important? (*how many flyers were sent to customers; 214 flyers*)
- How many emails were sent last month? (*162*) Is 162 a part or whole? (*part*)
- How many extra emails were sent? (*138*) Is 138 a part or whole? (*part*)
- How do we solve the problem? (*add the parts,  $138 + 162$* )

- Use  $e$  to represent the total number of emails and write an equation for this problem. ( $138 + 162 = e$  or  $e = 162 + 138$ )
- How many emails did the cable company send? (290)

Have students complete the rest of the problems with a partner.

Activity 2: Have students turn to the *Practice Sheets* on pages 60 and 61. Students will review solving 2-digit and 3-digit addition problems with regrouping and no regrouping. Use model drawings to solve. Students will work in pairs and discuss situations where regrouping is and is not needed.

### Independent Practice

Time: 6 min

1. For 5 minutes: Have students turn to the *Independent Practice Sheets* and complete as many items as possible.

**Say:** You will work independently for 5 minutes. Complete as many as you can. At the end of 5 minutes, we will discuss our answers as a group.

2. For the remaining time: Have students share their answers with the group. Provide corrective feedback using mathematical language from the lesson. Have students mark the total number correct at the top of the page.



Total Time: 25 minutes  
Instructional Time: 19 minutes  
Independent Practice: 6 minutes

Module: Addition & Subtraction of Whole Numbers  
Lesson 12

### 3-Digit Subtraction with Regrouping

<b>Lesson Objectives</b>	<ul style="list-style-type: none"> <li>• The student will subtract 3-digit numbers with regrouping.</li> <li>• The students will solve word problems involving 3-digit subtraction with regrouping.</li> <li>• The student will apply and explain a variety of appropriate strategies to solve problems.</li> </ul>	
<b>Vocabulary</b>	<b>No new words are introduced.</b>	
<b>Reviewed Vocabulary</b>	addition, difference, hundreds, ones, regroup, subtraction, sum, tens	
<b>Instructional Materials</b>	<b>Teacher</b>	<b>Student</b>
	<ul style="list-style-type: none"> <li>• Teacher Masters (pp. 133-150)</li> <li>• Place Value Mat (in sheet protector)</li> <li>• Dry erase marker</li> </ul>	<ul style="list-style-type: none"> <li>• Student Booklet (pp. 67-75)</li> <li>• Place Value Mat (in sheet protector, 1 per student)</li> <li>• Dry erase marker</li> </ul>

## Preview

**Say:** Today we will subtract 3-digit numbers with regrouping.

## Engage Prior/Informal Knowledge

**Time: 3 min**

Have students review 3-digit addition with regrouping using model drawings. Have students use the *Place Value Mat* and dry erase marker.

Ask questions and give instructions such as:

- Write “518 + 191” at the top of your mat. Use model drawings to represent the numbers.
- What does a square represent? (*hundred*)
- What does a line represent? (*ten*)
- What does a dot represent? (*one*)
- How many hundreds, tens, and ones are in 518? (*5 hundreds, 1 ten, 8 ones*)
- How many hundreds, tens, and ones are in 191? (*1 hundred, 9 tens, 1 one*)
- Do we regroup the ones? (*no*) Why not? (*there are not enough ones, there are only 9 ones*)
- Do we regroup the tens? (*yes*) What do we regroup 10 tens to? (*1 new hundred*)
- What is the sum of 518 + 191? (*709*)

## Modeled Practice

Time: 8 min

1. Demonstrate 3-digit subtraction with regrouping using model drawings. Use the *Place Value Mat* and dry erase marker. Students will work along with the teacher using the same materials.

**Say:** Write “ $234 - 119$ ” at the top of your mat. We are going to use model drawings to solve.

**In 234, how many hundreds?** (*2 hundreds*) **Draw 2 squares to represent the hundreds in the hundreds place.**

**How many tens?** (*3 tens*) **Draw 3 lines to represent the tens in the tens place.**

**How many ones?** (*4*) **Draw it in the ones place.**

**Rather than drawing the second number, 119, we are going to subtract it from the whole. What is the whole?** (*234*)

**Now subtract the part, 119. What digit is in the ones place?** (*9*)  
**Tens place?** (*1*) **Hundreds place?** (*1*)

**What place do we start?** (*the ones place*) **Do we have enough ones to subtract 9 ones?** (*no*) **What do we have to do in order to subtract?** (*regroup*)

**Regroup 1 ten to 10 ones. Cross out 1 ten and draw 10 ones in the ones column.**

**How many tens are left?** (*2*)

**How many ones are there now?** (*14*)

**How many ones do we subtract from 14 ones?** (*9*)

**Cross out 9 ones. How many ones are left?** (*5*)

**How many tens do we subtract?** (*1*)

**Cross out 1 ten. How many tens are left?** (*1*)

**How many hundreds do we subtract? (1)**

**Cross out 1 hundred. How many hundreds are left? (1)**

**Count to find the difference. Ready, count: “100, 110, 111, 112 ... 115.”**

**What is  $234 - 119$ ? (115)**

**Clear your mat. Write “ $376 - 28$ .”**

**Use model drawings to represent 376. How many hundreds? (3)  
How many tens? (7) Ones? (6)**

**Subtract 28. How many ones do we subtract? (8)**

**Are there enough ones to subtract 8 ones? (no)**

**What do we do? (regroup 1 ten to 10 ones) Cross out 1 ten and draw 10 ones.**

**How many tens are left? (6)**

**How many ones are there now? (16)**

**How many ones do we subtract from 16 ones? (8) Cross out 8 ones.**

**How many ones are left? (8)**

**How many tens do we subtract? (2)**

**Cross out 2 tens. How many tens are left? (4)**

**Do we subtract hundreds? (no) Why not? (28 is a 2-digit number; there are no hundreds)**

**Count to find the difference. Ready, count: “100, 200, 300, 310 ... 340, 341, 342 ... 348.”**

**What is  $376 - 28$ ? (348)**

2. Solve a word problem using 3-digit subtraction with regrouping. Use model drawings.

Use the *Modeled Practice Sheet*.

**Say:** Read the problem. Ready, read: “On Monday, 416 books and 234 movies were checked out of the library. 191 books were returned on Friday. How many books are still checked out?”

**What are we solving for?** (*how many books are still checked out*)

**What information is not important?** (*234 movies*) **Why?** (*we are solving for how many books are still checked out*)

**What information is important?** (*416 books checked out, 191 books returned*) **Circle it.**

**How many books were checked out?** (*416*)

**Is 416 the whole or part?** (*whole*) **How do you know?** (*that is how many books were checked out in all*) **Write “416” in the whole.**

**How many books were returned?** (*191*) **Is 191 a part or whole?** (*part*) **Write “191” in the part.**

**We are given the whole and 1 part. What operation do we use to solve?** (*subtraction*) **How do we solve the problem?** (*subtract 191 from the whole 416*)

**Write a “b” in the other part to remind us we are solving for how many books are still checked out.**

**Using your strip diagram, what is the subtraction problem?** ( *$416 - 191 = b$* ) **Write it.**

**How many hundreds, tens, and ones are in 416?** (*4 hundreds, 1 ten, 6 ones*) **Draw it.**

**Subtract 191. How many ones do we subtract from 6?** (*1*) **Cross it out.**

**How many ones are left?** (*5*)

**How many tens do we subtract? (9) Can we subtract 9 tens from 1 ten? (no)**

**What do we do? (regroup 1 hundred to 10 tens)**

**Regroup 1 hundred to 10 tens. Cross out 1 hundred and draw 10 tens.**

**How many tens are there now? (11)**

**How many tens do we subtract from 11 tens? (9) Do it.**

**How many tens are left? (2)**

**How many hundreds are left? (3)**

**How many hundreds do we subtract from 3 hundreds? (1) Do it.**

**How many hundreds are left? (2)**

**Count to find the difference. Ready, count: “100, 200, 210, 220, 221 ... 225.”**

**How many books are still checked out? (225) Write “225” in the part.**

## Practice

Time: 8 min

Activity 1: Have students turn to the *Practice Sheet* on page 68. Students will solve 3-digit subtraction problems with regrouping. Use model drawings to solve.

**Say: Solve the first problem on your own. After we discuss the answer, you will work with your math partner to solve the rest of the problems.**

Monitor students’ work and provide corrective feedback when necessary. Allow students to explain how they solved the problem.

Ask questions and give instructions such as:

- What are we solving for? (*how many more basketball tickets were sold than baseball tickets*)
- What information is not important? (*279 football tickets sold*)  
Why? (*we are solving for how many more basketball tickets than baseball tickets were sold, not football*)
- How many basketball tickets were sold? (*573*)
- How many baseball tickets were sold? (*236*)
- Is 236 the whole or part? (*part*) Is 573 the whole or part? (*whole*)
- How do we solve the problem? (*subtract 236 from the whole, 573*)
- How more basketball tickets were sold? (*337*)

Have students complete the rest of the problems with a partner.

Activity 2: Have students turn to the *Practice Sheets* on pages 69, 70, and 71. Students will review 3-digit subtraction problems with regrouping. Use model drawings and the *Place Value Mat* to solve.

## Independent Practice

Time: 6 min

1. For 5 minutes: Have students turn to the *Independent Practice Sheets* and complete as many items as possible.  
**Say:** **You will work independently for 5 minutes. Complete as many as you can. At the end of 5 minutes, we will discuss our answers as a group.**
2. For the remaining time: Have students share their answers with the group. Provide corrective feedback using mathematical language from the lesson. Have students mark the total number correct at the top of the page.



**Total Time: 25 minutes**  
Instructional Time: 19 minutes  
Independent Practice: 6 minutes

**Module: Addition & Subtraction of Whole Numbers**  
Lesson 13

## 2-Digit and 3-Digit Addition and Subtraction With Regrouping

<b>Lesson Objectives</b>	<ul style="list-style-type: none"> <li>• The student will add and subtract 2- and 3-digit numbers with regrouping.</li> <li>• The students will solve word problems involving 2-digit and 3-digit addition and subtraction with regrouping.</li> <li>• The student will apply and explain a variety of appropriate strategies to solve problems.</li> </ul>	
<b>Vocabulary</b>	<b>No new words are introduced.</b>	
<b>Reviewed Vocabulary</b>	addition, difference, hundreds, number family, ones, regroup, subtraction, sum, tens	
<b>Instructional Materials</b>	<b>Teacher</b>	<b>Student</b>
	<ul style="list-style-type: none"> <li>• Teacher Masters (pp. 151-166)</li> <li>• Place Value Mat (in sheet protector)</li> <li>• Whiteboard with marker</li> </ul>	<ul style="list-style-type: none"> <li>• Student Booklet (pp. 76-83)</li> <li>• Place Value Mat (in sheet protector, 1 per student)</li> <li>• Whiteboard with marker</li> </ul>

## Preview

**Say:** Today we will add and subtract 2- and 3-digit numbers with regrouping.

## Engage Prior/Informal Knowledge

**Time: 3 min**

Have students review 2-digit addition and subtraction with regrouping using model drawings. Have students use the *Place Value Mat* and dry erase marker.

Ask questions and give instructions such as:

- Write “ $58 + 39$ ” at the top of your mat. Use model drawings to represent the numbers. How many tens and ones are in 58? (*5 tens and 8 ones*) How many tens and ones in 39? (*3 tens and 9 ones*) Add the ones. What is 8 ones plus 9 ones? (*17 ones*) Do we regroup? (*yes*) How many ones in 1 ten? (*10*) How many ones are left? (*7*) How many tens are there now? (*9*) What is  $58 + 39$ ? (*97*) What is 97 called? (*sum*)
- Write “ $85 - 57$ ” and solve using model drawings. How many tens and ones in 85? (*8 tens and 5 ones*) Can you subtract 5 ones minus 7 ones? (*no*) What do we do? (*regroup*) What does regroup mean? (*accept reasonable answers; change or make a new group; trade or regroup 10 ones to 1 group of 10 or 1 ten to 10 ones; 10 tens to 1 hundred or 1 hundred to 10 tens*) How many ones are there now? (*15 ones*) How many tens are left? (*7 tens*) What is  $85 - 57$ ? (*28*) What is 28 called? (*difference*)
- Write “ $174 + 292$ ” and solve using model drawings. How many hundreds, tens, and ones in 174? (*1 hundred, 7 tens, 4 ones*) How many hundreds, tens and ones in 292? (*2 hundred, 9 tens, 2 ones*) What is 4 ones plus 2 ones? (*6 ones*) How many tens in all? (*16 tens*) Do we regroup? (*yes*) How many tens in 1 hundred? (*10 tens*) How many tens are left? (*6 tens*) How many hundreds now? (*4 hundreds*) What is the sum? (*466*)
- Have students solve  $548 - 209$ , if time permits. Ask students to explain how they used model drawings to solve.

## Modeled Practice

Time: 8 min

1. Demonstrate 3-digit addition and subtraction with no regrouping using an algorithm.

Write “ $531 + 457 =$ ” vertically on your whiteboard.

**Say:** Read the problem. ( $531 + 457$ ) Write it on your board.

**Where do we start when adding?** (*ones place*) **Add the ones.**

**What is  $1 + 7$ ?** (*8*) **Write “8” in the ones place.**

**Add the tens together. How many tens in 531?** (*3*) **How many tens in 457?** (*5*) **What is 3 tens plus 5 tens?** (*8 tens*) **What is the value of 8 tens?** (*80*) **Do we regroup the tens?** (*no*) **Why not?** (*accept reasonable answers; there are only 8 tens; there are not enough tens to regroup; we need 10 tens or more to regroup to 1 hundred*) **Write “8” in the tens place.**

**What do we add next?** (*hundreds*) **How many hundreds in 531?** (*5*) **How many hundreds in 457?** (*4*) **How many hundreds in all?** (*9 hundreds*) **Write “9” in the hundreds place.**

**What is  $531 + 457$ ?** (*988*)

**If we switch or change the order of the numbers to  $457 + 531$ , what will the sum be?** (*988*)

**Erase your work.**

Write “ $698 - 325 =$ ” vertically on your whiteboard.

**Say:** Read the problem. ( $698 - 325$ ) Write it on your board.

**Do we add or subtract?** (*subtract*)

**Where do we start when subtracting?** (*ones place*) **How many ones in 698?** (*8*) **How many ones in 325?** (*5*) **What do we subtract from 8 ones?** (*5 ones*) **Do we regroup 1 ten?** (*no*) **Why not?** (*accept reasonable answers; there are enough ones to subtract 5 ones; you can subtract 5 from 8*) **What is 8 ones minus 5 ones?** (*3 ones*) **Write “3” in the ones place.**

**Subtract the tens. How many tens in 698?** (9) **What do we subtract from 9 tens?** (2 tens) **Do we regroup 1 hundred?** (no) **Why not?** (accept reasonable answers; there are enough tens to subtract 2 tens; you can subtract 2 tens from 9 tens) **What is 9 tens minus 2 tens?** (7 tens) **What is the value of 7 tens?** (70) **Write “7” in the tens place.**

**What do we subtract next?** (hundreds) **Subtract the hundreds. What is 6 hundreds minus 3 hundreds?** (3 hundreds) **Write “3” in the hundreds place.**

**What is the difference?** (373)

- Demonstrate 3-digit addition and subtraction with regrouping using an algorithm.

Write “ $239 + 343 =$ ” vertically on your whiteboard.

**Say:**     **Read the problem.** (239 + 343) **Write it.**

**Add the ones. What is 9 ones plus 3 ones?** (12 ones)

**Do we regroup the ones to make a new ten?** (yes) **Why?** (greater than 10;  $9 + 3 = 12$ )

**Write “2” in the ones place in the sum. Then write “1” to represent the 1 new ten above the 3 in the tens place. What does the 1 above the tens place represent?** (1 new ten)

**Add the tens together. What is 1 ten plus 3 tens plus 4 tens?** (8 tens) **Write “8” in the tens place. What is the value of 8 tens?** (80)

**Do we regroup 8 tens for 1 new hundred?** (no) **Why not?** (accept reasonable answers; there are not enough tens; we need 2 more tens to regroup to 1 new hundred)

**Add the hundreds. What is 2 hundreds plus 3 hundreds?** (5 hundreds) **Write “5” in the hundreds place.**

**What is the sum?** (582)

**Erase your work. Write “481 – 291.”**

**Subtract the ones. What is  $1 - 1$ ? (0) Write “0” in the ones place.**

**How many tens in 481? (8) How many tens in 291? (9)**

**Can we subtract 9 tens from 8 tens? (no) Why not? (there are not enough tens)**

**What do we do? (regroup 1 hundred to 10 tens)**

**Regroup 1 hundred to the tens place. How many hundreds in 481? (4 hundreds)**

**To regroup, we subtract 1 hundred from 4 hundreds. What is 4 hundreds minus 1 hundred? (3 hundreds) Cross out 4 in the hundreds place. Write “3” above the 4 in the hundreds place.**

**Now add the 10 new tens to 8 tens. What is 10 tens plus 8 tens? (18 tens) Cross out 8 in the tens place and write “18” above it. 18 represents the value of 18 tens. What is the value of 18 tens? (180)**

**Subtract the tens. What is 18 tens minus 9 tens? (9 tens) What is the value of 9 tens? (90) Write “9” in the tens place.**

**What do we do next? (subtract the hundreds) What is 3 hundreds minus 2 hundreds? (1 hundred) What do we write in the hundreds place? (1)**

**What is the difference? (190)**

- Students will solve 3-digit addition or subtraction with regrouping using an algorithm.

Write “ $563 - 327$ ” and “ $236 + 327$ ” vertically on the whiteboard. Assign 1 problem to each pair of students to work together and solve on their whiteboards. Wait for students to work. Write their sum or difference below each problem as discussed.

**Say: If you solved the subtraction problem, what is  $563 - 327$ ? (236)**

**Did you regroup in this problem? (yes) Explain how you regrouped.** *(we regrouped 1 ten to the ones, subtracted 13 ones minus 7, subtracted 5 tens minus 2 tens, subtracted 5 hundreds minus 3 hundreds)*

**What is the difference?** *(236)*

**If you solved the addition problem, what is  $236 + 327$ ?** *(563)*

**Did you regroup in this addition problem? (yes) Explain how you regrouped.** *(we added 6 ones plus 7 ones, and regrouped 10 ones to 1 new ten)*

**What is the sum?** *(563)*

**What do you notice about the 3 numbers in both of these problems?** *(accept reasonable answers; they are the same; the numbers belong to a number family)*

**These numbers belong to a number family. What numbers are in this number family?** *(236, 327, and 563)*

**To check our subtraction, what operation do we use?** *(addition)*  
**We add the 2 parts together. The part 327 plus the other part, or the difference, 236, should equal the whole, 563.**

**What is  $327 + 236$ ?** *(563)* **This means our subtraction work is correct.**

**To check our addition, what operation do we use?** *(subtraction)*

**We can subtract the part 327 from the whole, 563, or we can subtract the other part, 236, from the whole, 563.**

**Subtract  $563 - 236$  on your whiteboard. What is the difference?** *(327)*

**This means our addition work is correct.**

**Practice**

**Time: 8 min**

Activity 1: Have students turn to the *Practice Sheets* on page 76. Students will solve 2- and 3-digit addition and subtraction word problems with regrouping using the strip diagram and an algorithm.

**Say: Solve the first problem on your own. After we discuss the answer, you will work with your math partner to solve the rest of the problems.**

Monitor students' work and provide corrective feedback when necessary. Allow students to explain how they solved the problem.

Ask questions and give instructions such as:

- What are we solving for? (*how many more students visited the zoo than the gardens*)
- What information is not important? (*how many animals are in the zoo; 786 animals*)
- How many total students visited the zoo? (*269*) Is 269 the whole or part? (*whole*)
- How many students visited the gardens? (*198*) Is 198 the whole or part? (*part*)
- How do we solve the problem? (*subtract 198 from the whole 269*)
- How many more students visited the zoo than the gardens? (*71*)
- How can we check your answer? (*add the part 71 and the part 198 together to equal the whole, 269*)

Have students complete the rest of the problems with a partner.

Activity 2: Have students turn to the *Practice Sheets* on pages 77 and 78. Students will review 2- and 3-digit addition and subtraction problems with regrouping using an algorithm with a partner. Students will check their answer using addition or subtraction.

## Independent Practice

Time: 6 min

1. For 5 minutes: Have students turn to the *Independent Practice Sheets* and complete as many items as possible.  
  
**Say:**     **You will work independently for 5 minutes. Complete as many as you can. At the end of 5 minutes, we will discuss our answers as a group.**
2. For the remaining time: Have students share their answers with the group. Provide corrective feedback using mathematical language from the lesson. Have students mark the total number correct at the top of the page.



Total Time: 25 minutes  
Instructional Time: 19 minutes  
Independent Practice: 6 minutes

Module: Addition & Subtraction of Whole Numbers  
Lesson 14

# Subtraction with Zero in the Ones Place

<b>Lesson Objectives</b>	<ul style="list-style-type: none"> <li>• The student will subtract whole numbers with zero in the ones place using model drawings and an algorithm.</li> <li>• The student will solve word problems involving subtraction with regrouping using an algorithm.</li> <li>• The student will apply and explain a variety of appropriate strategies to solve problems.</li> </ul>	
<b>Vocabulary</b>	<b>No new words are introduced.</b>	
<b>Reviewed Vocabulary</b>	addition, difference, hundreds, number family, ones, regroup, subtraction, sum, tens	
<b>Instructional Materials</b>	<b>Teacher</b>	<b>Student</b>
	<ul style="list-style-type: none"> <li>• Teacher Masters (pp. 167-184)</li> <li>• Place Value Mat (in sheet protector)</li> </ul>	<ul style="list-style-type: none"> <li>• Student Booklet (pp. 84-92)</li> <li>• Whiteboard with marker (1 per student)</li> <li>• Place Value Mat (in sheet protector, 1 per student)</li> <li>• Base-10 materials: 3 tens, 10 ones (per student)</li> </ul>

## Preview

**Say:** Today we will subtract numbers with zero in the ones place.

## Engage Prior/Informal Knowledge

**Time: 3 min**

Have students review 3-digit addition and subtraction with regrouping using an algorithm. Students will use the whiteboard and marker.

Ask questions and give instructions such as:

- Write “ $977 - 282$ .” What is 7 ones minus 2 ones? (*5 ones*) Do we regroup? (*no*) Why? (*you can subtract 2 ones from 7 ones*) Can you subtract 8 tens from 7 tens? (*no*) What do we do? (*regroup 1 hundred to 10 tens*) How many tens are there now? (*17*) How many hundreds are left? (*8 hundreds*) What is 17 tens minus 8 tens? (*9 tens*) What is 8 hundreds minus 2 hundreds? (*6 hundreds*) What is the difference? (*695*)
- How can we check our subtraction work? (*accept reasonable answers; use addition; add the part 282 and the other part, or the difference, 695*) How do we know if our subtraction work is correct? (*if the sum of the 2 parts equals 977*)
- Write “ $695 + 282$ .” What is 5 ones plus 2 ones? (*7 ones*) Do we regroup? (*no*) Why not? (*there are only 7 ones; there are not enough ones*) What is 9 tens plus 8 tens? (*17 tens*) What is the value of 17 tens? (*170*) Do we regroup the tens? (*yes*) How many tens in 1 hundred? (*10 tens*) How many tens are left? (*7 tens*) What is 1 hundred plus 6 hundreds plus 2 hundreds? (*9 hundreds*) What is the sum? (*977*) Is your subtraction work correct? (*yes*)
- If time permits, have students solve  $424 - 134$  and use addition ( $134 + 290$ ) to check their work.

## Modeled Practice

Time: 8 min

1. Demonstrate 2-digit subtraction with zero in the ones place using base-10 materials and the *Place Value Mat*. Have students complete the steps as the lesson progresses.

Give each student 3 tens and 10 ones. Write “30 – 12” vertically at the top of the mat.

**Say:**     **Read the problem.** (30 – 12)

**How many tens in 30?** (3 tens) **How many ones?** (0)

**Make 30 on your mat.**

**What do we subtract from 30?** (12) **How many tens in 12?** (1 ten) **How many ones?** (2 ones)

**When subtracting, in what place do we start?** (ones place)

**What do we subtract from 0?** (2 ones)

**Can we subtract 2 ones from 0?** (no) **We can see that we cannot subtract 2 ones.**

**Can we switch the numbers in the ones place in the problem and subtract 2 – 0?** (no) **Why not?** (accept reasonable answers; we are subtracting 12 from 30; 0 is in the ones place of 30 and 2 is in the ones place of 12, so we cannot switch the numbers in the ones place)

**What do we need to do?** (regroup 1 ten to 10 ones)

**Regroup 1 ten to 10 ones on your mat. How many ones are there now?** (10 ones)

**How many tens are left?** (2 tens) **What is the value of 2 tens?** (20) **2 tens plus 10 ones represents what number?** (30) **Do we still have 30 even after we regrouped 1 ten?** (yes)

**Can we subtract 2 ones now?** (yes) **Subtract 2 ones. How many are left?** (8 ones) **How many tens do we subtract?** (1 ten)

**Subtract 1 ten. How many tens left? (1 ten) What is the difference? (18)**

2. Demonstrate 2-digit subtraction with zero in the ones place using an algorithm.

Use *Modeled Practice Sheet #1*.

**Say: Read the problem. ( $40 - 28$ ) How many tens are in 40? (4) How many ones? (0)**

**How many tens and ones are in 18? (1 ten and 8 ones)**

**Where do we start when subtracting 2-digit numbers? (ones place)**

**Can we subtract 8 ones from 0? (no) Why not? (there are no ones to subtract 8 ones)**

**What do we do? (regroup 1 ten to 10 ones)**

**To regroup we subtract 1 ten from 4 tens. What is 4 tens minus 1 ten? (3 tens) Cross out the 4 in the tens place. Write “3” above the 4 in the tens place. Does 3 represent 3 ones? (no) What does 3 represent? (3 tens) What is the value of 3 tens? (30)**

**Now add the 10 new ones to 0. What is 10 ones plus 0? (10 ones) Cross out 0 in the ones place. What do we write above it? (10) Write it.**

**Look at the numbers written above after we regrouped. What does 3 represent? (30) What is  $30 + 10$ ? (40) After we regrouped 1 ten to 10 ones is the number still 40? (yes) What number? (40)**

**Subtract the ones. Can we subtract 8 ones now? (yes) What is 10 ones minus 8 ones? (2 ones) Write “2” in the ones place.**

**What do we subtract next? (tens) What is 3 tens minus 2 tens? (1 ten) Do we write “10” in the difference? (no) What do we write in the tens place? (1) Write “1” in the tens place. What does 1 represent? (1 ten)**

**What is  $40 - 28$ ? (12)**

**In subtraction, what is the mathematical word for the answer, 12? (difference)**

**What operation do we use to check subtraction? (addition) What 2 parts do we add together? (12 and 28) When we add the 2 parts together, what should the sum be? (the whole, 40) If the sum of the 2 parts is not 40, what does this mean? (subtraction is incorrect) What should the sum of the 2 parts be? (the whole, 40)**

**Write the 2 parts and add them together.**

**What is  $12 + 28$ ? (40)**

3. Demonstrate 3-digit subtraction with zero in the ones place using model drawings and an algorithm.

Use *Modeled Practice Sheet #2*.

**Say: Read the problem. ( $350 - 127$ ) Let's use model drawings to represent 350. Use squares to represent the hundreds, lines to represent the tens, and dots to represent the ones. How many hundreds? (3) Tens? (5) Ones? (0)**

**Where do we start when subtracting? (ones place)**

**Can we subtract 7 ones from 0? (no)**

**Should we switch the numbers in the problem and subtract  $7 - 0$ ? (no) What do we do then? (regroup 1 ten to 10 ones)**

**Cross out 1 ten. Draw 10 ones. How many total ones now? (10 ones)**

### Teacher Note

Students may subtract the ones after regrouping 1 ten.

**Say: How many tens are left, 5 tens – 1 ten? (4 tens) What is the value of 4 tens? (40)**

**Watch For**



**Students may automatically regroup when it is not needed. For example, in  $350 - 127$ , students might regroup 1 hundred to 10 tens. Ask questions to help students think about whether regrouping is or is not needed. Use base-10 materials or model drawings to demonstrate different situations.**

**Say:** In the tens place, can we subtract 2 tens from 4 tens? (*yes*) Do we need to regroup 1 hundred to 10 tens? (*no*) Why not? (*there are enough tens to subtract 2 tens from 4 tens*)

**Subtract the ones. How many ones do we subtract from 10 ones? (*7 ones*) Cross it out. How many ones are left? (*3 ones*)**

**Subtract the tens. How many tens do we subtract? (*2 tens*) Cross it out. How many tens are left? (*2 tens*) What is the value of 2 tens? (*20*)**

**Subtract the hundreds. How many hundreds do we subtract? (*1 hundred*) Cross it out. How many hundreds are left? (*2 hundreds*)**

**What is the difference? (*223*)**

**Look at the problem above the place value chart. Put your finger on 0 in 350. When we regrouped 1 ten how many ones did we add to 0? (*10 ones*) How many ones did we draw? (*10 ones*)**

**Cross out 0 in the ones place. What should we write above 0? (*10*) Write it. What does 10 represent? (*10 ones*)**

**In the drawing, how many tens are left after we regrouped 1 ten? (*4 tens*) Cross out 5 in the tens place. What do we write above it? (*4*) Write it. What does 4 represent? (*4 tens or 40*)**

**Should we cross out 3 in the hundreds place? (no) Why? (we do not need to regroup 1 hundred because there are enough tens to subtract)**

**Complete the rest of the problem.**

**What is the difference? (223)**

**How do we check our subtraction? (accept reasonable answers; use addition; add the parts  $223 + 127$ )**

**What parts do we add? (223 and 127) Write it.**

**How do we know if our subtraction work is correct? (accept reasonable answers; the sum of the parts should equal the whole;  $223 + 127$  should equal 350)**

**Solve the addition problem.**

**What is  $223 + 127$ ? (350)**

## Practice

Time: 8 min

Activity 1: Have students turn to the *Practice Sheets* on pages 86 and 87. Students will solve 2- and 3-digit subtraction problems with zero in the ones place.

**Say:** **Read the problem. Ready, read: “790 students attend Cactus Elementary. 118 students walk to school. 530 students ride the bus. The rest of the students ride their bikes. How many more students ride the bus to school than walk?”**

**What are we solving for? (how many more students ride the bus to school than walk)**

**What information is not important? (how many students attend Cactus Elementary; 790 students attend Cactus Elementary; the rest of the students ride their bikes)**

**Why is this information not important? (it does not relate to how many students ride the bus or walk to school)**

**What information is important?** (*530 students ride the bus, 118 students walk to school*) **Circle it.**

**Use the strip diagram to help you determine how to solve the problem.**

Monitor students' work and provide corrective feedback when necessary. Allow students to explain how they solved the problem.

Ask questions and give directions such as:

- Is 530 the whole or part? (*whole*) How do you know? (*solving for how many more students ride the bus than walk*)
- Is 118 the whole or part? (*part*)
- How do we solve the problem? (*subtract 118 from the whole, 530*)
- How many more students ride the bus to school than walk? (*412*)
- How can we check your answer? (*add the parts 118 and 412 together*) What should the parts equal? (*530*)
- What is  $118 + 412$ ? (*530*)

Have students complete the rest of the problems with a partner.

Activity 2: Have students turn to the *Practice Sheet* on page 88. Students will play *Zero in the Ones Place Tic Tac Toe* to review subtraction using an algorithm. The students will check their partner's work using addition. Use model drawings to solve if needed. If time permits play an additional game of *Zero in the Ones Place Tic Tac Toe* in the other partner's student booklet.

## Independent Practice

Time: 6 min

1. For 5 minutes: Have students turn to the *Independent Practice Sheets* and complete as many items as possible.  
  
**Say: You will work independently for 5 minutes. Complete as many as you can. At the end of 5 minutes, we will discuss our answers as a group.**
2. For the remaining time: Have students share their answers with the group. Provide corrective feedback using mathematical language from the lesson. Have students mark the total number correct at the top of the page.



**Total Time: 25 minutes**  
Instructional Time: 19 minutes  
Independent Practice: 6 minutes

**Module: Addition & Subtraction of Whole Numbers**  
Lesson 15

## Subtraction with Zero in the Tens Place

<b>Lesson Objectives</b>	<ul style="list-style-type: none"><li>• The student will subtract whole numbers with zero in the tens place using model drawings and an algorithm.</li><li>• The student will solve word problems involving subtraction with regrouping using an algorithm.</li><li>• The student will apply and explain a variety of appropriate strategies to solve problems.</li></ul>	
<b>Vocabulary</b>	<b>No new words are introduced.</b>	
<b>Reviewed Vocabulary</b>	addition, difference, hundreds, number family, ones, regroup, subtraction, sum, tens	
<b>Instructional Materials</b>	<b>Teacher</b>	<b>Student</b>
	<ul style="list-style-type: none"><li>• Teacher Masters (pp. 185-200)</li><li>• Place Value Mat (in sheet protector)</li></ul>	<ul style="list-style-type: none"><li>• Student Booklet (pp. 93-100)</li><li>• Whiteboard with marker</li><li>• Place Value Mat (in sheet protector, 1 per student)</li><li>• Base-10 materials: 4 hundreds, 5 tens, 10 ones (per student)</li></ul>

## Preview

**Say:** Today we will subtract numbers with 0 in the tens place.

## Engage Prior/Informal Knowledge

**Time: 3 min**

Have students review subtraction with 0 in the ones place using an algorithm. Have students use the whiteboard and marker.

Ask questions and give instructions such as:

- Write “90 – 36.” How many tens are in 90? (*9 tens*) How many ones? (*0*) Where do we start? (*ones place*) Can we subtract 6 ones from 0? (*no*) Do we switch the numbers in the ones place and subtract 6 – 0? (*no*) What do we need to do? (*regroup 1 ten*) How many ones in 1 ten? (*10 ones*) How many tens left? (*8 tens*) What is the value of 8 tens? (*80*) What do we write above the 0 in the ones place? (*10*) What does 10 represent? (*10 ones*) What is 90 – 36? (*54*) What is 54 called in subtraction? (*difference*)
- What operation do you use to check subtraction? (*addition*) What parts do you add? (*36 and 54*) How do you know if your subtraction work is correct? (*the sum of the 2 parts should equal the whole 90*) What is 54 + 36? (*90*)
- If time permits, have students solve 80 – 42 and use addition ( $42 + 38$ ) to check their work.

## Modeled Practice

**Time: 8 min**

1. Demonstrate multi-digit subtraction with 0 in the tens place using base-10 materials and the *Place Value Mat*.

Give each student 4 hundreds, 5 tens, and 10 ones. Write “409 – 157” vertically at the top of the mat.

**Say:** Read the problem. ( $409 - 157$ )

**How many hundreds are in 409?** (*4*) **How many tens?** (*0*) **How many ones?** (*9*)

**Make 409 on your mat.**

**What part are we subtracting from 409?** *(157)* **How many hundreds are in 157?** *(1)* **How many tens?** *(5 tens)* **How many ones?** *(7)*

**When subtracting 2 or more digits, in what place do we start?** *(ones place)*

**What do we subtract from 9 ones?** *(7 ones)*

**Can we subtract 7 ones from 9 ones?** *(yes)* **Do we need to regroup 1 ten to 10 ones?** *(no)* **Why?** *(there are enough ones to subtract 7 ones)* **Subtract 7 ones. How many ones are left?** *(2 ones)*

**What do we do next?** *(subtract the tens)* **What is the subtraction problem in the tens place?** *(0 tens minus 5 tens)*

**Can we subtract 5 tens from 0?** *(no)* **Why?** *(we cannot subtract 5 tens from 0 tens because there are no tens)*

**Can we switch the numbers in the tens place in the problem and subtract 5 – 0?** *(no)* **Why not?** *(accept reasonable answers; we are subtracting 157 from 409; 0 is in the tens place of 409 and 5 is in the tens place of 157, so we cannot switch the numbers in the tens place)*

**What do we need to do to subtract in the tens place?** *(regroup 1 hundred to 10 tens)*

**Regroup 1 hundred to 10 tens. How many tens are in 1 group of hundred?** *(10)* **How many hundreds are left: 4 hundreds – 1 hundred?** *(3 hundreds)* **How many tens: 0 tens + 10 tens?** *(10 tens)* **Are there enough tens now to subtract 5 tens?** *(yes)*

**Subtract the tens. What is the subtraction problem in the tens place?** *(10 tens minus 5 tens)* **What is 10 – 5?** *(5 tens)*

**What do we do next?** *(subtract the hundreds)* **What are we subtracting in the hundreds place?** *(3 hundreds minus 1 hundred)* **What is 3 hundreds – 1 hundred?** *(2 hundreds)*

**What is the difference?** (252)

2. Demonstrate multi-digit subtraction with 0 in the tens place using model drawings and an algorithm.

Use *Modeled Practice Sheet #1*.

**Say:** **Read the problem.** (708 – 343) **Let's use model drawings to represent 708. Use squares to represent the hundreds, lines to represent the tens, and dots to represent the ones. How many hundreds?** (7) **Tens?** (0) **Ones?** (8)

**When subtracting multi-digit numbers, in what place do we start?** (*ones place*)

**Can we subtract 3 ones from 8 ones?** (*yes*) **Cross out 3 ones. How many ones are left?** (*5 ones*)

**What do we do next?** (*subtract the tens, subtract 4 tens*) **Can we subtract 4 tens from 0?** (*no*) **Do we switch the numbers in the problem and subtract 4 – 0?** (*no*)

**We can see in our drawing that there are no tens to subtract 4 tens from.**

**What do we do then?** (*regroup 1 hundred to 10 tens*)

**Regroup 1 hundred. Cross out 1 ten. How many new tens do we draw?** (*10 tens*) **Why?** (*10 tens are in 1 hundred*) **Draw it. How many tens now?** (*10 tens*) **How many hundreds are left?** (6)

**Subtract 4 tens. How many tens are left?** (*6 tens*) **What is the value of 6 tens?** (*60*)

**Subtract 3 hundreds. How many hundreds are left?** (*3 hundreds*)

**What is the difference?** (365)

**Now write the problem below in the Solve box. Make sure the numbers are written in the correct place value.**

**Put your finger on 8 in 708. Did we need to regroup 1 ten to 10 ones? (no) Why? (we can subtract 3 ones from 8 ones)**

**Put your finger on 0. Did we need to regroup 1 hundred to 10 tens? (yes) Why? (because there were not enough ones in the tens place to subtract 4 tens) Regroup 1 hundred. Cross out the 7 in the hundreds place. How many hundreds are left in the drawing? (6 hundreds) What do we write above 7 hundreds? (6) Write it. What does 6 represent? (6 hundreds)**

**When we regrouped 1 hundred, how many tens did we draw? (10 tens) Cross out 0 in the tens place. What should we write above 0? (10) Write it. What does 10 represent? (10 tens)**

**What should the numbers written above still represent? (708) How do you know? ( $600 + 100 + 8 = 708$  or  $6 \text{ hundreds} + 10 \text{ tens} + 8 \text{ ones} = 708$ )**

**Complete the rest of the problem.**

**What is the difference? (365)**

**How do we check our subtraction? (accept reasonable answers; use addition; add the parts  $365 + 343$ )**

**What parts do we add? (365 and 343) Write it.**

**How do we know if our subtraction work is correct? (accept reasonable answers; the sum of the parts should equal the whole;  $365 + 343$  should equal 708)**

**Solve the addition problem.**

**What is  $365 + 343$ ? (708)**

3. Demonstrate multi-digit subtraction with 0 in the tens place using an algorithm to solve the word problem.

Use *Modeled Practice Sheet #2*.

**Say: Read the problem. Ready, read: “The dance team raised \$503. There are 12 girls on the team. They used \$271 to buy new**

**uniforms. The rest of the money will be used for travel costs. How much money will be used for travel costs?"**

**What are we solving for?** (*how much money will be used for travel costs*)

**What information is important?** (*\$503 raised, \$271 to buy new uniforms*) **Circle it.**

**Is there information that is not helpful to solve the question?** (*yes*)

**What information is not important?** (*12 girls; how many girls are on the dance team*)

**Is 503 the whole or part?** (*whole*) **How do you know?** (*it is how much the dance team raised*) **Write "503" in the whole.**

**Is 271 the part or the whole?** (*part*) **How do you know?** (*it is part of how much money was used*) **Write "271" in the part.**

**What does the other part represent?** (*how much money will be used for travel costs*) **Write "t" for travel costs in the unknown part.**

**How do you solve the problem?** (*subtract 503 – 271*) **Write the problem.**

**Where do we start when subtracting 2 or more digits?** (*ones place*)

**What is 3 ones minus 1 one?** (*2 ones*)

**What do we do next?** (*subtract the tens*) **Can we subtract 7 tens from 0?** (*no*) **Do we switch the numbers in the tens place and subtract 7 – 0?** (*no*) **What do we need to do then?** (*regroup 1 hundred to 10 tens*) **Regroup 1 hundred to 10 tens.**

**How many hundreds left?** (*4 hundreds*) **What do we write above 5 hundreds?** (*4 hundreds*) **What do we write above 0 in the tens place?** (*10*) **How many new tens are there?** (*10 tens*) **What is the value of 10 tens?** (*1 hundred*)

**Subtract the tens. What is 10 tens minus 7 tens? (3 tens) Write it.**

**What do we do next? (subtract the hundreds) What is 4 hundreds minus 2 hundreds? (2 hundreds) Write it.**

**How much money will be used for travel costs? (\$232)**

**How do we check our subtraction? (add the parts together; add 232 and 271) Write it.**

**How do you know if our subtraction is correct? (the sum should be 503)**

**Add the parts.**

**What is the sum? (503)**

**If the sum is not 503 what does it mean? (the subtraction is incorrect)**

## Practice

**Time: 8 min**

Activity 1: Have students turn to the *Practice Sheet* on pages 95. Students will solve multi-digit subtraction problems with 0 in the tens place using an algorithm.

**Say: Solve the first problem on your own. After we discuss the answer, you will work with your math partner to solve the rest of the problems.**

Monitor students' work and provide corrective feedback when necessary. Allow students to explain how they solved the problem.

Ask questions and give instructions such as:

- What are we solving for? (*how many more students bring their lunch than buy lunch at school*)
- What information is not important? (*how many students are in the school*)

- Why is the information not important? (*it does not relate to how many students bring their lunch or buy lunch*)
- What information is important? (*209 students bring their lunch, 152 buy lunch*)
- Is 209 the whole or part? (*whole*) How do you know? (*it is how many students bring their lunch*)
- Is 152 the whole or part? (*part*)
- How do we solve the problem? (*subtract 152 from the whole, 209*)
- How many more students bring their lunch than buy lunch at school? (*57*)
- How can we check your answer? (*add the parts 57 and 152 together*) What should the parts equal? (*209*)
- What is  $57 + 152$ ? (*209*)

Have students complete the rest of the problems with a partner.

Activity 2: Have students turn to the *Practice Sheet* on page 95. Students will solve multi-digit subtraction problems with 0 in the tens place using an algorithm. The students will check their partner's work using addition.

## Independent Practice

Time: 6 min

1. For 5 minutes: Have students turn to the *Independent Practice Sheets* and complete as many items as possible.

**Say:** **You will work independently for 5 minutes. Complete as many as you can. At the end of 5 minutes, we will discuss our answers as a group.**

2. For the remaining time: Have students share their answers with the group. Provide corrective feedback using mathematical language from the lesson. Have students mark the total number correct at the top of the page.



**Total Time: 25 minutes**  
Instructional Time: 19 minutes  
Independent Practice: 6 minutes

**Module: Addition & Subtraction of Whole Numbers**  
Lesson 16

# Subtraction With Zero in the Tens or the Ones Place

<b>Lesson Objectives</b>	<ul style="list-style-type: none"> <li>• The student will subtract whole numbers with 0 in the tens or ones place using model drawings and an algorithm.</li> <li>• The student will solve word problems involving subtraction with regrouping using an algorithm.</li> <li>• The student will apply and explain a variety of appropriate strategies to solve problems.</li> </ul>	
<b>Vocabulary</b>	<b>No new words are introduced.</b>	
<b>Reviewed Vocabulary</b>	addition, difference, hundreds, number family, ones, regroup, subtraction, sum, tens	
<b>Instructional Materials</b>	<b>Teacher</b>	<b>Student</b>
	<ul style="list-style-type: none"> <li>• Teacher Masters (pp. 201-216)</li> <li>• Place Value Mat (in sheet protector)</li> </ul>	<ul style="list-style-type: none"> <li>• Student Booklet (pp. 101-108)</li> <li>• Whiteboard with marker (per student)</li> <li>• Place Value Mat (in sheet protector, 1 per student)</li> <li>• Base-10 materials: 7 hundreds, 10 tens, 10 ones (per student)</li> </ul>

## Preview

**Say:** Today we review subtracting numbers with 0 in the tens or the ones place.

## Engage Prior/Informal Knowledge

Time: 3 min

Have students review multi-digit subtraction with 0 in the tens place using base-10 materials and the *Place Value Mat*.

Ask questions and give instructions such as:

- Write “ $604 - 282$ .” What do we subtract from 604? (*282*) How many hundreds in 282? (*2 hundreds*) How many tens? (*8 tens*) How many ones? (*2 ones*) When subtracting 2 or more digits, where do we start? (*ones place*) What do we subtract from 4 ones? (*2 ones*) Can we subtract 2 ones from 4 ones? (*yes*) Do we need to regroup 1 ten to 10 ones? (*no*) Why? (*there are enough ones to subtract 2 ones*) How many ones are left? (*2 ones*)
- What do we do next? (*subtract the tens*) Can we subtract 8 tens from 0? (*no*) Can we switch the numbers in the tens place in the problem and subtract  $8 - 0$ ? (*no*) Why not? (*accept reasonable answers; we are subtracting 282 from 604; in the tens place of 604 is 0 and in the tens place of 282 is 8, so we cannot switch the numbers in the tens place*) What do we need to do then? (*regroup 1 hundred to 10 tens*) How many tens in 1 group of hundred? (*10*) How many hundreds are left in 6 hundreds – 1 hundred? (*5 hundreds*) How many tens in 0 tens + 10 tens? (*10 tens*)
- Are there enough tens now to subtract 8 tens? (*yes*) What is 10 tens minus 8 tens? (*2 tens*) What do we do next? (*subtract the hundreds*) What are we subtracting in the hundreds place? (*5 hundreds minus 2 hundreds*) What is 5 hundreds – 2 hundred? (*3 hundreds*) What is the difference? (*322*)
- What operation do you use to check subtraction? (*addition*) What parts do you add? (*322 and 282*) How do you know if your subtraction work is correct? (*the sum of the 2 parts should equal the*

*whole, 604*) Use the base-10 materials or write the problem and solve. What is  $322 + 282$ ? (90)

- If time permits, have students solve  $307 - 196$  and use addition ( $111 + 196$ ) to check their work.

## Modeled Practice

Time: 8 min

1. Review multi-digit subtraction with 0 in the tens place using an algorithm.

Use *Modeled Practice Sheet #1*.

**Say:** Read the problem. ( $506 - 394$ )

**Where do we start when subtracting?** (*ones place*) **What is the subtraction problem in the ones place?** (*4 ones minus 6 ones*)

**Can we subtract 4 ones from 6 ones?** (*yes*) **Do we need to regroup?** (*no*) **Why?** (*we can subtract 4 ones from 6 ones*) **What is  $6 - 4$ ?** (*2*) **Write “2” in the ones place.**

**What do we do next?** (*subtract the tens*) **What is the problem in the tens place that we need to solve?** ( *$0 - 9$  or  $0$  tens minus 9 tens*) **Can we subtract 9 tens from 0?** (*no*) **What do we need to do to solve the tens place problem?** (*regroup 1 hundred to 10 tens*)

**Regroup 1 hundred to 10 tens. How many hundreds left?** (*4 hundreds*) **What do we write above 5 hundreds?** (*4 hundreds*) **What do we write above 0 in the tens place?** (*10*) **How many new tens are there?** (*10 tens*) **What is the value of 10 tens?** (*1 hundred*)

**Subtract the tens. What is 10 tens minus 9 tens?** (*1 ten*) **Write “1” in the tens place.**

**What do we do next?** (*subtract the hundreds*) **What is the subtraction problem in the hundreds place?** ( *$4 - 3$  or  $4$  hundreds minus 3 hundreds*) **What is 4 hundreds minus 3 hundreds?** (*1 hundred*) **Write “1” in the hundreds place.**

**What is the difference?** (112)

**How do we check our subtraction?** (accept reasonable answers; use addition; add the parts  $112 + 394$ )

**What parts do we add?** (112 and 394) **Write it.**

**How do we know if our subtraction work is correct?** (accept reasonable answers; the sum of the parts should equal the whole;  $112 + 394$  should equal 506)

**Solve the addition problem.**

**What is  $112 + 394$ ?** (506)

- Review multi-digit subtraction with 0 in the ones place using an algorithm.

Use *Modeled Practice Sheet #2*.

**Say:** **Read the problem.** ( $280 - 149 = 141$ ) **Is this problem correct? What are some ways we can solve the problem to see if it is correct?** (subtract again or use addition)

Divide the students into 2 groups. One group will solve the problem using subtraction. The other group will solve the problem using addition. Wait for students to work. Then review students' work together.

**Say:** **If you subtracted, where did you start?** (ones place)

**Can we subtract 9 ones from 0?** (no) **Why not?** (there are no ones to subtract 9 ones)

**What do we do?** (regroup 1 ten to 10 ones) **After regrouping 1 ten, how many tens are left?** (7 tens) **How many ones now?** (10 ones) **What is 10 ones minus 9 ones?** (1 ones)

**Do we need to regroup 1 hundred to 10 tens?** (no) **Why not?** (there are enough tens to subtract 4 tens) **What is 7 tens minus 4 tens?** (3 tens)

**What do we do next?** (*subtract the hundreds*) **What is 2 hundreds minus 1 hundred?** (*1 hundred*)

**What is the difference?** (*131*) **Was the problem correct?** (*no*)

**If you added, what parts did you add together?** (*149 and 141*)

**Where do we start?** (*ones place*) **What is 9 ones plus 1 ones?** (*10 ones*) **Do we regroup 10 ones to 1 ten?** (*yes*) **What is 1 ten plus 4 tens plus 4 tens?** (*9 tens*) **What is 1 hundred plus 1 hundred?** (*2 hundreds*) **What is the sum?** (*290*)

**Was the problem correct?** (*no*) **How do you know?** (*the sum should be the whole, 280, not 290*)

**Cross out the difference in the problem. Write the correct difference “131.”**

3. Demonstrate multi-digit subtraction with 0 in the tens place using an algorithm to solve the word problem.

Use *Modeled Practice Sheet #3*.

**Say:** **Read the problem. Ready, read:** “The school raised \$509 and collected 908 toys for a local charity this year. Last year, the school collected 516 toys and \$689. How many more toys did the school collect this year than last year?”

**What are we solving for?** (*how many more toys did the school collect this year than last year*)

**What information is important?** (*collected 908 toys this year, collected 516 toys last year*) **Circle it.**

**Is there information that is not helpful to solving the question?** (*yes*)

**What information is not important?** (*\$509 collected this year, \$689 collected last year*)

**Is 908 the whole or part?** (*whole*) **How do you know?** (*it is how many toys were collected this year*) **Write “908” in the whole.**

**Is 516 the part of the whole?** *(part)* **How do you know?** *(it is how many toys were collected last year)* **Write “516” in the part.**

**What does the other part represent?** *(how many more toys were collected this year)* **Write “ $t$ ” for toys this year in the unknown part.**

**How do you solve the problem?** *(subtract  $908 - 516$ )* **Write the problem.**

**Where do we start when subtracting?** *(ones place)*

**What is 8 ones minus 6 ones?** *(2 ones)*

**What do we do next?** *(subtract the tens)* **Can we subtract 1 ten from 0?** *(no)* **Do we switch the numbers in the tens place and subtract  $1 - 0$ ?** *(no)* **What do we need to do then?** *(regroup 1 hundred to 10 tens)* **Regroup 1 hundred to 10 tens.**

**How many hundreds are left?** *(8 hundreds)* **What do we write above 9 hundreds?** *(8 hundreds)* **What do we write above 0 in the tens place?** *(10)* **How many new tens are there?** *(10 tens)* **What is the value of 10 tens?** *(1 hundred)*

**Subtract the tens. What is 10 tens minus 1 ten?** *(9 tens)* **Write it.**

**What do we do next?** *(subtract the hundreds)* **What is 8 hundreds minus 5 hundreds?** *(3 hundreds)* **Write it.**

**What does  $t$  equal?** *(392)*

**How many more toys did the school collect this year than last year?** *(392)*

**How do we check our subtraction?** *(add the parts together; add 392 and 516)* **Write it.**

**How do you know if our subtraction is correct?** *(the sum should be 908)*

**Add the parts.**

**What is the sum?** (908)

**If the sum is not 908, what does it mean?** (*the subtraction is incorrect*)

**Practice**

**Time: 8 min**

Activity 1: Have students turn to the *Practice Sheets* on pages 104 and 105. Students will solve multi-digit subtraction problems with 0 in the tens place using an algorithm.

**Say:** **Solve the first problem on your own. After we discuss the answer, you will work with your math partner to solve the rest of the problems.**

Monitor students' work and provide corrective feedback when necessary. Allow students to explain how they solved the problem.

Ask questions and give instructions such as:

- What are we solving for? (*how many bottles of water are left*)
- What information is not important? (*how many lemonades were sold*)
- Why is the information not important? (*it does not relate to the bottles of water*)
- What information is important? (*420 bottles of water, sold 219 bottles of water*)
- Is 420 the whole or part? (*whole*) How do you know? (*it is how many bottles of water are available*)
- Is 219 the whole or part? (*part*)
- How do we solve the problem? (*subtract 219 from the whole, 420*)
- How many water bottles are left? (*201*)
- How can we check your answer? (*add the part 201 and the part 219 together*) What should the parts equal? (*420*)

- What is  $219 + 201$ ? (420)

Have students complete the rest of the problems with a partner.

Activity 2: Have students turn to the *Practice Sheets* on page 106. Students will play *Subtraction with Zero in the Tens or the Ones Place 4 in a Row* in pairs. Use the whiteboard and marker. Players will solve a problem in the box and then write the difference. The other player will check the work using addition. If the player's answer is incorrect, do not mark the box. The problem can be chosen again to solve. If the answer is correct, mark the box with "X" or "O." The player who first solves 4 in a column, row, or diagonal correctly wins.

### Independent Practice

Time: 6 min

1. For 5 minutes: Have students turn to the *Independent Practice Sheets* and complete as many items as possible.  
  
**Say: You will work independently for 5 minutes. Complete as many as you can. At the end of 5 minutes, we will discuss our answers as a group.**
2. For the remaining time: Have students share their answers with the group. Provide corrective feedback using mathematical language from the lesson. Have students mark the total number correct at the top of the page.



Total Time: 25 minutes  
Instructional Time: 19 minutes  
Independent Practice: 6 minutes

Module: Addition & Subtraction of Whole Numbers  
Lesson 17

# Subtraction With Zero in the Tens or the Ones Place Review

<b>Lesson Objectives</b>	<ul style="list-style-type: none"> <li>• The student will subtract whole numbers with 0 in the tens or ones place using model drawings and an algorithm.</li> <li>• The student will solve word problems involving subtraction by regrouping using an algorithm.</li> <li>• The student will apply and explain a variety of appropriate strategies to solve problems.</li> </ul>	
<b>Vocabulary</b>	<b>No new words are introduced.</b>	
<b>Reviewed Vocabulary</b>	addition, difference, hundreds, number family, ones, regroup, subtraction, sum, tens	
<b>Instructional Materials</b>	<b>Teacher</b>	<b>Student</b>
	<ul style="list-style-type: none"> <li>• Teacher Masters (pp. 217-236)</li> <li>• Whiteboard with marker</li> </ul>	<ul style="list-style-type: none"> <li>• Student Booklet (pp. 109-118)</li> <li>• Whiteboard with marker</li> </ul>

## Preview

**Say:** Today we review subtracting numbers with 0 in the tens or the ones place.

## Engage Prior/Informal Knowledge

**Time: 3 min**

Have students review multi-digit subtraction with 0 in the tens place. Write “ $709 - 298 = 591$ ” on the whiteboard.

Divide the students into 2 groups. One group will solve the problem using subtraction. The other group will solve the problem using addition. Wait for students to work. Then review the students’ work together.

Ask questions such as:

- If you subtracted, where do you start? (*ones place*) What is 9 ones minus 8 ones? (*1 one*) What do you do next? (*subtract the tens*) Can you subtract 9 tens from 0? (*no*) What do you need to do then? (*regroup 1 hundred*) How many hundreds left? (*6*) How many tens now? (*10 tens*) In the tens place, what is 10 tens – 9 tens? (*1*) In the hundreds, what is 6 hundreds minus 2 hundreds? (*4*) What is the difference? (*411*) In the problem is the difference 591 correct? (*no*)
- If you added, what parts did you add together? (*298 and 591*) What is the sum of the two parts? (*889*) What should the sum of the 2 parts be? (*709*) Is the problem correct? (*no*)
- If time permits, have students determine if the problem  $502 - 214 = 310$  is correct. Divide the students again into 2 groups to use addition or subtraction.

## Modeled Practice

Time: 8 min

1. Review multi-digit subtraction with 0 in the tens place using an algorithm to solve the word problem.

Have students turn to *Modeled Practice Sheet #1*. The teacher and students will complete the steps together as the lesson progresses.

**Say:** Read the problem. Ready, read: “There are 28 teachers and 501 students at Ocean Elementary. 371 students are girls. The rest are boys. How many boys attend Ocean Elementary?”

**What are we solving for?** (*how many boys attend Ocean Elementary*)

**What information is important?** (*501 students, 371 students are girls*) Circle it.

**Is there information that is not helpful to solving the question?** (*yes*)

**What information is not important?** (*28 teachers*)

**Is 501 the whole or part?** (*whole*) **How do you know?** (*it is how many students at Ocean Elementary*) Write “501” in the whole.

**Is 371 the whole or part?** (*part*) **How do you know?** (*it is how many are girls*) Write “371” in the part.

**What does the other part represent?** (*how many boys attend Ocean Elementary*) Write “*b*” for boys in the unknown part.

**How do you solve the problem?** (*subtract 501 – 371*) Write the problem in the Solve box.

**Where do we start when subtracting?** (*ones place*)

**In the ones place, what is 1 – 1?** (*0*) Write “0” in the ones place.

**What do we do next?** (*subtract the tens*) **Can we subtract 7 tens from 0?** (*no*) **Do we switch the numbers in the tens place and**

**subtract  $7 - 0$ ? (no) What do we need to do then? (regroup 1 hundred to 10 tens) Regroup 1 hundred to 10 tens.**

**How many hundreds left? (4 hundreds) What do we write above 5 hundreds? (4 hundreds) What do we write above 0 in the tens place? (10) How many new tens are there? (10 tens) What is the value of 10 tens? (1 hundred)**

**Subtract the tens. What is 10 tens minus 7 tens? (3 tens) Write it.**

**What do we do next? (subtract the hundreds) What is the subtraction problem? (4 hundreds minus 3 hundreds) What is  $4 - 3$ ? (1) Write it.**

**What does  $b$  equal? (130)**

**How many boys attend Ocean Elementary? (130)**

**How do we check our subtraction? (add the parts together; add 371 and 130) Write the parts “371” and “130.”**

**How do you know if our subtraction is correct? (the sum should be 501)**

**Add the parts.**

**What is the sum? (501)**

**If the sum is not 501, what does it mean? (the subtraction is incorrect)**

2. Review multi-digit subtraction with 0 in the ones place using an algorithm to solve the word problem.

Turn to *Modeled Practice Sheet #2*. Continue working as a group.

**Say: Read the problem. Ready, read: “Last month, 690 pounds of trash were collected. This month, 228 pounds of trash and 498 pounds of recycling were collected. How many more pounds of trash were collected last month than this month?”**

**What are we solving for?** *(how many more pounds of trash were collected last month than this month)*

**What information is important?** *(690 pounds of trash collected last month, 228 pounds this month)* **Circle it.**

**Is there information that is not helpful to solving the question?** *(yes)*

**What information is not important?** *(498 pounds of recycling)*

**Is 228 the whole or part?** *(part)* **How do you know?** *(it is how many pounds collected this month)* **Write “228” in the part.**

**Is 690 the part of the whole?** *(whole)* **How do you know?** *(it is how many pounds collected last month)* **Write “690” in the whole.**

**What does the other part represent?** *(how many more pounds of trash were collected last month)* **Write “1” for last month in the unknown part.**

**How do you solve the problem?** *(subtract  $690 - 228$ )* **Write the problem.**

**Where do we start when subtracting?** *(ones place)*

**Solve the problem on your own.**

**Let’s review. Where do we start?** *(ones place)* **Can we subtract 8 ones from 0?** *(no)* **Do we switch the numbers in the ones place and subtract  $8 - 0$ ?** *(no)* **What do we need to do then?** *(regroup 1 ten to 10 ones)* **How many tens are left?** *(8 tens)* **What do we write above 9 in the tens place?** *(8)* **What is the value of 8 tens?** *(80)* **How many ones are there now?** *(10 ones)*

**Subtract the ones. What is 10 ones – 8 ones?** *(2 ones)*

**Subtract the tens. What is 8 tens minus 2 tens?** *(6 tens)*

**What do we do next?** *(subtract the hundreds)* **What is 6 hundreds minus 2 hundreds?** *(4 hundreds)*

**What does  $l$  equal?** (462)

**How many more pounds of trash were collected last month than this month?** (462 pounds)

**To check our work, do we add 228 and 690?** (no) **What parts do we add together?** (228 and 462)

**What should the sum of the parts equal?** (the whole, 690)

**Add the parts.**

**What is the sum?** (690) **If the sum is not 690 what does this mean?** (subtraction is incorrect)

## Practice

Time: 8 min

Activity 1: Have students turn to the *Practice Sheets* on pages 111 and 112. Students will solve multi-digit subtraction problems with 0 in the tens place using an algorithm.

**Say:** **Solve the first problem on your own. After we discuss the answer, you will work with your math partner to solve the rest of the problems.**

Monitor students' work and provide corrective feedback when necessary. Allow students to explain how they solved the problem.

Ask questions and give directions such as:

- What are we solving for? (how many concert tickets are left)
- What information is not important? (the cost of each ticket; \$109)
- Why is the information not important? (it does not relate to how many tickets are sold and left)
- What information is important? (980 tickets on sale, 729 tickets sold)
- Is 980 the whole or part? (whole) How do you know? (it is how many tickets on sale)

- Is 729 the whole or part? (*part*)
- How do we solve the problem? (*subtract 729 from the whole, 980*)
- How many tickets are left? (*251*)
- How can we check your answer? (*add the part 251 and the part 729 together*) What should the parts equal? (*980*)
- What is  $729 + 251$ ? (*980*)

Have students complete the rest of the problems with a partner.

Activity 2: Have students turn to the *Practice Sheets* on pages 113. Students will review multi-digit subtraction with 0 in the tens place or the ones place using an algorithm. Have students write a subtraction problem with 0 in the tens place or ones place. Do not solve the problem. The teacher should check each student's problem before beginning the activity.

Tell students to pass the booklets to the right. Then, each student will solve a problem. When students have completed the subtraction problem, pass the booklet to the right again. During this rotation the students will check the subtraction problem using addition. Have students discuss whether the subtraction is correct or incorrect. Allow students to solve the problem again if it is incorrect the first time. Continue solving problems until time expires.

## Independent Practice

Time: 6 min

1. For 5 minutes: Have students turn to the *Independent Practice Sheets* and complete as many items as possible.

**Say:** **You will work independently for 5 minutes. Complete as many as you can. At the end of 5 minutes, we will discuss our answers as a group.**

2. For the remaining time: Have students share their answers with the group. Provide corrective feedback using mathematical language from the lesson. Have students mark the total number correct at the top of the page.





**Total Time: 25 minutes**  
Instructional Time: 19 minutes  
Independent Practice: 6 minutes

**Module: Addition & Subtraction of Whole Numbers**  
Lesson 18

## Addition and Subtraction Review

<b>Lesson Objectives</b>	<ul style="list-style-type: none"> <li>• The student will add and subtract multi-digit numbers using an algorithm.</li> <li>• The student will solve word problems involving addition and subtraction with regrouping.</li> <li>• The student will apply and explain a variety of appropriate strategies to solve problems.</li> </ul>	
<b>Vocabulary</b>	<b>No new words are introduced.</b>	
<b>Reviewed Vocabulary</b>	addition, difference, hundreds, ones, regroup , subtraction, sum, tens	
<b>Instructional Materials</b>	<b>Teacher</b>	<b>Student</b>
	<ul style="list-style-type: none"> <li>• Teacher Masters (pp. 237-249)</li> <li>• Whiteboard with marker</li> </ul>	<ul style="list-style-type: none"> <li>• Student Booklet (pp. 119-125)</li> <li>• Whiteboard with marker (1 per student)</li> </ul>

## Preview

**Say:** Today we review adding and subtracting multi-digit numbers.

## Engage Prior/Informal Knowledge

**Time: 3 min**

Have students review multi-digit subtraction with 0 in the tens place. Write “ $606 - 346 = 360$ ” on the whiteboard.

Divide the students into 2 groups. 1 group will solve the problem using subtraction. The other group will solve the problem using addition. Wait for students to work. Then review the students’ work together.

Ask questions such as:

- If you subtracted, where do you start? (*ones place*) What is 6 ones minus 6 ones? (*0*) What do you do next? (*subtract the tens*) Can you subtract 4 tens from 0? (*no*) What do you need to do then? (*regroup 1 hundred*) How many hundreds are left? (*5*) How many tens are there now? (*10 tens*) In the tens place, what is 10 tens – 4 tens? (*6*) In the hundreds, what is 5 hundreds minus 3 hundreds? (*2*) What is the difference? (*260*) In the problem, is the difference 360 correct? (*no*)
- If you added, what parts did you add together? (*346 and 360*) What is the sum of the two parts? (*706*) What should the sum of the 2 parts be? (*606*) Is the problem correct? (*no*)
- If time permits, have students determine if the problem  $505 - 194 = 311$  is correct. Divide the students again into 2 groups to use addition or subtraction.

## Modeled Practice

**Time: 8 min**

1. Review addition and subtraction of 2- and 3-digit numbers with no regrouping using an algorithm.

Distribute a whiteboard and marker to each student.

**Say:** Write “ $87 - 32$ ” on your whiteboard. How many tens in 87? (*8*)  
How many ones? (*7*)

**What part are we subtracting from 87?** (32)

**Where do we start?** (ones place) **What is the subtraction problem in the ones place?** (7 ones minus 2 ones) **Do we need to regroup 1 ten to 10 ones?** (no) **Why not?** (there are enough ones to subtract 2 ones) **What is  $7 - 2$ ?** (5) **Write it.**

**What do we do next?** (subtract the tens) **What is the subtraction problem in the tens place?** (8 tens minus 3 tens) **What is  $8 - 3$ ?** (5) **Write it.** **What is the value of 5 tens?** (50) **What is the difference?** (55)

**How do we check subtraction?** (accept reasonable answers; add the parts together; addition)

**What parts do we add together?** (55 and 32)

**How do we know if our subtraction is correct?** (the sum of the parts equal the whole, 87)

**Write the parts and add.**

**Where do we start?** (ones place)

**What is 2 ones plus 5 ones?** (7 ones) **Write it.**

**What do we do next?** (add the tens) **What is the addition problem in the tens place?** (3 tens plus 5 tens) **What is 3 tens plus 5 tens?** (8 tens) **What is the value of 8 tens?** (80)

**What is  $32 + 55$ ?** (87)

**Erase your work. Write “ $999 - 427$ ” and solve.**

**Let’s review. Where do we start?** (in the ones place) **What is the subtraction problem in the ones place?** (9 ones minus 7 ones) **What is  $9 - 7$ ?** (2)

**What do we do next?** (subtract the tens) **How many tens do we subtract from 9 tens?** (2 tens) **What is  $9 - 2$ ?** (7) **What is the value of 7 tens?** (70)

**What do we do next?** (*subtract the hundreds*) **What is 9 hundreds minus 4 hundreds?** (*5 hundreds*) **What is the difference?** (*572*)  
**Did this problem involve regrouping?** (*no*)

**To check subtraction, what parts do we add together?** (*572 and 427*) **Write the parts.**

**How do we know if the subtraction is correct?** (*the sum of the parts should equal 999*)

**Add the parts.**

**What is the sum of  $572 + 427$ ?** (*999*)

**Erase your work.**

2. Review 3-digit addition and subtraction with regrouping using an algorithm.

**Say:** **Write “ $249 + 343$ ” on your whiteboard.**

**Where do we start?** (*ones place*) **What is 9 ones plus 3 ones?** (*12 ones*)

**Do we regroup the ones to make a new ten?** (*yes*) **Why?** (*greater than 10;  $9 + 3 = 12$* )

**What do we write in the ones place in the sum?** (*2*) **Write it.**  
**What do we write above the 3 in the tens place?** (*1*) **What does 1 above the tens place represent?** (*1 ten*) **Write “1” above the 3 in the tens place.**

**What do we do next?** (*add the tens together*) **What is the addition problem in the tens place?** (*1 ten plus 4 tens plus 4 tens*)  
**What does it equal?** (*9 tens*) **Write “9” in the tens place. What is the value of 9 tens?** (*90*)

**Do we regroup 9 tens for 1 new hundred?** (*no*) **Why not?** (*accept reasonable answers; there are not enough tens; we need 1 more ten to regroup to 1 new hundred*)

**What do we do next?** (*add the hundreds*) **What is 2 hundreds plus 3 hundreds?** (*5 hundreds*) **Write it.**

**What is the sum?** (592)

**Erase your work. Write “592 – 343” and solve.**

**Did you need to regroup in this problem?** (yes) **Why?** (there are not enough ones to subtract 3 ones, you cannot subtract 2 ones minus 3 ones) **What did you need to do in the problem?** (regroup 1 ten to 10 ones)

**What is the difference?** (249)

**Erase your work.**

3. Review multi-digit subtraction with 0 in the ones place using an algorithm.

**Say:** Write the problem “880 – 719.”

**Where do we start when subtracting?** (ones place)

**In the ones place, what is the subtraction problem?** (0 – 9 ones)

**Can we subtract 9 ones from 0?** (no) **Do we switch the numbers in the ones place and subtract 9 – 0?** (no) **What do we need to do then?** (regroup 1 ten to 10 ones) **Regroup 1 ten to 10 ones. How many tens are left?** (7 tens) **What do we write above 8 in the tens place?** (7) **How many ones are there now?** (10 ones) **What do we write above 0 in the ones place?** (10)

**Subtract the ones. What is the subtraction problem in the ones place?** (10 ones minus 9 ones) **What is 10 – 9** (1) **Write it.**

**Subtract the tens. What is the subtraction problem in the tens place?** (7 tens minus 1 ten) **What is 7 – 1?** (6) **Write it. What is the value of 6 tens?** (60)

**What do we do next?** (subtract the hundreds) **What is the subtraction problem in the hundreds place?** (8 hundreds minus 7 hundreds) **What is 8 – 7?** (1 hundred) **Write it.**

**What is the difference?** (161)

**Write the addition problem to check the subtraction.**

**What is the addition problem?** *(161 + 719)*

**If the sum is not 880, what does it mean?** *(the subtraction is incorrect)*

**Solve the addition problem.**

**What is the sum?** *(880)*

**Practice**

**Time: 8 min**

Activity 1: Have students turn to the *Practice Sheets* on pages 119 and 120. Students will review solving addition and subtraction problems.

**Say:** **Solve the first problem on your own. After we discuss the answer, you will work with your math partner to solve the rest of the problems.**

Monitor students' work and provide corrective feedback when necessary. Allow students to explain how they solved the problem.

Ask questions and give directions such as:

- What are we solving for? *(how much money was raised from the school carnival)*
- What information is not important? *(the number of people who attended; 294 people attended the carnival)*
- Why is the information not important? *(it does not relate to how much money was raised)*
- What information is important? *(\$545 raised on day 1, \$439 raised on day 2)*
- Is 545 the whole or part? *(part)* How do you know? *(how much money raised on day 1)*
- Is 439 the whole or part? *(part)* How do you know? *(how much money raised on day 2)*

- How do we solve the problem? (*add the parts 545 and 439*)
- How much money was raised from the school carnival? (*\$984*)

Have students complete the rest of the problems with a partner.

Activity 2: Have students turn to the Practice Sheets on pages 121. Students will play *Addition and Subtraction Review Tic Tac Toe*. Use the whiteboard and marker to solve. If a player's answer is correct, then mark the box with either an "X" or an "O." If the player's answer is incorrect, do not mark the box. The problem can be chosen again to solve. Play the game until 1 player has 3 boxes in any column, row, or diagonal. If time permits, play an additional game of *Addition and Subtraction Review Place Tic Tac Toe* in the other partner's student booklet.

### Independent Practice

Time: 6 min

1. For 5 minutes: Have students turn to the *Independent Practice Sheets* and complete as many items as possible.

**Say:**     **You will work independently for 5 minutes. Complete as many as you can. At the end of 5 minutes, we will discuss our answers as a group.**

2. For the remaining time: Have students share their answers with the group. Provide corrective feedback using mathematical language from the lesson. Have students mark the total number correct at the top of the page.



Total Time: 25 minutes  
Instructional Time: 19 minutes  
Independent Practice: 6 minutes

Module: Addition & Subtraction of Whole Numbers  
Lesson 19

# Mental Addition and Subtraction with No Regrouping

<b>Lesson Objectives</b>	<ul style="list-style-type: none"> <li>• The student will mentally solve addition and subtraction problems with no regrouping.</li> <li>• The student will solve word problems using mental addition and subtraction.</li> <li>• The student will apply and explain a variety of appropriate strategies to solve problems.</li> </ul>	
<b>Vocabulary</b>	<b>No new words are introduced.</b>	
<b>Reviewed Vocabulary</b>	addition, difference, hundreds, ones, regroup , subtraction, sum, tens	
<b>Instructional Materials</b>	<b>Teacher</b>	<b>Student</b>
	<ul style="list-style-type: none"> <li>• Teacher Masters (pp. 250-259)</li> <li>• Whiteboard with marker</li> </ul>	<ul style="list-style-type: none"> <li>• Student Booklet (pp. 126-130)</li> <li>• Whiteboard with marker (1 per student)</li> </ul>

## Preview

**Say:** Today we will solve addition and subtraction problems mentally by breaking apart numbers.

## Engage Prior/Informal Knowledge

Time: 3 min

Have students review breaking apart numbers. Use the whiteboard and marker.

Ask questions and give instructions such as:

- Write “78 =” on your whiteboard. In 78, how many tens? (7) What is the value of 7 tens? (70) Write “70” after the equal sign. How many ones? (8) Write “+ 8” after 70. Read the equation. ( $78 = 70 + 8$ )
- Break apart 59. Read the equation. ( $59 = 50 + 9$ )
- Break apart 37. Read the equation. ( $37 = 30 + 7$ )
- Write “492 =” on your whiteboard. In 492, how many hundreds? (4 hundreds) Write “400” after the equal sign. How many tens? (9) What is the value of 9 tens? (90) Write “+ 90” after 400. How many ones? (2) Write “+ 2” after 90. Read the equation. ( $492 = 400 + 90 + 2$ )
- Break apart 651. Read the equation. ( $651 = 600 + 50 + 1$ )
- Break apart 253. Read the equation. ( $253 = 200 + 50 + 3$ )
- If time permits, have students break apart the following numbers: 93, 67, 88, 703, 289, 999.

## Modeled Practice

Time: 8 min

1. Use mental addition and subtraction to solve problems involving no regrouping.

Write “ $45 + 12 = \underline{\quad}$ ” on the whiteboard. Distribute whiteboards and markers to each student.

**Say:** Read the problem. ( $45 + 12 =$ ) Write it on your whiteboard.

**We are going to solve this problem in our head.**

**Add the tens. How many tens are in 45? (4 tens) What is the value of 4 tens? (40)**

**How many tens are in 12? (1 ten) What is the value of 1 ten? (10)**

**What is  $40 + 10$ ? (50) Write “50” under the problem.**

**Add the ones together. How many ones are in 45? (5 ones) How many ones are in 12? (2 ones) What is 5 ones plus 2 ones? (7 ones)**

**Write “+ 7” after 50 on your whiteboard.**

**What is  $50 + 7$ ? (57) What is the sum of  $45 + 12$ ? (57) Write it.**

**Let’s check our mental addition. Write the problem  $45 + 12$ .**

**Where do we start? (ones place) What is the addition problem in the ones place? (5 ones plus 2 ones) What is  $5 + 2$ ? (7) Write it.**

**What do we do next? (add the tens) What is the addition problem in the tens place? (4 tens plus 1 ten) What is  $4 + 1$ ? (5) Write it. What is the value of 5 tens? (50)**

**What is the sum? (57)**

**Is the sum the same? (yes)**

**Did we need to regroup? (no)**

**Erase your work.**

Write “ $75 - 23 = \underline{\quad}$ ” on the whiteboard.

**Say: Read the problem. ( $75 - 23 =$ ) We are going to solve this problem in our head.**

**Subtract the tens. How many tens are in 75? (7 tens) How many tens are in 23? (2 tens) What is 7 tens minus 2 tens? (5 tens) What is the value of 5 tens? (50)**

**Write “5” in the tens place in the difference.**

**Subtract the ones. How many ones are in 75? (5 ones) How many ones are in 23? (3 ones) What is 5 ones minus 3 ones? (2 ones)**

**Write “2” in the ones place in the difference.**

**What is  $75 - 23$ ? (52)**

**Let’s check our mental subtraction. Write the problem “ $75 - 23$ ” and solve.**

**Where do we start? (ones place) What is 5 ones minus 3 ones? (2 ones) Write it.**

**What do we do next? (subtract the tens) What is the subtraction problem in the tens place? (7 tens minus 2 tens) What is  $7 - 2$ ? (5) Write it.**

**What is the difference? (52)**

**Is the difference the same? (yes)**

**Did we need to regroup? (no)**

2. Use mental addition to solve a word problem involving no regrouping.

Have students turn to the *Modeled Practice Sheet*. The teacher and student will complete the steps together as the lesson progresses.

**Say: Read the problem. Ready, read: “Leigh sold 72 boxes of cookies and 74 containers of popcorn for a fundraiser. Her mother sold an additional 15 boxes of cookies. How many total boxes of cookies were sold?”**

**What are we solving for? (how many total boxes of cookies were sold)**

**What information is important?** (*72 boxes sold, additional 15 boxes sold*) **Circle it.**

**What information is not important?** (*74 containers of popcorn*)

**Is 72 the whole or part?** (*part*) **Why?** (*it is part of how many boxes of cookies were sold*)

**Is 15 the whole or part?** (*part*) **Why?** (*it is part of how many boxes of cookies were sold*)

**How do I solve the problem?** (*add the parts; add 72 boxes and 15 boxes together*)

**Write “ $t$ ” in the whole for total boxes of cookies sold. Write the problem. Read it.** ( $72 + 15 = t$ )

**Now solve the problem mentally. How many boxes did Leigh sell?** (*72*)

**How many boxes did Leigh’s mom sell?** (*15*)

**How many tens and ones are in 72?** (*7 tens and 2 ones*)

**How many tens and ones are in 15?** (*1 ten and 5 ones*)

**Add the tens in our head. What is  $7 + 1$  or  $70 + 10$ ?** (*8 or 80*)

**Write “80” below the problem.**

**Now add the ones in our head. What is  $2 + 5$ ?** (*7*) **Write “+ 7.”**

**To find how many boxes of cookies were sold, we add  $80 + 7$ .**

**What is  $80 + 7$ ?** (*87*)

**How many boxes of cookies were sold for the fundraiser?** (*87 boxes of cookies*) **Write it.**

**Let’s check our mental addition. Write the problem “ $72 + 15$ ” and solve it. Where do we start?** (*ones place*)

**What is the addition problem in the ones place?** (*2 ones plus 5 ones*) **How many ones in all?** (*7 ones*) **Do we need to regroup 10**

**ones? (no) What do we write in the ones place in the sum? (7)**  
**Write it.**

**What do we do next? (add the tens) What is the addition problem in the tens place? (7 tens plus 1 ten) How many tens in all? (8 tens) What is the value of 8 tens? (80) Write “8” in the tens place.**

**What is the sum? (87)**

**Did we need to regroup? (no)**

**Is the sum the same? (yes)**

## Practice

**Time: 8 min**

Activity 1: Have students turn to the *Practice Sheet* on page 127. Students will review solving addition and subtraction problems.

**Say: Solve the first problem on your own. After we discuss the answer, you will work with your math partner to solve the rest of the problems.**

Monitor students’ work and provide corrective feedback when necessary. Allow students to explain how they solved the problem.

Ask questions and give directions such as:

- What are we solving for? (*how many more emails than phone calls Ms. Carter received*)
- What information is not important? (*how many students are in her class; 36 students in her class*)
- Why is the information not important? (*it does not relate to emails or phone calls*)
- What information is important? (*48 emails, 21 calls*)
- Is 48 the whole or part? (*whole*) How do you know? (*it is how many more emails*)

- Is 21 the whole or part? (*part*)
- How do we solve the problem? (*subtract 48 – 21*)
- Explain how you solved the problem using mental subtraction. (*subtract 2 tens from 4 tens and 1 ones from 8 ones*)
- Did you need to regroup? (*no*)
- How many more emails than phone calls did she receive? (*27 more emails*)

Have students complete the rest of the problems with a partner.

Activity 2: Have students turn to the *Practice Sheet* on page 128. Students will play *Mental Addition and Subtraction with No Regrouping Tic Tac Toe*. If a player’s answer is correct, then mark the box with either an “X” or an “O.” If the player’s answer is incorrect, do not mark the box. The problem can be chosen again to solve. Play the game until 1 player has 3 boxes in any column, row, or diagonal. If time permits play an additional game of *Mental Addition and Subtraction with No Regrouping Tic Tac Toe* in the other partner’s student booklet.

## Independent Practice

Time: 6 min

1. For 5 minutes: Have students turn to the *Independent Practice Sheets* and complete as many items as possible.

**Say:** You will work independently for 5 minutes. Complete as many as you can. At the end of 5 minutes, we will discuss our answers as a group.

2. For the remaining time: Have students share their answers with the group. Provide corrective feedback using mathematical language from the lesson. Have students mark the total number correct at the top of the page.



**Total Time: 25 minutes**  
Instructional Time: 19 minutes  
Independent Practice: 6 minutes

**Module: Addition & Subtraction of Whole Numbers**  
Lesson 20

# Mental Addition and Subtraction With Regrouping

<b>Lesson Objectives</b>	<ul style="list-style-type: none"> <li>• The student will mentally solve addition and subtraction problems with regrouping.</li> <li>• The student will solve word problems using mental addition and subtraction.</li> <li>• The student will apply and explain a variety of appropriate strategies to solve problems.</li> </ul>	
<b>Vocabulary</b>	<b>No new words are introduced.</b>	
<b>Reviewed Vocabulary</b>	addition, difference, hundreds, ones, regroup, subtraction, sum, tens	
<b>Instructional Materials</b>	<b>Teacher</b>	<b>Student</b>
	<ul style="list-style-type: none"> <li>• Teacher Masters (pp. 260-269)</li> <li>• Whiteboard with marker</li> </ul>	<ul style="list-style-type: none"> <li>• Student Booklet (pp. 131-135)</li> <li>• Whiteboard with marker (1 per student)</li> </ul>

## Preview

**Say:** Today we will solve addition and subtraction problems mentally by breaking apart numbers.

## Engage Prior/Informal Knowledge

**Time: 3 min**

Have students review breaking apart numbers. Use the whiteboard and marker.

Ask questions and give instructions such as:

- Write “49 =” on your whiteboard. In 49, how many tens? (4) What is the value of 4 tens? (40) Write “40” after the equal sign. How many ones? (9) Write “+ 9” after 40. Read the equation. ( $49 = 40 + 9$ )
- Break apart 66. Read the equation. ( $66 = 60 + 6$ )
- Break apart 55. Read the equation. ( $55 = 50 + 5$ )
- Write “889 =” on your whiteboard. In 889, how many hundreds? (8 hundreds) Write “800” after the equal sign. How many tens? (8) What is the value of 8 tens? (80) Write “+ 80” after 800. How many ones? (9) Write “+ 9” after 80. Read the equation. ( $889 = 800 + 80 + 9$ )
- Break apart 603. How many hundreds? (6) How many tens? (0) How many ones? (3) Read the equation. ( $603 = 600 + 3$ )
- Break apart 720. How many hundreds? (7) How many tens? (2) How many ones? (0) Read the equation. ( $720 = 700 + 20$ )
- If time permits have students break apart the following numbers: 590, 404, 163.

## Modeled Practice

Time: 8 min

- Use mental addition to solve problems involving regrouping.

Write “ $125 + 445 = \underline{\quad}$ ” on the whiteboard. Distribute whiteboard and marker to each student.

**Say:** Read the problem. ( $125 + 445 =$ ) Write it on your whiteboard.

**We are going to solve this problem in our head.**

**Add the hundreds. How many hundreds in 125?** (*1 hundred*)

**How many hundreds in 445?** (*4 hundreds*) **How many hundreds in all?** (*5 hundreds*) **Write “500” under the problem.**

**Add the tens. How many tens in 25?** (*2 tens*) **What is the value of 2 tens?** (*20*)

**How many tens in 45?** (*4 tens*) **What is the value of 4 tens?** (*40*)

**What is  $20 + 40$ ?** (*60*) **Write “+ 60” after 500.**

**Add the ones together. How many ones in 25?** (*5 ones*) **How many ones in 45?** (*5 ones*) **What is 5 ones plus 5 ones?** (*10 ones*)

**Write “+ 10” after 60 on your whiteboard.**

**What is  $500 + 60 + 10$ ?** (*570*) **What is  $125 + 445$ ?** (*570*) **Write it.**

**Let’s check our mental addition. Write the problem “ $125 + 445$ .”**

**Where do we start?** (*ones place*) **What is the addition problem in the ones place?** (*5 ones plus 5 ones*) **What is  $5 + 5$ ?** (*10*) **Do we need to regroup 10 ones to 1 ten?** (*yes*) **What do we write in the ones place in the sum?** (*0*) **Write it. What do we write above the 2 in the tens place?** (*1*) **What does 1 represent?** (*1 ten or 10*)

**What do we do next?** (*add the tens*) **What is the addition problem in the tens place?** (*1 ten plus 2 tens plus 4 tens*) **What is  $1 + 2 + 4$ ?** (*7*) **Write it. What is the value of 7 tens?** (*70*)

**What do we do next?** (*add the hundreds*) **What is the addition problem in the hundreds place?** (*1 hundred plus 4 hundreds*)  
**How many hundreds in all?** (*5 hundreds*)

**What is the sum?** (*570*)

**Is the sum the same?** (*yes*)

**Did we need to regroup?** (*yes*)

**Erase your work.**

**Write “ $636 + 182 =$ ” on your whiteboard.**

**We are going to solve using mental addition.**

**Let’s add the ones first. What is 6 ones plus 2 ones?** (*8 ones*)

**Write “8 +” under the problem.**

**Add the tens next. What is 3 tens plus 8 tens?** (*11 tens*) **What is the value of 11 tens?** (*110*) **Write “110 + .”**

**Now add the hundreds. What is 6 hundreds plus 1 hundred?** (*7 hundreds*) **Write “700 = .”**

**Read the problem.** ( *$8 + 110 + 700 =$* )

**What is  $8 + 110$ ?** (*118*)

**What is  $118 + 700$ ?** (*818*)

**What is  $636 + 182$ ?** (*818*)

**Let’s check our mental addition. Write the problem “ $636 + 182$ ” and solve it.**

**What is the sum?** (*818*)

**Are the sums the same?** (*yes*)

2. Use mental subtraction to solve problems involving regrouping.

Write “ $530 - 102 = \underline{\quad}$ ” on the whiteboard.

**Say:** **Read the problem.** ( $530 - 102 =$ ) **We are going to solve this problem in our head.**

**What part are we subtracting from 530?** (*102*) **How many hundreds in 102?** (*1 hundred*) **What is 5 hundreds minus 1 hundred?** (*4 hundreds*) **Write “400” under the problem.**

**In the problem, cross out 5 in the hundreds place and 1 in the hundreds place.**

**Read the problem.** ( $30 - 2$ )

**Count back. What is  $30 - 2$ ?** (*28*) **Write “+ 28” next to 400.**

**What is  $400 + 28$ ?** (*428*)

**What is  $530 - 102$ ?** (*428*) **Write it.**

**Let’s check our mental subtraction. Write the problem “ $530 - 102$ ” and solve.**

**Where do we start?** (*ones place*) **Can we subtract 2 ones from 0?** (*no*) **What do we need to do?** (*regroup 1 ten to 10 ones*) **How many tens are left?** (*2 tens*) **How many ones are there now?** (*10 ones*)

**What do we do now?** (*subtract the ones*) **What is the subtraction problem in the ones place?** (*10 ones minus 2 ones*) **How many ones are left?** (*8 ones*) **Write it.**

**What do we do next?** (*subtract the tens*) **What is the subtraction problem in the tens place?** (*2 tens minus 0*) **How many tens are left?** (*2 tens*) **Write it.**

**What do we do next?** (*subtract the hundreds*) **What is the subtraction problem in the hundreds place?** (*5 hundreds minus 1 hundred*) **How many hundreds are left?** (*4 hundreds*) **Write it.**

**What is the difference?** (*428*)

**Is the difference the same?** (*yes*)

Erase your work. Write “978 – 329” on the whiteboard.

What part are we subtracting from 978? (329) How many hundreds? (3 hundreds) How many tens? (2 tens) How many ones? (9)

Subtract the hundreds. What is 9 hundreds minus 3 hundreds? (6 hundreds) Write “600 +” under the problem.

What do we do next? (subtract the tens) What is 7 tens minus 2 tens? (5 tens) What is the value of 5 tens? (50) Write “50” after 600 + .

Subtract the ones. Can we subtract 8 ones from 9 ones? (no) Can we switch the numbers and subtract 9 – 8? (no) What do we need to then? (regroup 1 ten to 10 ones) What is 50 – 10? (40) Cross out 50. Write “40” next to 50. How many ones now? (18 ones)

Subtract 9 ones. What is 18 ones minus 9 ones? (9 ones) Write “+ 9” next to 40.

What is 600 + 40 + 9? (649)

Let’s check our mental subtraction using addition. What parts do we add together? (649 + 329) Write it.

What should the sum of the parts equal? (978)

Add the parts.

What is the sum? (978) Is our subtraction correct? (yes) How do you know? (the sum of the parts equal the whole, 978)

## Practice

Time: 8 min

Activity 1: Have students turn to the *Practice Sheet* on page 131. Students will review solving addition and subtraction problems.

**Say:** Solve the first problem on your own. After we discuss the answer, you will work with your math partner to solve the rest of the problems.

Monitor students' work and provide corrective feedback when necessary. Allow students to explain how they solved the problem.

Ask questions and give instructions such as:

- What are we solving for? (*how much money was earned from the garage sale*)
- What information is not important? (*how many people came to the garage sale*)
- Why is the information not important? (*it does not relate to how much money was earned on day 1 and day 2*)
- What information is important? (*\$286 and \$493*)
- Is 286 the whole or part? (*part*) How do you know? (*it is part of how much money was earned*)
- Is 493 the whole or part? (*part*)
- How do we solve the problem? (*add the parts,  $286 + 493$* )
- Explain how you solved the problem using mental addition. Did you need to regroup? (*yes, added 2 hundreds + 4 hundreds, then added 8 tens plus 9 tens, then added 6 ones + 3 ones;  $600 + 170 + 9 = 779$* )
- How much money was earned from the garage sale? (*\$779*)

Have students complete the rest of the problems with a partner.

Activity 2: Have students turn to the *Practice Sheet* on page 132. Students will play *Mental Addition and Subtraction with Regrouping Tic Tac Toe*. Use the whiteboard and marker to solve the problem. If a player's answer is correct, then mark the box with either an "X" or an "O." If the player's answer is incorrect, do not mark the box. The problem can be chosen again to solve. Play the game until 1 player has 3 boxes in any column, row, or diagonal. If time permits, play an additional game of *Mental Addition and Subtraction with Regrouping Tic Tac Toe* in the other partner's student booklet.

## Independent Practice

Time: 6 min

1. For 5 minutes: Have students turn to the *Independent Practice Sheets* and complete as many items as possible.  
  
**Say:**     **You will work independently for 5 minutes. Complete as many as you can. At the end of 5 minutes, we will discuss our answers as a group.**
2. For the remaining time: Have students share their answers with the group. Provide corrective feedback using mathematical language from the lesson. Have students mark the total number correct at the top of the page.