



San Diego Unified School District

Instructional Module to Enhance the Teaching of

HARCOURT

Math

California Edition

Grade 2

Module 9 - Revised

3-Digit Addition and Subtraction

– WORK IN PROGRESS –

Unit 6: 3-Digit Addition and Subtraction

Key Mathematical Concepts:

- Add multidigit numbers
- Add and subtract money amounts
- Subtract multidigit numbers
- Solve problems
- Estimate sums and differences

<p>Chapter 25 Adding 3-Digit Numbers Lesson 25.1: Hundreds Lesson 25.2: Addition of Multidigit Numbers Lesson 25.3: Addition of Multidigit Numbers Lesson 25.4: Addition of Multidigit Numbers Lesson 25.5: Addition of Multidigit Numbers, Including Money Lesson 25.6: Addition of Multidigit Numbers</p>	<p>Chapter 26 Subtracting 3-Digit Numbers Lesson 26.1: Subtraction of Multidigit Numbers Lesson 26.2: Subtraction of Multidigit Numbers Lesson 26.3: Subtraction of Multidigit Numbers Lesson 26.4: Subtraction of Multidigit Numbers Lesson 26.5: Subtraction of Multidigit Numbers Lesson 26.6: Addition and Subtraction of Multidigit Numbers Lesson 26.7: Addition and Subtraction of Multidigit Numbers Lesson 26.8: Addition and Subtraction of Multidigit Numbers Lesson 26.9: Addition and Subtraction of Multidigit Numbers Assessment</p>
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<u>Day 1</u>	<u>Day 2</u>	<u>Day 3</u>	<u>Day 4</u>	<u>Day 5</u>
Unit 6 Lesson 25.1	Unit 6 Lesson 25.2	Unit 6 Lesson 25.3	Unit 6 Lesson 25.4	Unit 6 Lesson 25.5
<u>Day 6</u>	<u>Day 7</u>	<u>Day 8</u>	<u>Day 9</u>	<u>Day 10</u>
Unit 6 Lesson 25.6	Unit 6 Lesson 26.1	Unit 6 Lesson 26.2	Unit 6 Lesson 26.3	Unit 6 Lesson 26.4
<u>Day 11</u>	<u>Day 12</u>	<u>Day 13</u>	<u>Day 14</u>	<u>Day 15</u>
Unit 6 Lesson 26.5	Unit 6 Lesson 26.6	Unit 6 Lesson 26.7	Unit 6 Lesson 26.8	Unit 6 Lesson 26.9
<u>Day 16</u>				
Unit 6 Assessment				

San Diego City Schools
Instruction and Curriculum Division
MATHEMATICS CURRICULUM MAP – GRADE 2

MODULE 9 – 3 DIGIT ADDITION AND SUBTRACTION
Modules represent individual units of study that lead to essential learnings

THREADS THROUGHOUT THE YEAR:

The threads represent ongoing learning opportunities in which students should be actively engaged throughout all units of inquiry during the entire school year. These items should not be isolated to any one particular unit of inquiry

Students will:

- Develop understanding of numbers and the number system and use their understanding to solve problems and recognize reasonable results.
- Develop understanding of and fluency in basic computation and procedural skills.
- Use mathematical reasoning to solve problems.
- Communicate their mathematical thinking by using words, numbers, symbols, graphs and charts.
- Express generalizations of patterns and relationships.
- Develop logical thinking to analyze evidence and build arguments to support or refute a hypothesis.
- Make connections among mathematical ideas and between other disciplines.
- Develop and use strategies, skills, and concepts to solve problems.
- Use appropriate tools, including technology, as vehicles to learn mathematical concepts.

These are essential learnings that represent bigger ideas/concepts:

- Students understand the relationship between numbers, quantities, and place value in whole numbers up to 1,000.
- Students develop and use meaningful strategies to estimate, calculate, and solve problems involving addition and subtraction of three-digit numbers.
- Students use what they know about place value to flexibly compute.
- Students recognize that some strategies work best for specific problems.
- Students understand the relationship between place value and expanded notation of three digit numbers?
- Students use coins and bills as tools for solving problems of addition and subtraction.

These are essential questions that learners ask themselves in order to achieve the essential learnings:

- How can I use what I know about number relationships to develop efficient strategies for adding/subtracting multi-digit numbers?
- How do I take apart and recombine numbers in a variety of ways for finding sums and differences?
- What is expanded notation and how can I use it to assist in finding the sum or difference of two whole numbers up to three digits long?
- How do I recognize what strategy to use for a specific problem?
- How can I use *coins* * and bills to help me solve problems?

*Presented in previous grades.

Resources: *Van de Walle, Chapter 10 pp.135 – 142, Chapter 11 pp., 156-167, Chapter 12, 178 -194*

DAY 1
 UNIT 6: 3-Digit Addition and Subtraction
 Chapter 25: Adding 3-Digit Numbers
 LESSON 25.1
 TE, P. 369A

LESSON FOCUS:	Hundreds															
CALIFORNIA STANDARD:	Number Sense 1.0 Students understand the relationships between numbers, quantities, and place value in whole numbers up to 1,000.															
PURPOSE OF LESSON:	To use number relationships as a strategy for adding hundreds.															
ROUTINE:	Suggestion: Number of the Day <ul style="list-style-type: none"> • Have students brainstorm equations that equal the number of days they have been in school. • Emphasize using hundreds. On the class number line and 10x18 square chart, fill in the numbers since the last Number of the Day routine. 															
LAUNCH: Materials: <ul style="list-style-type: none"> • Base ten materials (a variety, including commercially available materials, bundles of sticks, beans and cups, and snap cubes) • One/Tens/Hundreds Relationships overhead 	Ones/Tens/Hundreds Relationships <ul style="list-style-type: none"> • Discuss the relationship between following equations. Let students use models/manipulatives (base ten materials, connecting cubes, trains of tens, etc.) to confirm. • Students contribute their own ideas to the class chart. <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>How does knowing...</u></th> <th style="text-align: left;"><u>Help you to know...</u></th> <th style="text-align: left;"><u>As well as...</u></th> </tr> </thead> <tbody> <tr> <td>4 + 3</td> <td>4 tens + 3 tens 40 + 30</td> <td>4 hundreds + 3 hundreds 400 + 300</td> </tr> <tr> <td>6 - 2</td> <td>6 tens - 2 tens 60 - 20</td> <td>6 hundreds - 2 hundreds 600 - 200</td> </tr> <tr> <td>4 + 5</td> <td>4 tens + 5 tens 40 + 50</td> <td>4 hundreds + 5 hundreds 400 + 500</td> </tr> <tr> <td>4 - 1</td> <td>4 tens - 1 ten 40 - 10</td> <td>4 hundreds - 1 hundred 400 - 100</td> </tr> </tbody> </table>	<u>How does knowing...</u>	<u>Help you to know...</u>	<u>As well as...</u>	4 + 3	4 tens + 3 tens 40 + 30	4 hundreds + 3 hundreds 400 + 300	6 - 2	6 tens - 2 tens 60 - 20	6 hundreds - 2 hundreds 600 - 200	4 + 5	4 tens + 5 tens 40 + 50	4 hundreds + 5 hundreds 400 + 500	4 - 1	4 tens - 1 ten 40 - 10	4 hundreds - 1 hundred 400 - 100
<u>How does knowing...</u>	<u>Help you to know...</u>	<u>As well as...</u>														
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4 - 1	4 tens - 1 ten 40 - 10	4 hundreds - 1 hundred 400 - 100														
EXPLORE: Materials: <ul style="list-style-type: none"> • Base ten materials (a variety, including commercially available materials, bundles of sticks, beans and cups, and snap cubes) • One/Tens/Hundreds Relationships worksheet 	<ul style="list-style-type: none"> • Have students build their own table, inserting their own numbers and addition and subtraction equations. • Have them choose one or more equation pair about which to write a convincing argument. <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Knowing...</u></th> <th style="text-align: left;"><u>Helps me to know...</u></th> <th style="text-align: left;"><u>As well as...</u></th> </tr> </thead> <tbody> <tr> <td style="height: 40px;"></td> <td></td> <td></td> </tr> </tbody> </table>	<u>Knowing...</u>	<u>Helps me to know...</u>	<u>As well as...</u>												
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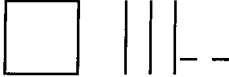
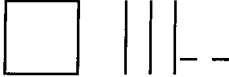
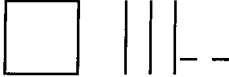
PRACTICE:	As time allows: P. 369 and/or 370.
SUMMARIZE:	Closure: <ul style="list-style-type: none">• Revisit purpose of the lesson with students.• How does knowing $2 + 4$ help you to know $200 + 400$?• How does knowing $4 - 2$ help you to know $400 - 200$?
HOMEWORK:	Suggestion: <ul style="list-style-type: none">• Make a collection of one hundred objects (e.g., pieces of macaroni, toothpicks, pennies, beans).• Organize them in a way that provides ease in counting (e.g., in groups).• Be prepared to share your collection with your classmates.

Ones/Tens/Hundreds Relationships

Knowing...	Helps me to know...	As well as...

DAY 2
 UNIT 6: 3-Digit Addition and Subtraction
 Chapter 25: Adding 3-Digit Numbers
 LESSON 25.2
 TE, P. 371A

LESSON FOCUS:	Addition of Multidigit Numbers
CALIFORNIA STANDARD:	Number Sense 2.2 Find the sum or difference of two whole numbers up to three digits long.
PURPOSE OF LESSON:	To understand expanded notation of 3-digit numbers.
ROUTINE:	<p>Solving Problems</p> <ul style="list-style-type: none"> • Give students a problem to solve: <i>The first grade sent 115 students out to the playground for recess. The second grade sent 123 students out to the playground for recess. How many students were out on the playground for recess?</i> • To ensure that students understand what is happening in the problem, ask volunteers to retell the story problem. Discuss: <i>What are ways that you could solve this problem?</i> • Ask students to solve the problem using tools and strategies they understand. • Make manipulatives available. Students record their method using words, numbers, an equation and/or pictures. • Ask students to share their methods for solving the problem with the whole class. Chart students' strategies. • Discuss how to represent the problem in an equation. Record the equation horizontally. • When solving this join/result unknown problem, it is important that students use a method that makes sense to them. Some strategies students are likely to use include modeling the problem with materials (building the initial quantity, building the second quantity, joining them together and counting to find the final quantity) and counting (on from the initial or greater quantity). • Students may also use knowledge of number relationships (e.g., $100 + 100 = 200$; $10 + 20 = 30$; $3 + 5 = 8$; $200 + 30 + 8 = 238$).

<p>LAUNCH:</p> <p>Materials:</p> <ul style="list-style-type: none"> • Base ten materials (a variety, including commercially available materials, bundles of sticks, beans and cups, and snap cubes) • Transparency and/or student copies of TR 16 and 17 • Building Three-Digit Numbers overhead 	<p>Sharing Homework</p> <ul style="list-style-type: none"> • Students share their collections of 100 objects from Day 1, Lesson 25.1. <p>Model: Building Three-digit Numbers</p> <ul style="list-style-type: none"> • Elicit three-digit numbers and suggestions for how to build these numbers with base ten materials. • Model building with materials and recording with numbers, pictures, words and an equation. For example: <table border="0" style="width: 100%;"> <tr> <td style="text-align: center;"><u>Number</u></td> <td style="text-align: center;"><u>Picture</u></td> <td style="text-align: center;"><u>Words</u></td> <td style="text-align: center;"><u>Equation</u></td> </tr> <tr> <td style="text-align: center;">132</td> <td style="text-align: center;">  </td> <td style="text-align: center;">one hundred thirty + two</td> <td style="text-align: center;">$100 + 30 + 2$</td> </tr> </table>	<u>Number</u>	<u>Picture</u>	<u>Words</u>	<u>Equation</u>	132		one hundred thirty + two	$100 + 30 + 2$
<u>Number</u>	<u>Picture</u>	<u>Words</u>	<u>Equation</u>						
132		one hundred thirty + two	$100 + 30 + 2$						
<p>EXPLORE:</p> <p>Materials:</p> <ul style="list-style-type: none"> • Base ten materials (a variety, including commercially available materials, bundles of sticks, beans and cups, and snap cubes) • Building Three-Digit Numbers worksheet 	<p>Building Three-digit Numbers</p> <ul style="list-style-type: none"> • Give students some three digit numbers to build with base ten materials. • Students make a chart, listing numbers, pictures, words, and an equation for each. 								
<p>PRACTICE:</p>	<p>As time allows:</p> <ul style="list-style-type: none"> • Students share one of their pictures, words or equations from their chart with a partner. • The partner tries to guess the number from the chart and provides other missing chart information (e.g., if a student provides the equation $200 + 40 + 6$, the partner says, "Two hundred plus forty plus six," builds/draws the number 246 and reports 246 as the number being represented). 								
<p>SUMMARIZE:</p>	<p>Closure:</p> <ul style="list-style-type: none"> • Revisit purpose of the lesson with students. <i>How many ways can we represent 146? What does each digit represent</i> 								
<p>HOMEWORK:</p>	<p>Suggestion:</p> <ul style="list-style-type: none"> • Students choose a three-digit number and write clues about the number. E.g., 175: <ul style="list-style-type: none"> – <i>I am greater than 150 and less than 200.</i> – <i>All my digits are odd numbers.</i> – <i>The tens digit is two more than the ones digit and six more than the hundreds digit.</i> 								

Building Three-digit Numbers

Number	Picture	Words	Equation

DAY 3
 UNIT 6: 3-Digit Addition and Subtraction
 Chapter 25: Adding 3-Digit Numbers
 LESSON 25.3
 TE, P. 373A

LESSON FOCUS:	Addition of Multidigit Numbers
CALIFORNIA STANDARD:	Number Sense 2.2 Find the sum or difference of two whole numbers up to three digits long.
PURPOSE OF LESSON:	Invent strategies for adding multidigit numbers.
ROUTINE: Materials: • Base ten materials (a variety, including commercially available materials, bundles of sticks, beans and cups, and snap cubes)	<p>Suggestion: Sharing Homework</p> <ul style="list-style-type: none"> • Students share their collections of 100 objects from Day 1, Lesson 25.1. <p>Suggestion: Solving Problems</p> <ul style="list-style-type: none"> • Give students a problem to solve: <i>The cafeteria sold cartons of drinks at lunch. Some were milk and some were juice. 127 cartons of milk and 155 cartons of juice were sold. How many cartons of drinks were sold at lunch?</i> • To ensure that students understand what is happening in the problem, ask volunteers to retell the story problem. Discuss: <i>What are ways that you could solve this problem?</i> • Ask students to solve the problem using tools and strategies they understand. • Make manipulatives available. Students record their method using words, numbers, an equation and/or pictures. • Ask students to share their methods for solving the problem with the whole class. • Chart students' strategies. Discuss how to represent the problem in an equation. Record the equation horizontally. • When solving this join/result unknown problem, it is important that students use a method that makes sense to them. • Some strategies students are likely to use include modeling the problem with materials (building the initial quantity, building the second quantity, joining them together and counting to find the final quantity) and counting (on from the initial or greater quantity). • Students may also use knowledge of number relationships (e.g., $155 + 100 = 255$; $255 + 20 = 275$; $275 + 5 = 280$; $280 + 2 = 282$).
LAUNCH:	<p>Modeling: Writing and Solving Problems</p> <ul style="list-style-type: none"> • Choose a problem from p. 373 or 374. • Elicit help from students in writing a word problem to match the numerical problem. • Record the problem in words.

<p>EXPLORE:</p> <p>Materials:</p> <ul style="list-style-type: none"> • Base ten materials (a variety, including commercially available materials, bundles of sticks, beans and cups, and snap cubes) 	<p>Writing and Solving Problems</p> <ul style="list-style-type: none"> • Ask students to choose two problems from p. 373 and/or 374. • Students write a word problem to match the numerical problem. • Students read their problem to a partner to ensure that it makes sense; the partner locates the problem on the workbook page. • Students choose one of the two problems and solve the problem using tools and strategies they understand. • Make manipulatives available. Students record their method using words, numbers, an equation and/or pictures.
<p>PRACTICE:</p>	<p>As time allows:</p> <ul style="list-style-type: none"> • Students solve the problem in a different way and/or trade word problems with a partner and solve a different problem.
<p>SUMMARIZE:</p>	<ul style="list-style-type: none"> • Ask students to share their methods for solving the problem with the whole class. • Record what they did on a class chart. • Discuss how to represent the problem in an equation. • Record the equation horizontally. <p>Closure:</p> <ul style="list-style-type: none"> • Revisit purpose of the lesson with students.
<p>HOMEWORK:</p> <p>Materials:</p> <ul style="list-style-type: none"> • P. FA 109 	<p>Suggestion:</p> <ul style="list-style-type: none"> • Students ask a parent or another adult to provide them with two or three digit number. • Students record the number and build it using dot blocks found on Family Involvement Activities P. FA 109.

DAY 4
 UNIT 6: 3-Digit Addition and Subtraction
 Chapter 25: Adding 3-Digit Numbers
 LESSON 25.4
 TE, P. 375A

LESSON FOCUS:	Addition of Multidigit Numbers
CALIFORNIA STANDARD:	Number Sense 2.2 Find the sum or difference of two whole numbers up to three digits long.
PURPOSE OF LESSON:	Invent strategies for adding multidigit numbers.
ROUTINE: Materials: • Base ten materials (a variety, including commercially available materials, bundles of sticks, beans and cups, and snap cubes)	Suggestion: Sharing Homework Students share clues about the number written on Day 2, Lesson 25.2. Classmates try to guess the number that matches the clues. Make materials available.
LAUNCH: Materials: • Base ten materials (a variety, including commercially available materials, bundles of sticks, beans and cups, and snap cubes)	Sharing Word Problems <ul style="list-style-type: none"> • Have students share word problems written on Explore, Day 3, Lesson 25.3. • Ask students to identify what parts of the problem made it easy/difficult to understand. • Ask students to solve the problem in way that makes sense to them. Make manipulatives available. • Ask students to share their methods for solving the problem with the whole class. Record what they did on a class chart. • Discuss how to represent the problem in an equation. Record the equation horizontally. More Modeling: Writing and Solving Problems <ul style="list-style-type: none"> • Choose a problem from p. 375 or 376. • Elicit help from students in writing a word problem to match the numerical problem. • Record the problem in words.

<p>EXPLORE:</p> <p>Materials:</p> <ul style="list-style-type: none"> • Base ten materials (a variety, including commercially available materials, bundles of sticks, beans and cups, and snap cubes) 	<p>More Writing and Solving Problems</p> <ul style="list-style-type: none"> • Ask students to choose two problems from p. 375 and/or 376. • Students write a word problem to match the numerical problem. • Students read their problem to a partner to ensure that it makes sense; the partner locates the problem on the workbook page. • Students choose one of the two problems and solve the problem using tools and strategies they understand. Make manipulatives available. • Students record their method using words, numbers, an equation and/or pictures.
<p>PRACTICE:</p>	<p>As time allows:</p> <ul style="list-style-type: none"> • Students solve the problem in a different way and/or trade word problems with a partner and solve a different problem.
<p>SUMMARIZE:</p>	<ul style="list-style-type: none"> • Ask students to share their methods for solving the problem with the whole class. • Chart students' strategies. • Discuss how to represent the problem in an equation. • Record the equation horizontally. <p>Closure:</p> <ul style="list-style-type: none"> • Revisit purpose of the lesson with students.
<p>HOMEWORK:</p> <p>Materials:</p> <ul style="list-style-type: none"> • P. FA 109 	<p>Suggestion:</p> <ul style="list-style-type: none"> • Students choose problems from pp. 375 and 376 and use Family Involvement Activities P. FA 109 to model problems.

DAY 5
 UNIT 6: 3-Digit Addition and Subtraction
 Chapter 25: Adding 3-Digit Numbers
 LESSON 25.5
 TE, P. 377A

LESSON FOCUS:	Addition of Multidigit Numbers, Including Money
CALIFORNIA STANDARD:	Number Sense 5.1 Solve problems using combinations of coins and bills.
PURPOSE OF LESSON:	Invent strategies for adding multidigit numbers involving money.
ROUTINE:	Suggestion: Sharing Homework Students share clues about the number written on Day 2, Lesson 25.2. Classmates try to guess the number that matches the clues.
LAUNCH: Materials: <ul style="list-style-type: none"> • Copies of Teacher's Resource Book, pp. TR 68-70 <li style="text-align: center;">OR • Bags of real money (preferable); pairs of students need: <ul style="list-style-type: none"> - 9 copies of \$1 bills - 3 quarters - 9 dimes - 10 – 15 nickels - 9 – 20 pennies • Base ten materials (a variety, including commercially available materials, bundles of sticks, beans and cups, and snap cubes) 	Review: Representing Money <ul style="list-style-type: none"> • See Vocabulary Development, TE P. 377A; review terms <i>decimal point</i> and <i>dollar sign</i>. • Ask students to name quantities of money greater than \$1.00 and less than \$10.00. List 5 to 10 quantities on the board. • Have pairs of students build these amounts. Students share collections with the class. Solving Problems <ul style="list-style-type: none"> • Choose 2 to 4 problems from pp. 377 and 378. Write these on the board. For each problem, ask students to think of contexts in which these problems would exist. • Students work in pairs to solve problems, using base ten materials, money and/or paper/pencil.
EXPLORE:	Writing Story Problems <ul style="list-style-type: none"> • Students work in pairs, choosing 2 to 4 problems from pp. 377 and 378. • Students record the problem and write a story to match the problem.
PRACTICE: Materials: <ul style="list-style-type: none"> • Copies of Teacher's Resource Book, Pp. TR 68-70 <li style="text-align: center;">OR 	As time allows: Solving More Problems <ul style="list-style-type: none"> • Ask students to solve the problems written together using tools and strategies they understand. Make manipulatives available. • Students record their method using words, numbers, an equation and/or pictures.

<ul style="list-style-type: none"> • Bags of real money (preferable); pairs of students need: <ul style="list-style-type: none"> - 9 copies of \$1 bills - 3 quarters - 9 dimes - 10 – 15 nickels - 9 – 20 pennies • Base ten materials (a variety, including commercially available materials, bundles of sticks, beans and cups, and snap cubes) 	
<p>SUMMARIZE:</p>	<p>Closure:</p> <ul style="list-style-type: none"> • Revisit purpose of the lesson with students. Select one or two students to share their story problem. Based on story problem, students determine the equation. • Students share strategies for solving the problems.
<p>HOMEWORK:</p> <p>Materials:</p> <ul style="list-style-type: none"> • Money 	<p>Suggestion:</p> <ul style="list-style-type: none"> • Students choose an amount of money that is more than \$1.00 and less than \$10.00. • They write clues about the number. E.g., \$1.75 <p style="text-align: center;"><i>I am greater than \$1.50 and less than \$2.00. You could build this total amount with 7 quarters. If you used quarters and bills, you would need only 3 quarters.</i></p>

