As students advance through grade levels, their computational abilities progress. Some students may still need to use manipulatives to help them understand addition and subtraction of greater numbers. Some students may find it difficult to regroup while solving subtraction problems.

Teachers should continue to remind students that estimation provides a quick way to determine the reasonableness of sums or differences.

**Targeted Standards**

**GLE 0406.1.2** Apply and adapt a variety of appropriate strategies to problem solving, including estimation, and reasonableness of the solution.

**GLE 0406.1.3** Develop independent reasoning to communicate mathematical ideas and derive algorithms and/or formulas.

**GLE 0406.2.1** Understand place value of numbers from hundredths to the hundred-thousands place.

**GLE 0406.2.6** Solve problems involving whole numbers, fractions, and/or decimals using all four arithmetic operations.

**Previous Grade**

In the previous grade, students learned to:
- Read, write, and identify place value of whole numbers through ten thousands.
- Compare and order numbers.
- Round numbers to the nearest ten, hundred, and thousand.
- Use addition properties to add whole numbers.
- Estimate sums and differences.
- Add and subtract three- and four-digit numbers.

**This Grade**

During this chapter, students learn to:
- Read, write, and identify place value of whole numbers.
- Compare and order numbers.
- Estimate numbers by rounding.
- Use addition properties and subtraction rules to add and subtract.
- Estimate sums and differences of numbers.
- Add and subtract multi-digit numbers.

After this chapter, students learn to:
- Add and subtract like and unlike fractions.
- Estimate decimal sums and differences.
- Add and subtract decimals.

**Next Grade**

In the next grade, students learn to:
- Read, write, compare, and order whole numbers through the millions.
- Read and write decimals in standard form, expanded form, and word form.
- Add and subtract decimals and fractions.

**Vertical Alignment and Backmapping**

McGraw-Hill’s *Math Connects* program was conceived and developed with the final results in mind: student success in Algebra 1 and beyond. The authors developed this brand-new series by backmapping from Algebra 1 concepts, and vertically aligning the topics so that they build upon prior skills and concepts and serve as a foundation for future topics.
## Chapter at a Glance

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<td>GLE 0406.1.2</td>
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<td><strong>C</strong> Subtract Whole Numbers</td>
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This program is supported with a variety of digital solutions online, on DVD, and on CD.
Math Vocabulary

Glossary

The following math vocabulary words are listed in the glossary of the Student Edition.

Get Connected

Find interactive definitions in 13 languages in the eGlossary and review vocabulary eGames at connectED.mcgraw-hill.com.

Associative Property of Addition The grouping of the addends does not change the sum.
Example: \((4 + 5) + 2 = 4 + (5 + 2)\)

Commutative Property of Addition The order in which two numbers are added does not change the sum.
Example: \(12 + 15 = 15 + 12\)

digits Symbols used to write numbers. The ten digits are 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9.

estimate A number close to an exact value. An estimate indicates about how much.

expanded form The representation of a number as a sum that shows the value of each digit.
Example: \(536\) is written as \(500 + 30 + 6\).

Identity Property of Addition For any number, zero plus that number is the number.
Example: \(3 + 0 = 3\) or \(0 + 3 = 3\)

is equal to \((=)\) Having the same value. The \((=)\) sign is used to show two numbers or expressions are equal.

is greater than \((>)\) An inequality relationship showing that the number on the left of the symbol is greater than the number on the right.

is less than \((<)\) An inequality relationship showing that the number on the left side of the symbol is lesser than the number on the right side.

minuend The first number in a subtraction sentence from which a second number is to be subtracted.

period The name given to each group of three digits on a place-value chart.

place value The value given to a digit by its position in a number.

standard form The usual way of writing a number that shows only digits, no words.

subtrahend A number that is subtracted from another number.

word form The form of a number that uses written words.

Visual Vocabulary Cards

Use Visual Vocabulary Cards to reinforce the vocabulary in this chapter in English and Spanish. (The Define/Example/Ask routine is printed on the back of each card.)
### ELL Support

#### Multi-Part Lesson 1

**Place Value**

<table>
<thead>
<tr>
<th>Level</th>
<th>Activity</th>
<th>Modality</th>
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<tbody>
<tr>
<td>AL</td>
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<td>OL</td>
<td>Word Meaning</td>
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#### Multi-Part Lesson 2

**Addition and Subtraction**

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<th>Level</th>
<th>Activity</th>
<th>Modality</th>
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<tbody>
<tr>
<td>AL</td>
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<tr>
<td>OL</td>
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<tr>
<td>BL</td>
<td>Act It Out</td>
<td>Spatial</td>
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<tr>
<td></td>
<td>Problem Solving</td>
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#### Multi-Part Lesson 3

**Add and Subtract Whole Numbers**

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<th>Activity</th>
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<td>Review Meanings</td>
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<td>OL</td>
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<td></td>
<td>Real-World Application</td>
<td>On and Beyond Level</td>
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### ELL Resources

- The Professional Development articles listed below can be found in print and online in the **Teacher Resource Handbook**.
  - “English Learners and Mathematics: Best Practices for Effective Instruction” by Kathryn Heinze (pp. TR32–TR33)
  - “Engaging English Language Learners in Your Classroom” by Gladis Kersaint (pp. TR34–TR35)

- **Multilingual eGlossary**
- **Visual Vocabulary Cards**
- **Language Alerts** (pp. 21, 33, 51)
- **ELL Guide** (pp. 6–7, 40–41)

As a part of the chapter, we provide support for reading and language arts.

---

### Library Books

- **Multi-Part Lesson 1**
  - **Hottest, Coldest, Highest, Deepest**
    - Steve Jenkins
  - **How Much is a Million?**
    - David Schwartz
  - **On Beyond a Million**
    - David Schwartz

- **Multi-Part Lesson 2**
  - **MATHterpieces**
    - Greg Tang

- **Multi-Part Lesson 3**
  - **The Hundred Penny Box**
    - Sharon Bell Mathis

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### Real-World Problem Solving Library

**Math and Social Studies: Rivers and Mountains of the United States**

Use these leveled books to reinforce and extend problem-solving skills and strategies.

**Leveled for:**
- AL: Approaching level
- OL: On Level
- BL: Beyond Level
- SP: Spanish

For additional support, see the **Real-World Problem Solving Readers Teacher Guide**.

---

### Reading and Language Arts Support

For activities to connect reading and language arts to this chapter’s math concepts, see Reading and Language Arts Support in the Grade 4 **Math Connects Program Overview**.

---

### Leveled Reader Database

[connectED.mcgraw-hill.com](connectED.mcgraw-hill.com)

**Search by**
- Content Area
- Guided Reading Level
- Lexile Score
- Benchmark Level
Learning Stations

Tell Me How

- Write instructions that explain how to compare numbers using a number line. Then write three five-digit numbers below the instructions on the same piece of paper.
- Exchange your written instructions and numbers with a partner.
- Each partner places the five-digit numbers on a number line in the proper order. Use the written instructions to do this task.
- Were you able to follow each other’s instructions? If not, how are they different? How would you change the way they are written?

Materials:
- paper
- pencils

Add Your Impressions

Pointillism is a technique to create paintings using hundreds of dots of paint. If you stand far away from a pointillist painting, you can see the subject of the painting rather than the dots of paint.
- Make a painting using dots of different colors of paint to create your image. Keep track of how many dots you make with each color.
- How many dots of each color did you use? How many dots in total did you use? How many more dots did you make for the color you used the most than the color you used the least?

Materials:
- paint
- round brushes
- access to water
- paper
- pencils

A Penny a Year

- Read *The Hundred Penny Box* by Sharon Bell Mathis or a similar book by yourself or with a group and make your own Penny Box.
- For each year of your life, tape a penny with that year on it to an index card, and write one sentence about something that happened in your life that year. If you cannot find a penny with the correct year on it, write the correct year below the penny on the card. Put the cards in your box.
- Add the total of pennies your group has on the chalkboard. Then use addition to find how many pennies the whole class has.

Materials:
- index cards
- tape
- pennies
- small cardboard boxes
- *The Hundred Penny Box* by Sharon Bell Mathis
Science

Measure the Difference

- Each person in the group measures his or her height in inches. Write the heights of all the students in your group on a chart from tallest to shortest.
- What is the combined height of everyone in your group? How much taller is the tallest person than each person in the group?
- Make a poster showing your heights in your group, and your subtraction equations for finding the differences between the tallest person and each member of the group on the chart.

Material
- measuring stick or measuring tape
- markers
- paper
- pencils
- poster board

Health

Add Sit-Ups

- Each person in your group does as many sit-ups as possible before getting tired. Write the total number of sit-ups for each member of your group. How many sit-ups did your group do altogether? Add up the totals to figure out the group total.
- Compare your group total with the other groups in your class. Which group did the most sit-ups?
- Write all the group totals on the blackboard. How many sit-ups did the whole class do? Add up the group totals to find your class’s grand sit-up total.

Material
- paper
- pencils

Social Studies

Climb Every Mountain

- Make one index card for each of the following mountains:
  - Lookout Mountain, Alabama: 2,392 feet
  - Black Mountain, Kentucky: 4,145 feet
  - Mt. McKinley, Alaska: 20,320 feet
  - Dome Peak, Texas: 5,360 feet
  - Mt. Lincoln, Colorado: 14,269 feet
  - Mt. Rainier, Washington: 14,410 feet
- Shuffle the cards. Each partner picks one card.
- Subtract the smaller mountain height from the larger one to find the difference in height. Play until there are no cards left.

Material
- index cards
- markers
- paper
- pencils
Introduce the Chapter

**Essential Question**

- **What do you know about place value?** Sample answers: A place-value chart can be used to read and write numbers. Numbers can be written in three ways: standard form, word form, and expanded form.
- **How can estimating sums and differences be used in real life?** Sample answers: when there is not enough time to find an exact answer or an exact answer is not needed.
- **How does understanding place value help with addition and subtraction?** Sample answer: The addition and subtraction algorithms involve aligning numbers based on place value and working with digits in one place value at a time.

**WRITE MATH** Have students write a short paragraph in their Math Journals explaining how numbers are used in other school subjects. Tell them to give examples.

**Foldables®**
Go to connectED.mcgraw-hill.com to provide students with directions to create their own Foldables graphic organizers for this chapter. Students may also use their Foldables to study and review for chapter assessments.

**When to Use It** Lessons 1A–1B, 3A–3C, and 3E (Additional instructions for using the Foldable with these lessons are found in the Mid-Chapter Check and Chapter Study Guide and Review.)

**Key Vocabulary**
Introduce the Key vocabulary in the chapter using the routine below.

**Define:** Place value is the value given to a digit by its place in a number.

**Example:** The 4 in 485 is in the hundreds place.

**Ask:** When is it useful to know the place value of a digit?

**Chapter Project**

**Recycle It!** Students create a drive to recycle cans and bottles and keep records of their success.

- Students make posters to publicize a drive to collect cans and bottles for recycling.
- Students keep records, adding how many bottles and cans they collect each week.
- Students estimate how many bottles and cans they will collect in one month and then compare their actual collections with their estimates.
- Students add how much money they will get for returning the cans and bottles for deposit. They can use the money they collect to have a class party or give a donation to a charity they select.

Refer to the Chapter Resource Masters for a rubric to assess students’ progress on this project.
Read the story. You may wish to use the blank Graphic Novels provided in Hands-On Activity Tools and Resources to help develop writing and speech skills.

- What might Carmen try to figure out? How many cans her class collected during April and May.
- How can Carmen find the answer? Sample answer: Add the number of cans collected in April and May.
- Is there any extra or missing information? Explain. missing: the number of cans collected in May.

✓ 0406.1.10 Use age-appropriate books, stories, and videos to convey ideas of mathematics.

For additional reading and language arts activities, including support for reading a graphic novel, see Reading and Language Arts Support in the Grade 4 Math Connects Program Overview.

Animated Graphic Novel
Visit connectED.mcgraw-hill.com to download the animated version of “Recycling “Can” Make a Difference.”

When Will I Use This?

Recycling “Can” Make a Difference

Read the article, “The Role of Parents and Guardians for more information about parent involvement, with each student.

• What do not read English fluently.

and have each student sign it. A Spanish

place value, addition, and subtraction

4/5/10 1:26 PM

Handbook

The United States recycles about 28 out of every 100 waste items.

Later that day...

NO!!! That can be recycled.

What if our class started collecting cans for recycling?

We can do better than that!

The United States recycles about 60 out of every 100 waste items.

One month later...

Great job, class. We collected 178 cans in April. Let’s do it again next month.

I hope we collect even more cans in May.

Mr. Grey, I have an idea...

Place Value, Addition, and Subtraction 17

Your Turn!

You will solve this problem in the chapter.

When Will I Use This?

Recycling “Can” Make a Difference

Did you know that Austria recycles about 60 out of every 100 waste items?

Earth Day is coming up.

Your Turn!

You will solve this problem in the chapter.

Math on Home

• Read the Math at Home letter found in the Chapter Resource Masters with the class and have each student sign it. A Spanish version is also included. Use the Spanish letter for Spanish-speaking parents or guardians who do not read English fluently.

• Send home copies of the Math at Home letter with each student.

For more information about parent involvement, read the article, “The Role of Parents and Guardians in Young Children Learning Mathematics” by Paul Giganti, Jr. See the Teacher Resource Handbook pp. TR44–TR45.
You have two options for checking Prerequisite Skills for this chapter.

Text Option

“Are You Ready for the Chapter?”

Student Edition

Online Option

Take the Online Readiness Quiz.

Are You Ready for the Chapter?

You have two options for checking Prerequisite Skills for this chapter.

Text Option

Take the Quick Check below.

Compare. Use >, <, or =.

1. $8,000 \square 8,100$ $<$
2. $23,404 \square 23,044$ $>$
3. $87,635 \square 87,635$ $=$
4. The table shows the populations of two cities in Washington. Which city has more people? Explain.
   Mount Vernon: 31,513 $>$ 30,643

<table>
<thead>
<tr>
<th>City</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mount Vernon</td>
<td>31,513</td>
</tr>
<tr>
<td>Walla Walla</td>
<td>30,643</td>
</tr>
</tbody>
</table>

5. $35 \square 56$ $+$
6. $58 \square 83$ $+$
7. $94 \square 172$ $+$
8. $87 + 35 \square 122$
9. $103 + 57 \square 160$
10. $233 + 158 \square 391$

11. Felicia has the collection of marbles shown. Her sister gives her 25 marbles. How many marbles does Felicia have now? 142 marbles

12. $57 \square 49$ $-$
13. $71 \square 48$ $-$
14. $132 \square 58$ $-$
15. $93 - 15 \square 78$
16. $62 - 49 \square 13$
17. $415 - 107 \square 308$
18. Jasper is reading a 98-page book. He has read 29 pages. How many pages does Jasper have left to read? 69 pages

Online Option

Take the Online Readiness Quiz.
**DIAGNOSE AND PRESCRIBE**

**RtI (Response to Intervention)**

Based on the results of the Diagnostic Assessment, use the charts below to address individual needs before beginning the chapter.

**TIER 1 On Level (OL)**

If students miss 3 to 5 in Exercises 1–18,

Then choose a resource:

- [ ] Learning Stations (pp. 16E–16F)
- [ ] Are You Ready? Practice
- [ ] [Get Connected](#) Self-Check Quiz

**TIER 2 Strategic Intervention**

**approaching grade level (AL)**

If students miss 6 to 11 in Exercises 1–18,

Then choose a resource:

- [ ] Strategic Intervention Guide (pp. T8, T11, T42–T43, T48, T58–T63)
- [ ] Are You Ready? Review
- [ ] [Get Connected](#) Lesson Animations

**TIER 3 Intensive Intervention**

**2 or more years below grade level (BL)**

If students miss 12 or more in Exercises 1–18,

Then use **Math Triumphs**, an intensive math intervention program from McGraw-Hill

Chapter 1 Place Value and Patterns

**Beyond Level (BL)**

If students miss 2 or less in Exercises 1–18,

Then choose a resource:

- [ ] Chapter Project (p. 16)
- [ ] Are You Ready? Apply
- [ ] [Get Connected](#) eGames: Add or Subtract 2-Digit Numbers with Roy Raccoon

**REASSESS**

Administer the Diagnostic Test.

[Diagnostic Test](#)
**Title/Main Objective**

Explore place value.

**Standards**

GLE 0406.1.10

**Vocabulary**

digits, expanded form, period, place value, standard form, word form

**Materials/Manipulatives**

base-ten blocks

**Resources**

Get Connected

- Explore Worksheet
- Virtual Manipulatives

- Leveled Worksheets
- Lesson Animations
- Daily Transparencies
- Problem of the Day
- Self-Check Quiz
- Personal Tutor
- Virtual Manipulatives
- eGames: RoboWorks–Place Value
- Math Song Animations: Cheer! and Mighty Big Numbers
- Hands-On Activity Tools and Resources

**Essential Question**

How does the expanded form of a number help in understanding the values of each digit? Sample answer: The expanded form of a number represents the number as a sum that shows the value of each digit.

**Focus on Math Background**

In the Explore lesson, students will explore millions. Moving from the thousands period to the millions period shows students how flexible the base-ten number system is. 1,000,000 has one more digit than 100,000 but is ten times greater.

When we talk about the value of more than two numbers, we can put numbers in “order” to understand how the values of the numbers compare to each other. Number lines, place-value charts, and what is known about comparing numbers can help when ordering numbers.

Students may not understand why we round numbers. Explain to them that numbers that have been rounded are easier to understand and work with.
Title/Main Objective

Compare and order numbers. Estimate numbers by rounding.

Materials/Manipulatives

index cards
base-ten blocks

Resources

✔ 0406.1.10

The Multi-Part Lesson Planner is designed to help teachers easily plan for their lessons. At the bottom of this page is a suggested pacing chart. This will help you plan your time for this lesson that is expected to last multiple days.

PART C

Compare and Order Numbers (pp. 24–27)

Compare and order numbers.

GLE 0406.2.1

is equal to (=), is greater than (>), is less than (<), number line

PART D

Round Numbers (pp. 28–31)

Estimate numbers by rounding.

GLE 0406.2.1

estimate, rounding (or round)

Visual Vocabulary Card 24

Vocabulary

Visual Vocabulary Card 24

Materials/Manipulatives

index cards

Resources

Leveled Worksheets
Lesson Animations
eGames: Bugle Farms–Compare Numbers
Daily Transparencies
Problem of the Day
Self-Check Quiz
Personal Tutor

Hands-On Activity Tools and Resources

The Multi-Part Lesson Planner is designed to help teachers easily plan for their lessons. At the bottom of this page is a suggested pacing chart. This will help you plan your time for this lesson that is expected to last multiple days.
Differentiated Instruction

**Approaching Level**

**Option 1**

*Hands-On Activity*

Materials: a set of six 3 × 5 inch index cards cut in half for each student, pencils

- Have students write one digit, 0–9, on ten of the half cards. Then have them write a comma on the remaining two half cards.
- Tell students to use their index cards to represent each of the following numbers as you say them: 175; 4,896; 20,751; and 346,802.
- Observe students as they arrange the number and comma cards. Help students as needed.
- Point to individual digits and ask the value.

**Option 2**

*Hands-On Activity*

Materials: two 1-inch circles cut from construction paper per student, paper, pencils

- Write two five-digit numbers on the board and have students copy the numbers onto a piece of paper.
- Tell students to place a colored circle under the first digit of each of the numbers being compared.
- If the first digit of each number is identical, move right to the next digit in each number and repeat the comparison.
- Have students compare digits in each place value until unlike digits are found. Tell students to underline the unlike digits. Then have them remove the circles and compare the values of the digits.
- Students should write >, <, or = to show the relationship between the numbers.
- Repeat process until students understand how to compare two numbers.

**On Level**

**Option 1**

*Hands-On Activity*

Materials: encyclopedia or almanac, paper, pencils

- Have students find three different facts in an encyclopedia, almanac, or online that contain numbers that have four, five, or six digits.
- Tell students to write each fact on a piece of paper. Have them write the number within each fact in standard form, expanded form, and word form.
- Invite volunteers to share an interesting fact that they found with the class.

**Option 2**

*Hands-On Activity*

Materials: paper, pencils

- Have students choose five of the exercises from Exercises 9–20 in this lesson.
- Tell students to round each number to a different place value than the given place-value position. Make sure students do not indicate which place value to which they rounded.
- Have students exchange papers. Tell partners to determine which place value each number was rounded to and decide if each number was rounded correctly.

**Other Options**

Virtual Manipulatives, Math Song Animations: *Cheer! and Mighty Big Numbers*, eGames: *RoboWorks—Place Value*
Beyond Level  BL

Option 1  Use with 1B

_**Hands-On Activity**_

**Materials:** paper, pencils

- Have students create a ten-, eleven-, and twelve-digit number.

- Tell them to write the expanded form and word form of each number.
- Observe students during this activity and ask them the values of different digits in the numbers that they create.

Option 2  Use after 1B

_**Hands-On Activity**_

**Materials:** paper, pencils

- Write the following riddle on the board:

  _I am a seven-digit number. The sum of my digits is 27. The value of my thousands digit is 5,000 and the value of my hundreds digit is 700. My hundred-thousands digit is 2 less than my thousands digit and 3 less than my millions digit. My ones digit is 3 less than my hundreds digit and 2 more than my tens digit. Who am I?_ 6,305,724

- Have students solve the riddle. Then have them create their own riddle, exchange riddles with a classmate, and solve.

Other Options

- Lesson Animations, Virtual Manipulatives, Math Song Animations: Cheer! and Mighty Big Numbers

English Language Learners  ELL

This strategy helps English Learners learn different ways to express a number.

Find **Core Vocabulary** and **Common Use Verbs** in the online EL strategies to help students grasp the math skills; use **Language Alerts** at point of use in the Teacher Edition.

**AL  Beginning**

**Act It Out**  Understand greater than and less than.

- Have student pairs make a pile of 3 connecting cubes and a pile of 5 connecting cubes.
- Ask, Which pile has more cubes? Tell students that because 5 is more than 3 we can say it is greater than.
- Repeat the activity with different numbers of cubes for both greater than and less than.

**OL  Intermediate**

**Word Meaning**  Learn the meaning of place values.

- Write a 3 and then 1 + 1 + 1 on the board. Ask, _How many ones is this?_ Say, _ones place_ and have students repeat.
- Change the 3 to 63. Point to the 3 and ask, _How many ones?_ Point to the 6 and ask, _What number is this?_ Point to the 6 again and ask, _How many tens is this?_ Write 10 + 10 + 10 … until students understand. Say _tens place_ and have students repeat.
- Continue building up to the hundred thousands place.

**BL  Advanced**

**Word Meaning**  Understand estimates and rounding.

- Write 98 × 8. Ask students to quickly give the answer. If they cannot answer right away, ask them to guess. When they do, tell them they just gave an _estimate_.
- Change 98 to 100. Ask again for an answer. Students should be able to quickly answer _800_.
- Tell students that increasing or decreasing a number to the nearest 10, 100, or 1,000 is called _rounding_.

**Extend**

To practice rounding to the nearest 10, play a game with play money. Ask a student, _Which do you want, 43 cents or 43 cents rounded to the nearest 10?_ The student should say _43 cents_ since it is more. When the student answers, give him or her that amount in play coins. Continue for other students.
Assessment Tip

Being proficient in counting, ordering, and comparing numbers to 1,000,000 will enable students to better understand whole number operations.
- This assessment can be done as a whole class.
- Each student should have some sort of a place value pocket chart and digit cards labeled 0–9.
- Ask the class to choose four different digit cards at random, make the greatest 4-digit number they can with those cards, and then hold up the pocket chart so you can see it. Observe the various 4-digit numbers and make note of any students who are having difficulty making the greatest number. Repeat with similar types of problems.

Professional Development

Reading Greater Numbers

Students will read greater numbers with ease and understanding if they break them apart into the place-value periods. Each place-value period is a three-digit number read as hundreds, tens, and ones. After reading the number, students simply say the name of the period.

Write: 478,907
Read: four hundred seventy-eight thousand, nine hundred seven

As an extension, challenge your students to read even greater numbers:

Write: 75,612,082
Read: seventy-five million, six hundred twelve thousand, eighty-two


**Explore**

**Main Idea**
I will explore place value.

**Materials**
base-ten blocks

---

**Activity**

**Place Value**

You have used base-ten blocks to represent ones, tens, hundreds, and thousands. You can also use models to help understand the value of 1,000,000.

<table>
<thead>
<tr>
<th>Thousands</th>
<th>Hundreds</th>
<th>Tens</th>
<th>Ones</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Thousands Block" /></td>
<td><img src="image" alt="Hundreds Grid" /></td>
<td><img src="image" alt="Tens Rod" /></td>
<td><img src="image" alt="Ones Unit" /></td>
</tr>
</tbody>
</table>

**Step 1 Observe a pattern.**
Write the value of each place from ones to millions with the digit one. With a partner, discuss the patterns that you observe.

**Step 2 Model 10,000.**
Work with your classmates. Create a plan to make a 10,000 model using base-ten blocks.

**Step 3 Discuss 100,000 and 1,000,000.**
With a partner or small group, make a plan to create a 100,000 model. Then make a plan to create a 1,000,000 model. Describe what the models would look like. How many 100,000 models would you need to make a 1,000,000 model?

---

**Think About It**

1. How did you build a model of 10,000? *Sample answer: Stack ten 1,000s cubes.*
2. Describe what your model of 1,000,000 would look like.
3. How are the models you built and drew like the models for ones, tens, and hundreds? *3, 4. See Answer Appendix.*
4. What number patterns did you see as you built and drew these models?

---

**Practice**

For more practice of the concept presented in this Explore lesson, see Explore Worksheet.

---

**Reflect and Clarify**

- **What do you notice about the number of thousands cubes that are needed to model 10,000, 100,000, and 1,000,000?** *Sample answer: The number of thousands cubes needed to model each number is always a multiple of 10.*

From Concrete to Abstract  Use Exercise 4 to transition from modeling numbers to understanding the relationship between the numbers.

---

**TEACH**

**Activity**
During steps 2 and 3, remind students that they can use thousands cubes instead of hundreds flats when they create plans to make a 10,000 model, a 100,000 model, and a 1,000,000 model.

**Think About It**

Assign the exercises in the **Think About It** section to assess student comprehension of the concept presented in the Activity.
**Multi-Part Lesson 1**

**PART A**

**Place Value**

**Objective**
Read, write, and identify place value of whole numbers.

**Vocabulary**
digits
period
place value
standard form
expanded form
word form

**Resources**

**Materials**: WorkMat 4: Place-Value Chart from *Hands-On Activity Tools and Resources* p. 77

**Manipulatives**: base-ten blocks

**Get ConnectED**

**Get ConnectED**

**REAL-WORLD EXAMPLE**

Identify Value of Digits

Scientists found that a gooney bird once traveled 24,983 miles in just 90 days.

Identify the place of the underlined digit in 24,983. Then write its value.

The place-value chart shows 24,983.

<table>
<thead>
<tr>
<th>Thousands Period</th>
<th>Ones Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>hundreds</td>
<td>tens</td>
</tr>
<tr>
<td>hundreds</td>
<td>tens</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>3</td>
</tr>
</tbody>
</table>

The underlined digit, 2, is in the ten thousands place. So, its value is 20,000.

**Checks for Understanding**

- **0406.2.1** Compose and decompose quantities according to place value.

**Get ConnectED**

**Get ConnectED**

**Building Math Vocabulary**

Write the lesson vocabulary words and their definitions on the board. Write the number 2,892 on the board in standard form, expanded form, and word form. Have students identify each form of the word. Then have students choose their own number to write three ways. Challenge students to choose a number in the hundred thousands.

**GLE 0406.2.1** Understand place value of numbers from hundredths to the hundred-thousands place. **SPI 0406.2.1** Read and write numbers from hundredths to hundred-thousands in numerals and in words. Also addresses SPI 0406.2.3.

**020_023_C01_L01_103030.indd   20**

3/3/10   11:08 AM

**020_023_C01_L01_103093.indd   20**

4/5/10   1:35 PM

**INTRODUCE**

**Activity Choice 1: Hands-On**

- Write 1,462 on the board. Tell students to use base-ten blocks to model 1,462 in two ways. Sample answers: 1 thousands cube, 4 hundreds flats, 6 tens rods, 2 ones units; 14 hundreds flats, 6 tens rods, 2 ones units
- Guide students in writing the number in expanded form and word form.

**Activity Choice 2: Index Question**

- Tell students that you want to collect some information that will help you teach today’s lesson.
- Write the following on the board: What do you know about place value? Write 12,694 in expanded form and word form.
- Allow students 5 minutes to answer the questions.
- Collect and quickly analyze students’ answers to gauge their prior knowledge of place value, expanded form, and word form. This will help you adjust the lesson as needed to meet your students’ needs.

**Main Idea**
I will read, write, and identify place value of whole numbers.

**Vocabulary**
digits
period
place value
standard form
expanded form
word form

**Place Value**
The number 916,823 has six digits. A digit is any symbol used to write a whole number. A group of three digits is called a period. Commas separate the periods. At each comma, say the name of the period. A place-value chart shows the value of the digits in a number.
Lesson 1B Place Value

21

As a class, have students complete the Check What You Know Exercises as you observe their work.

**TALK MATH**

Use the Talk Math Exercise to assess student comprehension before assigning the practice exercises.

**Additional Examples**

Write and Read Numbers

PENCILS The average pencil can draw a line that is almost 184,800 feet long.

The place-value chart shows 184,800.

<table>
<thead>
<tr>
<th>Thousands Period</th>
<th>Ones Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>hundreds</td>
<td>tens</td>
</tr>
<tr>
<td>1</td>
<td>8</td>
</tr>
</tbody>
</table>

Write this length in standard form, expanded form, and word form.

- **standard form:** 184,800
- **expanded form:** 100,000 + 80,000 + 4,000 + 800
- **word form:** one hundred eighty-four thousand, eight hundred

**COMMON ERROR!**

Exercises 5–6, 11, and 21–25 Students may have trouble with writing digits in standard form from expanded or word form. They may need prompts such as these: How many hundreds are there? What number do you look at next? How many tens are there? What do you do next? How many ones are there? Write the standard form of the number.

**ELL**

Punctuation in Numbers? In some countries, the use of commas and decimal points is reversed. For example, in some countries, the number two-thousand three-hundred fifty-two and 6 tenths is written as 2,352,6.

**Check What You Know**

Write the place of the underlined digit. Then write its value.

1. 62,574 ones; 4
2. 38,035 hundreds; 0
3. 53,456 ten thousands; 50,000
4. 612,345 hundred thousands; 600,000

Write each number in standard form.

5. 500,000 + 1,000 + 30 + 3
6. twelve thousand, four

Write each number in expanded form and word form.

7. 23,472
8. 49,602
9. 152,220
10. 471,002
11. A car’s mileage is thirty-six thousand, five hundred twenty-three miles. Write this number in standard form and expanded form.

**Scaffolding Questions**

- Is this number written in standard form, expanded form, or word form? expanded form
- Write the number in standard form. 24,560
- What base-ten blocks would you use to model this number? 24 thousands cubes, 5 hundreds flats, 6 tens rods

**Additional Examples**

1. Identify the place of the underlined digit in 54,062. Then write its value. ten thousands; 50,000

2. Write the number 141,093 in standard form, expanded form, and word form. 141,093;

   - **standard form:** 100,000 + 40,000 + 1,000 + 90 + 3
   - **word form:** one hundred forty-one thousand, ninety-three

**IWB Interactive Whiteboard Ready**

As a class, have students complete the Check What You Know Exercises as you observe their work.

**Talk Math** Use the Talk Math Exercise to assess student comprehension before assigning the practice exercises.

**Alternate Teaching Strategy**

- **If** students have trouble with the place value of whole numbers . . .
- **Then** use one of these reteach options:
  1. **Reteach Worksheet**
  2. **Virtual Manipulatives** Use the virtual place-value workmat to reteach the concept.
  3. **Use Multiple Representations** Students can use words, a place-value chart, and base-ten blocks to represent numbers in multiple ways. For example, when students write eleven thousand, sixty-five in standard form, they can use multiple representations of the number to see that there are no hundreds in this number.

**Language Alert!**

Punctuation in Numbers? In some countries, the use of commas and decimal points is reversed. For example, in some countries, the number two-thousand three-hundred fifty-two and 6 tenths is written as 2,352,6.
Differentiate practice using these leveled assignments for the exercises in Practice and Problem Solving.

<table>
<thead>
<tr>
<th>Level</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>BL</td>
<td>Beyond Level 15–19, 22–25, 29–32, 34–46</td>
</tr>
</tbody>
</table>

H.O.T. Problems Have students discuss and complete the Higher Order Thinking problems.

WRITE MATH Have students complete the Write Math Exercise in their Math Journals. You may choose to use this exercise as an optional formative assessment.

ELL Rephrase the Question Rephrase the question for students who need additional writing support.

Homework Practice Worksheet

Problem-Solving Practice Worksheet

ASSESS Formative Assessment

Compare the values of adjacent places in a number. Sample answer: Each place to the left has 10 times the value of the place to the right.

Quick Check Are students continuing to struggle with place value of whole numbers?

During Small Group Instruction

If Yes → AL Daily Transparencies

AL Differentiated Instruction Option 1 (p. 19c)

AL Strategic Intervention Guide (pp. T4–T5)

If No → OL Differentiated Instruction Option 1 (p. 19c)

BL Differentiated Instruction Options 1 and 2 (p. 19d)

OL Skills Practice Worksheet

BL Enrich Worksheet

REAL-WORLD PROBLEM SOLVING

Science The photo shows an African elephant.

34. An African elephant can weigh up to 14,432 pounds. What is the value of the underlined digit? 10,000

35. Write 14,432 in expanded form.

36. A zoo’s newborn African elephant weighed 232 pounds. After one year, the elephant gained 1,000 pounds. Write the elephant’s new weight in standard form and word form.

Quick Check provides reteaching suggestions for students who continue to struggle.
Ask students to choose a 6-digit number. Then ask students to write the number 3 ways. Collect their papers as students leave the classroom.

**Write Numbers**

**Real-World Example**

**SPACE** American astronauts have spent about 13,507,804 minutes in space. Write 13,507,804 three ways.

The place-value chart shows the value of each digit in 13,507,804.

<table>
<thead>
<tr>
<th>Millions</th>
<th>Thousands</th>
<th>Ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>0</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>

Write the number in standard form, word form, and expanded form.

**Standard form:** 13,507,804

**Word form:** thirteen million, five hundred seven thousand, eight hundred four

**Expanded form:** 10,000,000 + 3,000,000 + 500,000 + 7,000 + 800 + 4

**Write each number in standard form.**

39. 3,000,000 + 7,000 + 800 + 20 + 6 = 3,007,826

40. forty million, fifty-two thousand, one = 40,052,001

**Write each number in word form and in expanded form.** 41–46. See margin.

41. 8,576,908

42. 76,739,042

43. 120,007,635

44. The human eye blinks an average of 5,500,000 times a year. Write this number in expanded form and word form.

45. The distance from Earth to the Sun is 92,955,793 miles. Write this number in expanded form and word form.

46. **WRITE MATH** How is writing a number in the millions in expanded form similar to writing a number in the hundred thousands in expanded form? How is it different?
Compare and Order Numbers

Objective
Compare and order numbers.

Vocabulary
- number line
- is greater than (>)
- is less than (<)
- is equal to (=)

Resources
- Materials: index cards, WorkMat 4: Place-Value Chart from Hands-On Activity Tools and Resources p. 77
- Manipulatives: base-ten blocks

Main Idea
I will compare and order numbers.

You can use a number line to compare numbers. A number line is a line with numbers on it in order at regular intervals. The symbols below are used to show relationships of numbers.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;</td>
<td>is greater than</td>
</tr>
<tr>
<td>&lt;</td>
<td>is less than</td>
</tr>
<tr>
<td>=</td>
<td>is equal to</td>
</tr>
</tbody>
</table>

Jobs
On average, a first-year police officer earns $41,793. A first-year firefighter earns $41,294. Which occupation pays more the first year?

On a number line, numbers to the right are greater than numbers to the left.

41,000 41,200 41,400 41,600 41,800 42,000

41,294 41,793

Numbers get smaller. Numbers get larger.

41,793 is to the right of 41,294.
So, 41,793 is greater than 41,294.
Therefore, 41,793 > 41,294.
So, police officers earn more money than firefighters.

Building Math Vocabulary
Write the lesson vocabulary words and their definitions on the board. In their Math Journals, have students draw a place-value chart through hundred thousands that includes the numbers 23,920 and 23,820. Have students write the steps they take to compare the numbers. Then ask students to state which number is greater.
Lesson 1C Place Value

**2 TEACH**

**Scaffolding Questions**

Draw a number line from 60,000 to 70,000 on the board. Place a tic mark at each thousand interval. Place a point at 68,000.

- **What number is represented by this point?** 68,000
- **Have a volunteer come to the board and draw a point at 63,000.**
- **Explain that numbers to the left on a number line are less than numbers to the right.**
- **How could you use this number line to decide whether 63,000 is less than or greater than 68,000?** Sample answer: Since 63,000 is to the left of 68,000, 63,000 is less than 68,000.
- **Why is it helpful to use a number line?** Sample answer: It helps you see the numbers in order.

**ADDITIONAL EXAMPLES**

1. Brianna sold 12,978 beads at the craft fair. Jeremy sold 12,987 beads at the craft fair. Who sold fewer beads? **Brianna**

2. John and Clara posted funny home videos online. John’s video was viewed by 305,783 people. Clara’s video was viewed by 305,807 people. Which video was viewed by a greater number of people? **Clara’s video**

3. Order the following numbers from greatest to least: 673,964; 672,964; 673,946. 673,964; 673,946; 672,964

**Remember**

Always line up the numbers by their place values. Then start to compare from the left.

**Massachusetts’s Population**

<table>
<thead>
<tr>
<th>City</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston</td>
<td>590,763</td>
</tr>
<tr>
<td>Cambridge</td>
<td>101,365</td>
</tr>
<tr>
<td>Lowell</td>
<td>103,229</td>
</tr>
</tbody>
</table>

**Use a Place-Value Chart**

<table>
<thead>
<tr>
<th>Thousands</th>
<th>Ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 0 3 2 2 9</td>
<td></td>
</tr>
</tbody>
</table>

- **Step 1** Line up the numbers by place value.
- **Step 2** Start with the greatest place-value position. Compare.
- **Step 3** Compare the digits in the next place.
- **Step 4** Continue to compare until the digits are different.

Since 3 is greater than 1, the number 103,229 > 101,365.

Lowell’s population is greater.

Refer to the table in Example 2. Order the populations of the three Massachusetts cities from greatest to least.

- 590,763 is the greatest.
- 103,229 is the next greatest.
- 101,365 is the least.

590,763 > 103,229 > 101,365

So, from greatest population to least, the order is Boston, Lowell, Cambridge.

Additional Examples, which are included for every example in the Student Edition, exactly parallel the examples in the text.
As a class, have students complete the Check What You Know Exercises as you observe their work.

TALK MATH Use the Talk Math Exercise to assess student comprehension before assigning the practice exercises.

Alternate Teaching Strategy

If students have trouble comparing and ordering numbers . . .

Then use one of these reteach options:

1 AL Reteach Worksheet
2 IWB Personal Tutor Have students use Personal Tutor to reteach the concept.
3 Use Place-Value Chart Have them use a place-value chart workmat to compare numbers. Remind them to:
   • Compare the greatest place values, the next to the greatest place values, and so forth until they see values that differ.
   • For students who struggle with using a place-value chart, suggest that they use a number line.

Practice and Problem Solving

Compare. Use <, >, or =. See Example 1
1. 25,409  26,409 <  2. 655,543  556,543 >  3. 720,301  720,031 >

Order the numbers from greatest to least. See Examples 1–3
4. 52,482; 50,023; 56,028; 63,340  63,340; 56,028; 52,482; 50,023
6. Jun collects stamps and baseball cards. He has 1,834 stamps and 1,286 baseball cards. Does he have more stamps or more cards? Explain. stamps; 1,834 > 1,286

Order the numbers from greatest to least. See Examples 1–3
7. 1,286 baseball cards. Does he have more stamps or more cards? Explain.
8. 3,030
9. 23,001  23,010 <  10. 18,041  18,040 >
11. 76,101  77,000 <  12. 12,683  12,638 >  13. 304,999  305,049 <
14. 701,000  701,000 =  15. 299,214  300,142 <  16. 342,646  34,646 >
17. 398,421  389,421 >  18. 605,310  605,310 =  19. 840,515  845,015 <

Order the numbers from greatest to least. See Examples 1–3
20. 12,378; 12,783; 12,873
21. 138,032; 138,023; 139,006; 183,487
22. 128,034; 285,091; 285,091; 285,934
23. 652,264; 625,624; 625,624; 625,624
24. Order the dog breeds from least popular to most popular. Beagle, German Shepherd, Yorkshire Terrier
25. Measurement Order the states from least to greatest total area. See margin.

**Dog Breeds**

<table>
<thead>
<tr>
<th>Dog Breed</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yorkshire Terrier</td>
<td>47,238</td>
</tr>
<tr>
<td>Beagle</td>
<td>42,592</td>
</tr>
<tr>
<td>German Shepherd</td>
<td>45,868</td>
</tr>
</tbody>
</table>

**Land and Water Area**

<table>
<thead>
<tr>
<th>State</th>
<th>Total Area (sq. mi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wyoming</td>
<td>97,814</td>
</tr>
<tr>
<td>Alaska</td>
<td>663,267</td>
</tr>
<tr>
<td>Texas</td>
<td>268,581</td>
</tr>
<tr>
<td>California</td>
<td>153,696</td>
</tr>
</tbody>
</table>

26 Place Value, Addition, and Subtraction

**Additional Answers**

7. Sample answer: Compare the value of the digit to the right.

**COMMON ERROR!**

Exercises 9, 12, and 17 Students may have trouble with numbers that contain the same digits but are in a different order. Have students use a place-value chart workmat or a number line when comparing numbers like these.
26. **NUMBER SENSE** Use the digits 2, 3, 4, 5, and 9 to create four numbers. Order them from least to greatest.
   Sample answer: 23,459; 23,594; 24,539; 59,234

27. **WRITE MATH** Explain how to compare numbers using place value. Sample answer: Line up the numbers by their place values and compare from the left.

**More About** Comparing and Ordering Numbers

You can also use place value to compare and order numbers through millions.

**REAL-WORLD EXAMPLE**

The table shows the populations of three states. Order the states from greatest to least population.

Use a place-value chart to write each number.

<table>
<thead>
<tr>
<th>State Populations</th>
</tr>
</thead>
<tbody>
<tr>
<td>State</td>
</tr>
<tr>
<td>Ohio</td>
</tr>
<tr>
<td>Tennessee</td>
</tr>
<tr>
<td>Virginia</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Millions Period</th>
<th>Thousands Period</th>
<th>Ones Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>hundreds</td>
<td>tens</td>
<td>ones</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>9</td>
</tr>
</tbody>
</table>

So, from greatest population to least, the order is Ohio, Virginia, Tennessee.

**HOT Problems**

Have students discuss and complete the Higher Order Thinking problems.

**WRITE MATH** Have students complete the Write Math Exercise in their Math Journals. You may choose to use this exercise as an optional formative assessment.

**ASSESS**

Formative Assessment

How do you know that 981,289 is greater than 981,275? Sample answer: In 981,289 the tens digit is 8, and in 981,275 the digit in the tens place is 7. So 8 is greater than 7, so 981,289 is greater than 981,275.

**Quick Check**

Are students continuing to struggle with comparing and ordering numbers?

**During Small Group Instruction**

If Yes → AL Daily Transparencies
AL Differentiated Instruction Option 2 (p. 19c)
AL Strategic Intervention Guide (pp. T8–T9, T11)

If No → OL Skills Practice Worksheet
BL Enrich Worksheet

**More About**

Tell students that comparing and ordering numbers in the millions is similar to comparing and ordering lesser numbers.
- **What is the first step when comparing these two numbers?** to compare the digits in the greatest place value
- **Which number is greater? How do you know?** Sample answer: 3,649,107; The digits in the millions places are the same, but the digits in the hundred thousands places are different. Since 6 > 4, 3,649,107 > 3,469,107.
- Work the Example as a class.
- Assign the exercises.
Round Numbers

When you estimate, you find an answer that is close to the exact answer. One way to estimate is to round by changing the value of a number so that it is easier to work with.

**TELESCOPE** The altitude of a telescope on Mauna Kea in Hawaii is 13,527 feet. Round 13,527 to the nearest thousand.

Use a number line from 13,000 to 14,000.

13,000 13,200 13,400 13,600 13,800 14,000

Since 13,527 is closer to 14,000 than 13,000, round 13,527 to 14,000.

**X-GAMES** The largest extreme sports competition, called X-Games, is so popular that one year 268,390 people attended. What is 268,390 rounded to the nearest ten thousand?

Use a number line from 260,000 to 270,000.

260,000 262,000 264,000 266,000 268,000 270,000

Since 268,390 is closer to 270,000 than 260,000, round 268,390 to 270,000.

**Building Math Vocabulary**

Write the lesson vocabulary words and their definitions on the board. In their Math Journals, have students draw a 10,000 to 15,000 number line. Have students identify and label the number 13,275. Then ask students to round the number to the nearest thousand.

**Visual Vocabulary Cards**

Use a Visual Vocabulary Card to reinforce the vocabulary introduced in this lesson in English and Spanish. (The Define/Example/Ask routine is printed on the back of each card.)
You can use rounding rules to round a number.

**Key Concept**

**Round Numbers**

**Step 1** Underline the digit to be rounded.

**Step 2** Look at the digit to the right of the place being rounded.

**Step 3** If the digit is 4 or less, do not change the underlined digit. If the digit is 5 or greater, add 1 to the underlined digit.

**Step 4** Replace all digits after the underlined digit with zeros.

**REAL-WORLD EXAMPLE**

**Round Numbers**

**JUMP** A record was set when 569,069 people jumped up and down for one minute. About how many people set this record?

You need to round 569,069 to the nearest hundred thousand.

**Step 1** Underline the digit in the place to be rounded. In this case, the 5 is in the hundred thousands place.

**Step 2** Look at the 6, the digit to the right of the underlined digit.

**Step 3** This digit is more than 5, so add 1 to the underlined digit.

**Step 4** Replace all digits after the underlined digit with zeros.

So, about 600,000 people set this record.

**Check** To the nearest hundred thousand, 569,069 rounds to 600,000.

**Scaffolding Questions**

Have students draw a number line from 14,000 to 15,000 at their desks. Have students place a tic mark and label each 100-interval.

- **What is a number that is closer to 14,000 than 15,000?** Sample answer: 14,100
- **Round the number you chose to the nearest thousand.** 14,000
- **How would you describe the location of 14,500 on the number line?** Sample answer: 14,500 is halfway between 14,000 and 15,000
- **To the nearest thousand, to what number does 14,500 round?** 15,000

**ADDITIONAL EXAMPLES**

1. Booker saw that a car costs $18,921. Round $18,921 to the nearest thousand. $19,000
2. What is 745,908 rounded to the nearest ten thousand? 750,000
3. Round 872,907 to the nearest hundred thousand. 900,000
**CHECK What You Know**

As a class, have students complete the Check What You Know Exercises as you observe their work.

**TALK MATH** Use the Talk Math Exercise to assess student comprehension before assigning the practice exercises.

**Alternate Teaching Strategy**

If students have trouble estimating numbers by rounding . . .

Then use one of these reteach options:

1. **Reteach Worksheet**
2. **IWB Personal Tutor** Have students use Personal Tutor to reteach the concept.

3. **Round Numbers** Give students a list of numbers beginning with a two-digit number and moving up to a six-digit number. Have students round each number to the greatest place-value position. For example, students should round 25 to 30; 257 to 300; 2,572 to 3,000; 25,729 to 30,000; and so on.

### PRACTICE

Differentiate practice using these leveled assignments for the exercises in Practice and Problem Solving.

<table>
<thead>
<tr>
<th>Level</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AL</strong> Approaching Level</td>
<td>11–16, 21–34</td>
</tr>
<tr>
<td><strong>OL</strong> On Level</td>
<td>13–18, 21–34</td>
</tr>
<tr>
<td><strong>BL</strong> Beyond Level</td>
<td>15–34</td>
</tr>
</tbody>
</table>

**COMMON ERROR!**

Exercises 9–20, 23–25 Make sure students pay attention to the place-value position to which they are asked to round. Students might round every number to the same place-value position or round each number to the greatest place value. Remind students to underline the digit they are rounding.

### ROUNDING NUMBERS**

**Round each number to the given place-value position.**

1. 817; tens *820*
2. 619; hundreds *600*
3. 2,821; thousands *3,000*
4. 78,214; ten thousands *80,000*
5. 581,203; hundred thousands *600,000*
6. 709,385; hundred thousands *700,000*
7. The largest house made out of playing cards used 91,800 cards. To the nearest thousand, how many cards were used? *92,000 cards*
8. **ETALK MATH** Write the least number that you can round to the thousands place to get 8,000. Explain.
9. 568; tens *570*
10. 396; tens *400*
11. 297; hundreds *300*
12. 148,245; hundreds *148,200*
13. 1,234; thousands *1,000*
14. 500,580; thousands *501,000*
15. 290,152; hundred thousands *300,000*
16. 218,457; hundred thousands *200,000*
17. 37,890; hundreds *37,900*
18. 95,010; thousands *95,000*
19. 845,636; ten thousands *850,000*
20. 336,001; hundred thousands *300,000*
21. **Measurement** Earth’s deepest point is the Mariana Trench in the Pacific Ocean. It is 35,840 feet below sea level. Is this about 36,000 feet below sea level? Explain. *Yes; 35,840 when rounded to the nearest ten thousand would be 36,000.*
22. **Measurement** The highest point in New Jersey is High Point. It is 1,803 feet high. Is this about 1,000 feet high? Explain. *No; 1,803 rounded to the nearest thousand would be 2,000.*
25. **FIND THE ERROR** Andrew rounded the number 672,726 to the nearest hundred thousand. Find and correct his mistake. 

700,000; Sample answer: He rounded it to the nearest thousand.

26. **WRITE MATH** Write a real-world problem that involves rounding a number and has an answer of 560,000. See Answer Appendix.

**Rounding Numbers**

You can use the rounding rules to round greater numbers.

**EXAMPLE**

Round 4,120,536 to the nearest hundred thousand.

Underline the digit to be rounded.

4,120,536

Since the digit to the right is 4 or less, do not change the underlined digit.

4,100,000

Replace all digits after the underlined digit with zeros.

So, 4,120,536 rounded to the nearest hundred thousand is 4,100,000.

Round each number to the given place-value position.

27. 6,820,963; thousands

6,821,000

28. 3,427,489; thousands

3,427,000

29. 28,533,713; ten thousands

28,530,000

30. 129,405,078; ten thousands

129,410,000

31. 436,095,104; hundred thousands

436,100,000

32. 58,679,022; hundred thousands

58,700,000

33. 321,976,420; millions

322,000,000

34. 563,460,324; millions

563,000,000

To assess partial mastery of SPI 0406.2.1 and SPI 0406.2.3, see your Tennessee Assessment Book.

**Yesterday’s News**

Write a few sentences about how understanding place value helped you with today’s lesson.

**STOP and REFLECT**

Multi-Part Lesson 1 What do you know about place value? Sample answers: A place-value chart can be used to read and write numbers. Numbers can be written in three ways: standard form, word form, and expanded form.

**H.O.T. Problems**

Have students discuss and complete the Higher Order Thinking problems.

**WRITE MATH** Have students complete the Write Math Exercise in their Math Journals. You may choose to use this exercise as an optional assessment.

**Homework Practice Worksheet**

**Problem-Solving Practice Worksheet**

**ASSESS**

**Formative Assessment**

- Have students draw a number line ranging from 500,000 to 525,000. Ask students to locate and label three numbers that can be found on their number line.
- Then ask students to round their numbers to the nearest ten thousand. See students’ work.

**Quick Check**

Are students continuing to struggle with estimating numbers by rounding?

**During Small Group Instruction**

If Yes → AL Daily Transparencies

AL Strategic Intervention Guide (pp. T10, T12–T15, T20)

If No → OL Differentiated Instruction Option 2 (p. 19c)

OL Skills Practice Worksheet

BL Enrich Worksheet

More About

Tell students that they can use the rounding rules to round numbers in the millions. Review the rounding rules with students.

- Write 6,540,582 on the board.
- **Round 6,540,582 to the hundred thousands place.**
  
  Explain. Sample answer: 6,500,000; Since a 4 is to the right of the place value being rounded, the digit in the place value being rounded stays the same and all of the digits to the right are replaced with zeros.
- Have students round 6,540,582 to other place values and explain their reasoning.
- Work the Example as a class.
- Assign the exercises.
**Essential Question**

When is it better to estimate than to find an exact answer? **Sample answer:** when there is not enough time to find an exact answer or an exact answer is not needed.

**Focus on Math Background**

Knowing and understanding the basic properties of operations helps students develop number sense. The Commutative Property of Addition says you can add in any order. Students should be aware that subtraction is not commutative. For example, $5 - 2 \neq 2 - 5$.

As students learn to add and subtract greater numbers, it is important that they learn to estimate sums and differences. Estimation helps students avoid errors that occur as a result of rote procedures. For students to be good estimators, they need to be able to change numbers to manageable forms. In this multi-part lesson, students use the strategy of rounding to estimate.

**Blended Approach**

Refer to the Blending Math Connects and IMPACT Mathematics guide for detailed lesson plans.
Problem-Solving Skill
Estimate or Exact Answer (pp. 40–41)
Determine when to estimate or find an exact answer.

Title/Main Objective

GLE 0406.1.2, SPI 0406.2.10, GLE 0406.2.6

Standards

Vocabulary

sticky notes

Materials/Manipulatives

Resources

Leveled Worksheets
Lesson Animations
Daily Transparencies
Problem of the Day
Personal Tutor
RWPS: Rivers and Mountains of the United States

Blended Approach

Game Time
Make a Big Difference (p. 42)
Mid-Chapter Check (p. 43)
Differentiated Instruction

Approaching Level

Option 1

Use with 2B

**Hands-On Activity**

**Materials:** 0–5 number cubes, paper, pencils

- Have students work in pairs.
- Instruct students to use number cubes to generate 2 four-digit numbers. Tell them to record the numbers.

2105

- Student pairs will estimate both the sum and the difference of the two numbers and record the answers.
- Have students repeat as time permits.

Option 2

Use after 2C

**Hands-On Activity**

**Materials:** paper, pencils

- Write the following problem on the board:

Anna’s class is going on a field trip. Anna has $25 to pay for the field trip. The bus costs $9, the event ticket costs $12, and food costs $7. Does Anna have enough money to pay for the field trip? no

If the souvenirs cost $8, how much more money does Anna need for the field trip? $11

- Have students work with a partner to solve the problems.
- Is an estimate or an exact answer needed to solve the first problem? the second? exact answer; exact answer
- Have students work together to write and solve similar problems.

Other Options

Lesson Animations, eGames: RoboWorks–Estimate

On Level

Option 1

Use with 2A

**Hands-On Activity**

**Materials:** color counters, number cubes, pipe cleaners

- Have students work in pairs.
- Instruct students to roll a number cube twice and use the numbers rolled as two different addends when modeling an addition sentence.
- Tell students to use color counters to model the addends, one color for each addend.
- Have them model the Commutative Property using the addition sentence they generated with color counters. See students’ work.
- Next, have students roll the cube to generate three numbers and create a new addition sentence with the counters.
- Tell students to use color counters to model the addends, one color for each addend.
- This time, have them model the Associative Property using the addition sentence they generated with color counters. Have students use pipe cleaners to represent the parentheses. See students’ work.

Option 2

Use after 2C

**Hands-On Activity**

**Materials:** paper, pencils

- Have students find the greatest sum they can for 2 two-digit odd numbers. They cannot use any digit more than once. 97 + 85 = 182 or 87 + 95 = 182
- Then have them find the least sum using two-digit even numbers. Again, they cannot use any digit more than once. 10 + 24 = 34 or 14 + 20 = 34
- Is an estimate or an exact answer needed to solve the first problem? the second? exact answer; exact answer

Other Options

Personal Tutor, Lesson Animations
Option 1  Use with 2A

**Hands-On Activity**

**Materials:** paper, pencils

- Show students the following problems.
- Tell students to find the missing digits in the following number sentences and identify the property used.

\[
\begin{align*}
13 + (? + 24) &= (? + 5) + 24; \\
126 + 288 + 0 &= ? + 288; \\
7 + (33 + 6) &= 6 + ?
\end{align*}
\]

- Then have students create 3 more problems of their own.
- Have students exchange problems and solve.
- As a class, discuss the created problems and their respective solutions.

Option 2  Use after 2B

**Hands-On Activity**

**Materials:** paper, pencils

- Have students work in pairs.
- Tell one student to write a word problem in which the answer is an exact sum.
- Tell the other student to write a word problem in which the answer is an estimated sum.

- Have students exchange and solve problems.
- Have students switch roles and repeat.

Other Options

- Personal Tutor, Lesson Animations, eGames: RoboWorks–Estimate

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**English Language Learners**

This strategy helps English Learners learn properties of addition.

Find **Core Vocabulary** and **Common Use Verbs** in the online EL strategies to help students grasp the math skills; use **Language Alerts** at point of use in the Teacher Edition.

**AL Beginning**

**Word Meaning** Discover that the sum of a number and zero is always the number.

- Give each student a handful of connecting cubes. Have them make a cube train of 7 cubes. Tell students to add 2 cubes. Model this task, if necessary. Ask, *Now how many cubes are in the train?*

- Start with a 7-cube train again. Ask students to add 1 cube. Ask, *Now how many cubes are in the train?*

- Start with a 7-cube train. Ask students to add 0 cubes. Ask, *Now how many cubes are in the train?*

- Repeat for other numbers.

**OL Intermediate**

**Act It Out** Learn about the Commutative Property of Addition.

- Give each student 12 counters. Have the girls put 4 counters in the first pile and 8 in the second pile. Have the boys put 8 counters in the first pile and 4 in the second pile.

- Ask the boys how many counters they have. Then ask the girls.

- Repeat for other addends and sums. Point out how the order of addends does not affect the sum.

**BL Advanced**

**Act It Out** Understand the Associate Property of Addition.

- Give each student 12 counters. Have them put the counters in three piles of 3, 4, and 5 counters.

- Ask, *How many counters do you have?*

- Tell students to rearrange their counters into groups of 5, 3, and 4 counters.

- Ask, *How many counters do you have?*

- Explain that when adding three or more numbers, the order of addends does not matter.

**Extend**

Have students discuss why the Commutative Property makes addition easier. Why is the Associate Property of Addition useful?
Addition Properties and Subtraction Rules

Objective
Use addition properties and subtraction rules to add and subtract.

Vocabulary
Commutative Property of Addition
Associative Property of Addition
Identity Property of Addition

Resources
Materials: construction paper, index cards, markers
Manipulatives: connecting cubes
Leveled Worksheets

1 INTRODUCE

Activity Choice 1: Hands-On
- Have students model $3 + 5$ using connecting cubes. What is the sum? 8
- Can you use the same cubes to show the addition sentence in another order? Does the sum change? Students should change the order of the cubes to show $5 + 3$; no.
- Write $5 + 3 + 4 = ?$ on the board. Have students model 5 cubes and 3 cubes connected and 4 cubes separate. What is the sum? 12
- Ask students to separate the 5 cubes and connect the 3 and 4 cubes. What is the sum? 12
- Does changing how the numbers are grouped change the sum? Explain. Sample answer: No; the number of cubes used is the same.

Activity Choice 2: Index Question
- Write the following on the board: What do you know about the Commutative Property of Addition, the Associative Property of Addition, and the Identity Property of Addition? Give an example of each.
- Allow students 5 minutes to answer the questions.
- Collect and quickly analyze students’ answers to adjust the lesson as needed to meet students’ needs.

Main Idea
I will use addition properties and subtraction rules to add and subtract.

Vocabulary
Commutative Property of Addition
Associative Property of Addition
Identity Property of Addition

Get Connected!

GLE 0406.1.3 Develop independent reasoning to communicate mathematical ideas and derive algorithms and/or formulas. SPI 0406.1.1 Verify a conclusion using the commutative, associative, and distributive properties. Also addresses GLE 0406.2.6.

Use Addition Properties

Money Carlos is buying the items shown. Does the order in which the camping supplies are scanned change the total cost?
The Associative Property tells us that the way in which numbers are grouped when added does not change the sum.

Checks for Understanding
- Use the commutative, associative, and distributive properties of numbers including oral descriptions of mathematical reasoning.

Building Math Vocabulary
Write the lesson vocabulary words and their definitions on the board.

Divide students into three equal groups. Assign each group one vocabulary term. Have one student write the term and its definition on the top of a piece of construction paper. Then tell each member of the group to write or draw an example on the construction paper to illustrate the term. Display the papers around the room.
Scaffolding Questions

Write $4 + 5 + 6$ on the board.
- What is the sum of $5 + 6 + 4$? $6 + 5 + 4$? 15; 15
- Does the order of the addends make a difference in the sum? no
- Write $(4 + 5) + 6$. What do the parentheses mean? What is the sum? to add 4 + 5 first; 15
- If the addends are grouped to show $4 + (5 + 6)$, what should be done first? Does the sum change? Add 5 + 6 first; no.

Additional Answer

7. Sample answer: The Subtraction Rule that results in a 0; The Identity Property of Addition results in a sum that is equal to the original non-zero number.

ELL Language Alert!

Making Connections Write commutative on the board. Tell students that to commute means “to change or exchange.” Model exchanging the factors in a multiplication sentence as an example.
**Alternate Teaching Strategy**

If students have trouble using addition properties and subtraction rules to add and subtract...

Then use one of these reteach options:

1. **AL** Reteach Worksheet
2. **IWB** Personal Tutor Have students use Personal Tutor to reteach the concept.
3. **M** Make Flash Cards Have students use index cards to make flash cards with the name of a property on one side and an example on the other.

- What hints might you use to remember the property? Accept all reasonable answers.
- Have students also write hints.

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**PRACTICE**

Differentiate practice using these leveled assignments for the exercises in Practice and Problem Solving.

<table>
<thead>
<tr>
<th>Level</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AL</strong> Approaching Level</td>
<td>8–11, 14–16, 20–48</td>
</tr>
<tr>
<td><strong>OL</strong> On Level</td>
<td>9–12, 16–18, 20–48</td>
</tr>
<tr>
<td><strong>BL</strong> Beyond Level</td>
<td>9–12, 17–19, 20–48</td>
</tr>
</tbody>
</table>

**H.O.T. Problems** Have students discuss and complete the Higher Order Thinking problems. Have students carefully compare the addends on each side of the problem.

**WRITE MATH** Have students complete the Write Math Exercise in their Math Journals. You may choose to use this exercise as an optional formative assessment.

**Homework Practice Worksheet**

**Problem-Solving Practice Worksheet**

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**Practice and Problem Solving**

Copy and complete each number sentence. Identify the property or rule used. See Examples 1–3 8–13. See Answer Appendix.

8. \((\_ + 8) + 7 = 9 + (8 + 7)\)
9. \(4 + 3 + 1 = 3 + 1 + \_\)
10. \(\_ + 0 = 9\)

11. \(5 - \_ = 0\)
12. \(7 + (1 + 8) = (7 + \_ + 8)\)
13. \(15 - \_ = 15\)

**Add mentally. See Example 1**

14. \(17 + 24 + 13\)
15. \(35 + 22 + 15\)
16. \(13 + 11 + 27\)

17. \(22 + 16 + 28\)
18. \(14 + 33 + 26\)
19. \(31 + 22 + 29\)

20. \(43 + 12 + 27\)
21. \(19 + 61 + 15\)
22. \(24 + 23 + 37\)

**23. Measurement** There are 24 minutes left in Alicia’s class. Then she has 2 more classes before lunch that are each 35 minutes. How many minutes does Alicia have before lunch? 94 min

**24. Measurement** Paco has 75 minutes before practice. He cleans his room for 40 minutes and reads for 30 minutes. Can he do both of these activities before his baseball practice? Explain. yes; 70 min < 75 min

Write a number sentence. Then identify the property or rule used.

25. Susan ate 1 hot dog and 2 apples.
   Amelia ate 2 hot dogs and 1 apple.
   Who ate more food items? 25, 26.
   See Answer Appendix.

26. Carla has 4 triangles, 3 squares, and 5 circles. Ethan has 3 circles, 4 squares, and 5 triangles. Who has more shapes?

**27. OPEN ENDED** Copy and complete the number sentence
   \((23 + \_ + 19) - 3 = 23 + (\_ + 19)\). Can any number complete the number sentence? Explain. Sample answer: 15; yes; the same numbers will be on each side.

**28. WHICH ONE DOESN’T BELONG?** Identify the number sentence that does not belong with the other three. Explain. \(8 + 0 = 8\); The other three number sentences are examples of the Commutative Property.

29. **WRITE MATH** Explain how you could group 775 + 639 + 225 to find the sum mentally. Sample answer: Group 775 and 225 together to get 1,000. Then add 639 to get 1,639.

30. **34** Place Value, Addition, and Subtraction
30. Mr. David wrote the following number sentences on the board.

\[
5 + 0 = 5 \\
0 + 8 = 8 \\
25 + 0 = 25
\]

The number sentences are all examples of which property or rule? (Lesson 2A) C

A. Associative Property of Addition
B. Commutative Property of Addition
C. Identity Property of Addition
D. Subtracting Zero Rule

31. Felix wrote the number sentence about the groups of cubes.

\[
5 + (2 + 8) = 15
\]

Gloria wrote a different number sentence. What sentence might Gloria have written? (Lesson 2A) G

F. \(5 - (2 + 8) = 15\)  
G. \((5 + 2) + 8 = 15\)  
H. \((5 - 2) + 8 = 15\)  
I. \(2 + (8 - 5) = 15\)

32. The distance between Earth and the moon is 384,401 kilometers. What is 384,401 rounded to the nearest thousand? (Lesson 1D) C

A. 400,000  
B. 384,400  
C. 384,000  
D. 380,000

33. The most dominoes that were set up and toppled by one person is 303,621. How many dominoes is this to the nearest ten thousand? (Lesson 1D) I

F. 310,000  
G. 304,000  
H. 303,000  
I. 300,000

34. 12,567; tens 12,570
35. 71,413; tens 71,410
36. 345,209; hundreds 345,200
37. 119,855; hundreds 119,900
38. 604,810; thousands 605,000
39. 849,746; hundred thousands 850,000
40. 553,402; hundred thousands 600,000
41. 849,746; hundred thousands 800,000

Compare. Use >, <, or =. (Lesson 1C)

42. 22,317 > 21,317 
43. 45,034 = 45,034 
44. 872,448 < 874,484 
45. 920,356 > 920,356 
46. 247,206 < 274,026 
47. 208,317 = 208,317

48. Four hundred twenty-three thousand, eight hundred two people visited the state fair in a weekend. Write this number in expanded form. (Lesson 1B)

400,000 + 20,000 + 8,000 + 1 + 2

Lesson 2A Addition and Subtraction
PART B

Estimate Sums and Differences

Objective
Estimate sums and differences of numbers.

Resources
Manipulatives: number cubes
Leveled Worksheets

1 INTRODUCE

Activity Choice 1: Hands-On

- Write the number 2,362 on the board. What is this number rounded to the nearest hundred? Explain. 2,400; 362 is closer to 400 than 300.
- Have students work with a partner to generate several more two-, three-, and four-digit numbers by rolling a number cube. Have students round to a different place for each number generated.
- If a number is rounded to the nearest hundred, how many zeros will there be to the right of the hundreds place? Two zeros
- If a number is rounded to the nearest thousand, how many zeros will there be to the right of the thousands place? Three zeros

Activity Choice 2: Critical Thinking

- Demonstrate to students how to estimate 5,494 + 2,135 to the nearest hundred and then to the nearest thousand. Then show students how to estimate the difference of these numbers to the nearest hundred and thousand.
- Next, write 4,395 and 3,256 on the board. Then write the number 7,700 next to the first two numbers.
- Would estimating the sum or difference of the first two numbers result in the third number? Sum
- To what place value were the addends rounded? Hundreds place
- Repeat the previous three steps with different numbers, operations, and place values being rounded.

Real-World Example

Estimate Sums

MONEY Natalie has been saving her money to buy the items shown. About how much money does she need? Round to the tens place.

Round each amount to the nearest ten. Then add.

\[ \$119 \quad + \quad \$67 \quad = \quad \$186 \]

So, Natalie needs to save about $190.

When estimating, you can also round to the nearest hundred or thousand.

Estimate Sums

Estimate 5,481 + 2,326. Round to the hundreds place.

Round each number to the nearest hundred. Then add.

\[ \begin{align*}
5,481 &\quad \text{rounds to} \quad 5,500 \\
+ \quad 2,326 &\quad \text{rounds to} \quad 2,300 \\
\hline
7,808 &\quad \text{So, 5,481 + 2,326 is about 7,800.}
\end{align*} \]

Building Math Vocabulary

Write the review vocabulary word and its definition on the board.
Take a few minutes to review the meaning of estimate and to explain the process of estimating sums and differences. Have students solve a few estimation problems in their Math Journals.

Visual Vocabulary Cards
Use a Visual Vocabulary Card to reinforce the vocabulary reviewed in this lesson in English and Spanish. (The Define/Example/Ask routine is printed on the back of each card.)
Scaffolding Questions

Tell students that you have $129 in one bank account and $74 in another.

- I want to know about how much money I have. What could I do to estimate about how much I have? Round each number and add.
- To what could $129 be rounded? Either $130 or $100.
- To what could $74 be rounded? $70 or $100.
- About how much money is $129 + $74 if you round both numbers to the nearest 10? Nearest 100? About $200.

As a class, have students complete the Check What You Know Exercises as you observe their work.

Genoveva wanted to buy a bicycle for $239 and a helmet for $37. About how much money will Genoveva need to buy the bicycle and helmet? Round to the tens place.

$280

Estimate 6,243 + 3,937. Round to the hundreds place.

10,100

Estimate 5,845 - 2,312. Round to the tens place.

About 3,540

About how much taller is Mt. Everest than Lhotse? Round to the thousands place.

About 1,000 feet taller.
**Alternate Teaching Strategy**

- **If** students have trouble estimating sums and differences of numbers...
  - **Then** use one of these reteach options:
    1. **AL** Reteach Worksheet
    2. **IWB** Personal Tutor

**Use Visual Cues** Have students write $4,321 + 589$. Have them circle the hundreds place in each number. Then tell them to underline the digits they will look at to decide to which hundred the number is closer.

- **What will be to the right of the rounded place in each number?** Two zeros
- **What will you add?** $4,300 + 600$

**Practice and Problem Solving**

Estimate. Round to the indicated place value. See Examples 1–4

9. $58 + 32$; tens
   $60 + 30 = 90$
10. $427 + 66$; tens
   $430 + 70 = 500$
11. $5,342 + 798$; hundreds
   $5,300 + 800 = 6,100$
12. $3,182 + 6,618$; hundreds
   $3,200 + 6,600 = 9,800$
13. $48,905 + 56,214$; thousands
   $49,000 + 56,000 = 105,000$
14. $25,497 + 154,088$; ten thousands
   $30,000 + 50,000 = 80,000$
15. $772 - 593$; hundreds
   $800 - 600 = 200$
16. $985 - 639$; tens
   $990 - 640 = 350$
17. $2,647 - 256$; hundreds
   $2,600 - 300 = 2,300$
18. $27,619 - 5,364$; thousands
   $28,000 - 5,000 = 23,000$
19. $27,986 - 4,521$; thousands
   $28,000 - 5,000 = 23,000$
20. $47,236 - 20,425$; thousands
   $47,000 - 20,000 = 27,000$

Solve. Round to the nearest thousand.

21. A theater can seat 2,190 people.
    Suppose two performances are sold out. About how many people will attend the two performances?
    $2,000 + 2,000 = 4,000$ people
22. Luz is going to buy a car that costs $18,460 new and $15,788 used. About how much money would Luz save if she bought the car used? $18,000 - 16,000 = 2,000$
23. Measurement A mountain climber is climbing Mt. Whitney. It is 14,505 feet tall. About how many feet will the climber have traveled after going up and down the mountain?
    $15,000 + 15,000 = 30,000$ ft
24. Jupiter and Saturn are the two largest planets in our solar system. Jupiter is 88,846 miles across and Saturn is 74,898 miles across. What is the approximate difference in the distance across these two planets?
    $89,000 - 75,000 = 14,000$ miles

**Real-World Problem Solving**

**Buildings** This table shows the tallest buildings in the world. Round to the nearest hundred.

<table>
<thead>
<tr>
<th>Building</th>
<th>Location</th>
<th>Height (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taipei 101</td>
<td>Taiwan</td>
<td>1,669</td>
</tr>
<tr>
<td>Petronas Towers</td>
<td>Malaysia</td>
<td>1,482</td>
</tr>
<tr>
<td>Willis Tower</td>
<td>United States</td>
<td>1,450</td>
</tr>
<tr>
<td>Jin Mao Building</td>
<td>China</td>
<td>1,381</td>
</tr>
<tr>
<td>CITIC Plaza</td>
<td>China</td>
<td>1,282</td>
</tr>
<tr>
<td>Shun Hing Square</td>
<td>China</td>
<td>1,259</td>
</tr>
<tr>
<td>Empire State Building</td>
<td>United States</td>
<td>1,250</td>
</tr>
</tbody>
</table>

**Differentiate Practice**

Have students use these leveled assignments for the exercises in Practice and Problem Solving.

<table>
<thead>
<tr>
<th>Level</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AL</strong> Approaching Level</td>
<td>10–11, 14–15, 18–19, 21–22, 26–47</td>
</tr>
<tr>
<td><strong>OL</strong> On Level</td>
<td>12–14, 17–19, 23–26, 28–47</td>
</tr>
<tr>
<td><strong>BL</strong> Beyond Level</td>
<td>12–14, 18–20, 23–24, 26–47</td>
</tr>
</tbody>
</table>

**H.O.T. Problems** Have students discuss and complete the Higher Order Thinking problems. Direct students to show examples that support their answers.

**WRITE MATH** Have students complete the Write Math Exercise in their Math Journals. You may choose to use this exercise as an optional formative assessment.

**Common Error!**

Exercises 21–24 Students may round to a different place value. Make sure they read the directions before solving the problems. Then remind them when rounding to the thousands place there will be zeros in the hundreds, tens, and ones places.
28. OPEN ENDED Write two numbers that when rounded to the thousands place have an estimated sum of 10,000. Sample answer: 4,749 and 5,246

29. NUMBER SENSE If both addends are rounded down, will the sum of the numbers be greater or less than the actual sum? Explain. 29, 30. See margin.

30. WRITE MATH When rounding to estimate the sum or difference of numbers, explain a situation in which less exact answers would be better than more exact answers.

Test Practice
31. What number completes the number sentence below? (Lesson 2A) C
   \((24 + \Box) + 18 = 24 + (36 + 18)\)
   A. 18   C. 36
   B. 24   D. 38

32. The Casey family traveled last week. They drove 182 miles on Friday, 138 miles on Saturday, and 119 miles on Sunday. Approximately how many miles did they travel? (Lesson 2B) I
   F. 200 miles   H. 320 miles
   G. 300 miles   I. 400 miles

Spiral Review
Algebra Copy and complete each number sentence. Identify the property or rule used. (Lesson 2A)
33. 35 – \(\Box\) = 35 0; Subtraction Rule Round each number to the given place-value position. (Lesson 1D)
34. \((57 + \Box) + 36 = 57 + (25 + 36)\) Associative Property (+)
35. 354; ten 350
36. 4,396; thousand 4,000
37. 257,468; hundred thousand 257,500
38. 562,301; thousand 562,000
39. 421,814; ten thousand 420,000
40. 729,846; hundred thousand 700,000

Compare. Use >, <, or =. (Lesson 1C)
41. 8,650 \(\neq\) 8,623 > 42. 44,068 \(\neq\) 44,086 < 43. 248,632 \(\neq\) 284,632 <
44. 208,731 \(\neq\) 208,713 > 45. 315,023 \(\neq\) 315,023 = 46. 46,822 \(\neq\) 406,822 <
47. Kaitlin and Kristen each wrote a 4-digit number. Who wrote the greater number? Explain. (Lesson 1C) Kristen: 1,987 > 1,897

Lesson 2B Addition and Subtraction 39

INTO THE Future Ask students to write about how today’s lesson on estimating sums and differences might help them with determining when to estimate or find an exact answer in tomorrow’s lesson.

Formative Assessment
Write 4,378 — 1,237 on the board.

- How would you estimate the difference?
  Round 4,378 to the nearest thousand, 4,000.
  Round 1,237 to the nearest thousand, 1,000.
  Subtract 4,000 — 1,000 = 3,000.

- Would rounding to the nearest hundred or nearest thousand give a better estimate? Explain. to the nearest hundred, because the nearest hundred would be closer to the original number.

Quick Check Are students continuing to struggle with estimating sums and differences of numbers?

During Small Group Instruction
If Yes
AL Daily Transparencies
AL Differentiated Instruction Option 1 (p. 32c)
AL Strategic Intervention Guide (pp. T52–T53, T66–T67)
If No
BL Differentiated Instruction Option 2 (p. 32d)
OL Skills Practice Worksheet
BL Enrich Worksheet

Review and assess mastery of skills and concepts from the previous lessons in the chapter.

Additional Answers
29. Sample answer: less; When both addends are rounded down, their values are less than before. Therefore, when they are added together, the estimated sum is less than the exact sum.
30. Sample answer: a situation where a person does not have enough time to find an exact answer; example: estimating total cost of items in a checkout line at a store.
**Problem-Solving Skill: Estimate or Exact Answer**

**Main Idea** I will determine when to estimate or find an exact answer.

### Keith and His Brother Are Going to Build a Tree House

Keith and his brother are going to build a tree house. They will need $15 for nails, $95 for tools, and $46 for wood. About how much money do they need to build the tree house?

#### Understand
- **What facts do you know?**
  - Nails cost $15.
  - Tools cost $95.
  - Wood costs $46.

- **What do you need to find?**
  - Find about how much money they need to build the tree house.

#### Plan
Since the question says *about* how much money is needed, you can estimate the sum.

#### Solve
Round each amount to its greatest place value. Then add.

<table>
<thead>
<tr>
<th>Amount</th>
<th>Rounded</th>
</tr>
</thead>
<tbody>
<tr>
<td>$15</td>
<td>$20</td>
</tr>
<tr>
<td>$95</td>
<td>$100</td>
</tr>
<tr>
<td>+$46</td>
<td>+$50</td>
</tr>
<tr>
<td>$170</td>
<td></td>
</tr>
</tbody>
</table>

So, about $170 is needed to build the tree house.

#### Check
Look back. Suppose the question asked for an exact answer. Add $15, $95, and $46.

\[
\begin{align*}
15 + 95 + 46 &= 156 \\
&\text{Since 156 is close to 170, an estimate of 170 is correct.}
\end{align*}
\]

### Alternate Teaching Strategy

**If** students have trouble determining when an estimate or exact answer is needed…

**Then** use one of these reteach options:

1. **Reteach Worksheet**
2. **Personal Tutor** Have students use Personal Tutor to reteach the concept.
3. **Understand “About”** Have them write a series of statements about themselves using the word “about”. Examples might include: I am about 10 years old. *What does “about” mean? almost or close to, but not exact*. 

### Objective
Determine when to estimate or find an exact answer.

### Resources
**Materials:** sticky notes

*Leveled Worksheets* Get Connected

Problem-Solving Strategy lessons help students learn different problem-solving skills and strategies for attacking work problems.

**GLE 0406.1.2** Apply and adapt a variety of appropriate strategies to problem solving, including estimation, and reasonableness of the solution. **SPI 0406.2.10** Solve contextual problems using whole numbers, fractions, and decimals. Also addresses GLE0406.2.6.
Refer to the problem on the previous page.

1. Why does it make sense to round in this situation?
3. Why did the boys round each dollar amount up?
4. Why is it a good idea to round up when dealing with money even if the number would be rounded down?

Tell whether an estimate or exact answer is needed. Then solve.

5. Determine if Tammy, Anessa, and Jaleesa have more than 110 CDs.  
   exact answer; no; 96 < 110

6. Samuel bought a sweater for $36 and paid with a $50 bill. About how much change should he get back?  estimate; $10

7. A theater can hold 200 people. Two groups rented out the theater. The first group has 92 people and the other has 107 people. Are there enough seats for everyone? Explain. exact answer; yes; 92 + 107 = 199

8. Carissa pays $2 each day for lunch. Her money is in an account that is deducted each time she buys a lunch. There are 6 days until the end of the school year and her account has $13 in it. How much money will she get back at the end of the year? exact answer; $1

9. Jacob is taking a test at school. The question is shown below. What is the answer? exact answer; 74

10. Tracy is allowed to watch 2 hours of television each night. About how much television does she watch in a year? exact answer; about 740 hours a year

11. Measurement Rodney needs to measure the distance around his garden. How much fencing should Rodney buy? exact answer; 88 in.

12. Write Math A newspaper stated that the population of California was 33,871,600. Explain why this is probably an estimate. See Answer Appendix.

To assess partial mastery of SPI 0406.1.1, see your Tennessee Assessment Book.

**COMMON ERROR!**

Exercises 6 and 10 Students may not read these problems carefully enough to see that an estimate is needed. Remind students to look for words that indicate that an estimate is needed, such as about or approximate.

**STOP and REFLECT**

Multi-Part Lesson 2 How can estimating sums and differences be used in real life? Sample answer: in situations in which there is not enough time to find an exact answer or an exact answer is not needed

**ASSESS**

Formative Assessment

Write the following on the board. Then ask students if an exact answer is needed.

Jasmine has $3, Deepak has $2, and Ramira has $4. If a pizza costs $12, do they have enough money to buy a pizza? No; they have $9.

**Quick Check**

Are students continuing to struggle with determining when to estimate or find an exact answer?

During Small Group Instruction

If Yes ➔ **AL** Daily Transparencies
**AL** Differentiated Instruction Option 2 (p. 320)

If No ➔ **OL** Differentiated Instruction Option 2 (p. 320) **OL** Skills Practice Worksheet **BL** Enrich Worksheet
Make a Big Difference
Subtract Multi-Digit Numbers

Materials: paper and pencils, 0–9 spinners

Introduce the game to your students to play as a class, in small groups, or at a learning station to review concepts introduced in this chapter.

Instructions
• Students each make a game sheet, as shown on the student page.
• Player 1 spins the spinner. Both players write the digit spun in a box of their choice on their game sheets.
• The previous step is repeated until all eight boxes contain a digit. Then both players round each number to the nearest hundred and find the difference.
• Players compare their differences. The player with the greater difference gets 1 point. If the differences are equal, both players get 1 point.
• Play continues until one player scores 5 points.

Extend the Game
• Have students make the game using sums, and the lesser sum wins.
• Students create the game using 5-digit numbers.
• For another game focusing on the same mathematical concept, see Game Time.

Differentiated Practice
Use these leveled suggestions to differentiate the game for all learners.

<table>
<thead>
<tr>
<th>Level</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>AL</td>
<td>Students may make a game sheet subtracting three-digit numbers.</td>
</tr>
<tr>
<td>OL</td>
<td>Have students play the game with the rules as written.</td>
</tr>
</tbody>
</table>

For extra practice of basic facts the students have learned, see Fast Facts.
**Mid-Chapter Check**

Write each number in word form and expanded form. (Lesson 1B)

1. 259,438
2. 349,016
3. 987,014
4. 435,568
5. Virginia had 897,236 tourists in one year. To the nearest hundred thousand, how many tourists was this? **(Lesson 1D)** 900,000

**Algebra** Copy and complete each number sentence. Identify the property or rule. **(Lesson 2A)**

6. **136 + 0 = □**
   - Identity Property of Addition
7. **(4 + 13) + 7 = 4 + (2 + 7)**
   - Associative Property of Addition
8. **58 + 98 = □ + □**
   - Commutative Property of Addition
9. Andrea’s pencil box has 3 pencils, 2 pencil-top erasers, and 1 red pen. Max’s pencil box has 2 pencils, 1 pencil-top eraser, and 3 red pens. Whose pencil box contains more items? Explain. **See Answer Appendix.**
10. **MULTIPLE CHOICE** What number completes the number sentence below? **(Lesson 2A)**
    
    \[(21 + □) + 12 = 21 + (17 + 12)\]
    - A. 11
    - B. 12
    - C. 17
    - D. 21

Estimate. Round to the indicated place value. **(Lesson 2B)**

11. **$22 + $63; tens**
    - $20 + $60 = $80
12. **567 – 203; hundreds**
    - 600 – 200 = 400
13. **5,825 – 551; hundreds**
    - 5,800 – 500 = 5,300
14. **MULTIPLE CHOICE** About how many miles did a soccer team travel during the weekend? **(Lesson 2B)**
    - **G.** 600 miles
    - **H.** 600 miles
    - **I.** 700 miles

Tell whether an estimate or exact answer is needed. Then solve. **(Lesson 2C)**

15. Celia needs to fence in an area of her yard for her puppy. It will be in the shape of a square. If one side measures 20 feet, how much fence should she buy? **exact answer:** 80 ft

16. **WRITE MATH** Explain how you could add 175 + 139 + 225 mentally. **(Lesson 2A)**
    - **See Answer Appendix.**

---

**Data-Driven Decision Making**

Based on the results of the Mid-Chapter Check, use the following resources to review concepts that continue to give students problems.

<table>
<thead>
<tr>
<th>Exercises</th>
<th>Tennessee Standards</th>
<th>What’s the Math?</th>
<th>Error Analysis</th>
<th>Resources for Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>1–2</td>
<td>SPI 0406.2.1</td>
<td>Write numbers in expanded form and word form.</td>
<td>Does not know how to write numbers in different ways.</td>
<td>Chapter Resource Masters</td>
</tr>
<tr>
<td>3–4</td>
<td>GLE 0406.2.1</td>
<td>Compare numbers.</td>
<td>Reverses less than and greater than symbols. Does not know place value.</td>
<td>Lesson Animations • Personal Tutor • Self-Check Quiz</td>
</tr>
<tr>
<td>6–10, 16</td>
<td>SPI 0406.1.1</td>
<td>Solve addition and subtraction problems and understand relationships among operations.</td>
<td>Does not understand the word property. Does not know rules. Adds or subtracts incorrectly. Does not understand number sentence.</td>
<td></td>
</tr>
<tr>
<td>11–14</td>
<td>GLE 0406.1.2</td>
<td>Estimate the sum or difference of whole numbers.</td>
<td>Does not know difference between estimate and exact answer.</td>
<td></td>
</tr>
</tbody>
</table>
Add and Subtract Whole Numbers

PART A
Add Whole Numbers

Title/Main Objective
Add Whole Numbers (pp. 44–47)
Add numbers, including multi-digit numbers.

Standards
GLE 0406.2.6, GLE 0406.1.7

Vocabulary

Materials/Manipulatives
base-ten blocks

Resources
 konuş
Leveled Worksheets
Daily Transparencies
Problem of the Day
Self-Check Quiz
Personal Tutor
Virtual Manipulatives

E Games:
Number Voyage–Subtract Whole Numbers
Graphic Novel Animation

Essential Question
How can inverse operations be used to check answers to addition and subtraction problems? Sample answer: Addition can be used to check differences and subtraction can be used to check sums.

Focus on Math Background
The concept of place value becomes important when students learn to add and subtract multi-digit numbers because they must write digits in the sums and differences in the correct places. Students can use estimation to check sums and differences for reasonableness.

Students who have learned how to regroup when adding and subtracting two-digit numbers will find that they can use the same algorithms when adding and subtracting multi-digit numbers. Base-ten blocks can be used to help students understand the regrouping that is taking place.

Suggested Pacing (12 Days)

<table>
<thead>
<tr>
<th>Multi-Part Lessons</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>Assess</th>
</tr>
</thead>
<tbody>
<tr>
<td>PART</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>A</td>
</tr>
<tr>
<td>Days</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Subtract Whole Numbers
(pp. 50–53)
Subtract multi-digit numbers.

Problem-Solving Investigation
Choose a Strategy (pp. 54–55)
Choose the best strategy to solve a problem.

Subtract Across Zeros (pp. 56–59)
Subtract multi-digit numbers, when some digits are zeros.

 difference, minuend, subtrahend

base-ten blocks

Leveled Worksheets
Daily Transparencies
Problem of the Day
Self-Check Quiz
Personal Tutor
Virtual Manipulatives
eGames: Number Voyage–Subtract Whole Numbers
Hands-On Activity Tools and Resources

Leveled Worksheets
Daily Transparencies
Problem of the Day
Personal Tutor

Leveled Worksheets
Daily Transparencies
Problem of the Day
Self-Check Quiz
Personal Tutor
Virtual Manipulatives
eGames: Number Voyage–Subtract Whole Numbers

Leveled Worksheets
Daily Transparencies
Problem of the Day
Self-Check Quiz
Personal Tutor
Virtual Manipulatives
eGames: Number Voyage–Subtract Across Zeros

Standards
GLE 0406.2.6, GLE 0406.1.6
GLE 0406.1.2, SPI 0406.2.10
GLE 0406.2.6

Vocabulary
base-ten blocks, play money

Materials/Manipulatives

Resources

Blended Approach

Test Practice
(pp. 68–69)
Differentiated Instruction

On Level  

Option 1  Use with 3A

**Hands-On Activity**
**Materials:** index cards, 0–5 number cubes, paper, pencils

- Have students roll a number cube three times to create three-, four-, or five-digit numbers. Instruct students to form four numbers, and write each number on an index card.
- Then have students choose two of the cards, find the sum of the numbers, and check their answers.
- Repeat until all combinations of two addends sums are found.

Option 2  Use after 3C

**Hands-On Activity**
**Materials:** base-ten blocks, number cubes, paper, pencils

- Have students use base-ten blocks to represent the number 999.
- Tell students to roll two number cubes and subtract the number rolled from 999 using the base-ten blocks.
- Have them record the subtraction. Roll again and subtract from the remaining base-ten blocks and on paper.
- Have them continue rolling and subtracting until they have reached 0.
- After using the blocks, have students complete the activity using pencil and paper.

Other Options

**Learning Station Cards 2, 5, 6**

Personal Tutor, Virtual Manipulatives, eGames: *Number Voyage–Subtract Whole Numbers*
This strategy helps English Learners learn how to talk about addition and subtraction.

Find Core Vocabulary and Common Use Verbs in the online EL strategies to help students grasp the math skills; use Language Alerts at point of use in the Teacher Edition.

### Beginning
**Review Meanings** Review the meanings of digit, standard form, expanded form, and word form.
- Create a set of flash cards for five different numbers that each have a different number of digits. For each number, create a card with the standard form, a card with the expanded form, and a card with the word form.
- Have students shuffle the cards and put them facedown. Then have them play a matching game.
- Have students practice writing the expanded form and saying the word form for each number.

### Intermediate
**Act It Out** Understand regrouping.
- Give each pair of students about 50 craft sticks and several rubber bands.
- Ask students to subtract 17 from 50. Can they find an easy way to do this?
- Show them how to rearrange the sticks into groups to make the subtraction easier.

### Advanced
**Act It Out** Practice saying large numbers.
- Have pairs start out with a set of base-ten blocks. The first student should break the block into two separate numbers and give one of the sets to his partner.
- The second student must determine the number and say it correctly. Then he must subtract that number from 1,000.
- The first student must determine how many blocks are in the second set to verify the difference as calculated by his partner.

**Extend**
Have students roll number cubes and enter those numbers onto a place value chart. Then have them practice saying each number.
Add Whole Numbers

Objective
Add numbers, including multi-digit numbers.

Resources
Manipulatives: base-ten blocks
Leveled Worksheets

Activity Choice 1: Hands-On
- Write $351 + 432$ on the board. Have small groups of students model the problem using base-ten blocks. Have them arrange the blocks to model the problem in vertical form, lining up ones, tens, and hundreds.
- How many ones, tens, and hundreds are there in all? 3 ones, 8 tens, 7 hundreds
- When writing problems, why is it important to line up the ones with ones, tens with tens, and hundreds with hundreds? You can only add ones together, tens together, and hundreds together.
- Have students practice with several addition problems that do not have regrouping. Have them model the problems with blocks as well as write the problems in vertical form.

Activity Choice 2: Critical Thinking
- Tell students that you will demonstrate the steps involved when adding whole numbers and they should analyze the process to figure out how to do it.
- Demonstrate how to find $205 + 164$ and $315 + 482$ on the board. Do not explain the steps involved.
- What is the first step that should be taken when finding the sum of two numbers? the second step? the third step? add the digits in the ones place; add the digits in the tens place; add the digits in the hundreds place
- Next, write two more addition problems on the board that do not require regrouping. Have students solve them on their own.

GLE 0406.2.6 Solve problems involving whole numbers, fractions, and/or decimals using all four arithmetic operations. Also addresses GLE 0406.1.7.
Lesson 3A Add and Subtract Whole Numbers 45

2 TEACH

Scaffolding Questions
Write $3,567 + 328$ on the board. Use base-ten blocks to show the problem in vertical form.
- **What is a first step in finding the sum?** to add ones
- **How many ones are there?** 15 ones
- **When there are ten or more ones, what should you do?** Regroup or exchange ten ones for one ten.
- **Exchange 10 ones for one ten. Place the new rod above the tens.**
- **How many tens are there now?** 9 tens

Explore Mini Activity Distribute base-ten blocks to students. Guide them through each step of the activity.

### ADDITIONAL EXAMPLES

1. Find $4,568 + 729$. 5,297

2. Two farm sizes are listed in the table below. What is the total size of the two farms? 8,611 acres

<table>
<thead>
<tr>
<th>Farm</th>
<th>Size (acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smith Family</td>
<td>2,879</td>
</tr>
<tr>
<td>Frank Family</td>
<td>5,732</td>
</tr>
</tbody>
</table>

Check for Reasonableness
The estimate is $11,000. Since $10,540 is close to the estimate, the answer is reasonable. ✔

As a class, have students complete the Check What You Know Exercises as you observe their work.

E TALK MATH Use the Talk Math Exercise to assess student comprehension before assigning the practice exercises.

Lesson 3A Add and Subtract Whole Numbers 45
Differentiate practice using these leveled assignments for the exercises in Practice and Problem Solving.

<table>
<thead>
<tr>
<th>Level</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>AL</td>
<td>8–11, 15–30</td>
</tr>
<tr>
<td>OL</td>
<td>9–12, 15–30</td>
</tr>
<tr>
<td>BL</td>
<td>11–30</td>
</tr>
</tbody>
</table>

Alternate Teaching Strategy

If students have trouble adding multi-digit numbers...

Then use one of these reteach options:

1. Reteach Worksheet
2. Virtual Manipulatives Use the virtual base-ten blocks to reteach the concept.
3. Use Base-Ten Blocks Write several addition problems with ones, tens, and hundreds on the board. Have students use base-ten blocks to regroup when needed. Have them record each step.

- What must always happen if there are 10 or more ones? Exchange 10 ones for 1 ten.
- What must always happen if there are more than 10 tens? Exchange 10 tens for a hundred.

PRACTICE

Find each sum. Check your work by estimating. See Examples 1 and 2

1. 397 + 84
2. 1,592 + 429
3. $2,971 + $864
4. $29,380 + $8,253

5. Mr. Russo’s class is collecting bottles to recycle. The class collected 146 bottles in March and 255 bottles in April. How many bottles were collected? 401 bottles

6. TALK MATH Explain why it is important to line up digits in numbers when you add. See margin.

Find each sum. Check your work by estimating. See Examples 1 and 2

7. 364 + 58
8. 290 + 693
9. 6,742 + 975
10. 8,346 + 7,208

11. $23,824 + $7,346
12. 82,828 + 4,789
13. 8,346 + $7,208
14. $693,782 + $47,816

15. There are 4,585 students who rode the bus to school today. There were 3,369 students who came to school another way. How many students were there in all at school? 7,954 students

16. Becky wants to buy a new bike that costs $150 and a pair of roller skates that costs $30. She made $200 babysitting. If she buys a book that is $15, will she have enough money for the bike and roller skates? Yes; $195 < $200

Use the information to solve the problem.

Recycling “Can” Make a Difference

At the end of May...

We collected 236 cans this month, which is more than last month!

Remember, my class is recycling cans. In April, we collected 178 cans. We hope to collect more cans in May.

17. How many cans did Mr. Grey’s class collect in April and May? 414 cans

Additional Answers

1. 481; 400 + 80 = 480
2. 2,021; 1,600 + 400 = 2,000
3. $3,835; 3,000 + 900 = 3,900
4. $37,633; 29,000 + 8,000 = 37,000
5. Sample answer: You need to add the digits in the same place value position.
6. 422; 360 + 60 = 420
7. 983; 300 + 700 = 1,000
8. 7,717; 6,700 + 1,000 = 7,700
9. 15,554; 8,000 + 7,000 = 15,000
10. $31,170; 24,000 + 7,000 = 31,000
11. 87,617; 83,000 + 5,000 = 88,000
12. $119,548; 37,000 + 82,000 = 119,000
13. $741,598; 694,000 + 48,000 = 742,000
18. OPEN ENDED Write two 5-digit addends whose sum would give an estimate of 60,000. Sample answer: 32,985 and 29,592

19. WRITE MATH Explain why an addition problem that has 4-digit addends could have a 5-digit sum. See margin.

20. Jackson is buying a new board game. It costs $26. If he has 2 ten-dollar bills and 5 one-dollar bills, which of the following statements is true? (Lesson 2c) B
   A. He will have less than $5 left over.
   B. He does not have enough money.
   C. He has the exact amount of money.
   D. He will have more than $5 left over.

21. There are 17 extra chairs in the library and 45 extra chairs in the cafeteria. Which of the following shows how to find the total number of extra chairs? (Lesson 3A) F
   F. 17 + 45
   G. 17 – 45
   H. 17 × 45
   I. 17 ÷ 45

Tell whether an estimate or exact answer is needed. Then solve. (Lesson 2c)

22. A school collected 189 cans of corn, 500 cans of soup, 168 cans of beans, and 269 jars of spaghetti sauce in a food drive. How many items did the school collect? exact answer; 1,126

Estimate. Round to the indicated place value. (Lesson 2b)

23. 137 + 192; tens 140 + 190 = 330
24. 489 + 1,963; hundreds 500 + 2,000 = 2,500

Add mentally. (Lesson 2a)

25. 10 + 25 + 18 53
26. 26 + 14 + 3 43
27. 15 + 12 + 30 57

Round each number to the given place-value position. (Lesson 1d)

28. 987; ten 990
29. 2,159; hundred 2,200
30. 78,368; thousand 78,000

Lesson 3A Add and Subtract Whole Numbers 47
Subtract Whole Numbers

Objective
Explore how to subtract whole numbers.

Resources
Manipulatives: base-ten blocks
Explore Worksheet

Get Connected

Introduce the Concept
- Have students use base-ten blocks to show addition with regrouping when solving the problem 349 + 278. How are the base-ten blocks used to show regrouping in the ones place? in the tens place? Exchange 10 ones for 1 ten; exchange 10 tens for 1 hundred.
- Have students discuss the differences between addition and subtraction. Guide them to the idea that they are opposite or inverse operations. Write 467 - 124 on the board and have students use base-ten blocks to demonstrate.
- How do you represent this problem with base-ten blocks? Set up 4 hundreds, 6 tens, and 7 ones, then remove 4 ones, 2 tens, and 1 hundred.

Teach
Activity As students subtract using base-ten blocks, make sure they understand to set out blocks that show only the minuend and then remove blocks from that number. Since there are not enough tens in 421, students should exchange 1 hundred for 10 tens. Have them record their steps in writing as they solve the problem.
Lesson 3B  Add and Subtract Whole Numbers

### Think About It

1. How did you subtract 241 from 421 using base-ten blocks?  
   See margin.

2. Describe how you regrouped the tens place.  
   Sample answer: 1 hundreds flat was exchanged for 10 tens.  
   The result was 3 hundreds flats, 12 tens, and 1 one.

### PRACTICE

Use the Practice and Apply It Exercises to assess whether students comprehend subtracting greater whole numbers.  
For more practice of the concept presented in this Explore lesson, see Explore Worksheet.

### REFLECT AND CLARIFY

- How does using base-ten blocks to model addition of whole numbers compare to using base-ten blocks to model subtraction of whole numbers?  
  Sample answer: When modeling addition, each addend is represented by a set of base-ten blocks.  
  Then the base-ten blocks that represent each addend are combined.  
  When modeling subtraction, one set of base-ten blocks is used to represent the minuend and then the removal of some of the blocks is used to represent the subtrahend.

From Concrete to Abstract  
Use Exercises 5–10 to bridge the gap between using a model and using paper-and-pencil computation of subtraction problems.

- How can you tell where regrouping is necessary in the problem 456 – 268?  
  In the ones place you cannot subtract 8 from 6 and in the tens place you cannot subtract 6 from 5 without regrouping.

### Additional Answers

1. Sample answer: First, take away the single unit.  
   Then, regroup a hundreds flat so that there are enough tens to subtract.  
   Subtract the tens place.  
   Finally, subtract the hundreds place.

11. Sample answer: It is important to align each place value so that you know the value of each digit to help with regrouping if needed.
Subtract Whole Numbers

Objective
Subtract multi-digit numbers.

Vocabulary
minuend    difference
subtrahend

Resources
Materials: WorkMat 5: Centimeter Grid Paper from Hands-On Activity Tools and Resources p. 78
Manipulatives: base-ten blocks
Get Connected

1 INTRODUCE

Activity Choice 1: Hands-On
• Have students use base-ten blocks to model 562.
• What is this number using place-value terms? 5 hundreds, 6 tens, and 2 ones
• What can I do to change the model of 562 without changing the value? exchange 1 ten for 10 ones to make 5 hundreds, 5 tens, and 12 ones
• Have students model several numbers and make one change in each place without changing the value.

Activity Choice 2: Virtual Manipulatives
• Use the virtual base-ten blocks to demonstrate how numbers can be represented in multiple ways. Give students base-ten blocks so that they can follow along.
• Use the base-ten blocks to represent the number 385.
• How many hundreds are in this number? tens? ones? three; eight; five
• Break apart a tens rod into ones units. What number do the base-ten blocks represent now? 385
• Break apart a hundreds flat into tens rods. What number do the base-ten blocks represent now? 385
• Have students use base-ten blocks to practice modeling a few numbers and making changes in place values without changing the value of each number.

Subtract Whole Numbers

Subtraction of whole numbers is similar to addition of whole numbers in that you may need to regroup.

MEASUREMENT The Trevino family is moving to a new city. They have driven 957 miles out of the 3,214 miles that they need to drive. How many more miles do they need to drive?

Find $3,214 - 957$.

**Estimate**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3,200</td>
<td>1,000</td>
</tr>
<tr>
<td>2,200</td>
<td></td>
</tr>
</tbody>
</table>

**Step 1** Subtract ones.
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3,214</td>
<td>957</td>
</tr>
<tr>
<td></td>
<td>7</td>
</tr>
</tbody>
</table>

**Step 2** Subtract tens.
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3,114</td>
<td>957</td>
</tr>
<tr>
<td>10</td>
<td>57</td>
</tr>
</tbody>
</table>

**Step 3** Subtract hundreds.
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2,114</td>
<td>957</td>
</tr>
<tr>
<td>257</td>
<td></td>
</tr>
</tbody>
</table>

**Step 4** Subtract thousands.
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1,110</td>
<td>957</td>
</tr>
<tr>
<td>2,257</td>
<td></td>
</tr>
</tbody>
</table>

So, the Trevino family needs to drive 2,257 more miles.

**Check** You can use addition to check your subtraction.

$$3,214 \quad 2,257$$
$$- 957 \quad + 957$$
$$2,257 \quad 3,214$$

Main Idea
I will subtract multi-digit numbers.

Vocabulary
minuend
subtrahend
difference

GLE 0406.2.6 Solve problems involving whole numbers, fractions, and/or decimals using all four arithmetic operations. Also addresses GLE 0406.1.6.

Building Math Vocabulary
Write the vocabulary words and their definitions on the board.
Have students record the words and their definitions in their Math Journals. Then tell them to write a subtraction problem and label each part correctly.
**Lesson 3C Add and Subtract Whole Numbers**

**COMMON ERROR!**

Exercises 2–4, 7–23 Students may think that regrouping will be necessary for every place in a minuend. Remind them that they should regroup only if the digit in the subtrahend is greater than the digit above it in the minuend.

**DIFFERENT WORD, SAME MEANING**

Because there are many different terms used to describe subtraction, students may be puzzled. To alleviate frustration, periodically review the terms take away, subtract from, minus, less, and so on.

**Scaffolding Questions**

Use base-ten blocks to represent 627. Write 627 – 299 on the board.

- **Do you need to regroup the ones? Explain.** Yes; you cannot subtract 9 ones from 7 ones.
- **How would you change 627 so that you have enough ones?** Regroup to make 6 hundreds, 1 ten, and 17 ones.
- **Subtract the ones.** Do you need to regroup the tens? Yes
- **How will you change the number of tens?** Regroup 1 hundred to make 10 tens.
- **What are the last two steps in this problem?** Subtract the tens and subtract the hundreds for a difference of 328.

**INTERACTIVE WHITEBOARD READY**

The Hernandez family flies 3,867 miles to visit some cousins. Next year, they fly 789 miles to visit their grandmother. How much farther did they travel to see their cousins? 3,078 miles

Elija's dad had $9,643 in his checking account. He wrote a check for $6,720 to buy a car. How much money did he have left? $2,923

**CHECK What You Know**

As a class, have students complete the Check What You Know Exercises as you observe their work.

**TALK MATH** Use the Talk Math Exercise to assess student comprehension before assigning the practice exercises.
Differentiate practice using these leveled assignments for the exercises in Practice and Problem Solving.

<table>
<thead>
<tr>
<th>Level</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>AL</td>
<td>9–13, 15, 22–24, 26–33</td>
</tr>
<tr>
<td>OL</td>
<td>10–14, 16, 21–33</td>
</tr>
<tr>
<td>BL</td>
<td>12–16, 18–21, 24–33</td>
</tr>
</tbody>
</table>

**H.O.T. Problems** Have students discuss and complete the Higher Order Thinking problems. Have students work each subtraction problem.

**WRITE MATH** Have students complete the Write Math Exercise in their Math Journals. You may choose to use this exercise as an optional formative assessment.

### Alternate Teaching Strategy
If students have trouble subtracting multi-digit numbers...

Then use one of these reteach options:

1. **Reteach Worksheet**
2. **Virtual Manipulatives** Use the virtual base-ten blocks to reteach the concept.
3. **Use Centimeter Grid Paper** Write 724 – 381 on the board. Have students subtract using centimeter grid paper. Place each digit of each number in a separate box. Have them ask themselves, “Can I subtract?” for each digit in the minuend. If yes, subtract without regrouping. If no, then show the regrouping and subtract.

### PRACTICE

Subtract. Use addition or estimation to check. See Examples 1 and 2.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>7. 479</td>
<td>8. $924</td>
</tr>
<tr>
<td>$924</td>
<td>$837</td>
</tr>
<tr>
<td>$524</td>
<td>$246</td>
</tr>
<tr>
<td>187</td>
<td>$87</td>
</tr>
<tr>
<td>$278</td>
<td>$339</td>
</tr>
<tr>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>11. 4,273</td>
<td>12. 8,454</td>
</tr>
<tr>
<td>365</td>
<td>627</td>
</tr>
<tr>
<td>$5,751</td>
<td>$4,824</td>
</tr>
<tr>
<td>$927</td>
<td>$5,709</td>
</tr>
<tr>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>13. 39,536</td>
<td>14. 64,779</td>
</tr>
<tr>
<td>– 18,698</td>
<td>– 42,788</td>
</tr>
<tr>
<td>$21,999</td>
<td>21,999</td>
</tr>
<tr>
<td>$21,015</td>
<td>$21,999</td>
</tr>
<tr>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>15. $93,458</td>
<td>16. $64,779</td>
</tr>
<tr>
<td>– 21,649</td>
<td>– 42,788</td>
</tr>
<tr>
<td>$71,801</td>
<td>$21,991</td>
</tr>
<tr>
<td>$70,071</td>
<td>$22,006</td>
</tr>
</tbody>
</table>

**HOT**

Ramon is buying a DVD that costs $14, a book that costs $15, and pays $2 in tax. If he hands the cashier $40, how much change will he get back? $9

There are a total of 1,569 tickets for a concert. On the first day of sales, 875 tickets were sold. The following day an additional 213 tickets were sold. How many tickets are still available? 481 tickets

Mount Everest is 29,035 feet tall. From base camp at 17,600 feet, a climber hiked 2,300 feet. How much farther does the climber have before reaching the top of the mountain? 9,135 ft

John Adams was born in 1732 and became President in 1797. Harry S. Truman was born in 1884 and became President in 1945. Who was older when he became President? John Adams

Indiana has several professional sports teams. The capacities of the arenas in which they play are shown in the table.

### Indiana Arenas

<table>
<thead>
<tr>
<th>Arena</th>
<th>Seating Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conseco Fieldhouse</td>
<td>basketball: 18,345</td>
</tr>
<tr>
<td></td>
<td>hockey: 14,400</td>
</tr>
<tr>
<td>Lucas Oil Stadium</td>
<td>football: 63,000</td>
</tr>
<tr>
<td></td>
<td>baseball: 15,500</td>
</tr>
</tbody>
</table>

23. How many more people can attend a basketball game than a hockey game? 3,945 people
24. How many more people can attend a football game than 3 baseball games? 16,500 people
25. How many more people can attend one football game than a basketball, hockey, and baseball game combined? 14,755 people

\[
\begin{array}{ccc}
67,457 & - & 40,724 \\
70,639 & - & 39,607 \\
89,584 & - & 67,372 \\
98,947 & - & 26,377 \\
\end{array}
\]

Third problem: The number in each place value in the subtrahend is greater than the number in the minuend.

27. WRITE MATH Write a real-world problem that involves subtraction and regrouping to solve. The numbers used in the problem must have at least three digits. See margin.

28. Mr. McGrath has two choices for new cars.

- Car A: $15,475
- Car B: $17,649

How much more does Car B cost than Car A? (Lesson 3C) B

A. $2,000  C. $2,234
B. $2,174  D. $2,274

29. The table shows the lengths of railways in three countries.

<table>
<thead>
<tr>
<th>Country</th>
<th>Kilometers</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>79,685</td>
</tr>
<tr>
<td>India</td>
<td>63,327</td>
</tr>
<tr>
<td>United States</td>
<td>228,999</td>
</tr>
</tbody>
</table>

How many kilometers of railway are in the United States and China? (Lesson 3A) G

F. 372,011 km  H. 297,574 km
G. 308,684 km  I. 292,326 km

28. Test Practice

29. Find each sum. Check your work by estimating. (Lesson 3A)

30. 2,581 + 4,619 = 7,200
31. 57,921 + 28,463 = 86,384
32. 735,218 + 31,644 = 766,862

Tell whether an estimate or exact answer is needed. Then solve. (Lesson 2C)

33. Carly bought the items shown. If she pays with a $50 bill, about how much change should she get back? Estimate; about $10

\[\$8 - \$2 = \$6\]

4. ASSESS

Formative Assessment

Write the following on the board: 3,624 – 857.

- Where is regrouping needed in this problem? Explain. Sample answer: ones, tens, and hundreds places; 3,624 has fewer ones, tens, and hundreds than 857.
- What is the difference? 2,767

Additional Answer

27. Sample answer: Sam is hiking on a path that is 4 miles, or 21,120 feet, long. He has already hiked 1 mile, or 5,280 feet. How many feet are left to hike?
Problem-Solving Investigation

Objective
Choose the best strategy to solve a problem.

Resources
- Leveled Worksheets
- Get Connected

1 INTR ODUCE

Activity Choice 1: Review
- There are 14 ducks at an animal habitat. This is 6 fewer than twice the number of squirrels at the habitat. How many squirrels are at the habitat?
- What strategy would you use to find the answer? the four step plan or estimate or exact answer
- Solve. There are 10 squirrels at the habitat.

2 TEACH

Have students read the problem on the student page. Guide them through the problem-solving steps.

Understand Using the questions, review what students know and need to find.

Plan Have them discuss their strategy.

Solve Guide students in using a table and repeated addition to solve the problem.
- How could you find the number of songs on 2 CDs? add 14 + 14
- How could you find the number of songs on 3 CDs? 4 CDs? add 14 + 14 + 14; add 14 + 14 + 14

Check Have students look back at the problem to make sure that the answer fits the facts given.
- Why will repeated subtraction help you check your answer? Subtraction is the inverse of addition.

GLE 0406.1.2 Apply and adapt a variety of appropriate strategies to problem solving, including estimation, and reasonableness of the solution. Also addresses SPI 0406.2.10.
Lesson 3D  Add and Subtract Whole Numbers

**PRACTICE**

Using the Exercises 1–11 give students practice in using the four-step plan and choosing an appropriate strategy to solve a problem.

Exercise 9 has several correct answers. Encourage students to find more than one combination.

**ASSESS**

Formative Assessment

Write the following on the board:

2,148 people participated in a marathon last year. 682 more people participated this year than last. About how many people participated this year?

- Is an estimate or exact answer needed? Explain. An estimate is needed because of the word “about.”
- Explain how you would solve the problem. Round 2,148 to 2,100 and 682 to 700. 2,100 + 700 = 2,800

**Quick Check**

Are students continuing to struggle with choosing the best strategy to solve a problem?

- If Yes → AL Daily Transparencies
  AL Differentiated Instruction Option 2 (p. 44c)

- If No → BL Differentiated Instruction Option 1 (p. 44d)
  OL Skills Practice Worksheet
  BL Enrich Worksheet

**COMMON ERROR!**

Exercise 9 Students may have trouble finding the three numbers in this problem. Suggest students think of one addend. Subtract that number from 14. Then think of two numbers that add up to the result of what they got when they subtracted.

**Lesson 3D Add and Subtract Whole Numbers**

1. Mrs. Thomas had $85. She bought a toaster. She now has $43. How much was the toaster? $42

2. **Measurement** The Nile River is 4,145 miles long. The Mississippi River is 405 miles shorter than the Nile River. How long is the Mississippi River? 3,740 miles

3. Rosana has $9 left over after buying a movie ticket. If she buys a soft pretzel, what other item can she buy?

4. Alonso has 139 comic books. Maggie has 72 comic books. Do they have a total of about 225 comic books? Explain. No, they have about 210.

5. A piñata is $36, and party decorations are $18. A gift is $28. About how much is spent altogether? $90

6. There are 58 third graders and 62 fourth graders going on a field trip. Each bus can carry 40 people. How many buses are needed? 3 buses

7. Marcel earns $5 a week for doing his chores. About how many weeks will he have to save his money in order to buy the sports equipment below? 16 weeks

8. Greta earns $5 each week walking dogs. Her portion of the family cell phone bill each month is $15. How much does she have left after paying her cell phone bill for a month that has four weeks? $5

9. Prem is thinking of three numbers from 1 to 10. The sum of the numbers is 14. Find the numbers. Sample answer: 1, 5, and 8

10. **Measurement** About how much farther does the willow warbler migrate than the barn swallow?

11. **WRITE MATH** Juan bowls 133 in his first game. He bowls 148 in his second game. The answer is 280. What is the question? See Answer Appendix.
Subtract Across Zeros

### Objective
Subtract multi-digit numbers, when some digits are zeros.

### Resources
- **Manipulatives:** base-ten blocks, play money
- **Leveled Worksheets**

### 1 INTRODUCE

#### Activity Choice 1: Hands-On
- Write 407 on the board.
- What is another way of writing 4 hundreds, 0 tens, and 7 ones without changing the value? 3 hundreds, 10 tens, and 7 ones
- Have students work in pairs with several more numbers that have a 0 in the tens place. Remind students that they can make changes in all three place-value places, but the value of the numbers must not change.
- How can 407 be changed in all places but retain its value? 3 hundreds, 9 tens, and 17 ones
- Where did the 17 come from? There were 7 ones in 407 and there were 10 more ones added when a ten was regrouped as 10 ones.

#### Activity Choice 2: Critical Thinking
- Write 603 – 248 on the board. Have students use base-ten blocks to model the minuend 603.
- Tell students to work in pairs to make changes to the place values in the minuend without changing the value of the number that will allow them to find the difference.
- Students may need prompts such as:
  - Is it possible to regroup tens as ones? no
  - Is it possible to regroup hundreds as tens and then tens as ones? yes
  - How did you find the difference? Sample answer: by regrouping 1 hundred as 10 tens and 1 ten as 10 ones then subtracting each place value, starting with the digits in the ones place and ending with the digits in the hundreds place

### Subtract Across Zeros
Sometimes subtraction involves numbers that have zeros.

#### PENNIES
Each fourth grade class has a goal to collect 5,100 pennies for charity. How many more pennies do the fourth graders in Mr. Blake’s class need to reach their goal?

<table>
<thead>
<tr>
<th>Class</th>
<th>Pennies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mrs. Clark</td>
<td>4,523</td>
</tr>
<tr>
<td>Mr. Blake</td>
<td>3,520</td>
</tr>
<tr>
<td>Ms. Simms</td>
<td>1,987</td>
</tr>
<tr>
<td>Mrs. Stone</td>
<td>2,569</td>
</tr>
</tbody>
</table>

#### Step 1 Subtract ones.

\[
5,100 - 3,520 = 0 - 0 = 0
\]

#### Step 2 Subtract tens.

\[
5,180 - 3,520 = 10 - 2 = 8
\]

#### Step 3 Subtract hundreds.

\[
5,100 - 3,520 = 100 - 5 = 5
\]

#### Step 4 Subtract thousands.

\[
10 - 0 = 10
\]

So, Mr. Blake’s class needs 1,580 more pennies.

**Check**

\[
1,580 + 3,520 = 5,100. \text{ So, the answer is correct.} \checkmark
\]

### Building Math Vocabulary
Write the review vocabulary words and their definitions on the board.
- Have students create sentences using the vocabulary words.
- Tell students that the sentences must demonstrate that students understand the meanings of the vocabulary words. Ask volunteers to share their sentences with the class.
COMMON ERROR!

Exercises 1–25  Students may forget to rename a digit when they regroup it to create more of a lesser place value. Remind them to cross off the digit from which they are regrouping and rename it right away.

Scaffolding Questions

Write 506 – 367 on the board. Use base-ten blocks to show the subtraction step-by-step.
- Do we need to regroup the ones? yes
- If there are no tens, what place will we regroup? hundreds place
- How will you regroup 1 hundred? Regroup 1 hundred as 10 tens; regroup 1 ten as 10 ones.
- Tell the students that you can regroup the hundred in one step as 9 tens and 10 ones because that is equal to 1 hundred.
- What does the minuend look like after regrouping? What is the difference? 4 hundreds, 9 tens, and 16 ones; 139
Alternate Teaching Strategy

If students have trouble subtracting across zeros…

Then use one of these reteach options:

1. **Reteach Worksheet**
2. **Virtual Manipulatives** Use the virtual base-ten blocks to reteach the concept.
3. **Use Play Money** Have them use play money and give change from amounts that include zeros. Tell students to record the exchanges they make.

- If you need more ones, what will you do?
  - Exchange 1 ten-dollar bill for 10 one-dollar bills or if there are no tens, regroup a hundred as 9 tens and 10 ones.

### Practice

Differentiate practice using these leveled assignments for the exercises in **Practice and Problem Solving**.

<table>
<thead>
<tr>
<th>Level</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>OL</td>
<td>On Level</td>
</tr>
<tr>
<td>BL</td>
<td>Beyond Level</td>
</tr>
</tbody>
</table>

### H.O.T. Problems

Have students discuss and complete the Higher Order Thinking problems. Have students find the difference, then analyze what mistake was made.

### Write Math

Have students complete the **Write Math** Exercise in their Math Journals. You may choose to use this exercise as an optional formative assessment.

### Homework Practice Worksheet

### Problem-Solving Practice Worksheet

---

### Subtract. Use addition to check. See Examples 1 and 2

<table>
<thead>
<tr>
<th>9.</th>
<th>10.</th>
<th>11.</th>
<th>12.</th>
</tr>
</thead>
<tbody>
<tr>
<td>409</td>
<td>603</td>
<td>$700</td>
<td>2,040</td>
</tr>
<tr>
<td>257</td>
<td>48</td>
<td>$350</td>
<td>946</td>
</tr>
<tr>
<td>152</td>
<td>555</td>
<td>$350</td>
<td>1,094</td>
</tr>
<tr>
<td>7,008</td>
<td>12,050</td>
<td>46,801</td>
<td>60,032</td>
</tr>
<tr>
<td>2,055</td>
<td>3,162</td>
<td>5,823</td>
<td>21,833</td>
</tr>
<tr>
<td>4,953</td>
<td>8,888</td>
<td>40,978</td>
<td>38,199</td>
</tr>
<tr>
<td>$52,006</td>
<td>$13,059</td>
<td>$38,947</td>
<td>$372,082</td>
</tr>
<tr>
<td>18.</td>
<td>19.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>600,000</td>
<td>$71,995</td>
<td>28,005</td>
<td>136,118</td>
</tr>
<tr>
<td>508,200</td>
<td>40,978</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Chloe has 500 pages to read by the end of the month. She reads 155 pages the first week. How many more pages does Chloe need to read? 345 pages

### Trent earned 4,005 points in a video game. His brother earned 2,375 points in the same game. How many more points did Trent earn than his brother? 1,630 points

### Travel

The distance between New York City and five other cities around the world are shown.

22. How many more miles is it to travel to Jakarta than to London? **6,582 miles**

23. How many more miles is it to travel to Munich than to Paris? **407 miles**

### Identify a number that results in a 4-digit number when 156,350 is subtracted from it. Sample answer: 158,500

### Candace is solving the subtraction problem shown. Find and correct her mistake. Sample answer: She did not regroup when she subtracted the thousands. The answer should be 99,450.

### Write a real-world problem that involves subtracting across zeros. See students’ work.

### 58 Place Value, Addition, and Subtraction
27. There were 4,668 people at the fair on Saturday and 3,816 people on Sunday. How many more people were at the fair on Saturday? B
   (Lesson 3D)
   A. 842      C. 942
   B. 852      D. 952

28. There were 34,007 visitors at the amusement park last week. There were 21,829 visitors this week. How many fewer visitors were there this week? F (Lesson 3E)
   A. 12,178      C. 13,108
   B. 12,912      D. 13,112

* indicates multi-step problem

Use any strategy to solve each problem. (Lesson 3D)

29. Measurement On Friday, Nida drove 178 miles. On Saturday, she drove 129 miles. On Sunday, she drove 205 miles. How many miles did she drive in the three days? 512 miles

30. Henri is going to buy a football that costs $10, a shirt that costs $8, and a hat that costs $6. If he has $30, about how much change can he expect to get back? about $6

Subtract. Use addition or estimation to check. (Lesson 3C)

31. 952
    − 624
    ———
    328

32. $8,961
    − $1,258
    ———
    $7,703

33. 19,034
    − 1,617
    ———
    17,417

Find each sum. Check your work by estimating. (Lesson 3A)

34. 6,922
    + 24,367
    ———
    31,289

35. $8,738
    + $2,253
    ———
    $10,991

36. 36,640
    + 14,255
    ———
    50,895

Measurement For Exercises 37–39, use the table shown. (Lesson 3C)

37. What is the difference between the lakes with the greatest and least area? 24,378 square miles

38. Which two lakes have the least difference in area? Lake Huron and Lake Michigan

39. Is the combined area of Lake Erie and Lake Michigan greater than the area of Lake Superior? Explain. yes; 32,238 > 31,698

Areas of Great Lakes

<table>
<thead>
<tr>
<th>Lake</th>
<th>Area (square miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erie</td>
<td>9,922</td>
</tr>
<tr>
<td>Huron</td>
<td>23,011</td>
</tr>
<tr>
<td>Michigan</td>
<td>22,316</td>
</tr>
<tr>
<td>Ontario</td>
<td>7,320</td>
</tr>
<tr>
<td>Superior</td>
<td>31,698</td>
</tr>
</tbody>
</table>

To assess partial mastery of SPI 0406.2.10, see your Tennessee Assessment Book.
Objective
Interpret information and data to solve problems.

Activate Prior Knowledge
Before you turn students' attention to the pages, ask them to discuss photography.
- What type of cameras have you or people you know used? digital, flash, disposable, cell phone
- Before the digital process, how were photographs developed? by using chemicals

Use the Student Page
Ask students to read the information and answer these questions:
- How long has it been since the start of the digital revolution? Explain. Sample answer: 31 years; 2012 − 1981 = 31
- Suppose you buy one of each type of disposable camera with two bills. What two bills would you use? How much change would you receive? Sample answer: 2 twenty-dollar bills; $6

Fun Facts
- Joseph Nicephore Niepce produced the very first photograph in 1827. It took 8 hours to expose.
- Photos made with the first Daguerreotypes took 10 to 20 minutes to properly expose to available light. People were required to sit still for that long to have their pictures taken. Rests were used to keep the subject still.
- Before color photography was invented, a process called hand coloring was used to add color to photographs. It required time and a lot of skill. Colors were applied with a fine brush and then fixed by simply breathing on the plate.
- By 1850, photos could be developed on paper instead of metal and photographs were cheap enough that almost anyone could have a portrait of themselves or family members taken.
Assign the exercises. Encourage students to choose a problem-solving strategy before beginning each exercise.

**Exercise 1** Point out to students that there is more than one way to spend $35 but not more than one way to spend $35 on 4 disposable cameras.

**Exercise 3** Remind students that they must first figure out the cost of the purchases before calculating how much change they will get.

**WRITE MATH** Have students create a word problem that uses the information found in the text and in the chart.

**Extend the Activity** Have students figure out the largest number of cameras they can buy for $50.

**Additional Answers**
1. Sample answer: 2 digital, 1 underwater, and 1 flash
7. Sample answer: Emily can buy 3 digital cameras or she can buy 6 black-and-white cameras.
The BIG Idea
As a class, revisit this chapter’s Big Idea.

How can I use place value to represent numbers and to add and subtract numbers?
Sample answers: Base-ten blocks or a place-value chart can be used to show the values of the digits in a number.; The addition and subtraction algorithms involve aligning numbers based on place value and working with digits in one place value at a time.

Key Concepts with Foldables
Use these lesson suggestions to incorporate the Foldable during the chapter. Students can then use their Foldables to review for the test.

Lessons 3A–3E The third pocket of the Foldable is used to store student work demonstrating that they understand how to add and subtract multi-digit numbers.

Key Vocabulary
Review chapter vocabulary using one of the following options.
- Visual Vocabulary Card (24)
- eGlossary
- Vocabulary Test

Vocabulary Check
If students have difficulty answering the exercises, remind them that they can use the Key Vocabulary terms listed on the student page. You may wish to also direct them to the lesson in which each term is taught.

Key Concepts
Place Value (Lesson 1)
- A place-value chart shows the value of the digits in a number.
- To compare numbers, use is greater than (>), is less than (<), or is equal to (=).

Estimate Sums and Differences (Lesson 2)

<table>
<thead>
<tr>
<th></th>
<th>rounds to</th>
<th></th>
<th>rounds to</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,678</td>
<td>4,000</td>
<td>1,295</td>
<td>1,000</td>
</tr>
<tr>
<td>7,418</td>
<td>7,000</td>
<td>2,557</td>
<td>3,000</td>
</tr>
<tr>
<td></td>
<td>4,000</td>
<td></td>
<td>4,000</td>
</tr>
</tbody>
</table>

Add and Subtract Whole Numbers (Lesson 3)
- To add or subtract whole numbers, add or subtract each place, starting with the place farthest to the right. Regroup when needed.

Vocabulary Check
Choose the vocabulary word that completes each sentence.
1. The number sentence $3 + 7 = 7 + 3$ represents the ____.
   Commutative Property of Addition

2. If you do not need an exact answer, you can _____.
   estimate

3. The ____ says you can change the grouping without changing the sum.
   Associative Property of Addition

4. The ____ says the order in which numbers are added does not change the sum.
   Commutative Property of Addition

5. ____ is the value given to a digit by its place in a number.
   Place value

Chapter Project
Recycle It! In pairs, small groups, or as a class, have students discuss the results of their completed chapter project. Assess their work using the Project Rubric found in the Chapter Resource Masters.
Multi-Part Lesson Review

Lesson 1 Place Value

Place Value (Lessons 1A and 1B)

Write each number in standard form and expanded form. 6. 7. See margin.
6. two hundred thirty-nine thousand, eight hundred four
7. A city has 953,022 people. Write this number in word form and expanded form.

EXAMPLE 1
Write three hundred seventy-two thousand, five hundred in standard form and expanded form.
Standard form: 372,500
Expanded form: 300,000 + 70,000 + 2,000 + 500

Compare and Order Numbers (Lesson 1C)

Compare. Use >, <, or =.
8. 689,000 > 679,000
9. 342,801 = 342,801
10. 515,063 < 515,603

11. The table shows the cost of three houses. Order these prices from least to greatest.

<table>
<thead>
<tr>
<th>House</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>House A</td>
<td>$175,359</td>
</tr>
<tr>
<td>House B</td>
<td>$169,499</td>
</tr>
<tr>
<td>House C</td>
<td>$179,450</td>
</tr>
</tbody>
</table>

$169,499; $175,359; $179,450

So, 278,256 < 287,256.

Round Numbers (Lesson 1D)

Round each number to the given place-value position.
12. 78,874; hundreds
13. 415,203; thousands
14. There were 48,566 people at a Sunday football game. To the nearest thousand, how many people were at the game? 49,000 people

Round 274,587 to the nearest hundred thousand.

274,587

Since 7 is greater than 5, round up. So, 274,587 rounds to 300,000.

EXAMPLE 2
Compare 278,256 < 287,256
Use >, <, or =.

Thousands Ones
<table>
<thead>
<tr>
<th>Hundreds</th>
<th>Tens</th>
<th>Ones</th>
<th>Hundreds</th>
<th>Tens</th>
<th>Ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>7</td>
<td>8</td>
<td>2</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>8</td>
<td>7</td>
<td>2</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

So, 278,256 < 287,256.

EXAMPLE 3
Students can complete the exercises in the Multi-Part Lesson Review as they prepare for the chapter test. If they need extra help, examples are provided.

Chapter Study Guide and Review 63
Lesson 2  Addition and Subtraction

Addition Properties and Subtraction Rules  (Lesson 2A)

Complete each number sentence. Identify the property or rule used.

15. \( 5 + 4 = 4 + \_ \)  
16. \( 15 - \_ = 0 \)

17. \( 9 + \_ = 9 \)  
18. \( \_ + 3 = 3 + 7 \)

19. \((8 + 14) + 6 = 8 + (14 + \_)) \)

20. Catherine has 12 marbles. She buys 4 more. Write two equations to find how many marbles Catherine has in all. \( 12 + 4 = 16 \) and \( 4 + 12 = 16 \)

EXAMPLE 4  Addition Properties and Subtraction Rules  (Lesson 2A)

Complete \((3 + \_ ) + 8 = 3 + (6 + 8)\). Identify the property or rule used.

\((3 + \_ ) + 8 = 3 + (6 + 8)\)

The Associative Property of Addition states that the grouping of the addends does not change the sum.

EXAMPLE 5  Addition Properties and Subtraction Rules  (Lesson 2A)

Estimate Sums and Differences

21. \$519 + \$368; tens

\( \$520 + \$370 = \$890 \)

22. \(3,437 + 1,597; \) hundreds

\( 3,400 + 1,600 = 5,000 \)

23. \(8,728 - 6,493; \) thousands

\( 9,000 - 6,000 = 3,000 \)

24. \(9,245 - 3,826; \) hundreds

\( 9,200 - 3,800 = 5,400 \)

25. \(61,118 + 4,377; \) thousands

\( 61,000 + 4,000 = 65,000 \)

26. Sam earned 52,346 points on the first level of a game. He earned 58,427 on the second level. About how many more points did Sam earn in Level 2 than Level 1? about \(6,000\) more points

EXAMPLE 5  Addition Properties and Subtraction Rules  (Lesson 2A)

Estimate \(1,352 + 487\). Round to the hundreds place.

Round. Then add.

\(1,352\)  
\(+ 487\)  
\(1,400\)  
\(+ 500\)  
\(1,900\)

So, \(1,352 + 487\) is about \(1,900\).

EXAMPLE 6  Addition Properties and Subtraction Rules  (Lesson 2A)

Estimate \(4,326 - 2,721\). Round to the thousands place.

Round. Then add.

\(4,326\)  
\(- 2,721\)  
\(4,000\)  
\(- 3,000\)  
\(1,000\)

So, \(4,326 - 2,721\) is about \(1,000\).
Tell whether an estimate or exact answer is needed. Then solve.

27. Benton needs to buy the items shown. He has $20. Does Benton have enough money? **exact answer; no**

28. Admission to a water park is $19 for adults and $12 for children. About how much will admission cost for 2 adults and 2 children? **estimate; about $60**

Janell and her sister are going to build a bookcase. They need $9 for nails, $18 for tools, and $28 for wood. About how much do they need to build the bookcase?

Estimate. Then add.

\[
\begin{align*}
$9 & \quad + \quad $10 \\
$18 & \quad + \quad $20 \\
$38 & \quad + \quad $40 \\
& \quad + \quad $70
\end{align*}
\]

So, about $70 is needed to build the bookcase.

Find each sum. Check your work by estimating.

29. \[564 + 308 = 872\]
30. \[2,875 + 496 = 3,371\]
31. \[4,691 + 872 = 5,563 + 5,237 = 11,704\]
32. \[6,467 + 872 = 7,339 + 5,237 = 12,576\]
33. \[61,248 + 47,229 = 108,477 + 21,037 = 130,974\]
34. \[35. Travel\] Rick drove 12,363 miles in his new car the first year he owned it. He drove 15,934 miles the second year. How many miles did Rick drive these two years? **28,297 miles**

Find 3,714 + 6,249.

\[
\begin{align*}
\text{Step 1 Add ones.} & \quad 4 \\
3,714 & \quad + \quad 6,249 \\
3,714 & \quad + \quad 6,249 \\
\text{Step 2 Add tens.} & \quad 6 \\
\text{Step 3 Add hundreds.} & \quad 63 \\
3,714 & \quad + \quad 6,249 \\
\text{Step 4 Add thousands.} & \quad 9,963
\end{align*}
\]

So, 3,714 + 6,249 is 9,963.
Subtract Whole Numbers (Lessons 3B, 3C, and 3E)

Subtract. Use addition or estimation to check.

36. \[ 478 - 293 = 185 \]
37. \[ 8,721 - 6,943 = 1,778 \]
38. \[ 5,524 - 2,346 = 3,178 \]
39. \[ 54,751 - 43,226 = 11,525 \]
40. \[ 7,007 - 2,128 = 4,879 \]
41. \[ 70,909 - 63,485 = 7,424 \]

42. **Measurement** A moose weighs 1,820 pounds. A camel weighs 1,521 pounds. How much more does a moose weigh than a camel? **299 pounds**

43. Ms. VanHorn has 2,005 recipes to organize. She has organized 962 of them. How many more recipes does she need to organize? **1,043 recipes**

**Problem-Solving Investigation: Choose a Strategy** (Lesson 3D)

Use any strategy to solve each problem.

44. Jase earned $125 last month for delivering newspapers. He will earn $185 this month. How much money will Jase earn from delivering newspapers for the two months? **$310**

45. The highest elevation in the United States is 20,320 feet. The second highest elevation is 14,494. What is the difference in these heights? **5,826 ft**

**EXAMPLE 9**

Find 4,274 - 1,857.

**Step 1 Subtract ones.**

\[ 4,274 \]
\[ 1,857 \]
\[ 6 \]
\[ 3 \]

**Step 2 Subtract each place.**

\[ 14 \]
\[ 3 \]
\[ 12 \]
\[ 14 \]

Find 9,004 - 632.

**Step 1 Subtract ones.**

\[ 9,004 \]
\[ 632 \]
\[ 2 \]
\[ 8 \]

**Step 2 Subtract each place. Regroup as necessary.**

\[ 10 \]
\[ 9 \]
\[ 10 \]
\[ 8,372 \]

**EXAMPLE 11**

Naomi had $125. She bought rollerblades. She now has $19. How much were the rollerblades?

Subtract to find the cost of the rollerblades.

\[ 125 \]
\[ 19 \]
\[ 106 \]
Tell whether each statement is true or false.
1. Always start with the place that is farthest left when subtracting. false
2. The 3 in 234,568 has a value of 3,000. false
3. Regroup means to add again. false

Algebra Copy and complete each number sentence. Identify the property or rule used.
4. \(73 + 79 = 73 + 79 + 65\); Commutative Property of Addition
5. \(389 - 389 = 0\); Subtraction Rule
6. \(2 + (3 + 9) = (2 + 3) + 9\); Associative Property of Addition
7. MULTIPLE CHOICE Which symbol makes this number sentence true? A
   \[562,301 \_ 562,310\]  
   A. <  
   B. >  
   C. =  
   D. +

Estimate. Round to the indicated place value.
8. \(5,564 + 482\); hundreds
   \[5,400 + 500 = 5,900\]
9. \(89,325 \_ 80,236\); ten thousands
   \[90,000 \_ 80,000 = 10,000\]

Tell whether an estimate or exact answer is needed. Then solve.
10. Mr. Murphy had $92. He bought a watch. Now he has $36. How much was the watch? exact answer; $56

11. MULTIPLE CHOICE What is the sum of 212,048 and 37,251? F
   A. 249,299  
   B. 289,399  
   C. 299,289  
   D. 299,399

Subtract. Use addition or estimation to check.
12. \(612 - 430 = 182\)  
   \(\underline{\phantom{0}}\)  
   \(\underline{\phantom{0}}\) \(\underline{\phantom{0}}\) \(\underline{\phantom{0}}\) \(\underline{\phantom{0}}\)
13. \(8,547 - 6,391 = 2,156\)  
   \(\underline{\phantom{0}}\)  
   \(\underline{\phantom{0}}\) \(\underline{\phantom{0}}\) \(\underline{\phantom{0}}\) \(\underline{\phantom{0}}\)
14. \(4,005 - 273 = 3,732\)  
   \(\underline{\phantom{0}}\)  
   \(\underline{\phantom{0}}\) \(\underline{\phantom{0}}\) \(\underline{\phantom{0}}\) \(\underline{\phantom{0}}\)
15. \(6,007 - 317 = 5,690\)  
   \(\underline{\phantom{0}}\)  
   \(\underline{\phantom{0}}\) \(\underline{\phantom{0}}\) \(\underline{\phantom{0}}\) \(\underline{\phantom{0}}\)

16. Vickie had $87 in her bank account. She bought a doll for her birthday for $15. How much money does she have left in her account? $72

17. Measurement The lengths of the longest rivers in the world are shown in the table.

<table>
<thead>
<tr>
<th>World’s Longest Rivers</th>
<th>River</th>
<th>Length (miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nile</td>
<td>4,145</td>
<td></td>
</tr>
<tr>
<td>Amazon</td>
<td>4,000</td>
<td></td>
</tr>
<tr>
<td>Mississippi-Missouri</td>
<td>3,740</td>
<td></td>
</tr>
</tbody>
</table>

Find the difference in the lengths of the Nile and the Mississippi-Missouri Rivers. 405 miles

18. WRITE MATH Explain how you would regroup to subtract 2,317 from 4,000. See Answer Appendix.

Data-Driven Decision Making

Based on the results of the Chapter Test, use the following to review concepts that continue to present students with problems.

<table>
<thead>
<tr>
<th>Exercises</th>
<th>Tennessee Standards</th>
<th>What’s the Math?</th>
<th>Error Analysis</th>
<th>Resources for Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 3, 12–13, 17</td>
<td>GLE 0406.2.6</td>
<td>Subtract multi-digit numbers.</td>
<td>Does not understand how to subtract multi-digit numbers.</td>
<td>Chapter Resource Masters</td>
</tr>
<tr>
<td>4–6</td>
<td>SPI 0406.1.1</td>
<td>Use addition properties and subtraction rules to add and subtract.</td>
<td>Does not understand addition properties or subtraction rules.</td>
<td>Lesson Animations • Personal Tutor • Self-Check Quiz</td>
</tr>
<tr>
<td>8–9</td>
<td>GLE 0406.1.2</td>
<td>Estimate sums and differences of numbers.</td>
<td>Does not know how to round numbers to an indicated place value. Does not understand how to add or subtract multi-digit numbers.</td>
<td></td>
</tr>
<tr>
<td>14–15, 18</td>
<td>GLE 0406.2.6</td>
<td>Subtract multi-digit numbers when some digits are zeros.</td>
<td>Does not understand how to subtract multi-digit numbers. Does not know how to regroup when subtracting.</td>
<td></td>
</tr>
</tbody>
</table>
Test Practice

1 INTRODUCE

As a class, discuss the example on the page. Remind students to examine all of the answer choices before determining which one is correct.

2 TEACH

Before beginning the practice test, give students an opportunity to solve the Additional Example.

ADDITIONAL EXAMPLE

Kayla used a catalog to make a list of the clothes she wants to buy. Her list is shown.

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shorts</td>
<td>$20</td>
</tr>
<tr>
<td>T-shirt</td>
<td>$15</td>
</tr>
<tr>
<td>Hooded sweatshirt</td>
<td>$35</td>
</tr>
<tr>
<td>Sneakers</td>
<td>$43</td>
</tr>
</tbody>
</table>

If Kayla orders all the clothing items, about how much will she spend? D

A. $70          C. $110
B. $100         D. $120

Read the Question
You need to find about how much Kayla will spend on clothes.

Solve the Question
Look at the table. Round each cost to the nearest ten dollars. Then add.

$20 + $20 + $40 + $40 = $120

So, Kayla will spend about $120 on clothes. The answer is D.

Jasmine is asking for the following items for her birthday.

<table>
<thead>
<tr>
<th>Item</th>
<th>Price ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earrings</td>
<td>$20</td>
</tr>
<tr>
<td>Shoes</td>
<td>$55</td>
</tr>
<tr>
<td>Sweater</td>
<td>$32</td>
</tr>
<tr>
<td>Video game</td>
<td>$49</td>
</tr>
</tbody>
</table>

What is the total cost of the items? C

A. $146
B. $152
C. $156
D. $165

3 ASSESS

Formative Assessment

- Use these pages as practice and cumulative review. The questions are written in the same style as those found on standardized tests.
- You can use these pages to benchmark student progress, or as an alternate homework assignment.

Test Practice exercises help students solidify their knowledge using exercises in a format similar to standardized tests.
3. What is the difference in height of Angel Falls and Yosemite Falls?  D

<table>
<thead>
<tr>
<th>Highest Waterfalls</th>
<th>Waterfall</th>
<th>Height (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angel</td>
<td>3,212</td>
<td></td>
</tr>
<tr>
<td>Yosemite</td>
<td>2,425</td>
<td></td>
</tr>
</tbody>
</table>

A. 1,000 ft  C. 887 ft  B. 900 ft  D. 787 ft

4. Which is the value of the digit 5 in 1,853,742?  H

F. 50  H. 50,000  G. 500  I. 500,000

5. A hobby store has sold 15,871 kites since the store opened 25 years ago. What is the number rounded to the nearest thousand?  D

A. 15,000  C. 15,900  B. 15,800  D. 16,000

6. What is $7,959 rounded to the nearest hundred?  H

F. $700  H. $8,000  G. $7,900  I. $9,000

7. **GRIDDED RESPONSE** What is the value of the digit 3 in 805,312?  300

8. **GRIDDED RESPONSE** What is the difference in width of Earth’s moon and Jupiter’s moon?  1,110 miles

<table>
<thead>
<tr>
<th>Largest Moons</th>
<th>Moon</th>
<th>Width (miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jupiter’s moon</td>
<td>3,270</td>
<td></td>
</tr>
<tr>
<td>Saturn’s moon</td>
<td>3,200</td>
<td></td>
</tr>
<tr>
<td>Earth’s moon</td>
<td>2,160</td>
<td></td>
</tr>
</tbody>
</table>

9. What number is 1,000 more than 456,987?  B

A. 457,087  C. 466,987  B. 457,987  D. 556,987

10. Silvio says his street address has a 3 in the hundreds place. Which of the following could be his address?  F

F. 1368  H. 2437  G. 1483  I. 3865

11. What is the standard form for two hundred thirty-five thousand, one hundred twelve?  B

A. 253,112  C. 235,102  B. 235,112  D. 235,012

A Student Recording Sheet for the Test Practice is provided for each chapter in the Chapter Resource Masters.

**Additional Practice**

- **Standardized Test Practice**
- **Get Connect®** Find additional test practice.

**ExamView® Assessment Suite** Create practice worksheets or tests that align to your state’s standards.
PART (A) ----- PAGE 19

3. Sample answer: The thousand cube resembles a unit cube, the ten-thousand rod resembles a tens rod, and the hundred thousand flat resembles a hundreds flat.

4. Sample answer: The thousand cube is an increase of 1,000 over a unit cube. The ten-thousand rod is an increase of 1,000 over a rod. The hundred thousand flat is an increase of 1,000 over a hundreds flat.

PART (B) ----- PAGES 21–22

7. 20,000 + 3,000 + 400 + 70 + 2; twenty-three thousand, four hundred, seventy-two

8. 40,000 + 9,000 + 600 + 2; forty-nine thousand, six hundred, two

9. 100,000 + 50,000 + 2,000 + 200 + 20; one hundred fifty-two thousand, two hundred twenty

10. 400,000 + 70,000 + 1,000 + 2; four hundred seventy-one thousand, two

11. 36,523; 30,000 + 6,000 + 500 + 20 + 3

12. Sample answer: No; 60,000 + 1,000 + 90 + 3 = 61,093. This is read as sixty-one thousand, ninety-three. 61,903 is sixty-one thousand, nine hundred three.

13. hundreds; 800

14. ten thousands; 70,000

15. tens; 40

16. ten thousands; 70,000

17. tens; 0

18. hundred thousands; 800,000

19. ones; 9

20. hundred thousands; 900,000

21. 5,000 + 50; five thousand fifty

22. 3,000 + 700 + 90 + 1; three thousand, seven hundred ninety-one

23. 50,000 + 7,000 + 400 + 2; fifty-seven thousand, four hundred two

24. 80,000 + 9,000 + 70 + 4; eighty-nine thousand, seventy-four

25. 200,000 + 40,000 + 3,000 + 800 + 90 + 5; two hundred forty-three thousand, eight hundred ninety-five

26. 400,000 + 80,000 + 5,000 + 800 + 30; four hundred eighty-five thousand, eight hundred thirty

27. 600,000 + 40,000 + 9,000 + 300 + 20; six hundred forty-two thousand, three hundred twenty

28. 700,000 + 80,000 + 4,000 + 100 + 30 + 2; seven hundred eighty-four thousand, one hundred thirty-two

29. 10,000 + 4,000 + 400 + 30 + 2

30. 1,232; one thousand, two hundred thirty-two

PART (D) ----- PAGE 31

26. Sample answer: The city of Billsburg has a population of 561,284. What is the population rounded to the nearest ten thousand?
11. Sample answer: What is the approximate total score of Juan's two games?

18. Sample answer: Regroup 1 thousand as 9 hundreds, 9 tens, and 10 ones. Then subtract. The result is 1,683.