Lesson 9.12
Enrichment (Optional)

Purpose	Materials
• Practice memory work • Understand area in a real-life context • Measure the perimeter and area of a room • Summarize what your child has learned and assess your child's progress	• *Bigger, Better, Best!,* written by Stuart J. Murphy and illustrated by Marsha Winborn • Tape measure

Warm-up: Review Memory Work

Quiz your child on all memory work through Unit 9. See pages 527-528 for the full list.

Math Picture Book: *Bigger, Better, Best!*

Read *Bigger, Better, Best!,* written by Stuart J. Murphy and illustrated by Marsha Winborn. As you read, discuss the creative units the children use to measure area.

Enrichment Activity: Measure the Perimeter and Area of a Room

You have learned a lot about perimeter and area in this unit! Today, we'll measure the perimeter and area of your bedroom.

Help your child make a rough sketch of his bedroom. Use a tape measure to measure the length of each wall. Round each length to the nearest foot or meter, and label the sketch accordingly. Then, help your child find the perimeter and area of the room.
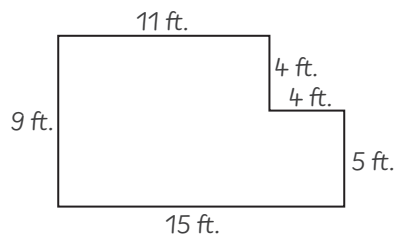
If your family uses the metric system, use meters and square meters for this activity. If your family uses the U.S. customary system, use feet and square feet.

If any of the lengths are greater than 10, help your child split the room into smaller areas, find the area of each part, and then add them to find the total area (as in Lesson 9.9).

Unit Wrap-up

Have your child complete the Unit 9 Wrap-up.

Lesson 11.6
Add and Subtract Four-Digit Numbers

Purpose	Materials
• Practice multiplication facts • Add and subtract four-digit numbers with the addition and subtraction algorithms • Solve distance word problems	• Playing cards

Memory Work	· **Name the multiples of 8 in order.** *8, 16, 24...* Stop your child when he reaches 80.

In this lesson, your child will learn to add and subtract four-digit numbers with the addition and subtraction algorithms. Most children have little trouble extending these algorithms to four-digit numbers, so this lesson does not include a step-by-step explanation. If your child needs more support, use the Addition Algorithm diagram and Subtraction Algorithm diagram (from Blackline Master 4) to guide him. Model each problem with play money, and demonstrate the trades with paper bills.

Warm-up: Play Over Under (×8)

Play one round of Over Under (×8). Use the same general directions as Over Under (×6) from Lesson 9.4 (page 284). Multiply each card by 8. If the product is less than 45, the player who is "Under" wins the card. If the product is greater than 45, the player who is "Over" wins the card.

Activity (A): Add and Subtract Four-Digit Numbers

You have already learned how to use the addition and subtraction algorithms to add and subtract two- and three-digit numbers. Today, you'll use these algorithms to add and subtract four-digit numbers.

Show your child the first exercise in part A (3,984 + 2,632). **Before we add the numbers, we'll first estimate the sum.** Have your child round each addend to the nearest thousand and estimate the sum.

Now, add the numbers to find the exact sum. Use the same steps that you use to add two- or three-digit numbers. Have your child use the addition algorithm to add the numbers. If needed, use play money to model the trading.

Repeat with the subtraction problem. Have your child estimate the difference and then find the exact difference If needed, use play money to model the trading.

Adding and subtracting four-digit numbers is just like adding and subtracting three-digit numbers. We can even add and subtract numbers in the millions or billions in the exact same way!

See the Unit 11 **Teaching Math with Confidence** (page 346) for more on how this solid foundation in whole number addition and subtraction prepares your child to solve problems involving both large and small numbers in future grades.

Activity (B): Add and Subtract to Solve Distance Word Problems

Show your child part B. **Now, you get to plan a pretend trip! You get to visit three cities. You can only travel between cities that have lines connecting them on the map.** Have your child choose three connected cities to pretend to visit. Write the cities' names in the itinerary.

Let's find the total length of your trip. How far is it from your first city to your second city? *Answers will vary.* **How far is it from your second city to your third city?** *Answers will vary.* Have your child write the numbers in the blank grid and find their sum.

If your child's trip is longer than 10,000 miles, demonstrate how to write a 1 in the ten-thousands-place. Your child will learn to add numbers greater than 10,000 in fourth grade.

Which flight travels a longer distance? *Answers will vary.* **Let's find how much longer the longer flight is than the shorter flight.** Have your child write the longer distance on the top line of the next blank grid and the shorter distance on the middle line. Have him subtract to find the difference between them.

Sample completed first itinerary.

You get to plan one more trip! Have your child choose another three cities. Again, have him find the total length of the trip and the difference between the lengths of the two flights.

Independent Practice and Review

Have your child complete the Lesson 11.6 Practice and Review workbook pages.

Unit 11 Checkpoint

What to Expect at the End of Unit 11

By the end of Unit 11, most children will be able to do the following:

- Read, write, and compare numbers to 10,000.
- Write four-digit numbers in expanded form and model them with base-ten blocks or play money.
- Round numbers to the nearest thousand.
- Mentally add up to identify missing addends to the next thousand (as in 5,600 + __= 6,000).
- Use place-value thinking to mentally solve problems like 3,800 + 500 or 4,100 – 300. Many children will still find these problems quite challenging and need to model them with play money.
- Use the addition and subtraction algorithms to add and subtract four-digit numbers. Many children will still need help when subtracting across zero.
- Subtract to find elapsed time between years. Some children will have only a hazy understanding of the concept of elapsed time. Many children will still need help setting up the subtraction problems correctly.

Is Your Child Ready to Move on?

In Unit 12, your child will learn the ÷3, ÷4, and ÷6 facts. Before moving on to Unit 12, your child should understand the concept of division and be able to use multiplication to solve division problems. She will use the ×3, ×4, and ×6 facts as stepping stones to the related division facts, so she should also be able to find answers to the ×3, ×4, and ×6 facts within several seconds.

What to Do If Your Child Needs More Practice

If your child can't find the answers to the ×3, ×4, and ×6 facts within several seconds, spend a day or two practicing these facts before moving on to Unit 12. **If you practice these multiplication facts for a day or two and find that your child does not have them fully mastered, move on to Unit 12 anyway.** Children vary in how long it takes them to develop speed and fluency with the multiplication facts, and your child will continue to practice them as she studies division in Unit 12.

Activities for Practicing the ×3, ×4, and ×6 Facts

- Multiplication Cover-Up (×3) (Lesson 4.1)
- Tic-Tac-Toe Crash (×3) (Lesson 4.2)
- Multiplication Crash (×4) (Lesson 4.4)
- Multiplication Undercover (×4) (Lesson 4.5)
- Dice Tic-Tac-Toe (Lesson 4.6)
- Tic-Tac-Toe Crash (×6) (Lesson 8.1)
- Multiplication Bingo (×6) (Lesson 8.2)
- Over Under (×6) (Lesson 9.4)