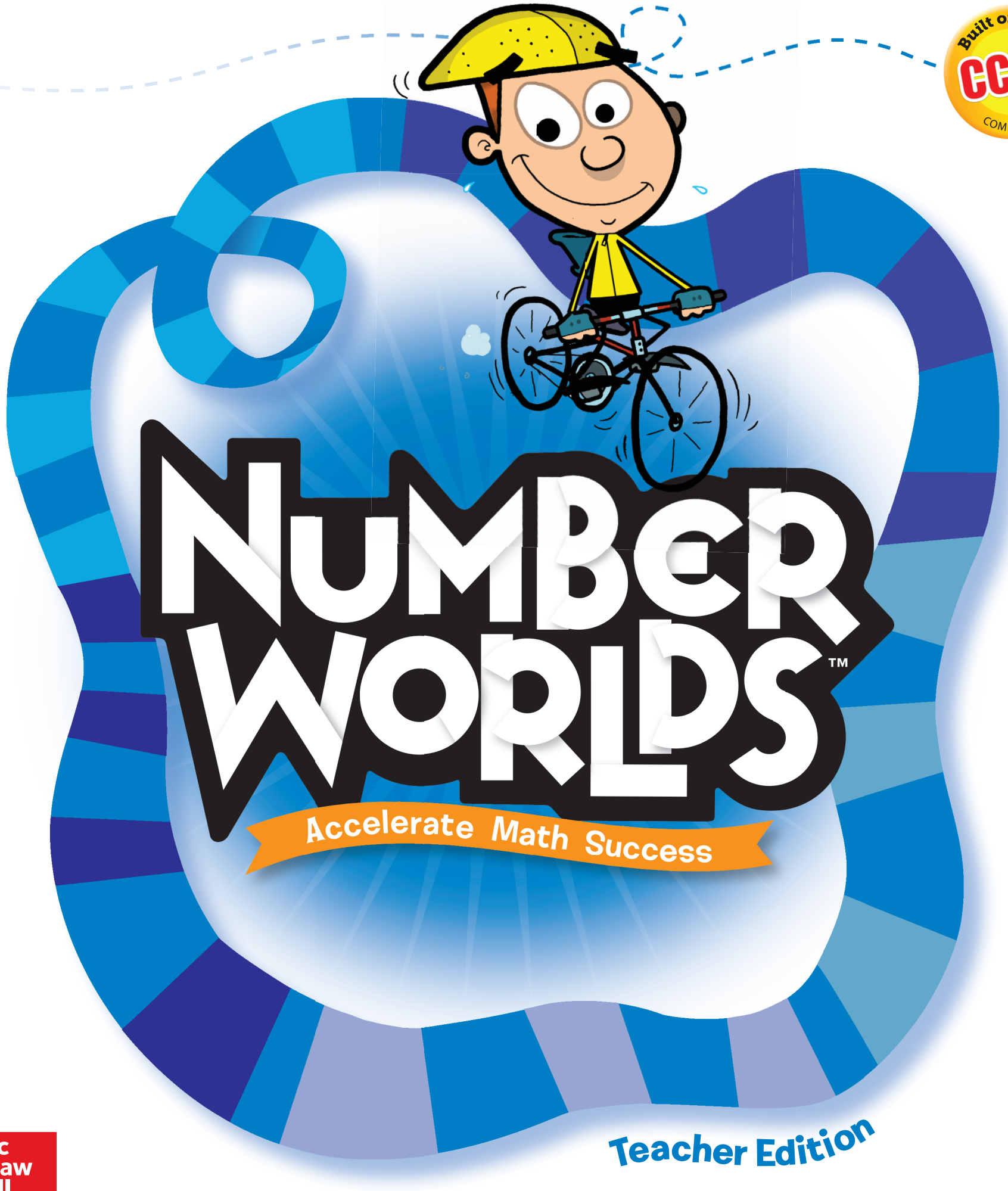


Teacher Edition

Mc Graw Hill Education

UNIT 5

Geometry and Measurement

Unit at a Glance

This ***Number Worlds*** unit builds on prior knowledge of linear measurements and the concepts of area and perimeter. Students can find angle measurements and determine if an angle is acute, right, obtuse, or straight. Students can recognize and name points, lines, rays, line segments, parallel lines, and perpendicular lines. Students can classify and name two-dimensional polygons. They can also convert between units of time, customary units of length, metric units of length, customary units of capacity and weight, as well as metric units of capacity and mass.

Skills Trace

Before Level F	Level F	After Level F
Level D Students can describe shapes and solids by their attributes, and they can measure weight and time. **Level E** Students can measure time, capacity, and length. Students also explore symmetry.	By the end of this unit, students should be able to determine the area and perimeter of a figure, measure angles using a protractor, and determine if an angle is acute, right, or obtuse. Students will also recognize and name geometric elements and figures, and convert units within different systems of measurement.	**Moving on to Level G** Students will further their understanding of area, with more in-depth study. They will also use graphs to represent points, lines, and simple figures.

Learning Technology

The following activities are available online to support the learning goals in this unit.

Building Blocks

- Angle Types
- Angle Compare
- Arrays in Area
- Geometry Snapshot 6

Digital Tools

- Arrays Tool
- Geometry Sketch Tool
- Metric and Customary Conversion Tool
- Multiplication Table Tool
- Shape Tool
- Shape Creator Tool

Unit Overview

Week	Focus
1	**Area and Perimeter of a Rectangle** • ***Teacher Edition,*** pp. 362–375 • ***Activity Cards,*** 5A, 5B, 5C, 5D • ***Student Workbook,*** pp. 5–16 • ***English Learner Support Guide,*** 94–95 • ***Assessment,*** 61–62
2	**Measuring Angles Using a Protractor** • ***Teacher Edition,*** pp. 376–389 • ***Activity Cards,*** 5E, 5F, 5G, 5H • ***Student Workbook,*** pp. 17–28 • ***English Learner Support Guide,*** 96–97 • ***Assessment,*** 63–64
3	**Points, Lines, Line Segments, Angles, and Rays** • ***Teacher Edition,*** pp. 390–403 • ***Activity Cards,*** 5I, 5J, 5K, 5L • ***Student Workbook,*** pp. 29–40 • ***English Learner Support Guide,*** 98–99 • ***Assessment,*** 65–66
4	**Classifying Polygons** • ***Teacher Edition,*** pp. 404–417 • ***Activity Cards,*** 5M, 5N, 5O, 5P • ***Student Workbook,*** pp. 41–52 • ***English Learner Support Guide,*** 100–101 • ***Assessment,*** 67–68
5	**Converting Units of Time and Length within the Same System** • ***Teacher Edition,*** pp. 418–431 • ***Activity Cards,*** 5Q, 5R, 5S, 5T • ***Student Workbook,*** pp. 53–64 • ***English Learner Support Guide,*** 102–103 • ***Assessment,*** 69–70
6	**Converting Units within the Same System** • ***Teacher Edition,*** pp. 432–445 • ***Activity Cards,*** 5U, 5V, 5W, 5X • ***Student Workbook,*** pp. 65–76 • ***English Learner Support Guide,*** 104–105 • ***Assessment,*** 71–72

Essential Question

HOW can I use measurements for building and designing?

In this unit, students will explore how geometry and measurement can be used to solve real-world problems by designing a clubhouse. Each week, students will use perimeter, area, angle measurements, and unit conversions to design and decorate a backyard clubhouse. In Week 6, students will use their designs to build a scale model of the clubhouse in the classroom.

Learning Goals	CCSS Key Standards
Students can explore the standard formulas for finding the area and perimeter of rectangles and find missing dimensions with known information. **Project:** Students can find the area and perimeter of rectangles.	**Domain:** Measurement and Data **Cluster:** Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. **4.MD.3:** Apply the area and perimeter formulas for rectangles in real world and mathematical problems.
Students can explore angle measures in circles and with pattern blocks, use a protractor to find the measure of an angle, and construct angles with a given measure. **Project:** Students can use a protractor to measure and identify angles.	**Domain:** Measurement and Data **Cluster:** Geometric measurement: understand concepts of angle and measure angles. **4.MD.6:** Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
Students can recognize and name points, lines, rays, line segments, acute angles, obtuse angles, right angles, parallel lines, and perpendicular lines. **Project:** Students can recognize lines, rays, line segments, acute, right, and obtuse angles, parallel and perpendicular lines.	**Domain:** Geometry **Cluster:** Draw and identify lines and angles, and classify shapes by properties of their lines and angles. **4.G.1:** Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
Students can classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or of angles of a specified size or type. **Project:** Students can determine which regular polygons tessellate.	**Domain:** Geometry **Cluster:** Draw and identify lines and angles, and classify shapes by properties of their lines and angles. **4.G.2:** Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.
Students can convert between units of time, customary units of length, and units of metric length. **Project:** Students can convert units of time and length.	**Domain:** Measurement and Data **Cluster:** Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. **4.MD.1:** Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.
Students can convert between customary units of capacity and weight, and metric units of capacity and mass. **Project:** Students can use what they have previously learned in the unit to design and build a house with craft sticks.	**Domain:** Measurement and Data **Cluster:** Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. **4.MD.1:** Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.
Daily lesson activities emphasize using communication, logic, reasoning, modeling, tools, precision, structure, and patterns to solve problems. All student activities, reflections, and assessments require application of the **Common Core Standards for Mathematical Practice.**	

WEEK 1

Area and Perimeter of a Rectangle

Week at a Glance

This week, students begin ***Number Worlds,*** Level F, Geometry and Measurement. Students will explore the standard formulas for finding area and perimeter of rectangles. Students will also apply those skills to real-world problems involving rectangles, and find missing dimensions with known information.

Skills Focus

- Use the standard formula to find the area of rectangles.
- Use the standard formula to find the perimeter of rectangles.
- Solve real-world problems by finding the area and perimeter of rectangles.
- Find a missing dimension when area and other dimensions are known.

How Students Learn

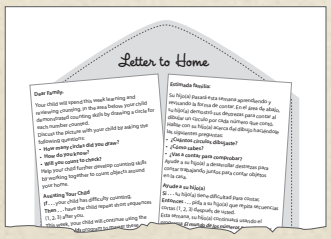
Building on students' knowledge of geometry, develop the concept of adding up lengths and widths to find perimeter, and multiplying length and width to find area. During early lessons, use visual examples of square units to reinforce results found using the algorithm. Students can more fully understand *perimeter* and *area* when they can visualize models and real-world examples.

English Learners ELL

For language support, use the ***English Learner Support Guide,*** pages 94–95, to preview lesson concepts and teach academic vocabulary. ***Number Worlds*** Vocabulary Cards are listed as additional materials in many lessons and can be used to preteach and reinforce academic vocabulary.

Math at Home

Give one copy of the Letter to Home, page 25, to each student. Encourage students to complete the activity with their caregivers.


Letter to Home

Dear Family,

Your child will spend this week learning and reviewing counting. In this area below, your child can practice counting skills by drawing a circle for each number counted.

Discuss the picture with your child by asking the following questions.

- How many circles did you draw?
- How do you know?
- Will you count to check?

Help your child further develop counting skills by working together to count objects around your home.

Assisting Your Child

If ... your child has difficulty counting

Then ... have the child repeat even sequences (1, 2, 3) after you.

this week, your child will continue using the

Estimada Familia:

Weekly Planner

Lesson	Learning Objectives	
1 pages 364–365	Students can find the area of rectangular shapes by using the standard formula.	
2 pages 366–367	Students can and use the formula ($P = 2l + 2w$) to find the perimeter of rectangles.	
3 pages 368–369	Students can solve real-world problems by finding the area and perimeter of rectangles.	
4 pages 370–371	Students can find the missing dimension of a rectangle when they know the area and one other dimension.	
5 pages 372–373	**Review and Assess** Students review skills learned this week, and complete the weekly assessment.	
Project pages 374–375	Students can find the area and perimeter of rectangles.	

Key Standard for the Week

Domain: Measurement and Data

Cluster: Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

4.MD.3 Apply the area and perimeter formulas for rectangles in real-world and mathematical problems.

	Materials		Technology
	Program Materials • ***Student Workbook,*** pp. 5–7 • ***Practice,*** p. 100 • Activity Card 5A, **Using the Formula for Area**	**Additional Materials** • 3 × 5 index cards • graph paper • paper • rulers (customary)* • scissors • Vocabulary Card 7, *area*	***Teacher Dashboard*** Building Blocks Arrays in Area
	Program Materials • ***Student Workbook,*** pp. 8–9 • ***Practice,*** p. 101 • Activity Card 5B, **Using the Formula for Perimeter** • Number Cards (0–100)	**Additional Materials** • graph paper • rulers (customary)* • Vocabulary Card 46, *perimeter*	***Teacher Dashboard*** Building Blocks Arrays in Area
	Program Materials • ***Student Workbook,*** pp. 10–11 • ***Practice,*** p. 102 • Activity Card 5C, **Area or Perimeter?** • Number 1–6 Cubes • Number 7–12 Cubes • Two-Color Counters	**Additional Materials** • graph paper • rulers (customary)* • Vocabulary Card 7, *area* • Vocabulary Card 46, *perimeter*	***Teacher Dashboard*** Building Blocks Arrays in Area
	Program Materials • ***Student Workbook,*** pp. 12–13 • ***Practice,*** p. 103 • Activity Card 5D, **Finding the Unknown Dimension**	**Additional Materials** • graph paper • paper • rulers (customary)* • Vocabulary Card 7, *area*	***Teacher Dashboard*** Arrays Tool
	Program Materials • ***Student Workbook,*** pp. 14–15 • Selected materials from Lessons 1–4 • Weekly Test, ***Assessment,*** pp. 61–62		Review previous activities.
	Program Materials ***Student Workbook,*** p. 16 Number (3–9) Cards	**Additional Materials** • graph paper • rulers (customary)*	

*Available from McGraw-Hill Education

WEEK 1

Area and Perimeter of a Rectangle

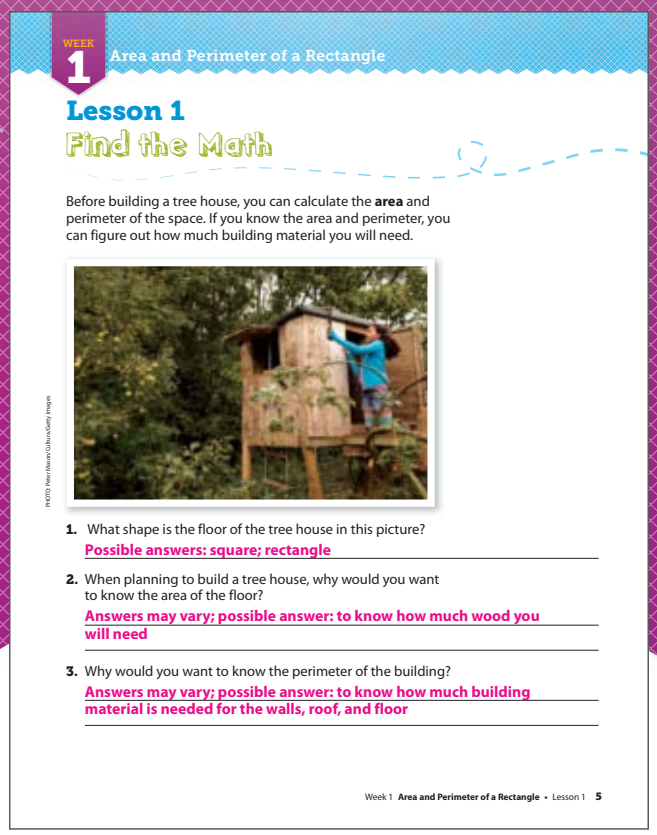
Find the Math

In this week, introduce students to finding the area and perimeter of rectangles.

Use the following to begin a guided discussion:

- **How can you tell if a table and chairs would fit inside a tree house you were building?**
  Answers may vary; possible answer: Compare the area of the furniture with the area of the tree house floor.

Have students complete ***Student Workbook,*** page 5.


WEEK 1 Area and Perimeter of a Rectangle

Lesson 1
Find the Math

Before building a tree house, you can calculate the **area** and perimeter of the space. If you know the area and perimeter, you can figure out how much building material you will need.

PHOTO: Peter Mason/Cultura/Getty Images

1. What shape is the floor of the tree house in this picture?
   Possible answers: square; rectangle
2. When planning to build a tree house, why would you want to know the area of the floor?
   Answers may vary; possible answer: to know how much wood you will need
3. Why would you want to know the perimeter of the building?
   Answers may vary; possible answer: to know how much building material is needed for the walls, roof, and floor

Week 1 Area and Perimeter of a Rectangle • Lesson 1 5

Student Workbook, p. 5

Lesson 1

Objective

Students can find the area of rectangular shapes by using the standard formula.

Standard

4.MD.3 Apply the area and perimeter formulas for rectangles in real-world and mathematical problems.

Vocabulary

area

Creating Context

Students who have lived outside of the United States may be more familiar with the metric system than with the customary system. Help students see which customary units of measure are similar in size to the metric measures. If students know, for example, that a soccer field would be better measured by meters than by centimeters, they will more easily understand why they would measure such large areas with yards rather than inches.

Materials

Additional Materials

- 3 × 5 index cards, 1 per student
- graph paper, 3 sheets per student
- paper, 1 sheet per student
- rulers (customary), 1 per student
- scissors, 1 per student
- Vocabulary Card 7, *area*

1 WARM UP

Prepare

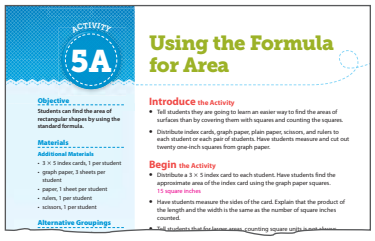
- **How many one-inch squares would we need to cover the floor of this classroom?**

Help students recognize that covering the floor with one-inch squares would not be an easy way to find the area of the classroom.

2 ENGAGE

Develop: Using the Formula for Area

"Today we will learn to use a formula to find the *area* of rectangles." Follow the instructions on the Activity Card **Using the Formula for Area.** As students complete the activity, be sure to use the Questions to Ask.


ACTIVITY 5A

Using the Formula for Area

Objective
Students can find the area of rectangular shapes by using the standard formula.

Materials
Additional Materials
- 3 × 5 index cards, 1 per student
- graph paper, 3 sheets per student
- paper, 1 sheet per student
- rulers, 1 per student
- scissors, 1 per student

Alternative Groupings

Introduce the Activity
- Tell students they are going to learn an easier way to find the areas of surfaces than by covering them with squares and counting the squares.
- Distribute index cards, graph paper, plain paper, scissors, and rulers to each student or each pair of students. Have students measure and cut out twenty one-inch squares from graph paper.

Begin the Activity
- Distribute a 3 × 5 index card to each student. Have students find the approximate area of the index card using the graph paper squares.
  15 square inches
- Have students measure the sides of the card. Explain that the product of the length and the width is the same as the number of square inches counted.
- Tell students that for larger areas, counting square units is not always

Activity Card 5A

Alternative Groupings

Pair: Have partners take turns measuring classroom objects, calculating the areas, and recording the data.

Whole Class: Have volunteers measure classroom objects, calculate the areas, and record the data on the board.

Progress Monitoring

If… students are having difficulty multiplying length and width,

Then… have students review their multiplication facts. Allow them to use calculators to check their paper-and-pencil computations.

Practice

Have students complete ***Student Workbook,*** pages 6–7. Guide students through the Key Idea example and the Try This exercises.

Interactive Differentiation

Consult the ***Teacher Dashboard*** for grouping suggestions. You can also use performance on the Engage activity to guide students.

Independent Practice

Building Blocks

For additional practice with finding the area of rectangles, students should use Arrays in Area. Have students understand multiplication as arrays and solve area problems.

Supported Practice

For additional support, students may do this exercise on graph paper:

- Have students draw Rectangle *A* that is 4 units long and 1 unit wide.
- Have students draw Rectangle *B* that is 4 units long and 2 units wide.
- Have students draw Rectangle *C* that is 4 units long and 3 units wide.

▶ **How can you find the area of Rectangle *A*?** Multiply 4 times 1; count 4 squares.

▶ **What is the area of Rectangle *A*?** 4 square units

▶ **How can you find the area of Rectangle *B*?** Multiply 4 times 2; count 8 squares.

▶ **What is the area of Rectangle *B*?** 8 square units

▶ **How can you find the area of Rectangle *C*?** Multiply 4 times 3; count 12 squares.

▶ **What is the area of Rectangle *C*?** 12 square units

3 REFLECT

Think Critically

Review students' answers to the Reflect prompt at the bottom of ***Student Workbook,*** page 7, and review the Engage activity.

▶ **If the rectangles in Problems 5 and 6 have the same area, why do they look different?** Answers may vary; they have different dimensions, but the product of their lengths and widths are the same.

▶ **How would you explain this concept to someone else?** Answers may vary.

4 ASSESS

Informal Assessment

Use the online or print Student Record, ***Assessment,*** page 128, to record informal observations.

Using the Formula for Area

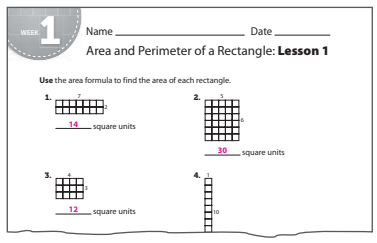
Did the student

☐ apply learning to a new situation? ☐ contribute answers?

☐ contribute concepts? ☐ connect mathematics to the real world?

Additional Practice

For additional practice, have students complete ***Practice,*** page 100.


WEEK 1 Name _____ Date _____

Area and Perimeter of a Rectangle: **Lesson 1**

Use the area formula to find the area of each rectangle.

1. 7 × 2 — 14 square units

2. 5 × 6 — 30 square units

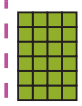
3. 4 × 3 — 12 square units

4. 1 × 10

Practice, p. 100

Lesson 1

Key Idea



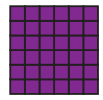
Area = length × width

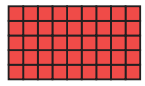
Area = 6 units × 4 units

Area = 24 square units

Try This

Use the formula to find the area of the rectangles. Show your work.

1. 
   6 × 6 = 36
   36 square units

2. 
   9 × 5 = 45
   45 square units

3. 
   3 × 6 = 18
   18 square units

4. 
   1 × 7 = 7
   7 square units

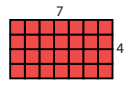
5. 
   4 × 6 = 24
   24 square units

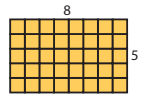
6. 
   3 × 8 = 24
   24 square units

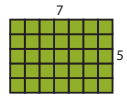
Practice

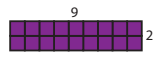
Use the formula to find the area of these rectangles.

7. 
   15 square units

8. 
   28 square units

9. 
   40 square units

10. 
    35 square units

11. 
    18 square units

12. 
    4 square units

Find the area of a rectangle with the given length and width.

13. length = 1 cm; width = 9 cm — 9 square centimeters
14. length = 8 yd; width = 2 yd — 16 square yards
15. length = 5 mm; width = 4 mm — 20 square millimeters
16. length = 3 m; width = 4 m — 12 square meters

Reflect

Notice that the rectangles in Problems 5 and 6 have the same area. Find the length and width of two other rectangles with the same area.

Possible answers: length = 1 unit and width = 24 units; length = 2 units and width = 12 units

Student Workbook, pp. 6–7

Area and Perimeter of a Rectangle

Lesson 2

Objective
Students can use the formula ($P = 2l + 2w$) to find the perimeter of rectangles.

Standard
4.MD.3 Apply the area and perimeter formulas for rectangles in real-world and mathematical problems.

Vocabulary
perimeter

Creating Context
Students may notice that the spelling of ***perimeter*** includes *meter*. Explain that the term *perimeter* is not part of the metric system. *Perimeter* can be measured using units from the customary, metric, or other measurement system. Make a list of units from the customary and metric systems that students can use to measure perimeter.

Materials
Program Materials
Number Cards (0–100), six per pair

Additional Materials
- graph paper
- rulers (customary), 1 per student
- Vocabulary Card 46, *perimeter*

Prepare Ahead
Distribute six (or more) Number Cards (1–10) to each pair of students.

1 WARM UP

Prepare
► **How many times would you need to use a ruler to find the distance around the room?**

Guide students to recognize that a standard ruler would not be the best measuring tool for finding the perimeter of the classroom.

Just the Facts
Have students give *thumbs up* for reasonable answers and *thumbs down* for unreasonable answers. Use statements such as the following:

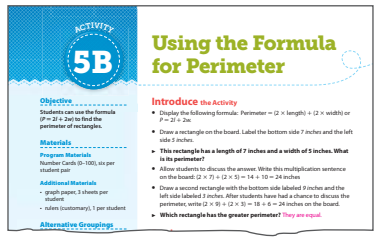
► **The product of 2 times 8 is 10.** thumbs down

► **The sum of 14 plus 12 is 26.** thumbs up

► **The product of 4 times 6 is 24.** thumbs up

2 ENGAGE

Develop: Using the Formula for Perimeter
"Today we will learn to find the perimeter of a rectangle by using a formula." Follow the instructions on the Activity Card **Using the Formula for Perimeter.** As students complete the activity, be sure to use the Questions to Ask.


ACTIVITY 5B

Using the Formula for Perimeter

Objective
Students can use the formula ($P = 2l + 2w$) to find the perimeter of rectangles.

Materials
Program Materials
Number Cards (0–100), six per student pair

Additional Materials
- graph paper, 3 sheets per student
- rulers (customary), 1 per student

Alternative Groupings

Introduce the Activity
- Display the following formula: Perimeter = (2 × length) + (2 × width) or $P = 2l + 2w$.
- Draw a rectangle on the board. Label the bottom side 7 inches and the left side 5 inches.
- ► **This rectangle has a length of 7 inches and a width of 5 inches. What is its perimeter?**
- Allow students to discuss the answer. Write this multiplication sentence on the board: (2 × 7) + (2 × 5) = 14 + 10 = 24 inches
- Draw a second rectangle with the bottom side labeled 9 inches and the left side labeled 3 inches. After students have had a chance to discuss the perimeter, write (2 × 9) + (2 × 3) = 18 + 6 = 24 inches on the board.
- ► **Which rectangle has the greater perimeter?** They are equal.

Activity Card 5B

Alternative Groupings
Individual: Have students pick two number cards, one representing the length of a rectangle and the other representing the width. Have each student draw a rectangle on graph paper and find the perimeter. Repeat the process three times, and have students label the largest and smallest perimeters.

Small Group: Provide each group with six Number Cards (1–10). Have each student pick two cards, one representing the length of a rectangle and the other representing the width. Have each player draw a rectangle on graph paper, and find the rectangle's perimeter. The player with the largest perimeter wins.

Progress Monitoring
If… students are having difficulty using the formula for the perimeter of a rectangle,

Then… have students use addition to find the perimeter. Remind students that a rectangle has two pairs of equal sides.

Practice
Have students complete ***Student Workbook,*** pages 8–9. Guide students through the Key Idea example and the Try This exercises.

Interactive Differentiation
Consult the ***Teacher Dashboard*** for grouping suggestions. You can also use performance on the Engage activity to guide students.

Independent Practice
Building Blocks

For additional practice finding the area and perimeter of rectangles, students should use Arrays in Area. Have students solve the area problem and write down the perimeter on paper.

Supported Practice
For additional support, use graph paper with students.

- Have students draw Rectangle *A* that is 2 units long and 1 unit wide.
- Have students draw Rectangle *B* that is 3 units long and 1 unit wide.
- Have students draw Rectangle *C* that is 4 units long and 1 unit wide.

► **How can you find the perimeter of Rectangle *A*? What is the perimeter of Rectangle *A*?** I can multiply 2 times 2 plus 2 times 1, or add 2 + 1 + 2 + 1; 6 units

► **How can you find the perimeter of Rectangle *B*? What is the perimeter of Rectangle *B*?** I can multiply 2 times 3 plus 2 times 1, or add 3 + 1 + 3 + 1; 8 units

► **How can you find the perimeter of Rectangle *C*? What is the perimeter of Rectangle *C*?** I can multiply 2 times 4 plus 2 times 1, or add 4 + 1 + 4 + 1; 10 units

3 REFLECT

Think Critically

Review students' answers to the Reflect prompt at the bottom of ***Student Workbook,*** page 9, and then review the Engage activity.

- **In problem 7, the figure is a square. How was finding the perimeter of a square similar to finding the perimeter of a rectangle?**
  I needed to multiply 2 times the length and 2 times the width, just like finding the perimeter of a rectangle.

Real-World Application

Nick wants to put a racing car border around his rectangular bedroom. He wants to know how much border he needs to buy.

- **How can Nick find out the length of border he will need?**
  Answers may vary; possible answer: He can measure the length of the walls of his bedroom and then add the lengths. If the opposite walls of the room have equal lengths, he can also use the formula for finding the perimeter of a rectangle.

4 ASSESS

Informal Assessment

Use the online or print Student Record, ***Assessment,*** page 128, to record informal observations.

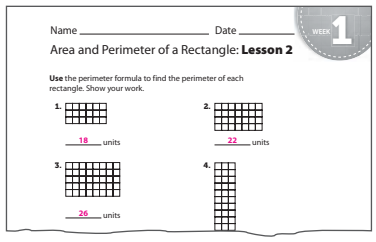
Using the Formula for Perimeter

Did the student

- ☐ apply learning to a new situation?
- ☐ contribute answers?
- ☐ contribute concepts?
- ☐ connect mathematics to the real world?

Additional Practice

For additional practice, have students complete ***Practice,*** page 101.


Name _____ Date _____

WEEK 1

Area and Perimeter of a Rectangle: **Lesson 2**

Use the perimeter formula to find the perimeter of each rectangle. Show your work.

1. 18 units
2. 22 units
3. 26 units
4.

Practice, p. 101

Lesson 2

Key Idea

Perimeter = 2 × length + 2 × width

Perimeter = 2 × 5 + 2 × 4

Perimeter = 10 + 8

Perimeter = 18 units

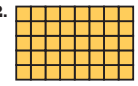
Try This

Use the perimeter formula to find the perimeter of the rectangle. Show your work.

1. 

   2 × 7 + 2 × 3 = 14 + 6 = 20

   20 units

2. 

   2 × 8 + 2 × 5 = 16 + 10 = 26

   26 units

3. 

   2 × 9 + 2 × 4 = 18 + 8 = 26

   26 units

Practice

Use the perimeter formula to find the perimeter of the rectangle.

4. 

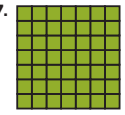
   24 units

5. 

   24 units

6. 

   20 units

7. 

   28 units

8. 

   22 units

9. 

   22 units

Find the perimeter of a rectangle with the given length and width.

10. length = 5 cm; width = 3 cm 16 centimeters

11. length = 7 in.; width = 2 in. 18 inches

12. length = 8 m; width = 7 m 30 meters

Reflect

Notice that the rectangles in Problems 2 and 3 have the same perimeter. Give the length and width of two other rectangles with the same perimeter.

Possible answers: length = 10 units and width = 3 units; length = 7 units and width = 6 units

Student Workbook, pp. 8–9

Area and Perimeter of a Rectangle

Lesson 3

Objective
Students can solve real-world problems by finding the area and perimeter of rectangles.

Standard
4.MD.3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems.

Vocabulary
- area
- perimeter

Creating Context
Help English Learners understand that a square is a rectangle with four equal sides.

Materials
Program Materials
- Number 1–6 Cubes, 1 per pair
- Number 7–12 Cubes, 1 per pair
- Two-Color Counters, 1 per pair

Additional Materials
- graph paper, 1 sheet per student
- rulers (customary), 1 per student
- Vocabulary Card 7, *area*
- Vocabulary Card 46, *perimeter*

1 WARM UP

Prepare
Area measures a surface of a closed figure. It is measured in square units. *Perimeter* measures the distance around a closed figure. It is measured in linear units. Have students decide whether they would need to determine the area or perimeter for the following situations:

- deciding the amount of wallpaper needed to cover a wall area
- deciding the amount of fencing needed to surround a garden perimeter

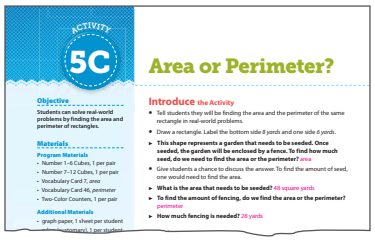
Just the Facts
Remind students that the formula for the area of a rectangle is ***Area*** = *length* × *width,* and the formula for the perimeter of a rectangle is ***Perimeter*** = (2 × *length*) + (2 × *width*).

Have students give *thumbs up* for correct answers and *thumbs down* for incorrect answers. Use statements such as the following:

- **The area of a rectangle 2 feet by 4 feet is 8 square feet.** thumbs up
- **The perimeter of a rectangle 2 feet by 4 feet is 10 feet.** thumbs down
- **Area is measured in square units.** thumbs up

2 ENGAGE

Develop: Area or Perimeter?
"Today we are going to solve real-world problems by finding the perimeter and the area of rectangles." Follow the instructions on the Activity Card **Area or Perimeter?** As students complete the activity, be sure to use the Questions to Ask.


ACTIVITY 5C
Area or Perimeter?
Objective
Students can solve real-world problems by finding the area and perimeter of rectangles.
Materials
Program Materials
- Number 1–6 Cubes, 1 per pair
- Number 7–12 Cubes, 1 per pair
- Vocabulary Card 7, *area*
- Vocabulary Card 46, *perimeter*
- Two-Color Counters, 1 per pair

Additional Materials
- graph paper, 1 sheet per student
Introduce the Activity
- Tell students they will be finding the area and the perimeter of the same rectangle in real-world problems.
- Draw a rectangle. Label the bottom side 8 yards and one side 6 yards.
- **This shape represents a garden that needs to be seeded. Once seeded, the garden will be enclosed by a fence. To find how much seed, do we need to find the area or the perimeter?** area
- Give students a chance to discuss the answer. To find the amount of seed, one would need to find the area.
- **What is the area that needs to be seeded?** 48 square yards
- **To find the amount of fencing, do we find the area or the perimeter?** perimeter
- **How much fencing is needed?** 28 yards

Activity Card 5C

Alternative Groupings
Small group: Students should take turns tossing the number cube. The first toss represents the length of a rectangle, and the second toss represents the width. Have students calculate the area and perimeter of their rectangles. Then have group members compare their findings. Students with the largest area and perimeter receive a point. Students having the most points after two rounds win.

Individual: Have students toss the number cube. The first toss represents the length of a rectangle, and second toss represents the width. Have students write their own real-world problems focusing on area and perimeter.

Progress Monitoring
If… students are having difficulty determining whether to find area or perimeter,

Then… tell students that people often use area rugs to cover their floors. Then have students draw and shade rectangles on graph paper, identifying the area and perimeter of the figures.

Practice
Have students complete ***Student Workbook,*** pages 10–11. Guide students through the Key Idea example and the Try This exercises.

Interactive Differentiation
Consult the ***Teacher Dashboard*** for grouping suggestions. You can also use performance on the Engage activity to guide students.

Independent Practice
Building Blocks

For additional practice finding the area of rectangles, students should use Arrays in Area. Have students build arrays and determine the area of those arrays.

Supported Practice
For additional support, use graph paper with students.

- Have students draw a rectangle that is 4 units long and 2 units wide.
- **How can you find the perimeter of the rectangle? What is the perimeter of the rectangle?** I can multiply 4 times 2 plus 2 times 2; I can also add 4 + 2 + 4 + 2; 12 units
- **How can you find the area of the rectangle? What is the area of the rectangle?** I can multiply 4 times 2; I can also count the squares; 8 square units

3 REFLECT

Think Critically

Review students' answers to the Reflect prompt at the bottom of ***Student Workbook,*** page 11, and then review the Engage activity.

- **Will the way in which Ming puts the rugs end-to-end change the area of the rugs? Why?** No. The two rugs do not change in size, so they cover the same amount of area. When we put the rugs together, the rugs will either be 16 feet by 4 feet or 8 feet by 8 feet; both areas are 64 square feet.
- **Will the way in which Ming puts the rugs end-to-end change the perimeter of the floor covering? Why?** Yes. When put together, the rugs will either be 16 feet by 4 feet or 8 feet by 8 feet. When the rugs are placed so they measure 16 feet by 4 feet, the perimeter equals 40 feet. When the rugs are placed to measure 8 feet by 8 feet, the perimeter is 32 feet.

Real-World Application

- **Camilla wants to paint one of the walls in her bedroom. To find out how much paint to buy, does she need to find the area or the perimeter of the wall? How do you know?** Possible answer: area; she needs to paint the entire wall, not just a line around the wall. Therefore, she must find the area.

4 ASSESS

Informal Assessment

Use the online or print Student Record, ***Assessment,*** page 128, to record informal observations.

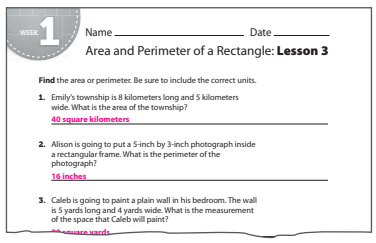
Area or Perimeter?

Did the student

- ☐ apply learning to a new situation?
- ☐ contribute answers?
- ☐ contribute concepts?
- ☐ connect mathematics to the real world?

Additional Practice

For additional practice, have students complete ***Practice,*** page 102.


WEEK 1

Name _____ Date _____

Area and Perimeter of a Rectangle: **Lesson 3**

Find the area or perimeter. Be sure to include the correct units.

1. Emily's township is 8 kilometers long and 5 kilometers wide. What is the area of the township?
   40 square kilometers
2. Alison is going to put a 5-inch by 3-inch photograph inside a rectangular frame. What is the perimeter of the photograph?
   16 inches
3. Caleb is going to paint a plain wall in his bedroom. The wall is 5 yards long and 4 yards wide. What is the measurement of the space that Caleb will paint?

***Practice,* p. 102**

Lesson 3

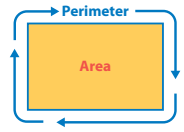
Key Idea

Use **perimeter** to measure the distance around a rectangle.

$P = 2l + 2w$

Use **area** to measure the space inside a rectangle.

$A = l \times w$



Try This

Find the area or perimeter. Show your work.

1. Jayden bought a doghouse that is 6 feet long and 4 feet wide. What is the area of the doghouse?

$6 \times 4 = 24$

24 square feet

2. Amanda is drawing a rectangular box with chalk for a game. The box is 5 feet long and 3 feet wide. What is the perimeter of the box?

$2 \times 5 + 2 \times 3 = 10 + 6 = 16$

16 feet

3. Min has a rectangular rug in her bedroom that is 8 feet long and 4 feet wide. How much floor space does the rug cover?

$8 \times 4 = 32$

32 square feet

Practice

Find the area or perimeter. Make sure to include the correct units.

4. A square garden is 8 meters on each side. What is the perimeter of the garden?

32 meters

5. The floor of a rectangular shed is 7 yards long and 5 yards wide. What is the area of the floor of the shed?

35 square yards

6. Anna wants to carpet her bedroom floor, which is rectangular. The floor is 6 yards long and 5 yards wide. How much carpeting does Anna need to carpet the floor?

30 square yards

7. Jorge has a rectangular poster on his wall that is 3 feet long and 2 feet wide. What is the area of the poster?

6 square feet

8. Rick wants to put a border around his rectangular bedroom. The room is 5 meters long and 4 meters wide. How much border does Rick need?

18 meters

Reflect

If Min puts two rectangular rugs that are each 8 feet long and 4 feet wide side by side, how much area would the two rugs cover? Explain your answer.

64 square feet. Possible explanation: The rugs put together would either measure 16 feet by 4 feet or 8 feet by 8 feet. Either way, the area is 64 square feet.

***Student Workbook,* pp. 10–11**

Area and Perimeter of a Rectangle

Lesson 4

Objective
Students can find the missing dimension of a rectangle when they know the area and one other dimension.

Standard
4.MD.3 Apply the area and perimeter formulas for rectangles in real-world and mathematical problems.

Vocabulary
area

Creating Context
Help English Learners understand that two figures can have the same perimeter but different areas. Have students draw two rectangles to validate this statement.

Materials
Additional Materials
- graph paper, 1 sheet per student
- paper, 1 sheet per student
- rulers (customary), 1 per student

1 WARM UP

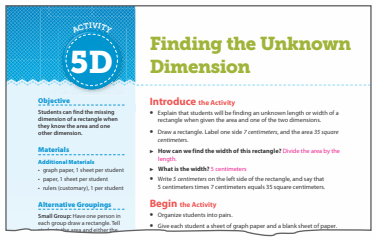
Prepare
Remind students that *area* is the measure in square units of the region inside a closed figure. Show students that if they know the area and one of the dimensions of a rectangle, they can use the formula for the area to find the unknown dimension.

Just the Facts
Have students give *thumbs up* for correct answers and *thumbs down* for incorrect answers. Use statements such as the following:

- ▸ **42 divided by 6 is 7.** thumbs up
- ▸ **56 divided by 7 is 9.** thumbs down
- ▸ **45 divided by 9 is 5.** thumbs up

2 ENGAGE

Develop: Finding the Unknown Dimension
"Today we are going to find an unknown dimension of a rectangle when we're given the area and one dimension." Follow the instructions on the Activity Card **Finding the Unknown Dimension.** As students complete the activity, be sure to use the Questions to Ask.


ACTIVITY 5D

Finding the Unknown Dimension

Objective
Students can find the missing dimension of a rectangle when they know the area and one other dimension.

Materials
Additional Materials
- graph paper, 1 sheet per student
- paper, 1 sheet per student
- rulers (customary), 1 per student

Alternative Groupings
Small Group: Have one person in each group draw a rectangle. Tell

Introduce the Activity
- Explain that students will be finding an unknown length or width of a rectangle when given the area and one of the two dimensions.
- Draw a rectangle. Label one side *7 centimeters*, and the area *35 square centimeters*.
- ▸ **How can we find the width of this rectangle?** Divide the area by the length.
- ▸ **What is the width?** 5 centimeters
- Write *5 centimeters* on the left side of the rectangle, and say that 5 centimeters times 7 centimeters equals 35 square centimeters.

Begin the Activity
- Organize students into pairs.
- Give each student a sheet of graph paper and a blank sheet of paper.

Activity Card 5D

Alternative Groupings
Small Group: Have one person in each group draw a rectangle. Tell students the area and either the length or the width of the rectangle.

Whole Group: Draw a rectangle for everyone to see. Ensure that the rectangle has a length and a width of 10 or fewer units. Provide the area and the length of the rectangle. Ask students to figure out the width.

Progress Monitoring
If… students are having difficulty finding the unknown dimension of a rectangle when given the area and one dimension,

Then… remind students that they can find the area of a rectangle by multiplying its two dimensions, length times width. Then demonstrate that they can find the measure of an unknown dimension, simply by dividing the area by the known dimension.

Practice
Have students complete ***Student Workbook,*** pages 12–13. Guide students through the Key Idea example and the Try This exercises.

Interactive Differentiation
Consult the ***Teacher Dashboard*** for grouping suggestions. You can also use performance on the Engage activity to guide students.

Independent Practice
For additional practice with finding the area of rectangles, students should use the Arrays Tool. Have students input the area, and provide the length and width for each rectangle.

Supported Practice
For additional support, have students do the following activity on graph paper.

- Have students draw a rectangle that is 5 units long and 3 units wide.
- ▸ **How can we find the area of the rectangle without counting the squares? What is the area of the rectangle?** Multiply 5 times 3; the area equals 15 square units.
- ▸ **If we know the area of the rectangle is 15 square units and the width is 3 units, how can we find the length? What is the length of the rectangle?** Divide 15 by 3; the length equals 5 units.

3 REFLECT

Think Critically

Review students' answers to the Reflect prompt at the bottom of ***Student Workbook,*** page 13, and then review the Engage activity.

- **Can the length ever be equal to the width when finding the unknown dimension of a rectangle? If yes, how can that shape be described?** The length of a rectangle can equal its width. That shape is called a *square*.
- **How can you check if the measure of the unknown dimension is correct?** Multiply the length times the width. If the product is equal to the area, the answer is correct.

Real-World Application

Mrs. Johnson is planning to grow a vegetable garden in her backyard. She has decided that the area of her garden should be 24 square yards. She wants the dimensions to be measured in whole numbers.

- **How can Mrs. Johnson figure out what dimensions her garden could be?** Answers may vary; possible answer: She can divide the area by different numbers representing one dimension to find the second dimension.

4 ASSESS

Informal Assessment

Use the online or print Student Record, ***Assessment,*** page 128, to record informal observations.

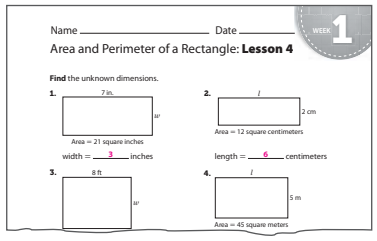
Finding the Unknown Dimension

Did the student

- ☐ provide a clear explanation?
- ☐ choose appropriate strategies?
- ☐ communicate reasons and strategies?
- ☐ argue logically?

Additional Practice

For additional practice, have students complete ***Practice,*** page 103.


Name _____ Date _____

WEEK 1

Area and Perimeter of a Rectangle: **Lesson 4**

Find the unknown dimensions.

1. 7 in. — w — Area = 21 square inches — width = 3 inches

2. l — 2 cm — Area = 12 square centimeters — length = 6 centimeters

3. 8 ft — w — Area = 45 square meters

4. l — 5 m

Practice, p. 103

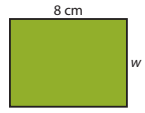
Week 1 • Area and Perimeter of a Rectangle

Lesson 4

Key Idea

Using the formula for **area,** find the unknown dimension when the total area and one dimension are given.

Area = 48 square centimeters



Area = length × width
Width = Area ÷ length
Length = Area ÷ width

Width = Area ÷ length
Width = 48 ÷ 8
Width = 6

Try This

Find the unknown dimension. Show your work.

1. 7 in. — w

Area = 28 square inches

28 ÷ 7 = 4

width = 4 inches

2. l — 6 in.

Area = 54 square inches

54 ÷ 6 = 9

length = 9 inches

Practice

Find the unknown dimension.

3. 8 in. — w

Area = 56 square inches

width = 7 inches

4. l — 6 cm

Area = 48 square centimeters

length = 8 centimeters

5. l — 4 m

Area = 24 square meters

length = 6 meters

6. 9 yd — w

Area = 36 square yards

width = 4 yards

7. l — 8 in.

Area = 72 square inches

length = 9 inches

8. 8 yd — w

Area = 24 square yards

width = 3 yards

Find the unknown dimension.

9. Area = 30 square centimeters; length = 6 cm

width = 5 centimeters

10. Area = 18 square feet; width = 3 ft

length = 6 feet

11. Area = 49 square inches; length = 7 in.

width = 7 inches

12. Area = 63 square meters; width = 7 m.

length = 9 meters

Reflect

Explain how to find an unknown dimension of a rectangle when given the area and one dimension.

Answers may vary; possible answer: I can divide the area by the known dimension to find the unknown dimension.

12 Level F Unit 5 Geometry and Measurement

Week 1 Area and Perimeter of a Rectangle • Lesson 4 13

Student Workbook, pp. 12–13

Lesson 5 Review

Objective
Students review skills learned this week and complete the weekly assessment and project.

Standard
4.MD.3 Apply the area and perimeter formulas for rectangles in real-world and mathematical problems.

Vocabulary
Review vocabulary introduced during the week.

Creating Context
Remind English Learners that units of measurement can come from the metric system, customary system, or other non-standard systems. Also remind students that no matter the unit, *area* is described in square units, and all the square units of a region must be the same size.

1 WARM UP

Prepare
Review the mechanics of finding *area* and *perimeter* by asking the following questions:

- **How do you find the area of a rectangle without counting squares?** Multiply the length times the width.
- **How do you find the perimeter of a rectangle?** Add the products of 2 times the length and 2 times the width. Or, add the lengths of each side.
- **If you know the area and one dimension of a rectangle, how can you find the measure of the other dimension?** Divide the area by the known dimension.

2 ENGAGE

Practice
Have students complete ***Student Workbook,*** pages 14–15.

Lesson 5 Review

This week you learned how to use formulas to find the area and perimeter of rectangles. You also learned how to find the unknown dimension of a rectangle when given the area and one of the dimensions.

Lesson 1 **Use** the area formula to find the area of the rectangles.

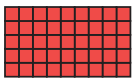
1. 

30 square units

2. 

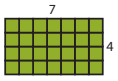
32 square units

Lesson 2 **Use** the perimeter formula to find the perimeter of the rectangles. Show your work.

3. 

$2 \times 9 + 2 \times 5 = 18 + 10 = 28$

28 units

4. 

$2 \times 7 + 2 \times 4 = 14 + 8 = 22$

22 units

Lesson 3 **Find** the area or perimeter. Make sure to include the correct units.

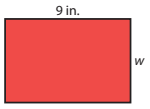
5. Abby is going to draw a rectangle that is 4 meters long and 3 meters wide. How many meters of line segments will Abby draw?

14 meters

6. Logan's bedroom window is 6 feet long and 3 feet wide. How much space does the window take?

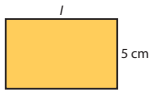
18 square feet

Lesson 4 **Find** the unknown dimension.

7. 

Area = 54 square inches

width = 6 inches

8. 

Area = 40 square centimeters

length = 8 centimeters

Reflect

A square closet floor has sides of 4 feet. What is the perimeter and area of the closet floor?

Perimeter = 16 feet

Area = 16 square feet

Are the perimeter and area of the closet floor the same? Explain your answer.

No; possible explanation: The numbers are the same, but perimeter and area are measured in different units; they cannot be compared.

Student Workbook, pp. 14–15

3 REFLECT

Think Critically

Review students' answers to the Reflect prompt at the bottom of ***Student Workbook,*** page 15.

Discuss the answer with the group to reinforce Week 1 concepts.

4 ASSESS

Formal Assessment

Students may take the weekly assessment online.

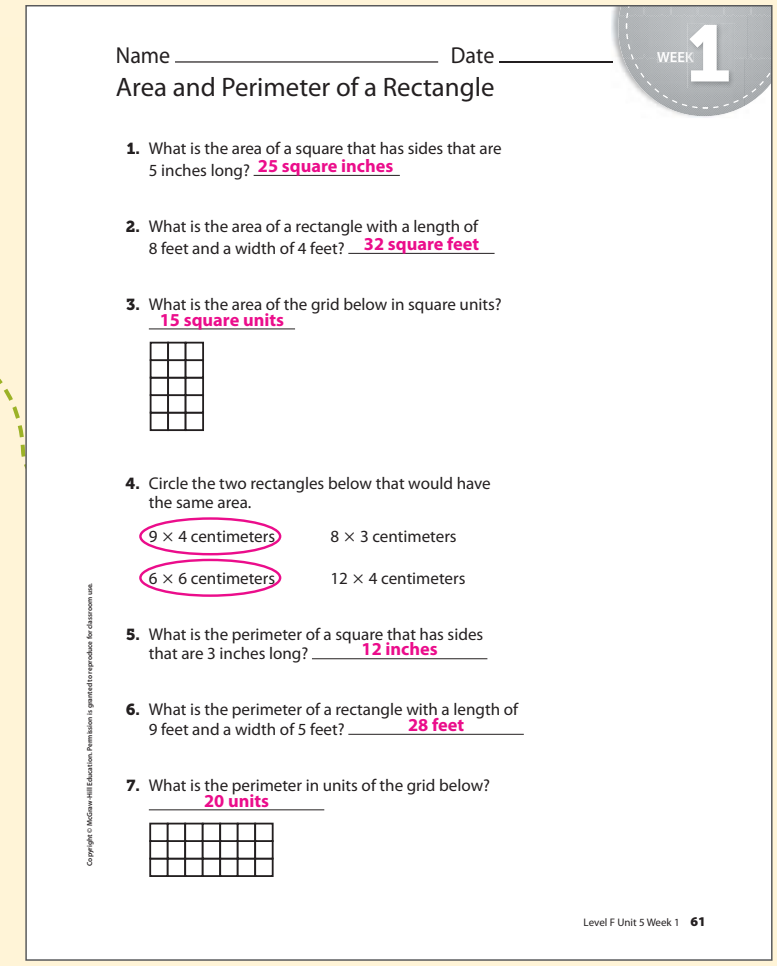
As an alternative, students may complete the weekly test on ***Assessment,*** pages 61–62. Record progress using the Student Assessment Record, ***Assessment,*** page 128.

Going Forward

Use the ***Teacher Dashboard*** to view results of the online assessments, to input the results of print student assessments, and to review progress before making decisions about next steps. Use the weekly test results and observations to determine the next steps for each student.

Retention	
Student displays good grasp of this week's concepts and skills.	Have students find the area of a rectangle given the length and width, or have students find one dimension given the area and the other dimension. For example, if a rectangle has a length of 8 units and a width of 6 units, have students find the area. Or, if given the area of 48 square units and a length of 8 units, have students find the width.
Remediation	
Student is still struggling with the week's concepts and skills.	Have students practice multiplication and division facts. Present multiplication facts from 2 × 2 to 9 × 9, and have students find the products.

Suggestions for Re-Evaluation: If a student has struggled without success for several weeks, use observations and test results to place the student at a level in which he or she can find success and build confidence to move forward.



Name _____ Date _____

WEEK 1

Area and Perimeter of a Rectangle

1. What is the area of a square that has sides that are 5 inches long? 25 square inches

2. What is the area of a rectangle with a length of 8 feet and a width of 4 feet? 32 square feet

3. What is the area of the grid below in square units? 15 square units

4. Circle the two rectangles below that would have the same area.

   9 × 4 centimeters 8 × 3 centimeters

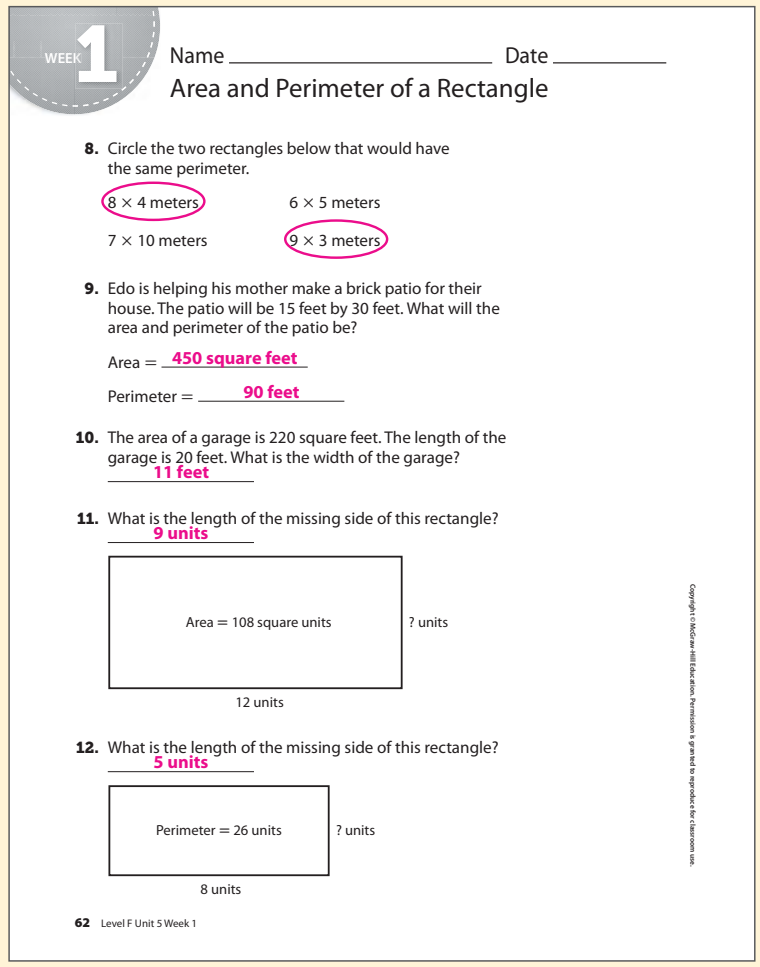
   6 × 6 centimeters 12 × 4 centimeters

5. What is the perimeter of a square that has sides that are 3 inches long? 12 inches

6. What is the perimeter of a rectangle with a length of 9 feet and a width of 5 feet? 28 feet

7. What is the perimeter in units of the grid below? 20 units

Level F Unit 5 Week 1 61



WEEK 1

Name _____ Date _____

Area and Perimeter of a Rectangle

8. Circle the two rectangles below that would have the same perimeter.

   8 × 4 meters 6 × 5 meters

   7 × 10 meters 9 × 3 meters

9. Edo is helping his mother make a brick patio for their house. The patio will be 15 feet by 30 feet. What will the area and perimeter of the patio be?

   Area = 450 square feet

   Perimeter = 90 feet

10. The area of a garage is 220 square feet. The length of the garage is 20 feet. What is the width of the garage? 11 feet

11. What is the length of the missing side of this rectangle? 9 units

12. What is the length of the missing side of this rectangle? 5 units

62 Level F Unit 5 Week 1

Assessment, pp. 61–62

Project Preview

This week, students learned about area and perimeter. The project for this unit requires students to extend the knowledge they gained in Find the Math and what they have learned this week. They will use area and perimeter to help them design a clubhouse.

Project-Based Learning

Standards-driven Project-Based Learning is effective in building deep content understanding. Project-Based Learning increases long-term retention of concepts and has been shown to be more effective than traditional instruction. Completing a project to answer an essential question challenges students to apply and demonstrate mastery of concepts and skills by expressing understanding through discussion, research, and presentation.

Essential Question

HOW can I use measurements for building and designing?

Project Evaluation Criteria

Review project evaluation criteria with students prior to beginning the project.

Exceeds Expectations

- ☐ Project result is explained and can be extended.
- ☐ Project result is explained in context and can be applied to other situations.
- ☐ Project result is explained using advanced mathematical vocabulary.
- ☐ Project result is explained and extended, and shows advanced knowledge of mathematical concepts and skills.

Meets Expectations

- ☐ Project result is explained.
- ☐ Project result is explained in context.
- ☐ Project result is explained using mathematical vocabulary.
- ☐ Project result is described, and mathematics are used correctly.
- ☐ Project result is explained, and shows satisfactory knowledge of mathematical concepts and skills.

Does Not Meet Expectations

- ☐ Project result is not explained.
- ☐ Project result is explained, but out of context.
- ☐ Project result is explained, but mathematical vocabulary is oversimplified.
- ☐ Project result is described, but mathematics are not used correctly.
- ☐ Project result is not explained and or extended, or shows less than satisfactory knowledge of mathematical concepts and skills.

Design Your Own Clubhouse

Objective

Students can find the area and perimeter of rectangles.

Standard

4.MD.3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems.

Materials

Program Materials

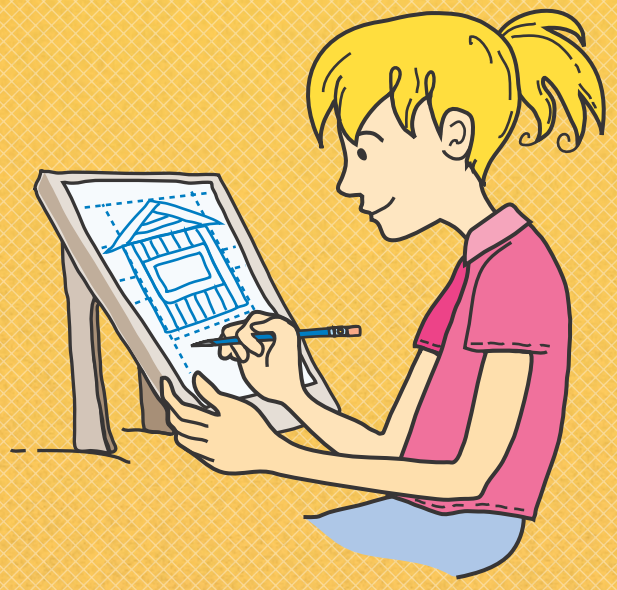
Number Cards (3–9)

Additional Materials

- grid paper/graph paper
- ruler

Best Practices

- Set clear expectations, rules, and procedures.
- Allow students to self-monitor.
- Provide project directions that are clear and brief.



Introduce

This week you will start to design a clubhouse. What are some ways that one clubhouse differs from another?

- ► **What kinds of things can you do in a clubhouse?**
- ► **What shape or shapes would you use to design the floor, the walls, and the roof?**
- ► **If you were to design your own clubhouse, what measures would you need to know?**

Explore

- ► **Today you will begin to design a clubhouse. The floor of your clubhouse will be in the shape of a rectangle.**

Have each student choose a number card between 3 and 9 for the length, in yards, of the clubhouse.

Have each student choose a number card between 3 and 9 for the width, in yards, of the clubhouse.

- ► **What is the length and width of your clubhouse?**

Have each student respond to this question by writing the length and width for the clubhouse.

Have each student choose a number card between 6 and 9 for the height of the walls of the clubhouse.

- ► **What is the height of your clubhouse?**

Have each student respond to this question by writing the height for the clubhouse.

- ► **Complete *Student Workbook,* page 16.**

Wrap Up

- Allow students time to write a multiplication sentence that represents the area of the floor.
- Make sure each student can explain how he or she determined the area of each wall.
- Make sure each student can explain how he or she determined the amount of border needed.
- If students struggle to find an area, have them practice their multiplication facts.
- Discuss students' answers to the Reflect prompt at the bottom of ***Student Workbook,*** page 16.

You may distribute construction paper or grid paper for students to draw the designs of their clubhouses.

- ► **Show a design of the floor. Make sure to label the length and width of the floor.**
- ► **Show a design of the walls. Make sure to label the length and height of each wall.**

If time permits, allow students to design their clubhouses to include rectangular windows and a rectangular door. Have students find the area of the window and the door.

Project-Based Learning

Project
Design Your Own Clubhouse

Think about having your own private clubhouse. What would you do in your clubhouse?

1. What will be the length and the width of the floor? **Answers may vary.**
2. What will be the height of the walls? **Answers may vary.**
3. What will be the area of the floor? **Answers may vary.**
4. The walls will be rectangular. How can you find the area of each wall? **Multiply the length times the width of each wall.**
5. What is the area of each wall? What is the total area of all of the walls? **Answers may vary.**
6. Suppose you want to decorate the walls with a border that goes all the way around your building. What measure would you want to know in order to decide how much border you would need? **perimeter**
7. What length of border will be needed for your clubhouse? **Answers may vary.**

Reflect

What are two ways to find the perimeter of a rectangle?

Answers may vary; possible answer: Add the length and width, and then multiply the sum by 2, or add the lengths of all 4 sides.

Student Workbook, p. 16

Teacher Reflect

- ☐ Did I explain the directions before the students began their projects?
- ☐ Did students focus on the major concept of the activity?
- ☐ Did students finish all the steps required by the project?

LEVEL F

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MHID 0-02-129479-8
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