North Penn School District

Elementary Math Parent Letter

Grade 3

Unit 6 – Chapter 11: Perimeter and Area

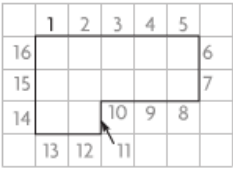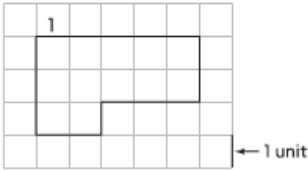**Examples for each lesson:**

Lesson 11.1

Model Perimeter

Perimeter is the distance around a shape.

Find the perimeter of the shape.

Step 1 Choose a unit to begin counting and label it 1.

Step 2 Count each unit around the shape to find the perimeter.
16 units

So, the perimeter of the shape is **16** units.

More information on this strategy is available on Animated Math Model #44.

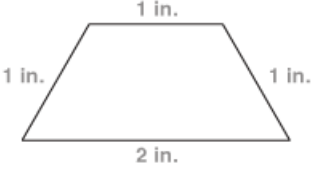**Lesson 11.2**

Find Perimeter

Kelsey wants to know the perimeter of the shape below. She can use an inch ruler to find the perimeter.

Step 1 Choose one side of the shape to measure. Place the zero mark of the ruler on the end of the side. Measure to the nearest inch. Write the length.

Step 2 Use the ruler to measure the other three sides. Write the lengths.

Step 3 Add the lengths of all the sides.
$1 + 1 + 2 + 1 = 5$
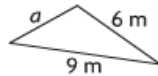
So, the perimeter of the shape is **5** inches.

More information on this strategy is available on Animated Math Model #44.

Algebra • Find Unknown Side Lengths

An unknown side length is a side that does not have its length labeled with a number. Instead the side is labeled with a symbol or letter, such as *a*.

The perimeter of the shape is 20 meters. Find the length of side *a*.

Think: There is only one unknown side length.

Step 1 Add the *known* side lengths.

$6 + 9 = 15$

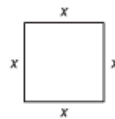**Step 2** Subtract the sum of the known side lengths from the perimeter.

$20 - 15 = 5$

Step 3 Add to check your work.

$6 + 9 + 5 = 20 ✓$

So, the unknown side length, *a*, is 5 meters.

The perimeter of the square is 12 feet. What is the length of each side of the square?

Think: A square has four sides of equal length.

Step 1 Divide the perimeter by the number of sides.

$12 ÷ 4 = 3$

Step 2 Multiply to check your work.

$4 × 3 = 12 ✓$

So, the length of each side, *x*, is 3 feet.

More information on this strategy is available on Animated Math Model #44.
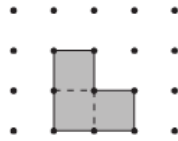
Lesson 11.4

Understand Area

A unit square is a square with a side length of 1 unit. Area is the measure of the number of unit squares needed to cover a surface. A square unit is used to measure area.
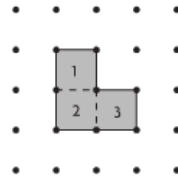
What is the area of the shape?

Step 1 Draw lines to show each unit square in the shape.

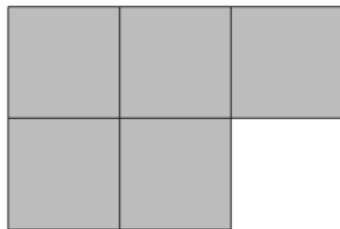**Step 2** Count the number of unit squares to find the area.

The area of the shape is 3 square units.

More information on this strategy is available on Animated Math Model #45.

Lesson 11.5

Measure Area

Find the area of the shape. Each unit square is 1 square inch.

Think: How many unit squares are needed to cover this flat surface?

Step 1 Use 1-inch square tiles. Cover the surface of the shape with the tiles. Make sure there are no gaps (space between the tiles). Do not overlap the tiles.

Step 2 Count the tiles you used. 5 tiles are needed to cover the shape.
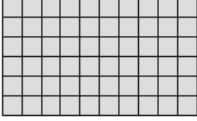
So, the area of the shape is 5 square inches.

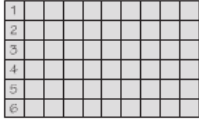More information on this strategy is available on Animated Math Model #46.

Lesson 11.6

Use Area Models

> **Use multiplication to find the area of the shape.**
> **Each unit square is 1 square meter.**
>
> **Step 1** Count the number of rows.
> There are **6** rows.
>
> **Step 2** Count the number of unit squares in each row. There are **10** unit squares.
>
> **Step 3** Multiply the number of rows by the number in each row to find the area.
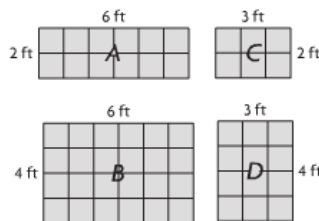>
> number of rows × number in each row = area
>
>   6   ×   10   = **60**
>
> So, the area of the shape is **60** square meters.

Lesson 11.7

Problem Solving • Area of Rectangles

Mrs. Wilson wants to plant a garden, so she drew plans for some sample gardens. She wants to know how the areas of the gardens are related. How will the areas of Gardens A and B change? How will the areas of Gardens C and D change?

Use the graphic organizer to help you solve the problem.

Read the Problem

What do I need to find?	What information do I need to use?	How will I use the information?
I need to know how the areas will change from *A* to *B* and from **C** to **D**.	I need to use the **length** and **width** of each garden to find its area.	I will record the areas in a table. Then I will look for a pattern to see how the **areas** will change.

Solve the Problem

	Length	Width	Area		Length	Width	Area
Garden A	2 ft	6 ft	12 sq ft	Garden C	2 ft	3 ft	6 sq ft
Garden B	4 ft	6 ft	24 sq ft	Garden D	4 ft	3 ft	12 sq ft

From the table, I see that the lengths will be doubled and the widths will be the same.
The areas in square feet will change from **12** to **24** and from **6** to **12**.
So, the area will be **doubled**.

Lesson 11.8

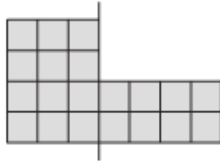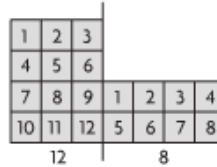## Area of Combined Rectangles

You can break apart a shape into rectangles to find the total area of the shape.
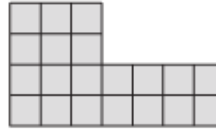
Step 1 Draw a line to break apart the shape into two rectangles.

Step 2 Count the number of unit squares in each rectangle.

1	2	3				
4	5	6				
7	8	9	1	2	3	4
10	11	12	5	6	7	8

12   8

Step 3 Add the number of unit squares in each rectangle to find the total area.

$12 + 8 = 20$ unit squares

So, the area of the shape is 20 square units.

Lesson 11.9

Same Perimeter, Different Areas

You can use perimeter and area to compare rectangles.

Compare the perimeters of Rectangle A and Rectangle B.

A

Find the number of units around each rectangle.

Rectangle A: $3 + 2 + 3 + 2 = 10$ units

Rectangle B: $4 + 1 + 4 + 1 = 10$ units

B

Compare: 10 units = 10 units

So, Rectangle A has the same perimeter as Rectangle B.

Compare the areas of Rectangle A and Rectangle B.

A

Find the number of unit squares needed to cover each rectangle.

Rectangle A: 2 rows of $3 = 2 \times 3$, or 6 square units

Rectangle B: 1 row of $4 = 1 \times 4$, or 4 square units

B

Compare: 6 square units $>$ 4 square units

So, Rectangle A has a greater area than Rectangle B.

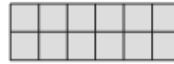More information on this strategy is available on Animated Math Model #45.

Lesson 11.10

Same Area, Different Perimeters

> **Find the perimeter and area of Rectangles *A* and *B*.**
> **Tell which rectangle has a greater perimeter.**
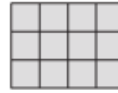>
> **Step 1** Find the area of each rectangle. You can
> multiply the number of unit squares
> in each row by the number of rows.
>
> Rectangle *A*: $2 \times 6 = 12$ square units
>
> Rectangle *B*: $3 \times 4 = 12$ square units
>
> **Step 2** Find the perimeter of each rectangle.
> You can add the sides.
>
> Rectangle *A*: $6 + 2 + 6 + 2 = 16$ units
>
> Rectangle *B*: $4 + 3 + 4 + 3 = 14$ units
>
> **Step 3** Compare the perimeters. 16 units > 14 units.
>
> So, Rectangle *A* has a greater perimeter.

More information on this strategy is available on Animated Math Model #45.

Vocabulary

Area – the number of square units needed to cover a flat surface

Perimeter – the distance around a shape

Square unit (sq un) – a unit used to measure area such as square foot, square meter, and so on

Unit square – a square with a side length of 1 unit

Centimeter (cm) – a metric unit for measuring length or distance

Distributive Property – the property that states that multiplying a sum by a number is the same as multiplying each addend by the number and then adding the products

Length – the measurement of the distance between two points

Meter (m) – a metric unit for measuring length or distance