

# Family Guide to CPM CHAPTER 2

In this chapter, students will learn how to:

- Analyze the strengths and weaknesses of various graphical representations of data.
- Define and measure the area of rectangles and shapes that can be broken into rectangles.
- Use a generic rectangle to multiply on paper and mentally.

## Chapter 2 Main Ideas

### Section 2.1

This section focuses on visualizing and displaying data. Students will collect data about their estimates of 60 seconds and then investigate and compare the strengths and weaknesses of various methods to display their data.

### Section 2.2

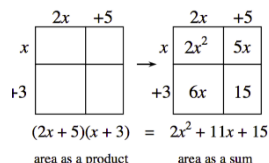
Students learn that area is measured by counting the number of square units that “cover” a region and that, as with linear measure, these units must be iterated with no gaps or overlaps. Students also explore the conservation of area and determine whether a relationship exists between the area and perimeter of a figure.

### Section 2.3

After using multiplication to find the area of a rectangle, students use rectangles as a tool for multiplication. Generic rectangles are introduced as a way to calculate large products mentally or on paper. Students also use generic rectangles to find greatest common factors. This work will later be formally related to the Distributive Property.

## Key Words

**generic rectangle-** A type of diagram used to visualize multiplying expressions without algebra tiles. Each expression to be multiplied forms a side length of the rectangle, and the product is the sum of the areas of the sections of the rectangle. For example, the generic rectangle below may be used to multiply  $(2x + 5)$  by  $(x + 3)$ .

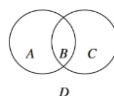


**greatest common factor-(GCF)** For integers, the greatest positive integer that is a common factor of two or more integers.

**stem & leaf plot-**A frequency distribution that arranges data so that all digits except the last digit in each piece of data are in the stem, the last digit of each piece of data are the leaves, and both stems and leaves are arranged in order from least to greatest.

Stem	Leaf
3	1 1
4	3 7
5	
6	1 6 8
7	0

**Venn diagram-** A type of diagram used to classify objects that are usually composed of two or more overlapping circles representing different condition.



## Where These Topics Are Revisited

Understand Area and using models will be expanded to include fractions, decimals, and mixed numbers in Chapter 3. Finding the area of triangles and quadrilaterals occurs in Chapter 5. In Chapter 9, surface area and volume are added.

## What's Coming Up in the Next Chapter

Students will look at Portions and Integers in Chapter 3.

## How You Can Help at Home

Encourage multiplication practice by having your student show how to create and solve with a generic rectangle. Ask your student to consider these questions:  
 “How can I organize it?”  
 “What information can I get?”  
 “How can I calculate it?”  
 “How can I measure area?”  
 “How do area and perimeter change?”




CPM offers general support for families:

<http://cpm.org/parent-support/>

And Homework support including E-tools:

<http://homework.cpm.org/cpm-homework/>

The  section in the textbook offers additional practice for students hone their skills both old and new items.

On the Chapter 2 assessment, students will be expected to show their understanding of the following:

**6.SP.4** Display numerical data in plots on a number line, including dot plots, histograms, and box plots

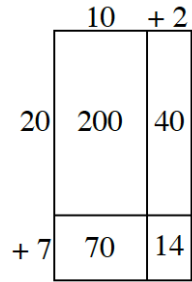
**6.G.1** Find the area of polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.

Sample Problems from the Chapter

Draw a generic rectangle to help you calculate each product. For each part, write:  
(total dimension)(total dimension) = sum of individual area parts = total area.

- a.  $(73)(42)$
- b.  $125 \cdot 81$

For example, the diagram at right shows that  $(12)(27) = 200 + 40 + 70 + 14 = 324$ .



CPM is a language rich text. Students are expected to read each problem careful using this model to guide them:

- R

Read the problem.
- A

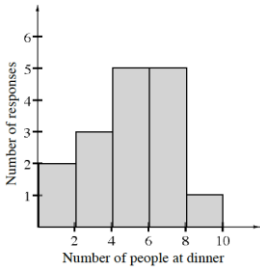
Assemble a model.
- What strategy will you use to solve this problem?
- C

Calculate your answer. Check for reasonableness.
- E

Explain how you solved the problem.

Lyn asked some of her classmates how many people are normally at home for dinner.  
She recorded her results in the histogram shown at right.

- a. How many classmates were surveyed?
- b. How many classmates have eight or nine people at home for dinner?
- c. Can you tell which is the most common number of people at home for dinner? Why or why not?



Richard wants to multiply  $67 \cdot 53$  and decided to use a generic rectangle. He drew the diagram shown at right.

*“Hey,” Richard said while looking at his generic rectangle, “It’s kind of like a double Distributive Property:  $(50 + 3)(60 + 7)$ . I can use the Distributive Property twice, once on the top half of the rectangle and once on the bottom half.”*

- a. Discuss Richard’s idea with your team. How can you see the Distributive Property in the top and bottom halves of the rectangle?
- b. Apply Richard’s idea by setting up two numerical expressions using the Distributive Property, one for each half of the rectangle. Then calculate the product of  $53(67)$  by evaluating each expression.

