

1

2

4

5

# Towns and Cities

Perimeter and Area

**Dianne Irving**

# Towns and Cities

Perimeter and Area



**Dianne Irving**

## **Publishing Credits**

### **Editor**

Sara Johnson

### **Editorial Director**

Dona Herweck Rice

### **Editor-in-Chief**

Sharon Coan, M.S.Ed.

### **Creative Director**

Lee Aucoin

### **Publisher**

Rachelle Cracchiolo, M.S.Ed.

## **Image Credits**

The author and publisher would like to gratefully credit or acknowledge the following for permission to reproduce copyright material: cover Shutterstock; p.1 iStock; pp.4–7, 9 Shutterstock; p.10 Getty Images; pp.12–13, 14 (top left) Shutterstock; p.14 (bottom right) Photolibrary.com/Alamy; p.15 iStock; p.16 Shutterstock; p.17 Corbis; p.18 Shutterstock; p.19 Photolibrary.com/Alamy; pp.20–22 Shutterstock; p.23 Getty Images; pp. 24–25 Shutterstock; p. 26 Corbis; p.27 Photolibrary.com

Diagrams by Colby Heppell

While every care has been taken to trace and acknowledge copyright, the publishers tender their apologies for any accidental infringement where copyright has proved untraceable. They would be pleased to come to a suitable arrangement with the rightful owner in each case.

## ***Teacher Created Materials***

5301 Oceanus Drive

Huntington Beach, CA 92649-1030

<http://www.tcmpub.com>

**ISBN 978-0-7439-0917-4**

© 2009 Teacher Created Materials, Inc.

# Table of Contents

Settling Down.....	4
Towns and Cities Today.....	6
Building Houses.....	8
Building Materials .....	14
Building Pools.....	16
Building Tennis Courts .....	20
Building Parks .....	23
Who Pays?.....	25
Growing Towns and Cities .....	26
Problem-Solving Activity .....	28
Glossary .....	30
Index .....	31
Answer Key .....	32

# Settling Down

Towns and cities began when people started to live in **permanent** (PUR-muh-nuhnt) settlements. This was more than 10,000 years ago. Today, many people live in towns and cities.

Governments provide services. They make rules for how towns and cities should grow or change. These rules set **standards** about how things should be built.

## Old Town Planning

Even in ancient times, many towns were planned. Often, these towns were laid out using a **grid** pattern. The streets were straight and lined with houses. There were public spaces, such as town parks and squares, where people could meet.





The city of New York is home to more than 8 million people.

## LET'S EXPLORE MATH

One hundred years ago, the **area** of Smalltown was 1 mile  $\times$  1 mile, or 1 square mile (1 mi.<sup>2</sup>). This means that the space inside Smalltown was 1 square mile. The **perimeter** of the town was 1 mile + 1 mile + 1 mile + 1 mile, or 4 miles. This means that the distance around Smalltown was 4 miles.

Over time, Smalltown grew bigger in size. Its **dimensions** changed. Fifty years ago, Smalltown was 2 miles long and 2 miles wide.

**a.** What were its area and perimeter?

Twenty-five years ago, Smalltown was 3 miles long and 2 miles wide.

**b.** What were its area and perimeter?

Today, the area of Smalltown is 9 square miles. Only the width of the town has changed.

**c.** What is the perimeter of Smalltown today?

# Towns and Cities Today



Cities today may be very crowded. So, many people live in the **suburbs**. Highways are built to take people from their homes in the suburbs to the cities.

A busy highway in Beijing, China

## City Populations

City	2006	2004	2000
Beijing, China	15,810,000	14,900,000	13,819,000
Seoul, South Korea	10,352,202	10,288,000	9,980,000
New York City, U.S.A.	8,214,426	8,178,201	8,018,350
Sydney, Australia	4,284,400	4,245,900	4,085,600
Los Angeles, U.S.A.	3,849,378	3,837,490	3,705,060

Sources: Beijing Municipal Bureau of Statistics; Seoul Metropolitan Government; U.S. Census; Australian Bureau of Statistics.

Sometimes, whole new suburbs are created beyond the original suburbs. These may be quite far from the city. They have schools, parks, factories, offices, and shopping malls. Each of the buildings in these new suburbs is carefully planned and measured.

## LET'S EXPLORE MATH

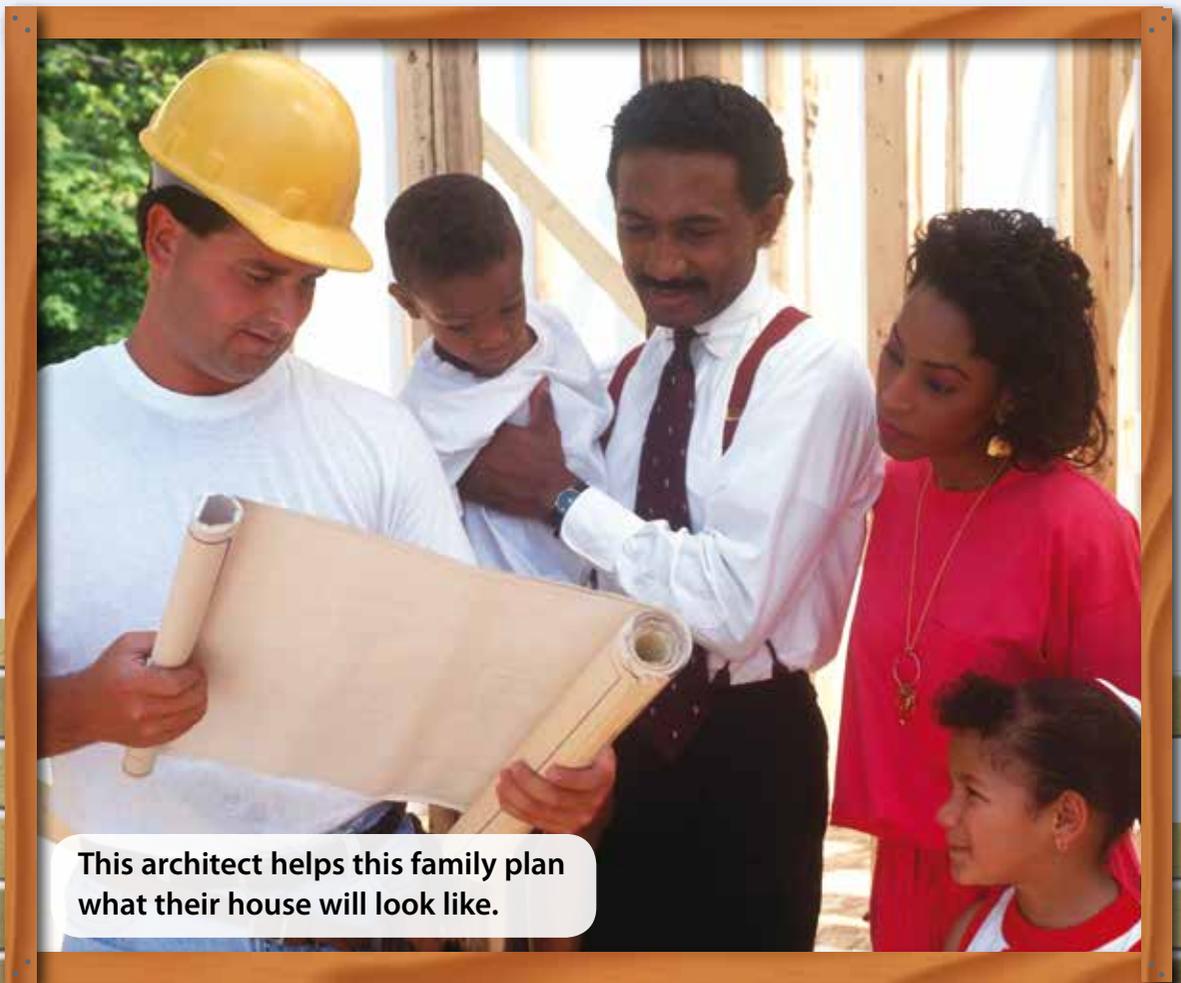
Two suburbs lie next to each other. Both suburbs have rectangular shapes. Surrey Hills is 14 miles long and 8 miles wide. Richmond has an area of 45 square miles.

- What is the area and perimeter of Surrey Hills?
- What could be the length and width of Richmond?

*Hint:* There may be more than one answer.

# Building Houses

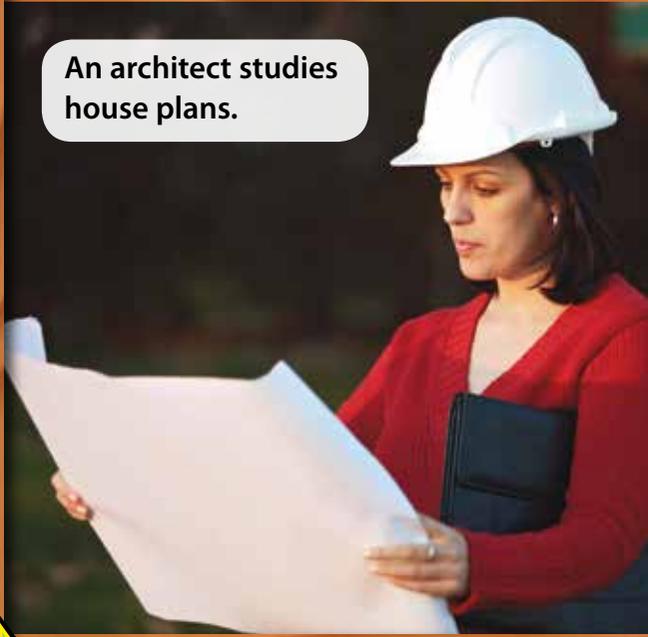
An area of land that is used for building new houses is called a **tract**. Town planners must decide if new roads and bus routes need to be built near new tracts. A tract is divided into sections called lots. A developer may build houses on the lots for people to buy. Or a family may buy a lot in a tract and work with an **architect** (AR-ki-tekt) to make plans for a house to be built there.



This architect helps this family plan what their house will look like.

The architect designs the house. The architect must think about the size and shape of the lot. The architect decides the best place on the lot to put the house.

Usually, a house is put in the middle of the lot. This means there is a backyard and a front yard.



An architect studies house plans.

## LET'S EXPLORE MATH

A new tract is being planned. Each lot is a rectangle. Look at the table below to find the length and width of each lot. Then redraw the table, adding 2 columns. Label the columns "Area" and "Perimeter." Fill in the information when you answer the questions below.

Lot	Length	Width
A	120 ft.	50 ft.
B	120 ft.	70 ft.
C	120 ft.	65 ft.
D	120 ft.	55 ft.

- What is the area of each lot?
- What is the perimeter of each lot?
- Describe another way to figure out the perimeter of each lot.

The architect needs to know the perimeter and area of the lot. The perimeter is the distance around the lot. The area is the amount of space inside the lot. A **surveyor** (ser-VEY-er) uses a special instrument to measure the lot. The architect then uses this information to create house plans.



A surveyor using an automatic level to take measurements of a lot