

Interwoven Strands of Proficiency

- Conceptual Understanding
- Procedural Fluency
- Strategic Competence
- Adaptive Reasoning

Productive Disposition

(National Research Council, 2001)

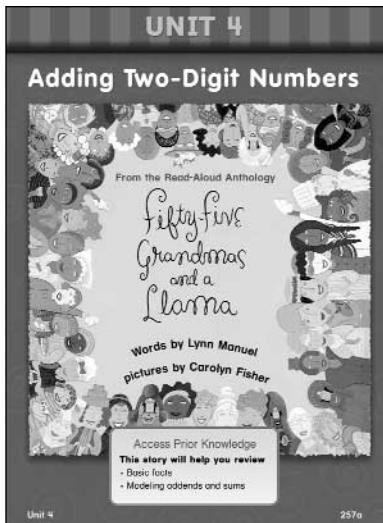
RELATING MATHEMATICS TO THE REAL WORLD

Productive disposition refers to the tendency to see sense in mathematics, to perceive it as both useful and worthwhile, to believe that steady effort in learning mathematics pays off, and to see oneself as an effective learner and doer of mathematics (NRC, 2001, p. 131).

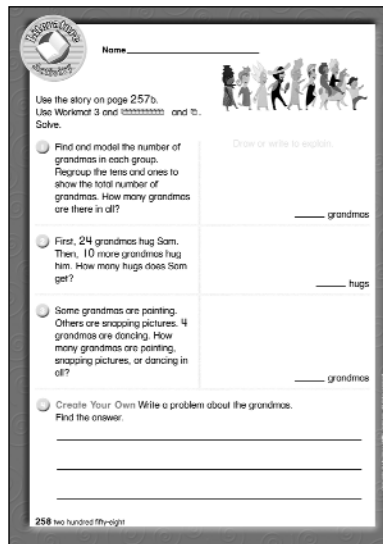
The authors of *Houghton Mifflin Math* took great care to make sure that the mathematics in the program was interesting and enjoyable to students. The stories and problems in the program relate to the interests of students and help them to see real-world uses of mathematics. Two features of the program which can be used to illustrate this are the literature selections and the curriculum connections, the result of a special partnership with *Weekly Reader*®.

The following examples show how literature is integrated into the teaching of mathematics in *Houghton Mifflin Math*.

- For the primary grades, read-aloud stories are provided. For example, in grade 2, students are introduced to a unit on adding two-digit numbers with the story *Fifty-five Grandmas and a Llama*. Read-aloud stories are an enjoyable and integral part of a young child's life.
- In the upper grades, students read the stories themselves. The topics are carefully matched to students' interests at each grade level. The selections are taken from a variety of sources. In a grade 6 selection, students read about a wildlife count-a-thon.



Student Book, grade 1, page 257a



Student Book, grade 1, page 258



Student Book, grade 6, page 644

Van de Walle (2001) gives further justification for the use of literature in teaching mathematics.

Involving children with books in a variety of ways can serve to connect number with reality, make it a personal experience, and provide ample opportunity for problem solving (Van de Walle 2001, p. 104).

The curriculum connections done in partnership with *Weekly Reader* include connections to Science, Art, Reading, and Social Studies. For example:

- In a grade 1 Science connection, children learn how and why the shape of the moon looks different on different days.
- In a grade 3 Art connection, students learn about some relationships between geometry, gardens, and art.
- In a grade 6 Social Studies connection, students find out that it can be challenging to buy shoes in Switzerland unless you know the relationship between U.S. sizes and Continental sizes.

WEEKLY READER
Science Connection

Name _____

Moon Shapes

The outline of the Moon is a circle. It moves around Earth. It can look like different shapes as it moves. It takes about 29 days for the Moon to go all the way around Earth.

Each Moon shape has a name. Some calendars show when the shapes appear in the sky.

©2008 National Center for Manufacturing in Fort Myers, Florida. A planetarium is a place where you can see the stars, moons, and planets in the sky.

September						
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

Use the calendar to find the answer.

What Moon shape appears on Saturday, September 3?

The ☾ appears on September 9. How many days until the ☽ appears? _____ days

Unit 5 Four hundred fifteen 113

Student Book, grade 1, page 413

WEEKLY READER
Art Connection

Garden Geometry

What object do you think of when you picture a robot? Perhaps you think of a tanking truck or a monster truck. But would you think of a robot if you visit a topiary garden you might see just that—a tree in the shape of a robot.

Topiary is the art of trimming plants into unusual shapes. Plants can be cut into cubes, cones, and spiral shapes. Some are sculpted to look like objects, such as a table and chairs or animals, like rabbits and birds.

Problem Solving

The drawing at the right shows a plan for a topiary garden. Use the drawing for Problems 1–5.

1 What geometric figures do you see in the garden plan? Are any of the figures congruent? Explain.

2 Do the geometric figures in the plan show right angles? Explain? If so, describe them.

3 What is the shape of the fountain? If each square in the grid represents 1 square foot, what is the area of the fountain?

4 What is the perimeter of the garden? Explain how you found your answer.

5 If you filled the garden plan in half, from the top to the bottom, would the half be a line of symmetry? Explain why or why not.

© Technology Help from the Florida Center for Reading Research

Unit 6 Art Connection 485

Student Book, grade 3, pages 484–485

WEEKLY READER eduplace.com/kids/mw/

If the Shoes Fit...

The Swiss Alps are one of the most popular hiking destinations in the world. If you want to buy a pair of hiking boots in Zürich, you need to know your shoe size in the Continental system.

In the Continental system, each larger size shoe is $\frac{2}{3}$ cm longer than the previous size. Children's sizes range from size 15, which is 10 cm long, through size 30. Adults' shoe sizes range from size 31 through size 45.

To find the Continental size, divide the length in centimeters by $\frac{2}{3}$.

Write whether each size is a child's shoe size or an adult's shoe size.

1. 14 cm 2. 26 cm 3. 18 cm 4. 30 cm

SHOE SIZE

USA	EUR
8 $\frac{1}{2}$	39

MADE IN U.S.A.

Social Studies Connection

Student Book, grade 6, page 145