

# Number Corner

## February

### Overview

This month students use the area model to make sense of multiplication with fractions in the Calendar Grid. They also explore patterns in the number of 0s and in the placement of the decimal point when multiplying and dividing by power of 10 during the Calendar Collector, Computational Fluency, and Solving Problems workouts. In Problem Strings, students focus on multiplying a fraction by a whole number.

### Activities

Workouts	Day	Activities
<b>Calendar Grid</b> Using the Area Model to Multiply Fractions The calendar markers this month feature rectangular real-world objects whose dimensions are measured to the fraction of an inch. Students identify the dimensions and area of each object and search for patterns among the objects and in the process of multiplying fractions by fractions, mixed numbers, and whole numbers.	4	<b>1</b> Introducing Fraction Multiplication on a Grid
	10, 14	<b>2</b> Exploring Patterns in Multiplying Fractions
	20	<b>3</b> Completing the Multiplying with Fractions Page
<b>Calendar Collector</b> Two Liters or Spill Students review metric units of liquid volume (milliliters, deciliters, liters) and conversion between those units. In Two Liters or Spill, students spin a spinner, convert the amount spun to milliliters, and add that much water to a container. Students keep track of the collections to determine if they collect 2 liters or spill.	3	<b>1</b> Reviewing Liquid Volume
	8	<b>2</b> Introducing Two Liters or Spill
	13, 18	<b>3</b> Discussing Collections

### Mathematical Background

The focus this month is on using the area model for multiplication to explore multiplication with fractions. In the area model, which is quite familiar by now to fifth graders, the two factors are represented as the dimensions of a rectangle and their product is the area of that rectangle. Students have used this model extensively to represent multiplication with whole numbers: to master their basic facts, make sense of the properties of multiplication, and develop strategies for multi-digit multiplication.

When students make the transition to multiplying with fractions rather than whole numbers, they can stumble. For example, the fact that the product of two numbers can be smaller than either number ( $\frac{1}{2} \times \frac{3}{4} = \frac{3}{8}$ ) is often surprising and confusing for students who have grown accustomed to the fact that the product of two whole numbers is always greater than or equal to (in the case that one factor is 1) either number being multiplied. They have come to understand that multiplying, like adding, is a way to increase a number, to produce a larger number than either number they are operating with. When they begin multiplying with fractions, many find it confusing that this no longer holds true. Representing multiplication of fractions with the area model, however, can eliminate much of this confusion.