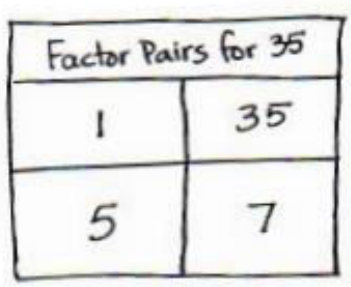
Eureka Math Tips for Parents

Grade 4 Module 3

Multi-Digit Multiplication and Division

In this module, we will start with applying multiplication and division to contexts such as area and perimeter to set the stage for multiplication and division of multi-digit whole numbers. We will practice various ways to model these problems, moving from concrete to abstract.

Thinking mathematically is hard but important work!



Students will learn how to determine if a number is prime or composite by looking for factor pairs in the number.

What Came Before this Module: We extended place value work, practicing using metric measurements for length, mass and capacity.

What Comes After this Module: We will begin learning geometric terms, measuring angles, and learning how to find the measure of an unknown angle.

Key Words to Know

Number Properties

Associative Property:
$3 \times (4 \times 8) = (3 \times 4) \times 8$
Distributive Property:
$6 \times (3 + 5) = (6 \times 3) + (6 \times 5)$
Partial Product:
$24 \times 6 = (20 \times 6) + (4 \times 6)$

Mathematical Terms

Prime Number - positive integer only having factors of one and itself
Composite Number - positive integer having three or more factors
Divisor - the number by which another number is divided
Remainder - the number left over when one integer is divided by another
Algorithm - steps for base ten computations with the four operations
Area - the amount of two-dimensional space in a bounded region
Perimeter - length of a continuous line around a geometric figure

+ How you can help at home:

- Become familiar with the area model, a different method of multiplying than you may have learned
- Continue to review the place value system with your student
- Discuss mathematical patterns, such as 5 x 9, 5 x 90, 50 x 90, 50 x 900, etc.

Key Common Core Standards:

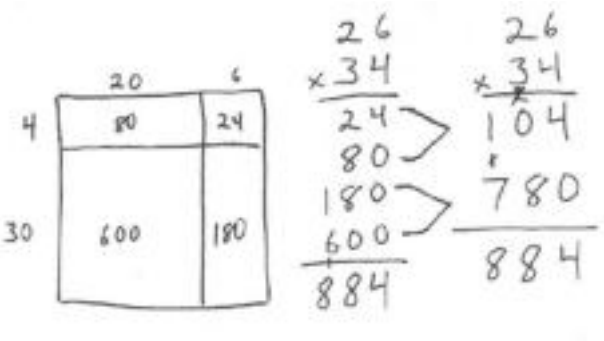
- Use the four operations (+, -, x, ÷) with whole numbers to solve problems
- Gain familiarity with factors and multiples
- Use place value understanding and properties of operations to perform multi-digit arithmetic
- Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit

Prepared by Erin Schweng, Math Coach

The area model encourages students to think about each part of a number as they multiply.

Thus, 34 x 26 becomes a series of partial products:

4 x 6	24
4 x 20	80
30 x 6	180
+ 30 x 20	600
884	884



Spotlight on Math Models:

Area Models

You will often see this mathematical representation in *A Story of Units.*

A Story of Units has several key mathematical "models" that will be used throughout a student's elementary years.

Students began in earlier grades to build arrays, showing multiplication and division as a series of rows and columns. In 4th grade, they learn to show these types of problems as an area model.

As students move through the grades, the area model will be a powerful tool that can take them all the way into algebra and beyond. One of the goals in *A Story of Units* is to first give students concrete experiences with mathematical concepts, and then build slowly toward more abstract representations of those concepts. The area model is a tool that helps students to make that important leap.

Sample from the curriculum:

Use an area model to represent 50 x 40.

(Example taken from Lesson 6, Module 3)