Multiplying and Dividing Whole Numbers and Decimals

In this Module, we will be building up our knowledge of first multiplication and then division. We will start with whole numbers and then move to decimals as we practice different ways to model these operations.

Thinking mathematically is hard but important work!

Sample area model of multiplication for 64 x 73:

	70	+ 3
4	280	12
+		
60	4200	180

What Came Before this Module:
We worked very hard to understand the values of numbers on the place value chart.

What Comes After this Module:
We will begin addition and subtraction with fractions.

Key Words to Know

Decimal
A fraction whose denominator is a power of ten

Decimal Fraction
A proper fraction whose denominator is a power of ten

Equation
A statement that the values of two expressions are equal

Estimate
Approximation of the value of a quantity or number

Product
The result of a multiplication

Quotient
The result of dividing one quantity by another

Remainder
The number left over when one integer is divided by another

Unit Form
Place value counting, e.g. 34 is stated as 3 tens 4 ones

+ 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 9, 50 x 90, 50 x 900, etc.

Key Common Core Standards:

- Write and interpret numerical expressions, e.g. "*Add 8 and 7, then multiply by 2*" is represented as *2 x (8 + 7)*

- Perform operations with multi-digit whole numbers and with decimals to the hundredths, e.g. *46 x 72, 3.1 x 33*

- Convert like measurement units within a given measurement system, e.g. *5 cm is 0.05 m*

Spotlight on Math Models:

Tape Diagrams

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.

The tape diagram is a powerful model that students can use to solve various kinds of problems. In second grade, you will often see this model as an aid to addition and subtraction problems. Tape diagrams are also called "bar models" and consist of a simple bar drawing that students make and adjust to fit a word problem. They then use the drawing to discuss and solve the problem.

As students move through the grades, tape diagrams provide an essential bridge to algebra. Below is a sample word problem from Module 2 solved using a tape diagram to show the parts of the problem.

(Example taken from Lesson 3, Module 2)

Robin is 11 years old. Her mother, Gwen, is 2 years more than 3 times Robin's age. How old is Gwen?