

Module 1 Grade 5

In this unit your student will focus on:

- ✓ Students learn that multiplying by 1000 is the same as multiplying by $10 \times 10 \times 10$. Since each factor of 10 shifts the digits one place to the left, multiplying by $10 \times 10 \times 10$ —which can be recorded in exponential form as 10^3 —shifts the position of the digits to the left 3 places, thus changing the digits' relationships to the decimal point.
- ✓ Students apply these place value understandings to problem solving with metric conversions.
- ✓ Students name decimal fraction numbers in expanded, unit (e.g., $4.23 = 4$ ones 2 tenths 3 hundredths) and word forms
- ✓ Students use like units to compare decimal fractions.
- ✓ Students use exponents and the unit fraction to represent expanded form, e.g., $2 \times 10^2 + 3 \times (1/10) + 4 \times (1/100) = 200.34$.
- ✓ Students reason about differences in the values of like place value units and expressing those comparisons with symbols ($>$, $<$, and $=$).
- ✓ Students generalize their knowledge of rounding whole numbers to round decimal numbers using a vertical number line to interpret the result as an approximation, eventually moving away from the visual model.
- ✓ Students use the relationships of adjacent units and generalize whole number algorithms to decimal fraction operations.
- ✓ Students use methods for addition and subtraction with whole numbers to decimal addition and subtraction, e.g., $7 \text{ tens} + 8 \text{ tens} = 15 \text{ tens} = 150$ is analogous to $7 \text{ tenths} + 8 \text{ tenths} = 15 \text{ tenths} = 1.5$.
- ✓ Students learn about multiplying a decimal by a one-digit whole number. The area model is used as a scaffold for this work.
- ✓ Students learn about the division of decimal numbers by one-digit whole number divisors.
- ✓ Students solidify their skills with and understanding of the algorithm before moving on to long division involving two-digit divisors in Module 2.

Terminology:

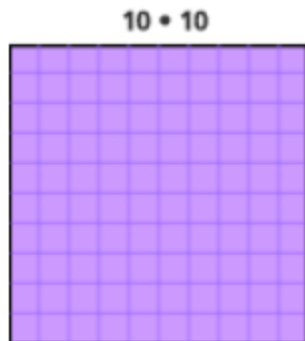
- ✓ Expanded form – writing a number to show the value of each digit. It is shown as a sum of each digit multiplied by its matching place value (ones, tens, hundreds, etc).

$$\begin{array}{ccc} 293 & = & 2 \times 100 + 9 \times 10 + 3 \\ \uparrow & & \underbrace{\hspace{10em}} \\ \text{Standard} & & \text{Expanded} \\ \text{Notation} & & \text{Notation} \end{array}$$

(www.mathsisfun.com)

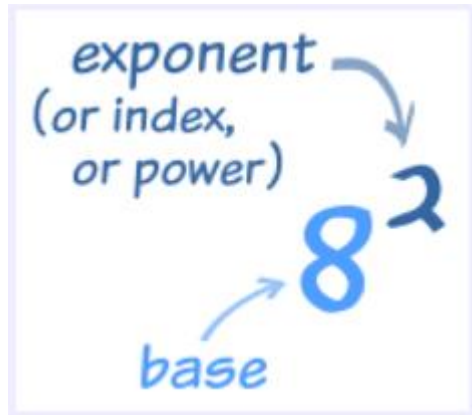
- ✓ Area Model – visual representations or models that make multiplication and division easy to visualize and understand.

Ex. 10×10



(www.learner.org)

- ✓ Exponential Form – the exponent of a number shows how many times to use that number in multiplying the number by itself. Ex: $8^2 = 8 \times 8 = 64$



(www.mathsisfun.com)

- ✓ Algorithm – the step by step process to solve a problem

Activities you can do at Home:

- ✓ Play online math games on Sum Dog or do practice sets on TenMarks
- ✓ Have students practice multiplication and division using the standard algorithm providing an area model chart for support as needed.
- ✓ Have students visit Khanacademy.org or Learnzillion.com for lesson review
- ✓ Consider reading *Can You Count to Googol?*