Number and Operations in Base Ten

In fifth grade, students continue building on **base ten** concepts. In earlier grades, they examined the relationships among digits in whole numbers. They now extend their learning to understand base ten relationships among decimals, with focused attention on reasoning about the magnitudes of numbers.

Students recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and $\frac{1}{10}$ of what it represents in the place to its left. They develop fluency in applying concepts to decimal notation and adding and subtracting decimals. Additionally, students learn why division procedures work based on the meanings of numerals and the properties of operations.

Additionally, students are able to explain patterns related to the number of zeros in products when multiplying a number by powers of 10 and what happened to the placement of the decimal point when a decimal number is multiplied or divided by a power of ten. They read, write, and compare decimals to thousandths; use base ten numerals, number names, and expanded form; and use place value understanding to round decimals to any place.

The Grade 5 Common Core State Standards for Number and Operations in Base Ten specify that students should–

- Understand the place value system.
- Perform operations with multi-digit whole numbers and with decimals to hundredths.

The following hands-on activities will help students learn base ten concepts in a meaningful way. Concrete models and number lines are especially useful in helping students understand decimals and equivalence of decimals. Models can help students discover patterns and structure in numbers. When adding, subtracting, multiplying, and dividing fractions and decimals, students should examine numerical patterns and relate them to rules, models, and graphic representations.