

Grade 5 Math Competencies

Key for Codes: ●Major Standards ★Supporting Standards and +Additional Standards

Competency #1: <i>Computations</i>: Students will calculate with precision, fluency, and accuracy.
Meeting Expectations - I can statements
●I can fluently multiply multi-digit whole numbers using the standard algorithm.
●I can use place value understanding to round decimals to any place.
●I can find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors.
●I can add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.
●I can add, subtract, multiply, and divide decimals to hundredths.

Competency #2: <i>Representations & Models</i>; Students will represent mathematical concepts through a variety of displays.
Meeting Expectations - I can statements
●I can 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 1/10 of what it represents in the place to its left.
●I can explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.
●I can read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (\frac{1}{10}) + 9 \times (\frac{1}{100}) + 2 \times (\frac{1}{1,000})$.
●A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume. ●A solid figure, which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units. ●I can measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft., and improvised units.
●I can find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. I can represent threefold whole-number products as volumes.
●I can find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. I can multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.
●I can compare the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.
★I can make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$).
+I can demonstrate understanding that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.

✚ I can classify two-dimensional figures in a hierarchy based on properties.

Competency #3: *Structure*; Students will communicate mathematical understanding through appropriate structure and vocabulary.

Meeting Expectations - I can statements

● I can compare two decimals to thousandths based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.

● I can apply and extend my understanding of multiplication to multiply a fraction or a whole number by a fraction. I can interpret the product $(\frac{a}{b}) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$.

● I can explain why multiplying a given number by a fraction greater than 1 results in a product greater than the given number. I can explain why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and I can relate the principle of fraction equivalence $\frac{a}{b} = \frac{(n \cdot a)}{(n \cdot b)}$ to the effect of multiplying $\frac{a}{b}$ by 1.

● I can interpret division of a unit fraction by a non-zero whole number, and compute such quotients.

● I can interpret division of a whole number by a unit fraction, and compute such quotients.

✚ I can use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.

✚ I can write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.

✚ I can use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. I can demonstrate understanding that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).

✚ I can generate two numerical patterns using two given rules. I can identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane.

Competency #4: Real-life Application; Students will apply mathematical concepts to solve problems.	
Meeting Expectations - I can statements	
●	I can apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems.
●	I can recognize volume as additive. I can find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.
●	I can solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators.
●	I can interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). I can solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers.
●	I can solve real world problems involving multiplication of fractions and mixed numbers.
●	I can solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions.
+	I can represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.
★	I can convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.
★	I can use operations on fractions for this grade to solve problems involving information presented in line plots.