Essential Standards & Learning Targets
5th Grade Math
2020-2021

Essential Standards for the 1st Nine Weeks

Standard 3-Powers of 10: *Using models and quantitative reasoning, explain that in a multi-digit number, including decimals, a digit in any place represents ten times what it represents in the place to its right and 1/10 of what it represents in the place to its left.*

- *a. Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, using whole-number exponents to denote powers of 10.*
- *b. Explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10, using whole-number exponents to denote powers of 10.*

Student Friendly: I can explain patterns found when multiplying and dividing by powers of 10.

Learning Targets

- ***Powers of 10 (Standard 3)***
- ***Read, Write and Compare to Thousandths (Standard 4)-*** Read, write, and compare decimals to thousandths.
    - a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form.
        - Word, Standard and Expanded Form Example: 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1 10) + 9 × (1 100) + 2 × (1 1000).
    - b. Compare two decimals to thousandths based on the meaning of the digits in each place, using >, =, and < to record the results of comparisons.
- ***Order of Operations (Standard 1)-*** Write, explain, and evaluate simple numerical expressions involving the four operations to solve up to two-step problems.Include expressions involving parentheses, brackets, or braces, using commutative, associative, and distributive properties.
- ***Round Whole Numbers and Decimals (Standard 5) -*** Use place value understanding to round decimals to thousandths.

Standard 8- Decimals: *Add, subtract, multiply, and divide decimals to hundredths using strategies based on place value, properties of operations, and/or the relationships between*

addition/subtraction and multiplication/division; relate the strategy to a written method, and explain the reasoning used.

- *a. Use concrete models and drawings to solve problems with decimals to hundredths.*
- *b. Solve problems in a real-world context with decimals to hundredths.*

Student Friendly: I can find and explain the sums, differences, products, and quotients of decimals using a variety of strategies.

Learning Targets:

- ***Understanding of place value positions: tenths, hundredths, thousandths***
- ***Rounding (Standard 5)***-Use place value understanding to round decimals to thousandths.
- ***Metric System (Standard 17)***-Convert among different-sized standard measurement units within a given measurement system and use these conversions in solving multi-step, real-world problems.

Essential Standards for the 2nd Nine Weeks

Standard 6- Multiplication: *Fluently multiply multi-digit whole numbers using the standard algorithm.*

Student Friendly: I can find the product of whole numbers using the standard algorithm.

Learning Targets:

- ***Basic multiplication and division facts***
- ***Place Value Knowledge***

Standard 19-Volume: *Relate volume to the operations of multiplication and addition, and solve real-world and mathematical problems involving volume.*

- *a. Use the associative property of multiplication to find the volume of a right rectangular prism and relate it to packing the prism with unit cubes. Show that the volume can be determined by multiplying the three edge lengths or by multiplying the height by the area of the base.*
- *b. 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.*

Student Friendly: I can solve real-world problems volume problems using properties and formulas.

Learning Targets:

- ***Identify volume (Standard 18)-*** as an attribute of solid figures, and measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised (non-standard) units.
    - a. Pack a solid figure without gaps or overlaps using n unit cubes to demonstrate volume as n cubic units.

Standard 7-Division: *Use strategies based on place value, properties of operations, and/or the relationship between multiplication and division to find whole-number quotients and remainders with up to four-digit dividends and two-digit divisors. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.*
Student Friendly: I can illustrate and explain the quotient using a variety of strategies.

Learning Targets:

- ***Basic multiplication/division***
- ***Place value knowledge***

Essential Standards for the 3rd Nine Weeks

Standard 9-Add and Subtract Fractions: *Model and solve real-word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally, and assess the reasonableness of answers.*
Student Friendly: I can find the sums and differences of fractions using a variety of strategies.

Learning Targets:

- ***Equivalent fractions (Standard 10)-*** Add and subtract fractions and mixed numbers with unlike denominators, using fraction equivalence to calculate a sum or difference of fractions or mixed numbers with like denominators.
- ***Divisibility rules***
- ***Basic multiplication/division***
- ***Add and subtract fractions with unlike denominators (including mixed numbers). (Standard 10)-*** Add and subtract fractions and mixed numbers with unlike denominators, using fraction equivalence to calculate a sum or difference of fractions or mixed numbers with like denominators.

- ***Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). (Standard 16)-*** Make a line plot to display a data set of measurements in fractions of a unit (12, 14, 18). a. Add, subtract, multiply, and divide fractions to solve problems involving information presented in line plots. Note: Division is limited to unit fractions by whole numbers and whole numbers by unit fractions.

Standard 12-Multiplication of Fractions: *Apply and extend previous understandings of multiplication to find the product of a fraction times a whole number or a fraction times a fraction.*

- *a. Use a visual fraction model (area model, set model, or linear model) to show (a/b) × q and create a story context for this equation to interpret the product as a parts of a partition of q into b equal parts.*
- *b. Use a visual fraction model (area model, set model, or linear model) to show (a/b) × (c /d) and create a story context for this equation to interpret the product.*
- *c. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.*
- *d. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths to show that the area is the same as would be found by multiplying the side lengths.*

Student Friendly: I can use visual models products of a whole number and a fraction.

Learning Targets:

- ***Basic Multiplication and Division***
- ***Solve Real World Problems (Standard 14)-*** Model and solve real-world problems involving multiplication of fractions and mixed numbers using visual fraction models, drawings, or equations to represent the problem.
- ***Dividing Fractions (Standard 15)-*** . Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.
    - a. Solve real-world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions and illustrate using visual fraction models, drawings, and equations to represent the problem.
    - b. Create a story context for a unit fraction divided by a whole number, and use a visual fraction model to show the quotient.
    - c. Create a story context for a whole number divided by a unit fraction, and use a visual fraction model to show the quotient.

Essential Standards for the 4th Nine Weeks

Standard 19: Volume - *Relate volume to the operations of multiplication and addition, and solve real-world and mathematical problems involving volume.*

- *a. Use the associative property of multiplication to find the volume of a right rectangular prism and relate it to packing the prism with unit cubes. Show that the volume can be determined by multiplying the three edge lengths or by multiplying the height by the area of the base.*
- *b. 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.*
- *c. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the two parts, applying this technique to solve real-world problems.*

Student Friendly: I can find the volume of solid figures.

Learning Targets

- ***Multiplication facts***
- ***Identify Volume (Standard 18***) -Identify volume as an attribute of solid figures, and measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised (non-standard) units.
- ***Classify Triangles (Standard 21)***- Classify triangles according to side length (isosceles, equilateral, scalene) and angle measure (acute, obtuse, right, equiangular).
- ***Classify Quadrilaterals (Standard 22)***-Classify quadrilaterals in a hierarchy based on properties
- ***Attributes (Standard 23)***-Explain that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.
    - Example: All rectangles have four right angles, and squares have four right angles, so squares are rectangles.

Additional Clusters

- ***Generate two numerical patterns using two given rules. (Standard 2)-*** Generate two numerical patterns using two given rules and complete an input/output table for the data.
    - a. Use data from an input/output table to identify apparent relationships between corresponding terms.
    - b. Form ordered pairs from values in an input/output table.
    - c. Graph ordered pairs from an input/output table on a coordinate plane.

- ***Coordinate grids (Standard 20)-*** Graph points in the first quadrant of the coordinate plane, and interpret coordinate values of points to represent real-world and mathematical problems.