

MATH COMPETENCY STATEMENTS & LEARNING TARGETS

K-6 Mathematical Practices

- Make sense of problems and persevere in solving them.
- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.
- Model with mathematics.
- Use appropriate tools strategically.
- Attend to precision.
- Look for and make use of structure.
- Look for an express regularity in repeated reasoning.

Mathematics is so much more than isolated skills and manipulating numbers. Our mathematics goal is that all students will not only be actively engaged in gaining a firm grasp of the concepts and processes found in grade-level mathematics but also be willing to think deeply about rich tasks presented in class and notice the wonders of mathematics found in our world. Discovering patterns from our youngest through 6th grade (and beyond) is essential, as pattern is the essence of mathematics. Believe it or not, play is something all mathematicians engage in, as learning presents itself through play. Mistakes are a huge part of learning and it is through the courage to take healthy risks, collaborate with others, maintain a can-do attitude, show flexibility in thinking, contribute to discussions, and reflect on their learning that students “grow their math brains” and gain confidence in their math ability.

Operations and Algebraic Thinking: Students will demonstrate the ability to compute accurately, make reasonable estimates, understand the meanings of operations, and use algebraic notation to represent and analyze patterns and relationships.

Learning Targets

K	1-2	3-4	5-6
<p>Students will demonstrate an understanding of addition with sums less than or equal to 10 by using a variety of strategies, manipulatives, pictures, and symbols, by making and recording ten pairs, and by understanding that the teen numbers are composed of one group of ten plus some number of ones; fluently add within 5.</p> <p>Students will demonstrate an understanding of subtraction</p>	<p>Students will demonstrate an understanding and application of addition using whole numbers, with fluency within 10, by solving numerical (within 100) and word problems (within 20) using a variety of strategies.</p> <p>Students will demonstrate an understanding and application of subtraction using whole numbers, with fluency within 10, by solving numerical (within 90) and word problems (within 20) using a variety of strategies.</p>	<p>Students will demonstrate an understanding of and fluency in facts with multiplication and division within 100 using a variety of strategies, arithmetic properties, equal groups, arrays, and measurement quantities.</p> <p>Students will demonstrate an understanding of the arithmetic operations by solving one- and two-step word problems, estimating the reasonableness of answers using a variety of strategies, and recognizing and using arithmetic patterns.</p>	<p>Students will demonstrate an understanding of writing, evaluating and interpreting expressions by using and describing the order of operations rules to write, evaluate, and interpret expressions.</p> <p><i>Students will demonstrate an understanding of extending and applying previous understandings of whole numbers to the systems of integers and rational numbers by writing, interpreting and explaining statements of order in real world contexts.</i></p>

<p>with minuends to 10 by using a variety of strategies, manipulatives, pictures, and symbols; fluently subtracting within 5.</p>	<p><i>Students will demonstrate an understanding and application of addition using whole numbers with sums up to 100, with fluency within 20, by solving numerical and word problems using a variety of strategies.</i></p> <p><i>Students will demonstrate an understanding and application of subtraction using whole numbers with the whole less than or equal to 100, with fluency within 20, by solving numerical and word problems using a variety of strategies.</i></p>	<p><i>Students will demonstrate an understanding of solving for an unknown quantity, represented by a variable, by solving word problems using the four operations, including multi-step, those in which the remainder must be interpreted, and those involving multiplicative comparison.</i></p> <p><i>Students will demonstrate an understanding of algebra patterns and concepts by finding factor pairs for a given number (up to 100), knowing if a number is prime, composite, or neither, and in creating, extending, and identifying patterns in a given rule.</i></p>	<p><i>Students will demonstrate an understanding of algebraic expressions by writing, evaluating, and simplifying expressions in computational and real-world situations.</i></p> <p><i>Students will demonstrate an understanding of linear equations and inequalities by solving one and two step problems using all four operations in real world situations.</i></p>
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Number and Operation in Base Ten & Fractions: Students will demonstrate the ability to understand the meanings, uses, and representations of numbers as well as equivalent names for numbers. They will reason, describe, and analyze quantitatively using numbers and units to solve problems.

Learning Targets

K	1-2	3-4	5-6
<p>Students will demonstrate an understanding of quantity by counting to 100 from any given whole number by ones and tens, by counting, reading, writing, and recording whole numbers up through 20, comparing numbers between 1 and 10, and by connecting counting to cardinality.</p>	<p>Students will demonstrate an understanding of whole numbers by reading, writing, counting on, using place value, and comparing whole numbers to 120.</p> <p><i>Students will demonstrate an understanding of evaluating whole numbers up to 1000 by reading and writing numbers up to 100 in words, standard form and expanded form; identifying place value patterns and the relationship between ones, tens, and hundreds, skip counting by 5's, 10s, and 100s, and identifying even and odd numbers up to 20 using various strategies.</i></p>	<p>Students will demonstrate an understanding of adding and subtracting using various techniques to add three or more two- or three-digit numbers up to 1,000 and using various techniques to subtract two- and three-digit numbers with the whole less than 1,000.</p> <p>Students will demonstrate an understanding of fractions as numbers by reading, writing, and comparing fractions, identifying how fractions relate to the whole, representing fractions of a whole and greater than one on a number line, partitioning shapes into equal parts, and naming them using a unit fraction of the whole.</p>	<p>Students will demonstrate an understanding of place value for whole numbers and decimals by rounding to a designated place value, comparing decimal numbers, and describing whole numbers, decimals, and powers of ten using appropriate mathematics terms.</p> <p>Students will demonstrate an understanding of multiplying and dividing multi-digit whole numbers by completing and explaining multiplication and division problems using a variety of strategies, including the standard algorithm in multiplication.</p> <p>Students will demonstrate an understanding of addition and subtraction</p>

		<p><i>Students will demonstrate an understanding of place values by explaining whole numbers, number names, place values, rounding, and comparing numbers.</i></p> <p><i>Students will demonstrate an understanding of adding and subtracting multi-digit whole numbers by adding and subtracting numbers using the standard algorithm.</i></p> <p><i>Students will demonstrate an understanding of multiplying two two-digit numbers and of multiplying and dividing whole numbers of up to four digits by a one-digit whole number multiply two two-digit numbers, using multiple strategies based on place value and properties of operations.</i></p> <p><i>Students will demonstrate an understanding of comparing fractions through a variety of strategies to describe equivalency or not, justifying their conclusions, and record the results with the symbols $<$, $=$, $>$.</i></p> <p><i>Students will demonstrate an understanding of adding, subtracting fractions and mixed numbers with common denominators and of multiplying a whole number by a fraction, using visual models and equations, in numerical and word problems.</i></p> <p><i>Students will demonstrate an understanding of decimals by explaining decimal notation, renaming fractions as decimals, decimal size comparisons, and solving decimal word problems.</i></p>	<p>of decimals to the hundredths by using and explaining strategies to add, subtract, round, and estimate decimals up to the hundredths place value.</p> <p>Students will demonstrate an understanding of multiplying and dividing decimal numbers by explaining strategies to multiply two decimal numbers and to divide decimals by one and two-digit whole numbers, and in placing decimal points when multiplying or dividing by a power of 10.</p> <p>Students will demonstrate an understanding of adding and subtracting fractions by completing and explaining addition and subtraction of fractions and mixed numbers.</p> <p>Students will demonstrate an understanding of multiplying fractions by completing and explaining the multiplication of fractions and mixed numbers, and comparing size of products involving fractions.</p> <p>Students will demonstrate an understanding of division of fractions by using and explaining strategies to divide whole numbers by fractions and fractions by whole numbers</p> <p><i>Students will demonstrate an understanding of fractions by performing operations of addition, subtraction, multiplication and division with fractions and in simplifying fractions with LCM and GCF.</i></p>
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			Students will demonstrate an understanding of decimals by performing operations of addition, subtraction, multiplication, and division with decimals, rounding decimals, in computational and real world situations.
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Measurement: Students will demonstrate the ability to understand the systems and processes of measurement; and use appropriate techniques, tools, units, and formulas in making measurements.

Learning Targets

K	1-2	3-4	5-6
<p>Students will demonstrate an understanding of measurement by describing and comparing objects with measurable attributes such as length, weight, and height.</p> <p>Students will demonstrate an understanding of sorting and counting objects by identifying and sorting objects based on a variety of attributes such as size, shape, and color; for groups of ten or fewer. Students can count the objects in each category and use the quantities to compare categories.</p>	<p>Students will demonstrate an understanding of measurement by comparing and ordering items by length and making measurements using a variety of non-standard units.</p> <p>Students will demonstrate an understanding of time by reading time to the hour and to the half-hour on both a digital and analog clock.</p> <p><i>Students will demonstrate an understanding of length by explaining how the length of an object relates to the unit of measure used and in measuring various objects with appropriate tools; solving problems involving lengths using addition and subtraction.</i></p> <p><i>Students will demonstrate an understanding of time using digital and analog clocks by reading and writing time to the nearest five-minute mark; using the terms AM and PM appropriately.</i></p> <p><i>Students will demonstrate an understanding of U.S. money by solving word problems involving the addition and subtraction of</i></p>	<p>Students will demonstrate an understanding of the connection between area and multiplication and addition by using addition and multiplication to find the areas of squares and rectangles, using the distributive property to find the total areas of partitioned rectangles, and decomposing irregular shapes into rectangles to find their area.</p> <p>Students will demonstrate an understanding of time, capacity, and mass by writing time to the nearest minute and identifying how much time has passed, estimating and measuring the liquid volume of a container, and estimating and measuring the mass of any object.</p> <p><i>Students will demonstrate an understanding of measurement by completing and describing non-metric and metric measurements, solving measurement problems using formulas and solving problems involving time.</i></p>	<p>Students will demonstrate an understanding of measurements and conversions by completing and describing non-metric and metric conversions involving length, mass and volume, time conversions, and solving word problems involving various units of measurement.</p> <p>Students will demonstrate an understanding of volume by using and describing formulas to measure the volume of various rectangular shaped objects.</p>

	pennies, nickels, dimes, quarters, and dollar bills, using the dollar and cent signs appropriately.		
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Data, Statistics, & Probability: Students will demonstrate the ability to represent and analyze data. Students will apply principles of probability to interpret data, reach and justify conclusions, and make inferences and predictions.

Learning Targets

K	1-2	3-4	5-6
	<p>Students will demonstrate an understanding of data analysis by collecting and organizing data into (up to three categories) a table or chart; interpreting the data using totals and comparisons of how many more or less in a category.</p> <p><i>Students will demonstrate an understanding of collecting, displaying, and using data by measuring the lengths of various objects to the nearest whole unit, plotting the measurement data in a picture graph and a bar graph; and using the information to add, subtract, and compare lengths.</i></p>	<p>Students will demonstrate an understanding of representing and interpreting data by drawing scaled pictographs and bar graphs, solving one- and two-step word problems using information represented in a bar graph, and gathering measurement data using whole numbers, quarters and halves, and recording on line plots.</p> <p><i>Students will demonstrate an understanding of line plots by describing and creating line plots, values on a plot, fraction plotting, and answering line plot questions.</i></p>	<p>Students will demonstrate an understanding of representing and interpreting data by graphing, explaining, and interpreting data sets using line plots.</p> <p><i>Students will demonstrate an understanding of the coordinate plane by identifying and positioning ordered pairs on a coordinate plane to solve real-world application problems.</i></p> <p><i>Students will demonstrate an understanding of ratios, rates, and percentages by applying ratio reasoning to solve real-world problems.</i></p> <p><i>Students will demonstrate an understanding of analyzing, representing, and interpreting data by calculating measures of central tendency and variance, and in collecting data to interpret and represent in a variety of graphs.</i></p>

Geometry: Students will demonstrate the ability to investigate characteristics and properties of two and three-dimensional geometric shapes and apply transformations and symmetry.

Learning Targets

K	1-2	3-4	5-6
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<p>Students will demonstrate an understanding of shapes by identifying them as two- or three-dimensional, by naming them regardless of size or position, by comparing them using informal language, by drawing and modeling, using a variety of materials, and shapes found in the world, and by understanding that component shapes are composed of simple shapes.</p>	<p>Students will demonstrate an understanding of shapes by creating 2D and 3D figures, determining if an attribute is defining or non-defining, and in creating composite shapes.</p> <p>Students will demonstrate an understanding of equal shares by dividing circles and rectangles into halves and quarters, understanding that the equal shares created combine back to the whole and that the more shares created, the smaller the size of the share.</p> <p><i>Students will demonstrate an understanding of shapes and their attributes by describing the attributes of squares, rectangles, and cubes; recognizing and drawing shapes given specific attributes.</i></p> <p><i>Students will demonstrate an understanding of equal shares by dividing circles and rectangles multiple ways into halves, thirds, and quarters; recognizing that one equal share is a unit-fraction of the whole.</i></p>	<p>Students will demonstrate an understanding of quadrilaterals by identifying and defining the attributes of quadrilaterals and classifying a quadrilateral as square, rectangle, rhombus, or parallelogram.</p> <p><i>Students will demonstrate an understanding of lines (including parallel, perpendicular, and line of symmetry), angles, and shapes by describing, constructing, and identifying angles, two-dimensional figures, and classifying of two-dimensional figures.</i></p>	<p>Students will demonstrate an understanding of graphing points on a coordinate plane by explaining the coordinate plane, interpreting graphs of ordered pairs, and graphing ordered pairs in the first quadrant.</p> <p>Students will demonstrate an understanding of three and four-sided two-dimensional figures by classifying and distinguishing between various three and four-sided figures.</p> <p><i>Students will demonstrate an understanding of area and surface area of geometric figures by solving problems using area of polygons and surface areas of prisms and pyramids</i></p>
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