

JEFFERSON COUNTY SCHOOLS

Sixth Grade Mathematics

| Instructi Dates T | TN Department of Education CONTENT STANDARD/ GLE | Checks for Understanding | Student Performance Indicators (SPI) | Building blocks for the new standards | Essential Vocabulary *teacher word | Common Assessment item | Materials/ Resources |
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| | FIRST NINE WEEKS | | | | | | |
| 1 | GLE 0606.1.2 Apply and adapt a variety of appropriate strategies to problem solving, including estimation, and reasonableness of the solution. (Introduced) | 0606.1.6 Model situations by devising and carrying out experiments and simulations. (Introduced) | SPI 0606.1.1 Make conjectures and predictions based on data. (Introduced) | | | | Chapter 1 |
| 1 | GLE 0606.3.3 Extend order of | 0606.3.3 Recognize the use of juxtaposition (such as $3x$, ab) to stand for multiplication, and the convention in these cases of writing numbers before letters. | SPI 0606.3.2 Use order of operations and parentheses to simplify expressions and solve problems. | SPI 0506.3.2 Evaluate multi-step numerical expressions involving fractions using order of operations. SPI 0506.3.1 evaluate algebraic expressions involving decimals and fractions using order of operations. * 0506.3.1 Evaluate an expression by substituting non-negative rational number values for letter variables in the expression. | | | Chapter 1 |
| 1 | GLE 0606.3.2 Interpret and represent algebraic relationships with variables in expressions, simple equations and inequalities. | | | SPI 0506.2.3 Select a reasonable solution to a real-world division problem in which the remainder must be considered. | | | Chapter 1 |

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| 1 | | <p>0606.1.5 Illustrate properties of operations by showing that two expressions are equivalent in a given context (e.g., using an area model for distributive property, and grouping/set models for commutative and associative properties).</p> | <p>SPI 0606.1.4 Select the representation that models one of the arithmetic properties (commutative, associative, or distributive).</p> | | | | Chapter 1 |
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| | | | <p>SPI 0606.2.3 Solve problems involving the addition, subtraction, multiplication, and division of decimals.(Introduced)</p> | <p>addition and subtraction problems involving both fractions and decimals. * 0506.2.3 Use visual models, benchmarks, and equivalent forms to add and subtract commonly used fractions and decimals. * 0506.2.5 Make reasonable estimates of fractions and decimal sums and differences. SPI 0506.2.4 Solve problems involving the division of two- and three-digit numbers by one- and two-digit whole numbers. *0506.2.7 Understand placement of the decimal point in calculations of multiplication and</p> | <p>equation, solution, solving and equation, defining the variable</p> | | Chapter 1 |
| 1 | GLE 0606.3.1 Write and solve two-step equations and inequalities. (Introduced) | | <p>SPI 0606.3.3 Write equations that correspond to given situations or represent a given mathematical relationship. (Introduced)</p> | | <p>term, sequence, arithmetic sequence, geometric sequence</p> | | Chapter 1 |

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| 1 | | | <p>SPI 0606.3.7 Use algebraic expressions and properties to analyze numeric and geometric patterns.</p> | | <p>statistics, data, frequency table, scale, interval, line graph, scatter plot, line plot, cluster, outlier, range, measures of central tendency, mean, median, mode, stem-and-leaf plot, stem, leaf, bar graph, histogram</p> | | Chapter 1 |
| | <p>GLE 0606.5.2 Interpret representations of data from surveys and polls, and describe sample bias and how data representations can be misleading.</p> | <p>0606.5.8 Connect data sets and their graphical representations (such as bar graphs, circle, graphs, and stem-and-leaf plots).</p> <p>0606.5.9 Determine the sample space for a given situation.</p> <p>0606.5.11 Select the appropriate measure of center to describe a data set.</p> | | <p>SPI 0506.5.3 Calculate measures of central tendency to analyze data. *05065.5 Evaluate how different measures of central tendencies describe data. *0506.5.6 Identify the outliers and determine their effect on mean, median, mode and range. SPI 0506.5.2 Make predictions based on various data representations, including double bar and line graphs. *0506.5.3 Design investigations to address a question and consider how data collection methods affect the nature of the data set.</p> | | | Chapter 2 |

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| 1 | GLE 0606.2.5 Develop meaning for integers; represent and compare quantities with integers. | 0606.2.10 Explore contexts that can be described with negative numbers (such as money, elevation, and temperature). | <p>SPI 0606.1.3 Use concrete, pictorial, and symbolic representation for integers.</p> <p>SPI 0606.2.7 Locate positive rational numbers on the number line.</p> <p>SPI 0606.2.8 Locate integers on the number line.</p> | <p>SPI 0506.2.1 Read and write numbers from millions to millionths in various contexts.</p> <p>*0506.2.10 Use exponential notation to represent repeated multiplication of whole numbers.</p> <p>SPI 0506.2.2 Write the prime factorization of numbers through 50 using both exponential and standard notation.</p> <p>*0506.2.1 Identify prime numbers up to 50.</p> <p>*0506.2.2 Use the prime factorization of two whole numbers to determine greatest common factor, least common multiple.</p> <p>*0506.2.4 Use divisibility rules to factor numbers.</p> | | integer, graph, positive integer, negative integer, absolute value | Chapter 3 |
| 1 | GLE 0606.2.5 Develop meaning for integers; represent and compare quantities with integers. | 0606.2.10 Explore contexts that can be described with negative numbers (such as money, elevation, and temperature). | SPI 0606.1.2 Judge the reasonableness of the results of rational number estimates and/or computations. | | | | Chapter 3 |

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| 1 | GLE 0606.3.6 Understand and use the Cartesian coordinate system. | 0606.3.10 Understand that in an ordered pair (x, y), the x represents horizontal location and y represents vertical location. 0606.3.11 Identify the quadrant of the coordinate system in which a point lies. | SPI 0606.3.9 Graph ordered pairs of integers in all four quadrants of the Cartesian coordinate system. | | | coordinate plane, coordinate grid, x-axis, y-axis, origin, ordered pair, x-coordinate, y-coordinate, quadrants | Chapter 3 |
| 1 | | | SPI 0606.1.3 Use concrete, pictorial, and symbolic representation for integers. | | | opposites, additive inverse | Chapter 3 |
| 1 | | | SPI 0606.1.3 Use concrete, pictorial, and symbolic representation for integers. | | | | Chapter 3 |
| 1 | GLE 0606.3.1 Write and solve two-step equations and inequalities. GLE 0606.3.4 Use expressions, equations and formulas to solve problems. | 0606.1.11 Model algebraic expressions with manipulatives, technology, and pencil and paper. 0606.3.7 Move fluently between different representations (such as verbal, tabular, numerical, algebraic, and graphical) of equations and expressions. | SPI 0606.1.5 Model algebraic expressions using algebra tiles. SPI 0606.3.4 Rewrite expressions to represent quantities in different ways. | | | expression, zero pairs | Chapter 4 |

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| 1 | GLE 0606.3.1 Write and solve two-step equations and inequalities. | 0606.3.6 Use equations to describe simple relationships shown in a table or graph. 0606.3.8 Represent patterns using words, graphs, and simple symbolic notation. | SPI 0606.3.6 Solve two-step linear equations using number sense, properties, and inverse operations. | SPI 0506.3.3 Find the unknown in single-step equations involving fractions and mixed numbers. * 0506.3.2 Use variables appropriately to represent numbers whose values are not yet known. *0506.3.3 Solve single-step linear equations using inverse operations. | | inverse operations, Subtraction Property of Equality, Addition Property of Equality, coefficient, Division Property of Equality, two-step equation, inequality | Chapter 4 |
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| 1 | GLE 0606.3.5 Use multiple representations including symbolic algebra to model and/or solve contextual problems that involve linear relationships. | | SPI 0606.3.1 Represent on a number line the solution of a linear inequality. | <p>SPI 0506.2.9 Compare whole numbers, decimals and fractions using the symbols $<$, $>$, and $=$. *</p> <p>0506.2.9 Explore numbers less than 0 by extending the number line through familiar applications (e.g., temperatures, below zero, owing money, measuring elevation below sea levels.</p> <p>SPI 0506.3.4 Given a set fo values, identify those that make an inequality a true statement. * 0506.3.4 Solve single-step linear inequalities and graph solutions on a number line. * 0506.3.5 Determine if a given value is a solution to a linear equation/inequality.</p> | terminating decimals, repeating decimals, bar notation, ratio, percent, common denominator, least common denominator (LCD), rational numbers | function, function table, domain, range, linear equation, ordered pair | Chapter 4 |
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| 1 | <p>GLE 0606.2.3 Understand and use ratios, rates and percents. (Introduced)</p> <p>GLE 0606.2.4 Understand and convert between fraction, decimal, and percent forms of rational numbers.</p> | <p>0606.2.1 Efficiently compare and order fractions, decimals and percents; determine their approximate locations on a number line.</p> <p>0606.2.8 Recognize that a terminating decimal equals a fraction with a denominator that is a power of ten.</p> <p>0606.2.9 Recognize that the decimal form of a rational number either terminates or repeats.</p> | <p>SPI 0606.2.3 Solve problems involving the addition, subtraction, multiplication, and division of decimals.</p> <p>SPI 0606.2.5 Transform numbers from one form to another (fractions, decimals, percents, and mixed numbers).</p> <p>SPI 0606.2.6 Solve problems involving ratios, rates and percents.</p> | <p>SPI 0506.2.7 Recognize equivalent representations for the same number.</p> <p>SPI 0506.2.8 Write terminating decimals in the form of fractions or mixed numbers.</p> | | Chapter 5 | |
| 2 | SECOND NINE WEEK | | | | <p>Compatible numbers, GCF (Greatest Common Factor), multiplicative inverse, reciprocal, Multiplication Property of Equality</p> | | |

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| 2 | <p>GLE 0606.1.2 Apply and adapt a variety of appropriate strategies to problem solving, including estimation, and reasonableness of the solution.</p> <p>GLE 0606.3.4 Use expressions, equations and formulas to solve problems.</p> | <p>0606.1.2 Recognize when an estimate is more appropriate than an exact answer in a variety of problem situations.</p> | <p>SPI 0606.2.1 Solve problems involving the multiplication and division of fractions.</p> <p>SPI 0606.2.2 Solve problems involving the addition, subtraction, multiplication, and division of mixed numbers.</p> <p>SPI 0606.3.6 Solve two-step linear equations using number sense, properties, and inverse operations.</p> | <p>SPI 0506.2.6 Add and subtract proper and improper fractions as well as mixed numbers</p> | <p>perimeter, formula, area, circle, center, circumference, diameter, pi, radius</p> | <p>Chapter 6</p> | |
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| 2 | | <p>0606.4.11 Relate the circumference of a circle with the perimeter of a polygonal figure.</p> <p>0606.4.12 Derive the meaning of Pi using concrete models and/or appropriate technology.</p> <p>0606.4.16 Solve contextual problems involving area and circumference of circles, surface areas and volumes of prisms, pyramids, cones, and cylinders.</p> | <p>SPI 0606.4.4 Calculate with circumferences and areas of circles.</p> | <p>Decompose irregular shapes to find perimeter and area. *</p> <p>0506.4.2 Find the area of a convex polygon by decomposing it into triangles/rectangles.</p> <p>SPI 0506.4.6 Record measurements in context to reasonable degree of accuracy using decimals and/or fractions.</p> <p>*0506.4.9 Correctly interpret significant digits in the accuracy of measurements and associated calculations.</p> <p>*0506.4.10 Recognize that measurements are never exact.</p> <p>* 0506.4.11 Understand the usefulness of approximations.</p> | <p>equivalent ratios, ratio, rate, unit rate, proportion, cross product, scale, scale drawing, scale factor, scale model</p> | <p>Chapter 6</p> | |
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| 2 | | <p>0606.2.4 Understand ratio as a fraction used to compare two quantities by division.</p> <p>0606.2.5 Recognize a:b, a/b, and “a to b” as notations for ratios.</p> <p>0606.2.6 Recognize common percentages as ratios based on fractions whose denominators are 2, 3, 4, 5, or 10.</p> <p>0606.2.7 Connect ratio and rate to multiplication and division.</p> | <p>SPI 0606.2.6 Solve problems involving ratios, rates and percents. (continued)</p> | | <p>percent, percent proportion, part, base, percent equation</p> | | |
| 2 | | <p>0606.2.1 Efficiently compare and order fractions, decimals and percents; determine their approximate locations on a number line.</p> <p>0606.2.2 Use area models to represent multiplication of fractions.</p> | <p>SPI 0606.2.4 Solve multi-step arithmetic problems using fractions, mixed numbers, and decimals.</p> | | <p>survey, random sample, population, percent of change, percent of increase, percent of decrease, sales tax, discount, simple interest, principle, discount</p> | <p>Chapter 7 and 8</p> | |

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| 2 | | <p>0606.5.9 Determine the sample space for a given situation.</p> <p>0606.5.10 Distinguish between a random and nonrandom sample.</p> <p>0606.5.12 Predict the characteristics of a population based on the analysis of sample data.</p> | <p>SPI 0606.5.1 Determine the theoretical probability of simple and compound events in familiar contexts.</p> <p>SPI 0606.5.3 Determine whether or not a sample is biased.</p> | <p>SPI 0506.5.1 Depict data using various representations, including decimal and/or fractional data.</p> <p>*0506.5.1 Construct and analyze double bar and line graphs.</p> <p>*0506.5.2 Represent data using ordered pairs in the first quadrant of the coordinate system. *0506.5.4 Recognize the differences in representing categorical and numerical data.</p> | | Chapter 8 | |
| 3 | THIRD NINE WEEKS | | | | <p>outcomes, simple, event, probability, random, complementary events, fair game, tree diagram, sample space, Fundamental Counting Principal, compound event, independent event, permutation, combinations, experimental probability, theoretical, probability, dependent event</p> | | |

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| 3 | <p>GLE 0606.5.1 Understand the meaning of probability and how it is expressed.</p> | <p>that the probability of an event is a number between zero and one that expresses the likelihood of its occurrence.</p> <p>0606.5.2 6.5.2 Identify the probability of an event as the ratio of the number of its actual occurrences to the total number of its possible occurrences.</p> <p>0606.5.3 Express probabilities in different ways.</p> <p>0606.5.4 Understand the difference between probability and odds.</p> <p>0606.5.5 Analyze a situation that involves probability of an independent event.</p> <p>0606.5.6 Estimate the probability of simple and compound events through experimentation</p> | | | | Chapter 9 | |
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| | <p>GLE 0606.4.1 Understand and use basic properties of triangles, quadrilaterals, and other polygons.</p> | <p>that in an ordered pair (x, y), the x represents horizontal location and y represents vertical location. 0606.4.1 Investigate the sum of the angles in a triangle and a quadrilateral using various methods.</p> <p>ü 0606.4.2 Relate the sum of the angles in a triangle to the sum of the angles in polygons.</p> <p>0606.4.3 Verify the basic properties of triangles and quadrilaterals using a protractor and ruler.</p> <p>0606.4.4 Classify triangles by side lengths (scalene, isosceles, and equilateral) and angle measure (acute, right, obtuse, isosceles and equiangular).</p> | <p>SPI 0606.4.1 Identify, define or describe geometric shapes given a visual representation or a written description of its properties.</p> <p>SPI 0606.4.2 Find a missing angle measure in problems involving interior/exterior angles and/or their sums.</p> <p>SPI 0606.4.3 Solve problems using the Triangle Inequality Theorem.</p> | | | Chapter 10 | |
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| 3 | | | <p>0606.4.8 Understand scaling, dilation and their relation to similarity.</p> <p>0606.4.9 Analyze the differences between congruence and similarity.</p> | | | | Chapter 10 | |
| 3 | | | 0606.4.5 Model and use the Triangle Inequality Theorem. | SPI 0606.4.3 Solve problems using the Triangle Inequality Theorem. | | | Not in book | |
| 3 | | GLE 0606.4.2 Use the concepts of translation, rotation, reflection, and symmetry to understand congruence in the plane. | 0606.4.7 Work with transformations in a plane and explore their meanings through drawings and manipulatives. | | | | Chapter 10 | |

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| 3 | GLE 0606.4.3 Develop and use formulas to determine the circumference and area of circles, and the area of trapezoids, and develop strategies to find the area of composite shapes. | 0606.4.14 Relate the area of a trapezoid to the area of a parallelogram. | <p>SPI 0606.4.1 Identify, define or describe geometric shapes given a visual representation or a written description of its properties.</p> <p>SPI 0606.4.2 Find a missing angle measure in problems involving interior/exterior angles and/or their sums.</p> | <p>SPI 0506.4.1 Solve contextual problems that require calculating the area of triangles and parallelograms.</p> <p>* 0506.4.1 Develop the formula for the area of a triangle by relating it to the area of a parallelogram or rectangle.</p> | | Chapter 11 | |
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| 3 | GLE 0606.4.4 Develop and use formulas for surface area and volume of 3-dimensional figures. | <p>0606.4.15 Find lengths given areas or volumes, and vice versa.</p> <p>0606.4.17 Use manipulatives to discover the volume of a pyramid is one-third the volume of the related prism (the heights and base areas are equal).</p> <p>0606.4.18 Use manipulatives to discover the volume of a cone is one-third the volume of the related cylinder (the heights and base areas are equal).</p> | <p>SPI 0606.4.5 Determine the surface area and volume of prisms, pyramids and cylinders.</p> <p>SPI 0606.4.6 Given the volume of a cone/pyramid, find the volume of the related cylinder/prism or vice versa.</p> | <p>Understand, select and use units of appropriate size and type to measure angles, lengths/distances, area, surface area and volume.</p> <p>SPI 0506.4.3 Identify a three-dimensional object from two-dimensional representations of that object and vice versa.</p> <p>* 0506.4.3 Build, draw, and work with prisms in orthogonal views, projective views and nets.</p> <p>*0506.4.6 Decompose prisms to calculate surface area/volume.</p> <p>SPI 0506.4.4 Solve problems involving surface area and volume of rectangular prisms and polyhedral solids.</p> | | | |
| 3 | ALL YEAR LONG | | | | | | |

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| | <p>mathematical language, symbols, and definitions while developing mathematical reasoning.</p> <p>GLE 0606.1.2 Apply and adapt a variety of appropriate strategies to problem solving, including estimation, and reasonableness of the solution.</p> <p>GLE 0606.1.3 Develop independent reasoning to communicate mathematical ideas and derive algorithms and/or formulas.</p> <p>GLE 0606.1.4 Move flexibly between concrete and abstract representations of mathematical ideas in order to solve problems, model mathematical ideas, and communicate solution strategies.</p> <p>GLE 0606.1.5 Use mathematical ideas and processes in different settings to formulate patterns, analyze graphs, set up and solve problems and interpret solutions.</p> | <p>0606.1.3 Recognize errors generated by rounding.</p> <p>0606.1.4 Describe how changes in one quantity or variable result in changes in another.</p> <p>0606.1.7 Formulate questions, design studies, and collect real world data.</p> <p>0606.1.8 Determine an appropriate sample to test an hypothesis.</p> <p>0606.1.9 Use age-appropriate books, stories, and videos to convey ideas of mathematics.</p> | | | | | |
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