

**Grade Level Expectations  
Grade 5 Mathematics**

*GLE 0506.1.1 Use mathematical language, symbols, and definitions while developing mathematical reasoning. (DOK Level 1)*

*GLE 0506.1.2 Apply and adapt a variety of appropriate strategies to problem solving, including estimation, and reasonableness of the solution. (DOK Level 4)*

*GLE 0506.1.3 Develop independent reasoning to communicate mathematical ideas and derive algorithms and/or formulas. (DOK Level 3)*

*GLE 0506.1.4 Move flexibly between concrete and abstract representations of mathematical ideas in order to solve problems, model mathematical ideas, and communicate solution strategies. (DOK Level 2)*

*GLE 0506.1.5 Use mathematical ideas and processes in different settings to formulate patterns, analyze graphs, set up and solve problems and interpret solutions. (DOK Level 3)*

*GLE 0506.1.6 Read and interpret the language of mathematics and use written/oral communication to express mathematical ideas precisely. (DOK Level 1)*

*GLE 0506.1.7 Recognize the historical development of mathematics, mathematics in context, and the connection between mathematics and the real world. (DOK Level 3)*

*GLE 0506.1.8 Use technologies/ manipulatives appropriately to develop understanding of mathematical algorithms, to facilitate problem solving, and to create accurate and reliable models of mathematical concepts. (DOK Level 2)*

*✓ 0506.1.9 Use age-appropriate books, stories, and videos to convey ideas of mathematics.*

**Unit 1 Multiplication and Division**

*GLE 0506.2.3 Develop fluency with division of whole numbers. Understand the relationship of divisor, dividend, and quotient in terms of multiplication and division (DOK Level 2)*

*GLE 0506.2.5 Develop fluency in solving multi-step problems using whole numbers, fractions, mixed numbers, and decimals (DOK Level 3)*

**Unit 2 Whole Numbers, Fractions, and Decimals Concepts**

*GLE 0506.2.1 Extend the understanding of place value through millions and millionths in various contexts and representations (DOK Level 1)*

*GLE 0506.2.2 Write natural numbers (to 50) as a product of prime factors and understand that this is unique (apart from order) (DOK Level 1)*

**Unit 3 Addition and Subtraction of Fractions/ Decimals**

*GLE 0506.2.4 Develop fluency with addition and subtraction of proper and improper fractions and mixed numbers; explain and model the algorithm (DOK Level 3)*

*GLE 0506.2.5 Develop fluency in solving multi-step problems using whole numbers, fractions, mixed numbers, and decimals (DOK Level 3)*

*GLE 0506.3.1 Understand and use order of operations (DOK Level 1)*

**Unit 4 Algebra**

*GLE 0506.3.1 Understand and use order of operations (DOK Level 1)*

*GLE 0506.3.2 Develop and apply the concept of variable (DOK Level 1)*

*GLE 0506.3.3 Understand and apply the substitution property (DOK Level 1)*

*GLE 0506.3.4 Solve single-step linear equations and inequalities (DOK Level 2)*

*GLE 0506.4.3 Describe length/distance relationships using the first quadrant of the coordinate system (DOK Level 1)*

**Unit 5 Data and Statistics**

*GLE 0506.5.1 Make, record, display and interpret data and graphs that include whole numbers, decimals, and fractions (DOK Level 2)*

*GLE 0506.5.2 Describe the shape and important features of a set of data using the measures of central tendency (DOK Level 3)*

**Unit 6 Geometry and Measurement**

*GLE 0506.4.1 Use basic formulas and visualization to find the area of geometric figures (DOK Level 3)*

*GLE 0506.4.2 Describe polyhedral solids and analyze their properties, including volume and surface area (DOK Level 3)*

*GLE 0506.4.4 Solve problems that require attention to both approximation and precision of measurement (DOK Level 4)*

Unit 1: Multiplication and Division			Estimated time to complete: 4 weeks	
Pre-check skills and knowledge: understanding of multiplication and division concepts; basic multiplication and division facts				
Unit Vocabulary: factor, product, dividend, divisor, divisible, compatible numbers, quotient, remainder, estimate				
Local I.D. #	Student Indicator	State Assessed	KCS Assessed	Resources
KCO 1-1	Solve problems involving the multiplication of two and three-digit whole numbers.		X	3.4 p. 68-71 3.5 p. 72-73 3.7 p. 76-78
2	<b>SPI 0506.2.4 Solve problems involving the division of two and three-digit whole numbers by one and two-digit whole numbers.</b> <ul style="list-style-type: none"> <li>✓ 0506.2.8 Understand that division by zero is undefined.</li> <li>✓ 0506.1.3 Explore different methods of estimation including rounding and truncating.</li> </ul>	X	X	4.1 p. 86-87 4.2 p. 88-89 4.5 p. 96-97 5.1 p. 110-111 5.2 p. 112-113 5.4 p. 118-19 5.5 p. 120-122
3	<b>SPI 0506.1.3 Recognize the unit associated with the remainder in a division problem or the meaning of the fractional part of a whole given in either decimal or fraction form.</b> <ul style="list-style-type: none"> <li>✓ 0506.2.7 Understand the placement of the decimal point in calculations of multiplication and <i>long division</i>, including the placement in the estimation of the answer.</li> </ul>	X	X	3.8 p. 80-81 14.8 p. 370-372
4	<b>SPI 0506.2.3 Select a reasonable solution to a real-world division problem in which the remainder must be considered.</b> <ul style="list-style-type: none"> <li>✓ 0506.1.4 Explore problems in different contexts to interpret the meaning of remainders as discrete values or not.</li> </ul>	X	X	5.7 128-130 HM6- 4.5 p. 100-102
5	<b>SPI 0506.1.4 Identify missing information and/or too much information in contextual problems.</b> <ul style="list-style-type: none"> <li>✓ 0506.1.5 Solve problems in more than one way and explain why one process may be more effective than another.</li> </ul>	X	X	2.6 p. 42-43 HM6- 8.8 p. 204-205

<b>Unit 2: Whole Numbers, Fractions, and Decimals Concepts</b>			<b>Estimated time to complete: 5 weeks</b>	
<b>Pre-check skills and knowledge: place value hundred thousands to hundredths, equivalent forms of fractions and decimals</b>				
<b>Unit Vocabulary: base, exponent, power of ten, place value, period, factor, prime, composite, multiple, prime factorization, greatest common factor, least common multiple, common denominator, terminating decimals, repeating decimal, unit fraction, improper fraction, mixed number, equivalent fraction, simplest form</b>				
<b>Local I.D. #</b>	<b>Student Indicator</b>	<b>State Assessed</b>	<b>KCS Assessed</b>	<b>Resources</b>
<b>1</b>	<b>SPI 0506.2.1 Read and write numbers from millions to millionths in various contexts.</b> ✓ 0506.2.10 Use exponential notation to represent repeated multiplication of whole numbers. ✓ 0506.3.6 Recognize there are many numbers between any two whole numbers on the number line.	X	X	1.1 p. 4-5 1.2 p. 6-7 1.3 p. 8-9 1.5 p. 14-15
<b>2</b>	<b>SPI 0506.2.2 Write the prime factorization of numbers through 50 using both exponential and standard notation.</b> ✓ 0506.2.1 Identify prime numbers up to 50. ✓ 0506.2.2 Use the prime factorization of two whole numbers to determine the greatest common factor and the least common multiple. ✓ 0506.2.4 Use divisibility rules to factor numbers. ✓ 0506.2.10 Use exponential notation to represent repeated multiplication of whole numbers.	X	X	4.4 p. 92-94 9.1 p. 224-25 9.2 p. 226-27 9.3 p. 228-31 9.4 p. 232-35 9.7 p. 242-44
<b>3</b>	<b>SPI 0506.2.7 Recognize equivalent representations for the same number.</b>	X	X	9.5 p. 236-39 9.6 p. 240-41 14.6 p. 366-67
<b>4</b>	<b>SPI 0506.2.8 Write terminating decimals in the form of fractions or mixed numbers.</b>	X	X	9.8 p. 246-47 TMS ( converting decimals to fractions)
<b>5</b>	<b>SPI 0506.2.9 Compare whole numbers, decimals, and fractions using the symbols, &lt;, &gt;, and =.</b>	X	X	1.4 p. 10-12 1.7 p. 20-22 9.9 p. 248-50 HM6- 1.3 p. 8-9

<b>Unit 3: Addition and Subtraction of Fractions/Decimals</b>			<b>Estimated time to complete: 5 weeks</b>	
<b>Pre-check skills and knowledge: add and subtract proper fractions with like and unlike denominators; simplify the answer; add and subtract decimals through hundredths</b>				
<b>Unit Vocabulary: round, sum, difference, numerator, denominator, fraction, improper fraction, mixed number, reciprocal, simplify, decimal, sum, difference, factor, product, quotient, dividend, divisor, evaluate, expression, order of operations</b>				
<b>Local I.D. #</b>	<b>Student Indicator</b>	<b>State Assessed</b>	<b>KCS Assessed</b>	<b>Resources</b>
<b>1</b>	<b>SPI 0506.1.2 Estimate fraction and decimal sums or differences.</b> ✓ 0506.1.2 Make reasonable estimates of fraction and decimal sums or differences using models. ✓ 0506.2.5 Make reasonable estimates of fraction and decimal sums and differences.	X	X	10.1 p. 256-57 11.4 p. 290-91
<b>2</b>	<b>SPI 0506.2.5 Solve addition and subtraction problems involving both fractions and decimals.</b> ✓ 0506.2.3 Use visual models, benchmarks, and equivalent forms to add and subtract commonly used fractions and decimals.	X	X	10.2 p. 258-59 10.3 p. 260-61 11.1 p. 282-83 11.2 p. 284-85 11.3 p. 286-88, p. 301
<b>3</b>	<b>SPI 0506.2.6 Add and subtract proper and improper fractions as well as mixed numbers.</b> ✓ 0506.2.6 Add and subtract mixed numbers.	X	X	10.4 p. 262-64, p. 304 10.5 p. 266-67 10.6 p. 268-69 10.8 p. 274-76
<b>4</b>	<b>SPI 0506.3.2 Evaluate multi-step numerical expressions involving fractions using order of operations.</b>	X	X	2.7 p. 48-49 5.6 p. 124-26 TMS (fractions) HM6- 6.7 p. 142-144

<b>Unit 4: Algebra</b>			<b>Estimated time to complete: 5 weeks</b>	
<b>Pre-check skills and knowledge: use letters and symbols to represent an unknown quantity and write simple mathematical expressions</b>				
<b>Unit Vocabulary: evaluate, expression, equation, inverse operations, inequality, solution to an inequality, coordinate plane, ordered pair, quadrant, origin, x-axis, y-axis, horizontal, vertical</b>				
<b>Local I.D. #</b>	<b>Student Indicator</b>	<b>State Assessed</b>	<b>KCS Assessed</b>	<b>Resources</b>
<b>1</b>	<b>SPI 0506.3.1 Evaluate algebraic expressions involving decimals and fractions using order of operations.</b> ✓ 0506.3.1 Evaluate an expression by <b>substituting</b> non-negative rational number values for letter variables in the expression.	X	X	5.6 p. 124-25 TMS (decimals) HM6-6.7 p. 142-144
<b>2</b>	<b>SPI 0506.3.3 Find the unknown in single-step equations involving fractions and mixed numbers.</b> ✓ 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.	X	X	2.5 p. 40-41 4.7 p. 102-104 21.1 p. 566-67 21.2 p. 568-70 TMS (fractions and mixed numbers) HM6- 4.2 p. 92-93
<b>3</b>	<b>SPI 0506.3.4 Given a set of values, identify those that make an inequality a true statement.</b> ✓ 0506.1.8 Use patterns, models, and relationships as contexts for writing inequalities and simple equations. ✓ 0506.3.4 Solve a 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.	X	X	HM6- 23.5 p. 618-20

<p><b>KCO 4-4</b></p>	<p><b>Graph ordered pairs in all four quadrants of the Cartesian coordinate system.</b>          ✓ 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 level).</p>		<p>X</p>	<p>23.1 p. 610-13</p>
<p><b>5</b></p>	<p><b>SPI 0506.4.5 Find the length of vertical or horizontal line segments in the first quadrant of the coordinate system, including problems that require the use of fractions and decimals.</b>          ✓ 0506.4.8 Identify characteristics of the set of points that define vertical and horizontal line segments.</p>	<p>X</p>	<p>X</p>	<p>TMS</p>

Unit 5: Data and Statistics		Estimated time to complete: 4 weeks		
Pre-check skills and knowledge: depict data using various representations ( tables, line graphs, bar graphs); given a set of data or a graph, describe the distribution of data using median, range, or mode				
Unit Vocabulary: scale, interval, double bar graph, double line graph, circle graph, mean, median, range, mode, outlier				
Local I.D. #	Student Indicator	State Assessed	KCS Assessed	Resources
1	<p><b>SPI 0506.5.1 Depict data using various representations, including decimal and/or fractional data.</b></p> <ul style="list-style-type: none"> <li>✓ 0506.1.7 Organize and consolidate verbal statements involving fractions and mixed numbers into diagrams, symbols, and numerical expressions.</li> <li>✓ 0506.5.1 Construct and analyze double bar and line graphs.</li> <li>✓ 0506.5.2 Represent data using ordered pairs in the first quadrant of the coordinate system. (scatter plots)</li> <li>✓ 0506.5.4 Recognize the differences in representing categorical and numerical data.</li> </ul>	X	X	7.1 p. 172-75 7.3 p. 178-80 7.4 p. 182-183 8.1 p. 192-93 19.6 p. 520-22 TMS (decimal and/or fractional data)
2	<p><b>SPI 0506.5.2 Make predictions based on various data representations, including double bar and line graphs.</b></p> <ul style="list-style-type: none"> <li>✓ 0506.5.3 Design investigations to address a question and consider how data collection methods affect the nature of the data set.</li> </ul>	X	X	7.5 p. 184-85 7.6 p. 186-87 8.5 p. 204-06, p. 215
3	<p><b>SPI 0506.5.3 Calculate measures of central tendency to analyze data.</b></p> <ul style="list-style-type: none"> <li>✓ 0506.5.5 Evaluate how different measures of central tendency describe data.</li> <li>✓ 0506.5.6 Identify outliers and determine their effect on mean, median, mode, and range.</li> </ul>	X	X	8.2 p. 194-96, p. 218 HM6-9.3 p.216-218 HM6-9.4 p. 220-221 (outlier)



Unit 6: Geometry and Measurement		Estimated time to complete: 5 weeks		
<b>Pre-check skills and knowledge: identify acute, obtuse, and right angles in 2-dimensional shapes, identify attributes of simple and compound figures composed of 2 and 3 dimensional shapes; identify images resulting from reflections, translations or rotations, co-ordinate graphing and interpreting points on a grid; solve problems involving perimeter and area</b>				
<b>Unit Vocabulary: angle, acute, obtuse, right, straight, triangle, equilateral, isosceles, scalene, polygon, quadrilateral, trapezoid, parallelogram, rhombus, rectangle, square, symmetry, area, perimeter, face, edge, vertex, prism, pyramid, cylinder, cone, surface area, volume</b>				
Local I.D. #	Student Indicator	State Assessed	KCS Assessed	Resources
1	<b>SPI 0506.1.1 Given a series of geometric statements, draw a conclusion about the figure described.</b> ✓ 0506.1.1 Make and test conjectures about geometric properties and develop logical arguments to justify conclusions.	X	X	15.2 p. 392-94 15.3 p. 396-97 15.5 p. 400-02 15.6 p. 404-406 15.8 p. 412-413 15.9 p. 414-16
2	<b>SPI 0506.4.1 Solve contextual problems that require calculating the area of triangles and parallelograms.</b> ✓ 0506.4.1 Develop the formula for the area of a triangle as it relates to the area of a parallelogram/ rectangle.	X	X	16.3 p. 428-31 16.4 p. 432-33
3	<b>SPI 0506.4.2 Decompose irregular shapes to find perimeter and area.</b> ✓ 0506.4.2 Find area of a convex polygon by decomposing it into triangles/ rectangles.	X	X	16.1 p. 422-23 16.5 p. 434-36
4	<b>SPI 0506.4.3 Identify a three-dimensional object from two-dimensional representations of that object and vice versa.</b> ✓ 0506.4.3 Build, draw, and work with prisms by means of orthogonal views, projective views, and nets. ✓ 0506.4.4 Describe and identify the five regular (Platonic) solids and their properties with respect to faces, shapes of faces, edges, and vertices. (prism, pyramid, cylinder, cone, and sphere)	X	X	17.1 p. 446-47 17.2 p. 448-49 17.3 p. 450-51

<p>5</p>	<p><b>SPI 0506.4.4 Solve problems involving surface area and volume of rectangular prisms and polyhedral solids. (rectangular prism, triangular prism, square pyramid, triangular pyramid)</b></p> <ul style="list-style-type: none"> <li>✓ 0506.4.5 Quantify total volume as filling space with same-sized units of volume without gaps or overlap.</li> <li>✓ 0506.4.6 Decompose prisms to calculate surface area and volume.</li> <li>✓ 0506.4.7 Understand, select, and use units of appropriate size and type to measure angles, lengths/distances, area, surface area, and volume.</li> </ul>	<p>X</p>	<p>X</p>	<p>17.4 p. 452-54 17.5 p. 456-458 17.6 p. 460-63 17.7 p. 464-67</p>
<p>6</p>	<p><b>SPI 0506.4.6 Record measurements in context to a reasonable degree of accuracy using decimals and/or fractions.</b></p> <ul style="list-style-type: none"> <li>✓ 0506.1.6 Communicate answers in correct verbal and numerical form; including use of mixed numbers or fractions, and use of units.</li> <li>✓ 0506.4.9 Correctly interpret significant digits in the accuracy of measurements and associates calculations.</li> <li>✓ 0506.4.10 Recognize that measurements are never exact.</li> <li>✓ 0506.4.11 Understand the usefulness of approximations.</li> <li>✓ 0506.4.12 Develop strategies for choosing correct tools of measurement.</li> <li>✓ 0506.4.13 Recognize and use measures of weight and temperature.</li> <li>✓ 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 level).</li> </ul>	<p>X</p>	<p>X</p>	<p>6.1 p. 148-49 Problem-solving- Chapter 6</p>

<p><b>Unit 1</b></p> <p><b>Literature Resources:</b></p> <p><b>Materials/Manipulatives:</b></p> <ul style="list-style-type: none"><li>•</li></ul>	<p><b><u>Unit 2</u></b></p> <p><b>Literature Resources:</b></p> <p><b>Materials/Manipulatives:</b></p>
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**Unit 3**

**Literature Resources:**

**Materials/Manipulatives:**

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**Unit 4**

**Literature Resources:**

**Materials/Manipulatives:**

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**Unit 5**

**Literature Resources:**

**Materials/Manipulatives:**

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**Unit 6**

**Literature Resources:**

**Materials/Manipulatives:**

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**Professional Resources:**

**Technology:**

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