2003/2010 ACOS MATHEMATICS CONTENT CORRELATION
GRADE 6

2003 ACOS	2010 ACOS
CURRENT ALABAMA CONTENT PLACEMENT	**2010 GRADE 6 CONTENT**
6.1 **Demonstrate computational fluency with addition, subtraction, multiplication, and division of decimals and fractions.**	6.5. Fluently divide multi-digit numbers using the standard algorithm. [6-NS2] 6.6. Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation. [6-NS3]
6.1.B.1 **Comparing rational numbers written as fractions, decimals, mixed numbers, and percents**	6.10a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. [6-NS7a] 6.10b. Write, interpret, and explain statements of order for rational numbers in real-world contexts. [6-NS7b]
6.1.B.2 **Converting fractions and mixed numbers to decimals and percents** **6.1.B.3** **Converting terminating decimals and percents to fractions and mixed numbers**	6.3c. Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent. [6-RP3c]
6.1.B.4 **Writing decimal numbers in expanded notation**	**CONTENT NOW ADDRESSED IN GRADE 5:** **5.6a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000). [5-NBT3a]**
6.1.B.5 **Using prime factorizations** **6.1.B.6** **Identifying prime and composite numbers**	6.12. Write and evaluate numerical expressions involving whole-number exponents. [6-EE1]
6.1.B.7 **Using greatest common factor (GCF) to simplify fractions**	6.7. Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. [6-NS4]
6.1.B.8 **Formulating algorithms using basic operations on fractions and decimals**	6.4. Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. [6-NS1]
6.1.B.9 **Applying the distributive property to compute with fractions and decimals**	6.14. Apply the properties of operations to generate equivalent expressions.[6-EE3]
6.1.B.10 **Using least common multiple (LCM) to add and subtract fractions with unlike denominators**	**CONTENT NOW ADDRESSED IN GRADE 5:** **5.11. 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. [5-NF1]**
6.2 **Solve problems involving decimals, percents, fractions, and proportions.**	**CONTENT NOW ADDRESSED IN GRADE 5:** **5.12. Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by 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. [5-NF2]** **5.16. Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem. [5-NF6]** **5.17c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. [5-NF7c]**

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6.1.B.1	Estimating with fractions and decimals	**CONTENT NO LONGER ADDRESSED IN GRADE 6**
6.3	Solve problems using numeric and geometric patterns.	**CONTENT NO LONGER ADDRESSED IN GRADE 6**
6.3.B.1	Determining a verbal rule for a function given the input and output	**CONTENT NOW ADDRESSED IN GRADE 8:** **8.11. Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. (Function notation is not required in Grade 8.) [8-F1]**
6.4	Identify two-dimensional and three-dimensional figures based on attributes, properties, and component parts.	**CONTENT NOW ADDRESSED IN GRADE 5:** **5.25. Understand that attributes belonging to a category of two –dimensional figures also belong to all subcategories of that category. [5-G3]** **5.26. Classify two-dimensional figures in a hierarchy based on properties. [5-G4]**
6.4.B.1	Classifying quadrilaterals based on their attributes	**CONTENT NOW ADDRESSED IN GRADE 3:** **3.24. Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories. [3-G1]**
6.4.B.2	Identifying line and rotational symmetries of polygons	**CONTENT NOW ADDRESSED IN GRADE 4:** **4.28. Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry. [4-G3]** **CONTENT NOW ADDRESSED IN GRADE 8:** **8.19. Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them. [8-G4]**
6.4.B.3	Classifying triangles as right, obtuse, or acute	**CONTENT NOW ADDRESSED IN GRADE 4:** **4.26. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. [4-G1]**
6.5 6.5.B.1	**Plot coordinates on grids, graphs, and maps.** **Identifying the coordinates of a point on the Cartesian plane**	6.9. Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. [6-NS6] 6.9a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., –(–3) = 3, and that 0 is its own opposite. [6-NS6a] 6.9b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. [6-NS6b] 6.9c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane. [6-NS6c] 6.11. Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate. [6-NS8] 6.23. Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems. [6-G3]

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6.6	Classify angles as acute, obtuse, right, or straight.	**CONTENT NOW ADDRESSED IN GRADE 4:** **4.26. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. [4-G1]**
6.6.B.1	Estimating angle measures using 45 degrees, 90 degrees, 180 degrees, 270 degrees, or 360 degrees as referents	**CONTENT NO LONGER ADDRESSED IN GRADE 6**
6.6.B.2	Measuring angles	**CONTENT NOW ADDRESSED IN GRADE 4:** **4.24. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure. [4-MD6]**
6.7	Solve problems involving perimeter and area of parallelograms and rectangles.	**CONTENT NOW ADDRESSED IN GRADE 4:** **4.21. Apply the area and perimeter formulas for rectangles in real-world and mathematical problems. [4-MD3]**
6.7.B.1 6.7.B.2	Estimating perimeter and area Developing formulas to determine perimeter and are parallelograms and rectangles	6.21. Find area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems [6-G1]
6.8 6.9	Determine the distance between two points on a scale drawing or a map using proportional reasoning. Convert units of length, weight, or capacity within the same system (customary or metric).	6.3d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities. [6-RP3d]
6.8.B.1	Using different forms of notation to symbolize ratios and rates	6.1. Understand the concept of ratio, and use ratio language to describe a ratio relationship between two quantities. [6-RP1] 6.2. Understand the concept of a unit rate a/b associated with a ratio a:b with b ≠ 0, and use rate language in the context of a ratio relationship. [6-RP2] 6.3. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number lines, or equations. [6-RP3] 6.3a. Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios. [6-RP3a] 6.3b. Solve unit rate problems including those involving unit pricing and constant speed. [6-RP3b]
6.10	Interpret information from bar graphs, line graphs, and circle graphs.	6.25. Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. [6-SP1] 6.28. Display numerical data in plots on a number line, including dot plots, histograms, and box plots. [6-SP4]
6.11	Find the probability of a simple event.	**CONTENT NOW ADDRESSED IN GRADE 7:** **7.22. Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. [7-SP6]**
6.11.B.1	Expressing probabilities as ratios, percents, and decimals	**CONTENT NOW ADDRESSED IN GRADE 7:** **7.21. Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around ½ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event. [7-SP5]** **7.22. Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. [7-SP6]**

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CONTENT MOVED TO GRADE 6 IN 2010 ACOS		
	Foundational Knowledge - GLOSSARY	6.13b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. [6-EE2b]
5.14	**Analyze data collected from a survey or experiment to distinguish between what the data show and what might account for the results.**	6.26. Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape. [6-SP2] 6.27. Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number. [6-SP3]

5.14.B.2	**Using given measures of central tendency (mean, median, and mode) to analyze data**	6.29. Summarize numerical data sets in relation to their context, such as by: [6-Sp5]
		    a. Reporting the number of observations [6-SP5a]
		    b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. [6-SP5b]

7.1	**Demonstrate computational fluency with addition, subtraction, and multiplication of integers.**	6.8. Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, debits/credits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. [6-NS5]
7.2	**Use order of operations to evaluate numerical expressions.**	6.13c. Evaluate expressions at specific values for their variables. Include expressions that arise from formulas in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). ' [6-EE2c]

7.2.B.1	**Computing absolute values**	6.10. Understand ordering and absolute value of rational numbers. [6-NS7]
		    c.. Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation [6-NS7c]
		    d. Distinguish comparisons of absolute value from statements about order. [6-NS7d]

7.5	**Translate verbal phrases into algebraic expressions and algebraic expressions into verbal phrases.**	6.13. Write, read, and evaluate expressions in which letters stand for numbers. [6-EE2] a. Write expressions that record operations with numbers and with letters standing for numbers. [6-EE2a]
7.5.B.1	**Exhibiting understanding of a variable as an unknown quantity**	6.17. Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. [6-EE6]
7.6	**Solve one- and two-step equations.**	6.18. Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers. [6-EE7] 6.16. Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true. [6-EE5]

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7.6.B.1 7.6.B.2	**Solving inequalities in one variable** **Graphing solution sets of inequalities on a number line**	6.16. Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true. [6-EE5] 6.19. ==Write an inequality of the form x > c or x < c to represent a constraint or condition in a real-world or mathematical problem==. Recognize that inequalities of the form x > c or x < c have infinitely many solutions; represent solutions of such inequalities on number line diagrams. [6-EE8]
7.6.B.3	**Recognizing properties of equality**	6.15. Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). [6-EE4]
7.8	**Recognize geometric relationships among two-dimensional and three-dimensional objects.**	6.24. Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. ==Apply these techniques in the context of solving real-world and mathematical problems==. [6-G4]
7.12	**Determine measures of central tendency (mean, median, and mode) and the range using a given set of data or graphs, including histograms, frequency tables, and stem-and-leaf plots.**	6.29. Summarize numerical data sets in relation to their context, such as by: [6-SP5] c. Giving quantitative measures of center (median and /or mean) and variability (interquartile range and/or mean absolute value deviation) as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. [6-SP5c]
8.5.B.1 8.5.B.2 8.5.B.3	**Identifying functions from information in tables, sets of ordered pairs, equations, graphs, and mappings** **Determining the rule that defines a function** **Classifying variables in a function as independent or dependent**	6.20. Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. [6-EE9]
8.11	**Determine the surface area and volume of rectangular prisms, cylinders, and pyramids.**	6.22. Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = l w h and V = B h to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems. [6-G2]

8.13.B.4	**Determining the measure of center that is the most appropriate for a given situation**	6.29. Summarize numerical data sets in relation to their context, such as by: [6-Sp5]
		    c. Giving quantitative measures of center (median and /or mean) and variability (interquartile range and/or mean absolute value deviation) as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. [6-SP5c]
		    d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered. [6-SP5d]

NEW GRADE 6 CONTENT IN 2010 ACOS		