

2003/2010 ACOS MATHEMATICS CONTENT CORRELATION

GRADE 4

2003 ACOS		2010 ACOS
CURRENT ALABAMA CONTENT PLACEMENT		2010 GRADE 4 CONTENT
4.1	Demonstrate number sense by comparing and ordering decimals to hundredths and whole numbers to 999,999.	4.18. Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual model. [4-NF7]
4.1.B.1	Identifying a number when given a pictorial representation of tenths and hundredths or groups of ones, tens, hundreds, and thousands	4.10. Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. [4-NBT5] 4.11. Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. [4-NBT6]
4.1.B.2	Writing a number in expanded notation through the hundred-thousands	4.6. Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. [4-NBT1]
4.1.B.3	Determining the place value of a digit in a whole number through the hundred-thousands and in a decimal to the hundredths	4.7. Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons. [4-NBT2]
4.2	Write money amounts in words and dollar-and-cent notation.	4.20. Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. [4-MD2]
4.2.B.1	Identifying equivalent units of money	CONTENT NO LONGER ADDRESSED IN GRADE 4
4.3	Rename improper fractions as mixed numbers and mixed numbers as improper fractions.	4.14c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. [4-NF3c] 4.15a. Understand a fraction a/b as a multiple of $1/b$. [4-NF4a]
4.3.B.1	Using a number line to simplify, compare, and order fractions and mixed numbers	4.14. Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$. [4-NF3]
4.3.B.2	Writing equivalent forms of fractions	4.12. Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. [4-NF1] 4.14. Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$. [4-NF3] 4.14b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. [4-NF3b] 4.16. Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. (Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in general. But addition and subtraction with unlike denominators in general is not a requirement at this grade.) [4-NF5]

2003 ACOS		2010 ACOS
4.4	Demonstrate addition and subtraction of fractions with common denominators.	4.13. Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $\frac{1}{2}$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model. [4-NF2] 4.14a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. [4-NF3a] 4.14d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem. [4-NF3d]
4.5	Round whole numbers to the nearest ten, hundred, or thousand and decimals to the nearest tenth.	4.8. Use place value understanding to round multi-digit whole numbers to any place. [4-NBT3]
4.6	Solve problems, including word problems, that involve addition and subtraction of four-digit numbers with and without regrouping.	4.3. Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. [4-OA3]
4.6.B.1	Estimating sums and differences of whole numbers by using appropriate strategies such as rounding, front-end estimation, and compatible numbers	4.3. Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. [4-OA3]
4.6.B.2	Adding and subtracting decimals and money amounts	CONTENT NOW ADDRESSED IN GRADE 5: 5.10. Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. [5-NBT7]
4.7 4.7.B.1 4.7.B.2	Solve problems, including word problems, involving the basic operations of multiplication and division on whole numbers through two-digit multipliers and one-digit divisors Estimating products and quotients of whole numbers by using appropriate strategies such as rounding, front-end estimation, and compatible numbers Identifying information needed to determine the appropriate operation to solve a problem	4.3. Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. [4-OA3]
4.7.B.3	Demonstrating computational fluency in multiplication and division fact families through 12	4.10. Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. [4-NBT5] 4.11. Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. [4-NBT6]

2003 ACOS		2010 ACOS
4.8	Recognize equivalent forms of commonly used fractions and decimals.	4.12. Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. [4-NF1] 4.14b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. [4-NF3b]
4.9	Write number sentences for word problems that involve multiplication or division.	4.1. Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations. [4-OA1] 4.2. Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. (See Glossary, Table 2.) [4-OA2] 4.3. Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. [4-OA3]
4.10	Complete addition and subtraction number sentences with a missing addend or subtrahend.	4.3. Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. [4-OA3]
4.11	Identify triangles, quadrilaterals, pentagons, hexagons, or octagons based on the number of sides, angles, and vertices.	4.23. Recognize angles as shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement. [4-MD5] 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] 4.27. Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles. [4-G2]
4.11.B.1	Demonstrating slides (translations), flips (reflections), and turns (rotations) using triangles, quadrilaterals, pentagons, hexagons or octagons	CONTENT NOW ADDRESSED IN GRADE 8: 8.16. Verify experimentally the properties of rotations, reflections, and translations: [8-G1] a. Lines are taken to lines, and line segments to line segments of the same length. [8-G1a] b. Angles are taken to angles of the same measure. [8-G1b] c. Parallel lines are taken to parallel lines. [8-G1c]
4.11.B.2	Drawing lines of symmetry in triangles, quadrilaterals, pentagons, hexagons, or octagons	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]
4.12	Find locations on a map or grid using ordered pairs.	CONTENT NO LONGER ADDRESSED IN GRADE 4
4.13	Calculate elapsed time in hours and minutes.	4.20. Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. [4-MD2]

2003 ACOS		2010 ACOS
4.14	Measure length, width, weight, and capacity, using metric and customary units, and temperature in degrees Fahrenheit and degrees Celsius.	4.19. Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. [4-MD1]
4.14.B.1	Estimating perimeter and area of irregular shapes using unit squares and grid paper	4.21. Apply the area and perimeter formulas for rectangles in real-world and mathematical problems. [4-MD3]
4.14.B.2	Estimating area using unit squares	4.21. Apply the area and perimeter formulas for rectangles in real-world and mathematical problems. [4-MD3]
4.15	Represent categorical data using tables and graphs, including bar graphs, line graphs, and line plots.	4.22. Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots. [4-MD4]
4.15.B.1	Collecting data using observations, surveys, or experiments	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]
4.15.B.2	Creating tally charts to represent data collected from real-life situations	CONTENT NO LONGER ADDRESSED IN GRADE 4
4.16	Determine if outcomes of simple events are likely, unlikely, certain, equally likely, or impossible.	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 $\frac{1}{2}$ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event. [7-SP5]
4.17	Represent numerical data using tables and graphs, including bar graphs and line graphs.	CONTENT NO LONGER ADDRESSED IN GRADE 4
2003 ACOS		2010 ACOS
CONTENT MOVED TO GRADE 4 IN 2010 ACOS		
2.5	Create growing patterns.	4.5. Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. [4-OA5]
3.2.2	Demonstrating computational fluency in addition and subtraction	4.9. Fluently add and subtract multi-digit whole numbers using the standard algorithm. [4-NBT4]
3.7	Complete a given numeric or geometric pattern.	4.5. Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. [4-OA5]
5.1.B.1	Relating percents to parts out of 100 by using equivalent fractions and decimals	4.17. Use decimal notation for fractions with denominators 10 or 100. [4-NF6]
5.3	Solve word problems that involve decimals, fractions, or money.	4.15c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. [4-NF4c]
6.1.B.6	Identifying prime and composite numbers	4.4. Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite. [4-OA4]
6.1.B.10	Using least common multiple (LCM) to add and subtract fractions with unlike denominators	

2003 ACOS		2010 ACOS
6.1.B.8	Formulating algorithms using basic operations on fractions and decimals	4.15. Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. [4-NF4] 4.15b. Understand a multiple of $\frac{a}{b}$ as a multiple of $\frac{1}{b}$, and use this understanding to multiply a fraction by a whole number. [4-NF4b]
6.3	Solve problems using numeric and geometric patterns	4.5. Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. [4-OA5]
6.3.B.1	Determining a verbal rule for a function given the input and output	
6.6.B.1	Estimating angle measures using 45 degrees, 90 degrees, 180 degrees, 270 degrees, or 360 degrees as referents	4.23b. An angle that turns through n one-degree angles is said to have an angle measure of n degrees. [4-MD5b]
6.6.B.2	Measuring angles	4.23a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$ of a circle is called a 'one-degree angle,' and can be used to measure angles. [4-MD5a] 4.23b. An angle that turns through n one-degree angles is said to have an angle measure of n degrees. [4-MD5b] 4.24. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure. [4-MD6]
8.12	Determine the lengths of missing sides and measures of angles in similar and congruent figures.	4.25. Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world or mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure. [4-MD7]
NEW GRADE 4 CONTENT IN 2010 ACOS		
		None