

**Alabama State Standards
correlated to
Merit Software Math Programs**

The Classroom Improvement Section is responsible for the development, implementation, and assessment of the minimum curriculum content (standards) and course design for K-12 students in the public schools. It is responsible for instructional support that includes courses of study, instructional materials and research, curriculum alignment materials, recognition and scholarship programs, the textbook adoption program, and counseling and guidance services. The most recent Mathematics Course of Study for was adopted in 1997 for implementation in the 1998-1999 school year.

Merit's Math programs address the following Alabama State Standards:

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Grade 3

Subhead	Standard	Benchmark	Merit Software
Number and Operation	1. Demonstrate number sense by comparing, ordering, and expanding whole numbers through 9999.	<ul style="list-style-type: none"> • Comparing numbers using the symbols $>$, $<$, $=$, and \neq • Identifying the place value of any digit within a four-digit number • Writing a four-digit number in words and locating it on a number line • Determining the value of a number written in expanded notation to the ten-thousands place <p>Rounding whole numbers to the nearest ten and hundred and money values to the nearest dollar</p>	Fraction Shape-Up; Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up
Number and Operation	2. Solve addition and subtraction problems, including word problems, involving two- and three-digit numbers with and without regrouping.	<ul style="list-style-type: none"> • Estimating sums and differences by using compatible numbers, front-end estimation, and rounding 	Fraction Shape-Up; Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up

Number and Operation	3. Multiply whole numbers with and without regrouping using single-digit multipliers.	<ul style="list-style-type: none"> Applying concepts of multiplication through the use of manipulatives, number stories, arrays, repeated addition, or problem situations Applying basic multiplication facts through 9 x 9 by using manipulatives, solving problems, and writing number stories Recognizing properties of multiplication 	Fraction Shape-Up; Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up
Numbers and Operations	4. Model equivalent fractions with concrete objects or pictorial representations.		Fraction Shape-Up; Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up
Numbers and Operations	6. Use coins to make change up to \$1.00.	<ul style="list-style-type: none"> Determining monetary values of Sets of unlike coins and bills up to \$5.00 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up
Algebra	7. Complete a given numeric or geometric pattern.		Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up
Measurement	10. Measure length in metric units.		Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up
Data Analysis and Probability	13. Determine the likelihood of different outcomes in a simple experiment.		Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up

Grade 4

Subhead	Standard	Benchmark	Merit Software
Number and Operation	5. Demonstrate number sense by comparing, ordering, and expanding whole numbers through 9999.	<ul style="list-style-type: none"> Identifying a number when given a pictorial representation of tenths and hundredths or groups of ones, tens, hundreds, and thousands Writing a number in expanded notation through the hundred-thousands Determining the place value of a digit in a whole number through the hundred-thousands and in a decimal to the hundredths 	Fraction Shape-Up; Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up

Number and Operation	2. Write money amounts in words and dollar-and-cent notation.	<ul style="list-style-type: none"> Identifying equivalent units of money 	Word Problem Shape-Up Sets 1, 2, 3
Number and Operation	3. Rename improper fractions as mixed numbers and mixed numbers as improper fractions.	<ul style="list-style-type: none"> Using a number line to simplify, compare, and order fractions and mixed numbers Writing equivalent forms of fractions	Fraction Shape-Up; Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up
Numbers and Operations	4. Demonstrate addition and subtraction of fractions with common denominators.		Fraction Shape-Up; Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up
Numbers and Operations	6. Solve problems, including word problems, that involve addition and subtraction of four-digit numbers with and without regrouping.	<ul style="list-style-type: none"> Estimating sums and differences of whole numbers by using appropriate strategies such as rounding, front-end estimation, and compatible numbers Adding and subtracting decimals and money amounts 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up
Numbers and Operations	7. Solve problems, including word problems, involving the basic operations of multiplication and division on whole numbers through two-digit multipliers and one-digit divisors.	<ul style="list-style-type: none"> 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 Demonstrating computational fluency in multiplication and division fact families through 12 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up
Numbers and Operations	8. Recognize equivalent forms of commonly used fractions and decimals.		Fraction Shape-Up; Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up
Algebra	9. Write number sentences for word problems that involve multiplication or division.		Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up
Algebra	10. Complete addition and subtraction number sentences with a missing addend or subtrahend.		Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up
Measurement	14. Measure length, width, weight, and capacity, using metric and customary units, and temperature in degrees Fahrenheit and degrees Celsius.	<ul style="list-style-type: none"> Estimating perimeter and area of irregular shapes using unit squares and grid paper Estimating area using unit squares 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up

Data Analysis and Probability	16. Determine if outcomes of simple events are likely, unlikely, certain, equally likely, or impossible.		Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up
Data Analysis and Probability	17. Represent numerical data using tables and graphs, including bar graphs and line graphs.		Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up

Grade 5

Subhead	Standard	Benchmark	Merit Software
Number and Operation	6. Demonstrate number sense by comparing, ordering, and expanding whole numbers millions and decimals to thousandths.	<ul style="list-style-type: none"> Relating percents to parts out of 100 by using equivalent fractions and decimals Determining the value of a digit to thousandths 	Fraction Shape-Up; Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up
Number and Operation	2. Solve problems involving basic operations on whole numbers, including addition and subtraction of seven-digit numbers, multiplication with two-digit multipliers, and division with two-digit divisors.	<ul style="list-style-type: none"> Estimating products and quotients Determining divisibility by 2, 3, 4, 5, 6, 9, and 10 Demonstrating computational fluency with addition, subtraction, multiplication, and division of whole numbers 	Word Problem Shape-Up Sets 1, 2, 3
Number and Operation	3. Solve word problems that involve decimals, fractions, or money.	<ul style="list-style-type: none"> Solving word problems involving elapsed time 	Fraction Shape-Up; Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up
Numbers and Operations	4. Determine the sum and difference of fractions with common and uncommon denominators.	<ul style="list-style-type: none"> Changing mixed numbers to improper fractions Solving problems involving addition and subtraction of fractions with common and uncommon denominators Using least common multiples 	Fraction Shape-Up; Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up
Numbers and Operations	6. Solve problems, including word problems, that involve addition and subtraction of four-digit numbers with and without regrouping.	<ul style="list-style-type: none"> Estimating sums and differences of whole numbers by using appropriate strategies such as rounding, front-end estimation, and compatible numbers Adding and subtracting decimals and money amounts Estimating sums and differences of fractions 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up

Algebra	7. Demonstrate the commutative, associative, and identity properties of addition and multiplication of whole numbers.		Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up
Algebra	8. Write a number sentence for a problem expressed in words.		Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up
Measurement	12. Calculate the perimeter of rectangles from measured dimensions.		Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up
Data Analysis and Probability	14. Analyze data collected from a survey or experiment to distinguish between what the data show and what might account for the results.	<ul style="list-style-type: none"> Evaluating different representations of the same data to determine how well each representation shows important aspects of the data Using given measures of central tendency (mean, median, and mode) to analyze data 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up
Data Analysis and Probability	15. Use common fractions to represent the probability of events that are neither certain nor impossible.		Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up

Grade 6

Subhead	Standard	Benchmark	Merit Software
Number and Operation	1. Demonstrate computational fluency with addition, subtraction, multiplication, and division of decimals and fractions.	<ul style="list-style-type: none"> Comparing rational numbers written as fractions, decimals, mixed numbers, and percents Converting fractions and mixed numbers to decimals and percents Converting terminating decimals and percents to fractions and mixed numbers Writing decimal numbers in expanded notation Using least common multiple (LCM) to add and subtract fractions with unlike denominators 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up
Number and Operation	2. Solve problems involving decimals, percents, fractions, and proportions.	<ul style="list-style-type: none"> Estimating with fractions and decimals 	Word Problem Shape-Up Sets 1, 2, 3

Algebra	3. Solve problems using numeric and geometric patterns.	<ul style="list-style-type: none"> Determining a verbal rule for a function given the input and output 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up
Geometry	4. Identify two-dimensional and three-dimensional figures based on attributes, properties, and component parts.	<ul style="list-style-type: none"> Classifying quadrilaterals based on their attributes Identifying line and rotational symmetries of polygons Classifying triangles as right, obtuse, or acute 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up
Measurement	6. Classify angles as acute, obtuse, right, or straight.	<ul style="list-style-type: none"> Estimating angle measures using 45 degrees, 90 degrees, 180 degrees, 270 degrees, or 360 degrees as referents Measuring angles 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up
Measurement	7. Solve problems involving perimeter and area of parallelograms and rectangles.	<ul style="list-style-type: none"> Estimating perimeter and area Developing formulas to determine perimeter and area of parallelograms and rectangles 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up
Data Analysis and Probability	10. Interpret information from bar graphs, line graphs, and circle graphs.	<ul style="list-style-type: none"> Evaluating different representations of the same data to determine how well each representation shows important aspects of the data Using given measures of central tendency (mean, median, and mode) to analyze data 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up
Data Analysis and Probability	11. Find the probability of a simple event.	<ul style="list-style-type: none"> Expressing probabilities as ratios, percents, and decimals 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up

Grade 7

Subhead	Standard	Benchmark	Merit Software
Number and Operation	1. Demonstrate computational fluency with addition, subtraction, and multiplication of integers.	<ul style="list-style-type: none"> Developing algorithms for performing operations on integers Using inverse properties of addition and of multiplication 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Sets 1 & 2
Number and Operation	2. Use order of operations to evaluate numerical expressions.	<ul style="list-style-type: none"> Applying properties of operations to compute with integers, fractions, and decimals 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Sets 1 & 2

Number and Operation	4. Solve problems requiring the use of operations on rational numbers.	<ul style="list-style-type: none"> Describing the method used Determining the reasonableness of results Using percents to solve problems, including problems involving discounts, taxes, commissions, and simple interest 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Sets 1 & 2
Algebra	5. Translate verbal phrases into algebraic expressions and algebraic expressions into verbal phrases.	<ul style="list-style-type: none"> Exhibiting understanding of a variable as an unknown quantity 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Sets 1 & 2
Algebra	6. Solve one- and two-step equations.	<ul style="list-style-type: none"> Solving inequalities in one variable Graphing solution sets of inequalities on a number line Recognizing properties of equality 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Sets 1 & 2
Geometry	7. Determine the transformation(s), including translations, reflections, or rotations, used to alter the position of a polygon on the coordinate plane.	<ul style="list-style-type: none"> Determining the type of symmetry (rotational or line) found in a reflection or rotation Graphing transformations of quadrilaterals on the Cartesian plane by plotting the vertices Graphing figures which are similar to other figures using dilations 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Sets 1 & 2
Geometry	8. Recognize geometric relationships among two-dimensional and three-dimensional objects.	<ul style="list-style-type: none"> Drawing geometric figures when given specified components, including base and height Investigating properties and relationships among congruent figures Identifying geometric ideas in settings outside the mathematics classroom 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Sets 1 & 2
Measurement	9. Solve problems involving circumference and area of circles.	<ul style="list-style-type: none"> Estimating circumference, diameter, and area Determining appropriate units of measure to describe circumference, diameter, and area Measuring circumference and diameter using customary and metric units Using circumference and diameter to approximate the value of π Identifying π as an irrational number Developing formulas for determining circumference and area 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Sets 1 & 2

Measurement	11. Solve problems involving ratios or rates, using proportional reasoning.	<ul style="list-style-type: none"> Determining the unit rate Converting rates from one unit to another Converting units of length, weight, or capacity from metric to customary and from customary to metric 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Sets 1 & 2
Data Analysis and Probability	13. Determine the probability of a compound event.	<ul style="list-style-type: none"> Representing outcomes as a list, chart, picture, or tree diagram Determining the number of possible outcomes by using the fundamental counting principle or other techniques Modeling the probability of events through simulations with random numbers 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Sets 1 & 2

Grade 8

Subhead	Standard	Benchmark	Merit Software
Number and Operation	1. Use various strategies and operations to solve problems involving real numbers.	<ul style="list-style-type: none"> Using alternative representations of rational numbers Applying GCF, LCM, and prime and composite numbers, including justification for the reasonableness of results, when working with rational numbers Applying proportional reasoning Using vocabulary associated with sets, including <i>union</i> and <i>intersection</i> Determining whether a number is rational or irrational Demonstrating computational fluency with operations on rational numbers 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Sets 1 & 2
Number and Operation	2. Simplify expressions containing natural number exponents by applying one or more of the laws of exponents.	<ul style="list-style-type: none"> Writing numbers using scientific notation 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Sets 1 & 2
Number and Operation	3. Use order of operations to evaluate and simplify algebraic expressions.	<ul style="list-style-type: none"> Applying the substitution principle Applying the properties of operations on rational numbers to evaluate and simplify algebraic expressions 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Sets 1 & 2

Algebra	5. Solve problems involving linear functions.	<ul style="list-style-type: none"> Identifying functions from information in tables, sets of ordered pairs, equations, graphs, and mappings Determining the rule that defines a function 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Sets 1 & 2
Measurement	11. Determine the surface area and volume of rectangular prisms, cylinders, and pyramids	<ul style="list-style-type: none"> Estimating surface area and volume of solid figures Determining the appropriate units of measure to describe surface area and volume Developing formulas for determining surface area and volume of rectangular prisms, cylinders, and pyramids 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Sets 1 & 2
Measurement	12. Determine the lengths of missing sides and measures of angles in similar and congruent figures.	<ul style="list-style-type: none"> Applying proportional reasoning 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Sets 1 & 2
Data Analysis and Probability	13. Interpret data from populations, using given and collected data.	<ul style="list-style-type: none"> Making predictions by estimating the line of best fit from a scatterplot Comparing data sets involving two populations Determining the measure of center that is the most appropriate for a given situation 	Word Problem Shape-Up Sets 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Sets 1 & 2