

**Arkansas State Content Standards  
correlated to  
Merit Software Math Programs**

The Arkansas Language Arts Framework and the Arkansas Mathematics Framework are the first two documents to be completed as part of a planned and continuous revision cycle. The revised frameworks were written by Arkansas teachers, as were the original framework documents. Some changes through revision are noteworthy.

Merit’s Math programs address the following Arkansas State Content Standards:

Grades 5-8            pg. 1-7

Grades 5-8

Strand	Content Standard	Student Learning Expectations	Merit Software
Number Sense	Content Standard 1 The student will communicate an understanding of the properties of numbers and operations (add, subtract, multiply, divide).	NPO.1.1. Identify numerical patterns (e.g., prime numbers, squares, exponents) and verify results (e.g., by continuing the pattern).	Fraction Shape-Up; Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Number Sense	Content Standard 1 The student will communicate an understanding of the properties of numbers and operations (add, subtract, multiply, divide).	NPO.1.2. Expand number sense through the use of mental computation, calculators/technology, and written and verbal communication.(e.g., powers of ten, factoring, greatest common factors, least common Multiples.)	Fraction Shape-Up; Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Number Sense	Content Standard 1 The student will communicate an understanding of the properties of numbers and operations (add, subtract, multiply, divide).	NPO.1.3. Represent numbers and operations in a variety of equivalent forms (including models, tree diagrams, and symbols).	Fraction Shape-Up; Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Number Sense	Content Standard 1 The student will communicate an understanding of the properties of numbers and operations (add, subtract, multiply, divide).	NPO.1.4. Consistently demonstrate competence with rational number computation (add, subtract, multiply, divide) with and without manipulatives and technology.	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2

Number Sense	Content Standard 1 The student will communicate an understanding of the properties of numbers and operations (add, subtract, multiply, divide).	NPO.1.5. Communicate knowledge of elementary number theory concepts (e.g., primes, factors, multiples, divisibility rules) through classroom interaction and written responses (e.g., tests, journals).	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Number Sense	Content Standard 1 The student will communicate an understanding of the properties of numbers and operations (add, subtract, multiply, divide).	NPO.1.6. Identify, with/without the aid of technology, irrational numbers and locate irrational numbers relative to other numbers (for example the square root of 2 is between 1 and 2, pi is between 3 and 4).	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Number Sense	Content Standard 2 The student will demonstrate and apply knowledge of numbers and numerical relationships to real-world situations.	NPO.2.2. Develop strategies for comparing quantities using ratios and proportions (e.g., fractions, rates, unit rates, percents, scales) with use of manipulatives and technology.	Fraction Shape-Up; Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Number Sense	Content Standard 2 The student will demonstrate and apply knowledge of numbers and numerical relationships to real-world situations.	NPO.2.3. Determine the most appropriate notational representation of a number for the given problem (for example fractions vs. decimals, scientific notation).	Fraction Shape-Up; Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Number Sense	Content Standard 2 The student will demonstrate and apply knowledge of numbers and numerical relationships to real-world situations.	NPO.2.4. Explain the relationship of numbers in one and two dimensional graphs (e.g., number lines and coordinate graphs), with and without appropriate technology such as graphing calculators.	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Number Sense	Content Standard 2 The student will demonstrate and apply knowledge of numbers and numerical relationships to real-world situations.	NPO.2.5. Communicate using appropriate vocabulary as it relates to the real number system in real-world situations (e.g., integers, whole, rational, irrational, natural/counting, etc.)	Fraction Shape-Up; Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Geometry	Content Standard 1 The student will demonstrate, construct, communicate, and apply the properties of geometric shapes and spatial sense to connect geometry with problem solving situations.	GS.1.1. Identify, draw, describe, classify, and compare geometric figures and their relationships in one, two, and three dimensions (from points to <i>polyhedra</i> ) with physical materials.	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2

Geometry	Content Standard 1 The student will demonstrate, construct, communicate, and apply the properties of geometric shapes and spatial sense to connect geometry with problem solving situations.	GS.1.2. Apply geometric properties and formulas (e.g., triangles have 180 degrees, opposite sides of rectangles are equal, Pythagorean theorem) to solve problems with and without appropriate technologies.	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Geometry	Content Standard 1 The student will demonstrate, construct, communicate, and apply the properties of geometric shapes and spatial sense to connect geometry with problem solving situations.	GS.1.3. Make predictions based on transformations of geometric figures in problem solving situations (e.g. compare 2 pictures and determine what changes were made i.e. flip, slide, rotation).	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Geometry	Content Standard 1 The student will demonstrate, construct, communicate, and apply the properties of geometric shapes and spatial sense to connect geometry with problem solving situations.	GS.1.4. Establish and apply geometric relationships through informal reasoning (e.g. estimate angle measures)	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Geometry	Content Standard 1 The student will demonstrate, construct, communicate, and apply the properties of geometric shapes and spatial sense to connect geometry with problem solving situations.	GS.1.5. Visualize, model, and represent 3 dimensional objects (e.g., cube models, base plans/nets, building plans, isometric dot paper sketches) to develop and implement problem-solving strategies and verify solutions.	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Geometry	Content Standard 2 The student will solve problems that connect geometric applications to other topics in mathematics and other fields.	GS2.1. Construct geometric models to solve problems (e.g., comparing bridge supports: cylindrical vs. rectangular).	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Geometry	Content Standard 2 The student will solve problems that connect geometric applications to other topics in mathematics and other fields.	GS2.2. Investigate geometric properties and use them to describe and explain situations in society and nature (e.g., why doors are rectangular, why honeycombs are hexagonal, why trusses are triangular).	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2

Measurement	Content Standard 1. The student will use measurement attributes (length, capacity, weight, mass, area, volume, time, money, temperature, scale and angle) to describe and compare mathematical and real-world objects.	M1.1. Use estimation to check the reasonableness of measurements obtained from use of various instruments (including angle measures).	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Measurement	Content Standard 1. The student will use measurement attributes (length, capacity, weight, mass, area, volume, time, money, temperature, scale and angle) to describe and compare mathematical and real-world objects.	M.1.2. Estimate, calculate and compare the one, two and three-dimensional features of objects in metric, customary and non-standard units of measure.	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Measurement	Content Standard 1. The student will use measurement attributes (length, capacity, weight, mass, area, volume, time, money, temperature, scale and angle) to describe and compare mathematical and real-world objects.	M.1.3. Convert from one measurement to another within the same system (customary or metric)	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Measurement	Content Standard 2 The student will demonstrate the appropriate use of measuring instruments.	M.2.1. Select appropriate units and tools (metric, customary and non-standard) to measure to the required degree of accuracy.	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Measurement	Content Standard 3 The student will apply measurement concepts to solve problems inside and outside the field of mathematics.	M.3.1. Develop and use procedures to solve measurement problems using one, two, and three dimensions.	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Measurement	Content Standard 3 The student will apply measurement concepts to solve problems inside and outside the field of mathematics.	M.3.2. Using manipulatives and technology, develop the concepts of rate of change (mph, interest, tax rates, commissions, utility rates) and indirect measurements (height of an object, width of a river).	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Measurement	Content Standard 3 The student will apply measurement concepts to solve problems inside and outside the field of mathematics.	M.3.3. Construct scale drawings (using various tools) and/or build 3-D models to represent real-world problems and situations.	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2

Data Analysis, Statistics, and Probability	Content Standard 1 The student will perform the steps that comprise data analysis, from gathering information to communicating results.	DSP.1.1. Actively and systematically collect, organize and describe data using technology when appropriate.	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Data Analysis, Statistics, and Probability	Content Standard 1 The student will perform the steps that comprise data analysis, from gathering information to communicating results.	DSP.1.2. Construct, read and interpret tables, charts and graphs (including stem-and-leaf, histogram, bar graph, pie graph, box and whiskers, line graph, scatter plots) with and without technology.	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Data Analysis, Statistics, and Probability	Content Standard 1 The student will perform the steps that comprise data analysis, from gathering information to communicating results.	DSP.1.3. Based on analysis of central tendencies (mean, median, mode, range) make predictions and inferences (e.g., interpolate from within graphs and extrapolate by extending graphs) from the data set with and without technology.	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Data Analysis, Statistics, and Probability	Content Standard 2 The student will use probability models to perform experiments and simulations.	DSP.2.1. Conduct experiments or simulations, with and without technology, to model situations and construct <i>sample spaces</i> . DSP.2.2. Make predictions based on experimental and theoretical probabilities. DSP.2.3. Use a probability model for comparing experimental results with theoretical expectations. DSP.2.4. Interpret experimental and theoretical probabilities to determine whether outcomes are equally likely or biased.	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
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Data Analysis, Statistics, and Probability	Content Standard 2 The student will use probability models to perform experiments and simulations.	DSP.2.4. Interpret experimental and theoretical probabilities to determine whether outcomes are equally likely or biased.	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Data Analysis, Statistics, and Probability	Content Standard 3 The student will apply probability and statistical concepts in problem-solving and decision-making situations.	DSP.3.1. Evaluate arguments that are based on statistical data.	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Data Analysis, Statistics, and Probability	Content Standard 3 The student will apply probability and statistical concepts in problem-solving and decision-making situations.	DSP.3.2. Make inferences and convincing arguments based on statistics with and without technology.	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Data Analysis, Statistics, and Probability	Content Standard 3 The student will apply probability and statistical concepts in problem-solving and decision-making situations.	DSP.3.3. Model the use of probability and statistical methods in decision making using technology presentation materials (e.g., LCD, graphing calculators, spreadsheets, etc.).	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Patterns, Algebra and Functions	Content Standard 1 The student will use the language/symbols of algebra to represent patterns and functions.	PAF.1.1. Represent arithmetic as algebra (change $25 = \_\_\_ + 13$ to $25 = m + 13$ ).	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Patterns, Algebra and Functions	Content Standard 1 The student will use the language/symbols of algebra to represent patterns and functions.	PAF.1.2. Through the use of manipulatives and computer technology, develop the concepts of variables, expressions, and equations (algebra tiles, two color counters, graphing calculators, balance scale model, etc.).	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Patterns, Algebra and Functions	Content Standard 1 The student will use the language/symbols of algebra to represent patterns and functions.	PAF.1.3. Analyze and represent (through calculator use) situations and number patterns with tables, graphs, and equations (e.g., identifying linear, exponential, and quadratic patterns).	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Patterns, Algebra and Functions	Content Standard 1 The student will use the language/symbols of algebra to represent patterns and functions.	PAF.1.4. Summarize and pose problems/situations relating to the algebraic relationships, patterns, and functions discovered through explorations.	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2

Patterns, Algebra and Functions	Content Standard 2 The student will use algebraic concepts to model, to solve, and to test solutions of mathematical and real-world problems.	PAF.2.1. Conduct informal investigations (with technology) for analyzing, representing, interpreting, and generalizing functional relationships (e.g., distance and time) to develop explanations or predictions about outcomes of actual situations.	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Patterns, Algebra and Functions	Content Standard 2 The student will use algebraic concepts to model, to solve, and to test solutions of mathematical and real-world problems.	PAF.2.2. Identify variables and relationships and translate them into mathematical statements or other mathematics representations to construct a model (e.g., converting from graphs, tables, words, and expressions).	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Patterns, Algebra and Functions	Content Standard 2 The student will use algebraic concepts to model, to solve, and to test solutions of mathematical and real-world problems.	PAF.2.3. Write and solve equations and inequalities (using manipulatives and technology).	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Patterns, Algebra and Functions	Content Standard 2 The student will use algebraic concepts to model, to solve, and to test solutions of mathematical and real-world problems.	PAF.2.4. Communicate in written and verbal form a verification of the solution and the process used to obtain the solution.	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Patterns, Algebra and Functions	Content Standard 2 The student will use algebraic concepts to model, to solve, and to test solutions of mathematical and real-world problems.	PAF.2.5. Use a calculator to display, to determine, and to make inferences from linear relationships in slope-intercept form.	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2