

**Oklahoma Priority Academic Student Skills
correlated to
Merit Software Math Programs**

The curriculum adopted by the State Board of Education for implementation by the beginning of the 1993-94 school year shall be thoroughly reviewed by the State Board every three (3) years, and the State Board shall implement any revisions in such curriculum deemed necessary to achieve further improvements in the quality of education for the students of this state. The following information is based on the Priority Academic Student Skills, adopted by the State Board of Education, August 22, 2002.

Merit’s Math programs address the following Oklahoma Priority Academic Student Skills:

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Grade 3

Subhead	Major Concept	Standard	Benchmark	Merit Software
Math	Patterns and Algebraic Reasoning - Rules	Standard 1: Patterns and Algebraic Reasoning - The student will use a variety of problem-solving approaches to extend and create patterns.	1. Describe (orally or in written form), create, extend and predict patterns using numbers (e.g., 3, 6, 9, 12 . . . , use a function machine to generate input and output values for a table, show multiplication patterns on a hundreds chart).	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up
Math	Patterns and Algebraic Reasoning - Rules	Standard 1: Patterns and Algebraic Reasoning - The student will use a variety of problem-solving approaches to extend and create patterns.	2. Analyze tables to formulate generalizations about patterns in a variety of situations (e.g., list the multiples of 5 in a table to show that multiples of 5 have a 0 or 5 in the ones place; given pairs of numbers with a common relationship, determine the rule and generate additional pairs with the same relationship).	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up

Math	Number Sense	Standard 2: Number Sense - The student will use numbers and number relationships to acquire basic facts.	1. Place Value a. Model the concept of place value through 4 digits (e.g., base-10 blocks, bundles of 10s, place value mats). b. Read, model and write whole numbers up to 4 digits (e.g., base-10 blocks, expanded form).	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up
Math	Number Sense	Standard 2: Number Sense - The student will use numbers and number relationships to acquire basic facts.	2. Whole Numbers and Fractions a. Compare and order whole numbers up to 4 digits. b. Compare and order fractions including halves, thirds and fourths using a model (e.g., fraction circles, pictures, egg cartons, fraction strips).	Fraction Shape-Up; Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up
Math	Number Operations and Computation	Standard 3: Number Operations and Computation - The student will estimate and compute with whole numbers.	1. Estimate, find the sum and difference, with and without regrouping, of 3- and 4-digit numbers to solve application problems.	Fraction Shape-Up; Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up
Math	Number Operations and Computation	Standard 3: Number Operations and Computation - The student will estimate and compute with whole numbers.	2. Multiplication Concepts a. Demonstrate fluency with basic multiplication facts and fact families. *b. Develop multiplication algorithms (e.g., use physical materials to show 4 groups of 3 objects, show multiplication as repeated addition). c. Estimate the product of 2-digit numbers by rounding to the nearest multiple of 10 to solve application problems. *d. Recognize and apply the commutative and identity properties of multiplication using models and manipulatives to develop computational skills (e.g., $3 \times 5 = 5 \times 3$, $7 \times 1 = 7$). 3. Solve problems involving money that require addition and subtraction.	Fraction Shape-Up; Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up

Math	Number Operations and Computation	Standard 3: Number Operations and Computation - The student will estimate and compute with whole numbers.	3. Solve problems involving money that require addition and subtraction.	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up
Math	Geometry and Measurement	Standard 4: Geometry and Measurement - The student will use geometric properties and relationships to recognize and describe shapes and use customary and metric measurements to solve problems.	2. Measurement a. Solve problems with customary units involving length using half-inch and quarter-inch measurements and weight using pound and ounce. b. Solve problems with metric units involving length using meter and centimeter and mass using gram and kilogram. c. Use manipulatives to develop the concept of perimeter and area (e.g., cover a shape with pattern blocks to find area).	Fraction Shape-Up; Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up
Math	Geometry and Measurement	Standard 4: Geometry and Measurement - The student will use geometric properties and relationships to recognize and describe shapes and use customary and metric measurements to solve problems.	3. Develop and use strategies to estimate measurements (e.g., use parts of the body as benchmarks for measuring length).	Fraction Shape-Up; Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up
Math	Geometry and Measurement	Standard 4: Geometry and Measurement - The student will use geometric properties and relationships to recognize and describe shapes and use customary and metric measurements to solve problems.	4. Tell time on digital and analog clocks to 5 minutes and use information to solve problems involving time and temperature (e.g., read a thermometer).	Fraction Shape-Up; Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up

Math	Data Analysis and Probability	Standard 5: Data Analysis and Probability - The student will demonstrate an understanding of data collection, display and interpretation.	1. Data Analysis *a. Pose questions, collect, record, and interpret data to help answer questions (e.g., Which was the most popular booth at our carnival?). b. Read graphs and charts; identify the main idea, draw conclusions, make predictions based on the data (e.g., predict how many children will bring their lunch based on a menu). c. Construct a bar graph or pictograph with labels and a title from a set of data.	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up
Math	Data Analysis and Probability	Standard 5: Data Analysis and Probability - The student will demonstrate an understanding of data collection, display and interpretation.	2. Probability a. Describe the probability (more, less, or equally likely) of chance events. b. List arrangements (permutations) and combinations of up to three items (e.g., possible ways to arrange scoops of chocolate, strawberry and vanilla ice cream on a cone).	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up

Grade 4

Subhead	Major Concept	Standard	Benchmark	Merit Software
Math	Patterns and Algebraic Reasoning - Rules	Standard 1: Patterns and Algebraic Reasoning - The student will use a variety of problem-solving approaches to extend and create patterns.	1. Discover, describe, extend, and create a wide variety of patterns using tables, graphs, rules, and models (e.g., use 1-inch tiles to demonstrate that doubling the length of the side of a square more than doubles the area, explore the characteristics of odd and even numbers, extend patterns of geometric shapes).	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up

Math	Patterns and Algebraic Reasoning - Rules	Standard 1: Patterns and Algebraic Reasoning - The student will use a variety of problem-solving approaches to extend and create patterns.	2. Elementary Function Concepts a. Use a variety of techniques to generalize number patterns (e.g., use function machines and "t-tables" to demonstrate "What is the rule?"). b. Solve simple open sentences involving operations on whole numbers (with a variable, e.g., $a + 17 = 23$).	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up
Math	Number Sense	Standard 2: Number Sense - The student will use numbers and number relationships to acquire basic facts.	1. Place Value a. Apply the concept of place value through 6 digits (e.g., write numbers in expanded form, play a trading game involving place value). b. Read, write and rename whole numbers through 6 digits and decimal numbers to the hundredths (e.g., money, numerals to words).	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up
Math	Number Sense	Standard 2: Number Sense - The student will use numbers and number relationships to acquire basic facts.	2. Compare and order whole numbers and decimals to the hundredths place (e.g., pictures of shaded regions of two-dimensional figures, use $>$, $<$, $=$ symbols).	Fraction Shape-Up; Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up
Math	Number Sense	Standard 2: Number Sense - The student will use numbers and number relationships to acquire basic facts.	1. Estimate and find the product of 2- and 3-digit numbers to solve application problems.	Fraction Shape-Up; Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up
Math	Number Operations and Computation	Standard 3: Number Operations and Computation - The student will estimate and compute with whole numbers.	2. Division Concepts a. Demonstrate fluency with basic division facts and fact families. *b. Develop division algorithms (e.g., use physical materials to show 12 objects arranged in 3 groups, show division as repeated subtraction and as the inverse of multiplication). c. Estimate and find the quotient (with and without remainders) with a 1-digit divisor and a 2- or 3-digit dividend to solve application problems.	Fraction Shape-Up; Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up

Math	Number Operations and Computation	Standard 3: Number Operations and Computation - The student will estimate and compute with whole numbers.	3. Apply a variety of estimation and mental math techniques to simplify computations (e.g., use rounding to estimate $82 - 58$ is about $80 - 60$ or 20 , use 30×5 to find the product of 300×5).	Fraction Shape-Up; Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up
Math	Number Operations and Computation	Standard 3: Number Operations and Computation - The student will estimate and compute with whole numbers.	*4. Develop operation sense by applying the associative property of multiplication (e.g., $6(2 \times 3) = (6 \times 2) \times 3$).	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up
Math	Geometry and Measurement	Standard 4: Geometry and Measurement - The student will use geometric properties and relationships to recognize and describe shapes and use customary and metric measurements to solve problems.	4. Measurement a. Establish benchmarks for customary and metric units and estimate the measures of a variety of objects and compare units (e.g., mass: the mass of a raisin is about 1 gram, length: the width of a finger is about 1 centimeter). b. Select appropriate customary and metric units of measure to solve application problems involving length, weight, mass, and volume. c. Solve application problems involving money, time and temperature (e.g., elapsed time).	Fraction Shape-Up; Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up
Math	Data Analysis and Probability	Standard 5: Data Analysis and Probability - The student will demonstrate an understanding of data collection, display and interpretation.	1. Data Analysis a. Examine data displays such as tallies, tables, charts and graphs and use the observations to pose and answer questions (e.g., choose a table in social studies of population data and write problems). b. Collect, organize and record data in tables and graphs (e.g., bar, pictograph, line plots).	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up
Math	Data Analysis and Probability	Standard 5: Data Analysis and Probability - The student will demonstrate an understanding of data collection, display and interpretation.	*2. Investigate and record probabilities by experimenting with devices that generate random outcomes (e.g., coins, number cubes, spinners).	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up

Grade 5

Subhead	Major Concept	Standard	Benchmark	Merit Software
Math	Patterns and Algebraic Reasoning - Rules	Standard 1: Patterns and Algebraic Reasoning - The student will use a variety of problem-solving approaches to extend and create patterns.	1. Describe rules that produce patterns found in tables, graphs, and models, and use variables (e.g., boxes, letters, pawns, number cubes, or other symbols) to solve problems or to describe general rules in algebraic expression or equation form.	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up
Math	Patterns and Algebraic Reasoning - Rules	Standard 1: Patterns and Algebraic Reasoning - The student will use a variety of problem-solving approaches to extend and create patterns.	2. Use algebraic problem-solving techniques (e.g., use a balance to model an equation and show how subtracting a number from one side requires subtracting the same amount from the other side) to solve problems.	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up
Math	Number Sense	Standard 2: Number Sense - The student will use numbers and number relationships to acquire basic facts.	1. Fractions, Decimals and Percents a. Solve problems using decimal numbers to the 1000ths place. b. Compare, convert, and order common fractions and decimals to the 100ths place to solve problems. c. Represent with models the connection between fractions, decimals, and percents and be able to convert from one representation to another (e.g., use 10 x 10 grids, base-10 blocks; limit fractions to halves, fourths, fifths, and tenths). d. Explain verbally with manipulatives and diagrams 25%, 50%, 75%; use these percents to solve problems and relate them to their corresponding fractions and decimals.	Fraction Shape-Up; Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up

Math	Number Sense	Standard 2: Number Sense - The student will use numbers and number relationships to acquire basic facts.	2. Basic Number Theory Concepts a. Apply the basic properties of arithmetic: commutative, associative, distributive, and identity (e.g., show $2(5 + 1) = (2 \cdot 5) + (2 \cdot 1)$, given $(5 + 1) + (5 + 1)$ regroup to show this equals $(5 + 5) + (1 + 1)$ concluding with $(2 \cdot 5) + (2 \cdot 1)$) to solve problems. b. Identify and apply factors, multiples, prime, and composite numbers in a variety of problem-solving situations (e.g., build rectangular arrays for numbers 1-100 and classify as prime or composite).	Fraction Shape-Up; Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up
Math	Number Operations and Computation	Standard 3: Number Operations and Computation - The student will estimate and compute with whole numbers.	1. Estimation a. Use estimation skills to determine solutions to problems involving decimals. b. Apply estimation skills to solve problems involving common percents and equivalent fractions.	Fraction Shape-Up; Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up
Math	Number Operations and Computation	Standard 3: Number Operations and Computation - The student will estimate and compute with whole numbers.	2. Whole Numbers, Decimals, and Fractions a. Add and subtract decimal numbers with the same and different place values (e.g., $3.72 + 1.4$) to solve problems. b. Multiply and divide whole numbers and decimal numbers with 1- or 2-digit multipliers or divisors to solve problems. c. Add and subtract fractions and mixed numbers to solve problems using a variety of methods (e.g., use fraction strips, find the least common denominator [LCD]).	Fraction Shape-Up; Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up

Math	Geometry and Measurement	Standard 4: Geometry and Measurement - The student will use geometric properties and relationships to recognize and describe shapes and use customary and metric measurements to solve problems.	3. Use nonstandard units (beans, rice, candies) and standard units (centimeter cubes, 1-inch cubes) to find the volume of rectangular solids and estimate the volume of other solids.	Fraction Shape-Up; Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up
Math	Geometry and Measurement	Standard 4: Geometry and Measurement - The student will use geometric properties and relationships to recognize and describe shapes and use customary and metric measurements to solve problems.	*4. Use the appropriate units and tools to estimate and measure temperature, distance, length, weight, and angles.	Fraction Shape-Up; Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up
Math	Geometry and Measurement	Standard 4: Geometry and Measurement - The student will use geometric properties and relationships to recognize and describe shapes and use customary and metric measurements to solve problems.	5. Convert basic measurements of volume, weight and distance within the same system for metric and customary units (e.g., inches to feet, hours to minutes, centimeters to meters).	Fraction Shape-Up; Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up

Math	Data Analysis and Probability	Standard 5: Data Analysis and Probability - The student will demonstrate an understanding of data collection, display and interpretation.	1. Data Analysis a. Analyze data to create and interpret tables and graphs. b. Justify the selection of the type of table or graph (e.g., a line graph may be more appropriate than a bar graph when displaying the height of a person over time). c. Compare and translate between displays of data (e.g., multiple sets of data on the same graph, Venn diagrams, a combination of diagrams, charts, tables, graphs). *d. Formulate questions, design investigations, consider samples, and collect, organize, and analyze data using observation, measurement, surveys, or experiments (e.g., how far can 5th graders throw a softball based on where it first hits the ground?). e. Determine the range (spread) and the mean (average) of a set of data.	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up
Math	Data Analysis and Probability	Standard 5: Data Analysis and Probability - The student will demonstrate an understanding of data collection, display and interpretation.	2. Probability a. Determine the probability of events occurring in familiar contexts or experiments and express probabilities as fractions (e.g., find the fractional probability of an event given a biased spinner). b. List permutations and combinations of up to five items.	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up

Grade 6

Subhead	Major Concept	Standard	Benchmark	Merit Software
Math	Algebraic Reasoning - Rules	Standard 1: Algebraic Reasoning - The student will use algebraic methods to describe patterns and simplify algebraic expressions in a variety of contexts.	1. Extend and create patterns from tables, graphs, rules and number properties and generalize patterns algebraically (e.g., recursive patterns like the Fibonacci numbers, number sequences, prime and composite numbers).	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2

Math	Algebraic Reasoning - Rules	Standard 1: Algebraic Reasoning - The student will use algebraic methods to describe patterns and simplify algebraic expressions in a variety of contexts.	2. Use substitution and order of operations to simplify and evaluate algebraic expressions (e.g., if $x = 5$ evaluate $2x + 3$).	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Math	Number Sense	Standard 2: Number Sense - The student will use numbers and number relationships to solve problems.	1. Multiply and divide fractions and mixed numbers to solve problems using a variety of methods.	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Math	Number Sense	Standard 2: Number Sense - The student will use numbers and number relationships to solve problems.	2. Convert, compare and order decimals (terminating and nonterminating), fractions and percents using a variety of methods.	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Math	Number Sense	Standard 2: Number Sense - The student will use numbers and number relationships to solve problems.	3. Estimate solutions to single and multi-step problems using whole numbers, decimals, fractions, and percents and assess whether solutions are reasonable (e.g., $\frac{7}{8} + \frac{8}{9}$ is about 2, $0.9 + 0.3$ is about 1).	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Math	Number Sense	Standard 2: Number Sense - The student will use numbers and number relationships to solve problems.	*4. Build and explore multiples and their patterns to develop the concept of exponents.	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Math	Number Sense	Standard 2: Number Sense - The student will use numbers and number relationships to solve problems.	5. Simplify numerical expressions with exponents and parentheses using order of operations.	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2

Math	Geometry	Standard 3: Geometry - The student will use geometric properties and relationships to recognize, describe and analyze shapes and representations in a variety of contexts.	1. Angles a. Compare, estimate and determine the measurement of angles. b. Find the complement and supplement of an angle. 2. Differentiate between congruent and similar figures. *3. Describe the effect of performing basic transformations on objects and figures in a variety of contexts. (e.g., explore reflection [flip] with mirrors, explore rotation [turn] and translation [slide] by designing the layout of different shapes of floor tile).	Pre-Algebra Shape-Up
Math	Geometry	Standard 3: Geometry - The student will use geometric properties and relationships to recognize, describe and analyze shapes and representations in a variety of contexts.	2. Differentiate between congruent and similar figures.	Pre-Algebra Shape-Up
Math	Geometry	Standard 3: Geometry - The student will use geometric properties and relationships to recognize, describe and analyze shapes and representations in a variety of contexts.	*3. Describe the effect of performing basic transformations on objects and figures in a variety of contexts. (e.g., explore reflection [flip] with mirrors, explore rotation [turn] and translation [slide] by designing the layout of different shapes of floor tile).	Pre-Algebra Shape-Up
Math	Measurement	Standard 4: Measurement - The student will use measurements within the metric and U.S. customary system to solve problems in a variety of contexts.	*1. Collect data and develop formulas to find the circumference and area of circles (e.g., use string the length of the diameter of various circular lids to approximate the circumference and develop the concept of pi).	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up

Math	Measurement	Standard 4: Measurement - The student will use measurements within the metric and U.S. customary system to solve problems in a variety of contexts.	2. Compare and convert units within the same measurement system; express conversions using appropriate unit labels (e.g., square inches to square feet, centimeters to millimeters, hours to minutes); and compute measurements of combined units (e.g., $9'8" + 3'6" = ?'$ and $?"$, $150 \text{ minutes} = ? \text{ hours and } ? \text{ minutes}$).	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up
Math	Measurement	Standard 4: Measurement - The student will use measurements within the metric and U.S. customary system to solve problems in a variety of contexts.	3. Find reasonable estimates for measurements using measurements in standard and metric units.	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up
Math	Data Analysis and Statistics	Standard 5: Data Analysis and Statistics - The student will use data analysis and statistics to interpret data in a variety of contexts.	1. Collect, organize, and interpret data to solve problems (e.g., data from student experiments, tallies, Venn diagrams, tables, circle and bar graphs, spreadsheets).	Pre-Algebra Shape-Up
Math	Data Analysis and Statistics	Standard 5: Data Analysis and Statistics - The student will use data analysis and statistics to interpret data in a variety of contexts.	2. Construct and interpret graphs of statistical data (e.g., explain how different representations lead to different interpretations and may distort information).	Pre-Algebra Shape-Up
Math	Data Analysis and Statistics	Standard 5: Data Analysis and Statistics - The student will use data analysis and statistics to interpret data in a variety of contexts.	3. Find the median and mode for a set of data in a variety of contexts.	Pre-Algebra Shape-Up

Grade 7

Subhead	Major Concept	Standard	Benchmark	Merit Software
Math	Algebraic Reasoning - Rules	Standard 1: Algebraic Reasoning - The student will use algebraic methods to describe patterns and simplify algebraic expressions in a variety of contexts.	1. Identify and apply the commutative, associative, distributive, inverse and identity properties (e.g., $n + 0 = n$, $2(x + 3) = 2x + 6$).	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Math	Algebraic Reasoning - Rules	Standard 1: Algebraic Reasoning - The student will use algebraic methods to describe patterns and simplify algebraic expressions in a variety of contexts.	2. Use a variety of methods to model and solve one-step linear equations (e.g., use properties of equality, graph ordered pairs with paper and pencil, use graphing calculators).	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Math	Number Sense	Standard 2: Number Sense - The student will use numbers and number relationships to acquire basic facts and determine the reasonableness of results.	1. Integers a. Compare and order positive and negative integers and describe their use in real-life situations (e.g., temperature, sea level, stock market fluctuations, football yardage). b. Use the basic operations on integers to solve problems.	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Math	Number Sense	Standard 2: Number Sense - The student will use numbers and number relationships to acquire basic facts and determine the reasonableness of results.	2. Ratio, Proportion and Percents *a. Demonstrate the concept of ratio and proportion with models (e.g., similar geometric shapes, scale models). b. Set up equivalent ratios, estimate and solve problems using ratio, proportions, and percents including percents greater than 100 and less than 1 (e.g., determine missing sides of similar figures, heart rate per minute, cost per pound, pay to hours worked overtime). c. Solve percent application problems (e.g., discounts, tax, finding the missing value of percent/part/whole).	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2

Math	Number Sense	Standard 2: Number Sense - The student will use numbers and number relationships to acquire basic facts and determine the reasonableness of results.	3. Exponents *a. Analyze and develop generalizations of exponential patterns, including zero as an exponent, using manipulatives and calculators (e.g., model getting paid a penny the first day, 2 cents the second day, 4 cents the third day . . .). b. Build and recognize models of multiples to investigate squares and square roots (e.g., build rectangular arrays for numbers 1 to 100 and note which can be represented as squares). c. Estimate the square root of a number (e.g., between two consecutive integers).	Word Problem Shape-Up Set 1, 2, 3; Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Math	Geometry	Standard 3: Geometry - The student will apply the properties and relationships of plane geometry in a variety of contexts.	1. Classifying Geometric Figures a. Classify triangles according to their sides and angles. b. Classify quadrilaterals according to their sides and angles (e.g., determine whether all squares are rectangles).	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Math	Geometry	Standard 3: Geometry - The student will apply the properties and relationships of plane geometry in a variety of contexts.	2. Identify and compare bisectors, interior, exterior, and vertical angles (e.g., using graph paper, software, protractors to measure angles between parallel lines with a transversal).	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Math	Measurement	Standard 4: Measurement - The student will use measurement to solve problems in a variety of contexts.	1. Area and Perimeter a. Develop area and perimeter concepts (e.g., use grids to estimate the area of irregular shapes). b. Apply formulas to solve problems involving perimeter (circumference) and area of polygons and circles.	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Math	Measurement	Standard 4: Measurement - The student will use measurement to solve problems in a variety of contexts.	2. Customary and Metric Measurements a. Select and use appropriate tools for measurements in practical applications and make reasonable estimates of measurements in a particular situation using the appropriate unit. b. Use estimates to relate customary and metric measurements to each other.	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2

Math	Data Analysis and Probability	Standard 5: Data Analysis and Probability - The student will use probability to formulate and justify predictions from a set of data.	1. Use data from a sample to predict possible outcomes and compute simple probabilities as fractions, decimals or percents (e.g., use data from lists, tree diagrams, frequency distribution tables, area models).	Pre-Algebra Shape-Up; Basic Algebra Shape-Up Set 1 & 2
Math	Data Analysis and Probability	Standard 5: Data Analysis and Probability - The student will use probability to formulate and justify predictions from a set of data.	2. Determine the probability of an event involving “or”, “and”, or “not” (e.g., on a spinner with 1 blue, 2 red and 2 yellow sections, what is the probability of getting a red or a yellow?).	Basic Algebra Shape-Up Set 1 & 2
Math	Data Analysis and Probability	Standard 5: Data Analysis and Probability - The student will use probability to formulate and justify predictions from a set of data.	3. Find all possible combinations and permutations involving a limited number of variables.	Basic Algebra Shape-Up Set 1 & 2

Grade 8

Subhead	Major Concept	Standard	Benchmark	Merit Software
Math	Algebraic Reasoning - Rules	Standard 1: Algebraic Reasoning - The student will graph and solve linear equations and inequalities in problem-solving situations.	1. Equations a. Model, write, and solve 2-step linear equations using a variety of methods. b. Graph and interpret the solution to linear equations on a number line with one variable and on a coordinate plane with two variables. c. Predict the effect on the graph of a linear equation when the slope changes (e.g., make predictions from graphs, identify the slope in the equation $y = mx + b$ and relate to a graph).	Basic Algebra Shape-Up Set 1 & 2

Math	Algebraic Reasoning - Rules	Standard 1: Algebraic Reasoning - The student will graph and solve linear equations and inequalities in problem-solving situations.	2. Inequalities a. Model, write, and solve 1-step and 2-step linear inequalities with one variable. b. Graph the solution to linear inequalities with one variable on a number line.	Basic Algebra Shape-Up Set 1 & 2
Math	Number Sense	Standard 2: Number Sense - The student will use numbers and number relationships to solve problems.	1. Rational Numbers and Proportional Reasoning a. Compare and order rational numbers (positive and negative integers, fractions, decimals) in real-life situations. b. Use the basic operations on rational numbers to solve problems in real-life situations (e.g., describe the effect of multiplying whole numbers by a fraction or a decimal less than 1). c. Apply ratios and proportions to solve problems.	Basic Algebra Shape-Up Set 1 & 2
Math	Number Sense	Standard 2: Number Sense - The student will use numbers and number relationships to solve problems.	2. Exponents - a. Use the rules of exponents, including integer exponents, to solve problems (e.g., $7^2 \cdot 7^3 = 7^5$). b. Represent and interpret large numbers and numbers less than one in exponential and scientific notation. c. Use estimation strategies (e.g., rounding) to describe the magnitude of large numbers and numbers less than one.	Basic Algebra Shape-Up Set 1 & 2
Math	Measurement	Standard 4: Measurement - The student will use measurement to solve problems in a variety of contexts.	1. Estimate and find the surface area and volume in real world settings (e.g., unwrap a box to explore surface area; use rice, 1-inch cubes, centimeter cubes, cups . . . to estimate the volume of boxes, irregular shaped objects, containers).	Basic Algebra Shape-Up Set 1 & 2
Math	Measurement	Standard 4: Measurement - The student will use measurement to solve problems in a variety of contexts.	2. Apply knowledge of ratio and proportion to solve relationships between similar geometric figures (e.g., build a model of a 3-dimensional object to scale).	Basic Algebra Shape-Up Set 1 & 2

Math	Measurement	Standard 4: Measurement - The student will use measurement to solve problems in a variety of contexts.	3. Formulas a. Select and apply appropriate formulas for given situations: I. an equation (e.g., $d = rt$, $i = prt$) II. measurement problems (e.g., $p = 2l + 2w$, $v = lwh$) b. Find the area of a "region of a region" for simple composite figures (e.g., area of a rectangular picture frame).	Basic Algebra Shape-Up Set 1 & 2
Math	Data Analysis and Statistics	Standard 5: Data Analysis and Statistics - The student will use data analysis and statistics to interpret data in a variety of contexts.	1. Select and apply appropriate formats (e.g., line plots, bar graphs, stem-and-leaf plots, scatter plots, histograms, circle graphs) to display collected data.	Basic Algebra Shape-Up Set 1 & 2
Math	Data Analysis and Statistics	Standard 5: Data Analysis and Statistics - The student will use data analysis and statistics to interpret data in a variety of contexts.	2. Measures of Central Tendency a. Find the measures of central tendency (mean, median and mode) of a set of data and understand why a specific measure provides the most useful information in a given context. b. Compute the mean, median, and mode for data sets and understand how additional data in a set may affect the measures of central tendency.	Basic Algebra Shape-Up Set 1 & 2
Math	Data Analysis and Statistics	Standard 5: Data Analysis and Statistics - The student will use data analysis and statistics to interpret data in a variety of contexts.	*3. Determine how samples are chosen (random, limited, biased) to draw and support conclusions about generalizing a sample to a population (e.g., is the average height of a men's college basketball team a good representative sample for height predictions?).	Basic Algebra Shape-Up Set 1 & 2