COMPONENT	OBJECTIVES	COMPETENCY
I Number Sense and Operations	1. Knows word names and standard numerals for whole numbers, fractions, decimals (through hundred-thousandths), and percents. **(MA.A.1.3.1)** 2. Reads and writes whole numbers and decimals in expanded form. **(MA.A.1.3.1)** 3. Uses oral and written language to describe relationships and comparisons of rationals as related to order and position on the number line. **(MA.A.1.3.1)** 4. Compares and orders fractions, decimals, integers, and common percents using graphic models, manipulatives, number lines and symbols. **(MA.A.1.3.2)** 5. Uses oral and written language to illustrate the use of integers. **(MA.A.1.3.2)** 6. Knows examples of positive rational numbers in real-world situations (include like and unlike fractions). **(MA.A.1.3.3)** 7. Describes the meanings of positive rational numbers using part/whole relationships and relative size comparisons in real-world situations. **(MA.A.1.3.3)** 8. Constructs models to represent positive rational numbers. **(MA.A.1.3.3)** 9. Extends and explores applications and representations of fractions, decimals, percents, and integers. **(MA.A.1.3.3)** 10. Knows the relationships among fractions, decimals, percents and integers. **(MA.A.1.3.4)**	A The student understands the different ways numbers are represented and used in the real world.

COMPONENT	OBJECTIVES	COMPETENCY
	11. Expresses a given quantity in a variety of ways, such as fractions, decimals, integers or numbers expressed as percents. **(MA.A.1.3.4)** 12. Knows whether numbers expressed in different forms are equal. **(MA.A.1.3.4)** 13. Converts a number expressed in one form to its equivalent in another form. **(MA.A.1.3.4)**	
	14. Solves problems in which students need to interpret and evaluate numerical expressions including those involving exponents. **(MA.A.2.3.2)** 15. Compares the decimal number system to systems that do not use place value (for example, Roman numeral, ancient Egyptian). **(MA.A.2.3.2)**	B The student understands number systems.
	16. Uses oral and written language to explain the effects of the four basic operations on whole numbers, fractions, mixed numbers, and decimals. **(MA.A.3.3.1)** 17. Uses models or pictures to show the of addition, subtraction, multiplication, and division, on whole numbers, decimals, fractions, and mixed numbers. **(MA.A.3.3.1)** 18. Knows and applies the commutative, associative, and distributive properties in the addition and multiplication of rational numbers. **(MA.A.3.3.1)** 19. Uses concrete models and real-world examples to explore the inverse relationship of positive and negative numbers. **(MA.A.3.3.1)**	C The student understands the effects of operations on numbers and the relationships among these operations, selects appropriate operations, and computes for problem solving.

COMPONENT	OBJECTIVES	COMPETENCY
	20. Solves problems using different strategies, such as guess and check, draw diagrams, make lists, find patterns, make tables, work backwards, and solve simpler problems. **(MA.A.3.3.1)** 21. Knows the appropriate operations to solve real-world problems involving whole numbers, decimals, and fractions. **(MA.A.3.3.2)** 22. Uses ratios as comparisons. **(MA.A.3.3.2)** 23. Solves real-world problems involving whole numbers, fractions, decimals, and common percents using one or two-step problems. **(MA.A.3.3.2)** 24. Applies order of operations when solving problems (parentheses, multiplication, division, addition, and subtraction). **(MA.A.3.3.2)** 25. Knows proportional relationships and describes such relationships in words, tables, or graphs. **(MA.A.3.3.2)** 26. Solves one- or two-step real-world problems involving whole numbers and decimals using appropriate methods of computation (for example, mental computation, paper and pencil, and calculator). **(MA.A.3.3.3)** 27. Justifies the choice of method for calculations, such as mental computation, concrete materials, algorithms, or calculators. **(MA.A.3.3.3)**	

COMPONENT	OBJECTIVES	COMPETENCY
	28. Knows an appropriate estimation technique for a given situation using whole numbers (for example, clustering, compatible number, front-end). **(MA.A.4.3.1)** 29. Estimates to predict results and to check reasonableness of results. **(MA.A.4.3.1)** 30. Determines whether an exact answer is needed or an estimate would be sufficient. **(MA.A.4.3.1)**	D The student uses estimation in problem solving and computation.
	31. Knows if numbers (equal to or greater than 100) are prime or composite. **(MA.A.5.3.1)** 32. Finds the greatest common factor and least common multiple of two or more numbers. **(MA.A.5.3.1)** 33. Determines the prime factorization of a number equal to or greater than 100. **(MA.A.5.3.1)** 34. Explores divisibility rules using graphical models and manipulatives. **(MA.A.5.3.1)** 35. Solves problems in which it is necessary to express numbers in factored form including prime factorization, factors, and multiples. **(MA.A.5.3.1)**	E The student understands and applies theories related to numbers.

COMPONENT	OBJECTIVES	COMPETENCY
II Measurement	1. Uses concrete and graphic models to create formulas for finding perimeter and area. **(MA.B.1.3.1)** 2. Uses concrete and graphic models to discover an approximation for **pi** and creates a formula for finding circumference. **(MA.B.1.3.1)** 3. Investigates relationships and/or differences among the various types and units of measurement (e.g., length, perimeter, area, and volume; calorie, gram, degree Celsius.) using models. **(MA.B.1.3.1)** 4. Applies formulas and procedures for determining measures to solve problems. **(MA.B.1.3.1)** 5. Identifies a protractor as a tool for measuring angles and measures angles using a protractor. **(MA.B.1.3.2)** 6. Identifies and names angles according to their measure (including acute, right, obtuse, straight). **(MA.B.1.3.2)** 7. Classifies triangles according to the measurement of their angles and according to the length of their sides. **(MA.B.1.3.2)** 8. Determines the measure of a missing angle using angle relationships. **(MA.B.1.3.2)** 9. Given a two-dimensional figure, creates a new figure by increasing or decreasing the original dimensions. **(MA.B.1.3.3)** 10. Knows the relationship between the area or perimeter of an original figure and that of a newly created figure. **(MA.B.1.3.3)**	A The student measures quantities in the real world and uses the measures to solve problems.

COMPONENT	OBJECTIVES	COMPETENCY
	11. Solves real-world or mathematical problems involving perimeter or area and how these are affected by changes in the dimensions of the figure. **(MA.B.1.3.3)** 12. Knows proportional relationships in scale drawings. **(MA.B. 1.3.4)** 13. Uses scale drawings to solve real-world problems including distance (as in map reading). **(MA.B.1.3.4)** 14. Compares objects according to their length, weight or mass, and capacity using customary or metric units. **(MA.B.2.3.1)** 15. Measures length, weight or mass, and capacity using appropriate measuring instruments. **(MA.B.2.3.1)** 16. Uses measurement to describe and compare physical properties of objects. **(MA.B.2.3.1)** 17. Solves problems involving changes and conversions from one customary or metric unit of measurement to another within the same system. **(MA.B.2.3.2)** 18. Uses concrete manipulatives or constructs models of square units (such as square inch and square meter) for measuring area and cubic units (such as cubic centimeter or cubic yard) for measuring volume. **(MA.B.2.3.2)**	B The student compares, contrasts, and converts within systems of measurement (both standard/nonstandard and metric/ customary).

COMPONENT	OBJECTIVES	COMPETENCY
	19. Estimates the measure (length, weight or mass, and capacity) of an object or figure and then compares the estimate with the actual measurement of the object or figure. **(MA.B.3.3.1)** 20. Knows whether an exact answer is needed or an estimate is sufficient. **(MA.B.3.3.1)** 21. Estimates solutions to real-world problems by estimating the length, volume or capacity, weight or mass, perimeter or area of objects or shapes in either customary or metric units. **(MA.B.3.3.1)** 22. Estimates solutions to real-world problems involving measurement, including estimates of time, temperature and money. **(MA.B.3.3.1)**	C The student estimates measurements in real-world problem situations.
	23. Selects the appropriate unit of measure for a given real-world situation. **(MA.B.4.3.1)** 24. Knows the approximate nature of measurement and measures to the specified degree of accuracy (for example, nearest centimeter or sixteenth of an inch). **(MA.B.4.3.1)** 25. Uses non-standard units to estimate measurement to describe and compare quantitative phenomena in order to determine the approximate units of measure for a given task. **(MA.B.4.3.1)** 26. Selects an appropriate measurement tool (for example, scales, rulers, thermometers, measuring cups, protractors, and gauges). **(MA.B.4.3.2)** 27. Determines the interval of a scale and reads the scales on a variety of measuring instruments. **(MA.B.4.3.2)**	D The student selects and uses appropriate units and instruments for measurement to achieve the degree of precision and accuracy required in real-world situations.

COMPONENT	OBJECTIVES	COMPETENCY
	28. Measures accurately with the measurement tools. (MA.B.4.3.2)	
III Geometry and Spatial Sense	1. Identifies, draws, and uses symbolic notation to denote the attributes of two-dimensional geometric figures (including points, parallel and perpendicular lines, planes, rays, and parts of a circle). **(MA.C.1.3.1)** 2. Knows and draws angles (including acute, obtuse, right and straight). **(MA.C.1.3.1)** 3. Analyzes relationships among two-dimensional geometric figures (for example, the diagonal of a rectangle divides the rectangle into two congruent triangles each having one half the area of the rectangle). **(MA.C.1.3.1)** 4. Uses appropriate measuring devices (including ruler and protractor) as needed in analysis of figures. **(MA.C.1.3.1)** 5. Knows the attributes of and draws three-dimensional figures (including rectangular solids and cylinders). **(MA.C.1.3.1)** 6. Knows the properties of two- and three-dimensional figures. **(MA.C.1.3.1)** 7. Communicates basic geometric ideas using basic terminology (such as point, line, plane, angle, parallel, perpendicular, midpoint, bisector, edge, face, radius and diameter) appropriate to geometric figures and shapes. **(MA.C.1.3.1)** 8. Constructs plane figures (straight lines, angles, and triangles) using the appropriate tools and describe the resulting figure. **(MA.C.1.3.1)**	A The student describes, draws, identifies, and analyzes two-and three-dimensional shapes.

COMPONENT	OBJECTIVES	COMPETENCY
	9. Uses manipulatives and drawings to solve problems requiring spatial visualization. **(MA.C.2.3.1)** 10. Describes and applies the property of symmetry in figures. **(MA.C.2.3.1)** 11. Recognizes and draws congruent and similar figures. **(MA.C.2.3.1)** 12. Identifies and performs the various transformations (reflection, translation, rotation) of a given figure on a coordinate plane. **(MA.C.2.3.1)**	B The student visualizes and illustrates ways in which shapes can be combined, subdivided and changed.
	13. Observes, explains, and makes conjectures regarding geometric properties and relationships (among angles, triangles, squares, rectangles, parallelograms). **(MA.C.3.3.1)** 14. Applies known geometric properties (for example, symmetry, congruence) to solve real-world and mathematical problems. **(MA.C.3.3.1)** 15. Identifies the **x** and **y** axes in a coordinate plane and identifies the coordinates of a given point in the first quadrant. **(MA.C.3.3.2)** 16. Plots specific points in the first quadrant of the Cartesian coordinate system. **(MA.C.3.3.2)**	C The student uses coordinate geometry to locate objects in both two and three dimensions and to describe objects algebraically.

COMPONENT	OBJECTIVES	COMPETENCY
IV Algebraic Thinking	1. Describes, predicts, and creates numerical and geometric patterns through models (for example, manipulatives, tables, graphs). **(MA.D.1.3.1)** 2. States in words a rule for a pattern. **(MA.D.1.3.1)** 3. Predicts outcomes based on patterns. **(MA.D.1.3.1)** 4. Finds patterns in real-world situations. **(MA.D.1.3.1)** 5. Describes relationships and patterns using words, tables, symbols, variables, expression, or equations. **(MA.D.1.3.1)** 6. Supplies a specific missing term in a pattern given initial terms in the pattern (for example, given first 4 terms, supplies sixth term). **(MA.D.1.3.1)** 7. Interprets and creates function table and graph (first quadrant). **(MA.D.1.3.2)** 8. Substitutes values for variables and expressions and describes the results or patterns observed. **(MA.D.1.3.2)** 9. Graphs (first quadrant) functions from function tables to explain cause-and-effect relationships. **(MA.D.1.3.2)**	A The student describes, analyzes, and generalizes a wide variety of patterns, relations and functions.

COMPONENT	OBJECTIVES	COMPETENCY
	10. Uses variables to represent numbers and relationships. **(MA.D.2.3.1)** 11. Translates verbal expressions into algebraic expressions and number sentences (equations). **(MA.D.2.3.1)** 12. Translates simple algebraic expressions, equations or formulas representing real-world relationships into verbal expressions or sentences. **(MA.D.2.3.1)** 13. Uses pictures, models, manipulatives or other strategies to simple one-step linear equations with rational solutions. **(MA.D.2.3.1)** 14. Knows how to solve simple equations representing real-world situations, using pictures, models, manipulatives (such as algebra tiles), or other strategies. **(MA.D.2.3.2)** 15. Uses concrete materials to solve equations and explain reasoning orally or in writing. **(MA.D.2.3.2)**	B The student uses expressions, equations, inequalities, graphs, and formulas to represent and interpret situations.
V Data Analysis and Probability	1. Reads and analyzes data displayed in a variety of forms (charts, pictographs, stem-and-leaf plots). **(MA.E.1.3.1)** 2. Generates and collects data for analysis. **(MA.E.1.3.1)** 3. Chooses appropriate titles, scales, labels, keys, and intervals for displaying data in graphs. **(MA.E.1.3.1)**	A The student understands and uses the tools of data analysis for managing information.

COMPONENT	OBJECTIVES	COMPETENCY
	4. Constructs, interprets, and explains displays of data, such as tables and graphs (single-and multiple-bar graphs and single- and multiple-line graphs) using collected experimental data. **(MA.E.1.3.1)** 5. Organizes items in a set of data. **(MA.E.1.3.2)** 6. Finds the range, mean, median, and mode of a set of data. **(MA.E.1.3.2)** 7. Describes real-world data by applying and explaining appropriate procedures for finding measures of central tendency. **(MA.E.1.3.2)** 8. Uses technology, such as graphing calculators and computer spreadsheets, to create graphs. **(MA.E.1.3.3)** 9. Determines all possible outcomes of events using a tree diagram or organized list. **(MA.E.2.3.1)** 10. Calculates simple mathematical probabilities. **(MA.E.2.3.1)** 11. Uses manipulatives to obtain experimental results, compares results to mathematical expectations, and discusses the validity of the experiment. **(MA.E.2.3.1)** 12. Uses common fractions to describe the probability of an event. **(MA.E.2.3.1)**	B The student identifies patterns and makes predictions from an orderly display of data using concepts of probability and statistics.

COMPONENT	OBJECTIVES	COMPETENCY
	13. Explores the concepts of measure of central tendency (mean, median, and mode) in real-world contexts. **(MA.E.2.3.2)** 14. Solves problems involving probability of occurrence of a given event in real-world context. **(MA.E.2.3.2)** 15. Examines and describes situations that include finding the odds for and against a specified outcome. **(MA.E. 2.3.2)**	C The student uses statistical methods to make inferences and valid arguments about real-world situations.