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COMPONENT	OBJECTIVES	COMPETENCY
I Number Sense, Concepts, and Operations	1. Reads, writes, and identifies whole numbers through hundred thousands or more. **(MA.A.1.2.1)** 2. Reads, writes, and identifies decimal numbers in the context of money. **(MA.A.1.2.1)** 3. Reads, writes, and identifies proper fractions with denominators including 2, 3, 4, 5, 6, 8, 10, and 100. **(MA.A.1.2.1)** 4. Uses language and symbols ($<$, $>$, $=$) to compare the relative size of numbers in the same form. **(MA.A.1.2.2)** 5. Compares and orders whole numbers through hundred thousands or more, using concrete materials, number lines drawings, and numerals. **(MA.A.1.2.2)** 6. Compares and orders commonly used fractions, including halves, thirds, fourths, fifths, sixths and eighths, using concrete materials. **(MA.A.1.2.2)** 7. Compares unit fractions using manipulatives, number lines and diagrams. **(MA.A.1.2.3)** 8. Represents decimals to tenths using manipulatives and diagrams. **(MA.A.1.2.3)** 9. Translates problem situations into diagrams and models using whole numbers, fractions, and decimal notation in the context of money. **(MA.A.1.2.3)** 10. Solves problem situations involving addition and subtraction of common fractions and decimals with manipulatives and/ or diagrams. **(MA.A.1.2.4)**	A. The student understands the different ways numbers are represented and used in the real world.

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	11. Uses concrete materials to model equivalent forms of whole numbers and common fractions. **(MA.A.1.2.4)** 12. Identifies equivalent forms of numbers. **(MA.A.1.2.4)** 13. Shows that two numbers in different forms are equivalent or non-equivalent, using whole numbers, fractions, and decimals in the context of money. **(MA.A.1.2.4)** 14. Knows the value of a given digit in whole numbers to hundred thousands, including writing and interpreting expanded forms of numbers. **(MA.A.2.2.1)** 15. Knows that the value of each place is 10 times that of the place to its right (for example, 1,000 = 10 x 100). **(MA.A.2.2.1)** 16. Applies place value notions of grouping based on powers of ten for whole numbers >1000 using written and oral language experiences and manipulatives. **(MA.A.2.2.1)** 17. Compares the decimal (base 10) number system to the Roman numeral system using the Roman numerals I, V, X, L, and C. **(MA.A.2.2.2)** 18. Explains and demonstrates the addition and subtraction of whole numbers (up to three digits or more) using concrete materials, drawings, symbols, and algorithms. **(MA.A.3.2.1)** 19. Explains the inverse relationship of addition and subtraction and demonstrates that relationship by writing related fact families. **(MA.A.3.2.1)**	B. The student understands number systems. 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. Explains and demonstrates the meaning of multiplication (for the repeated addition, area, and array models) using manipulatives, drawings, number sentences, and story problems. **(MA.A.3.2.1)**	
	21. Explains and demonstrates the meaning of division and of remainders (for the repeated subtraction and partitive models) using manipulatives, drawings, number sentences, and story problems. **(MA.A.3.2.1)**	
	22. Solves multiplication basic facts using various strategies including the following: · modeling with concrete objects or drawings · skip counting, for example, to find 4 x 5, count 5, 10, 15, 20 · using doubles and near doubles, such as 3 x 8 = (2 x 8) + 8 · applying the commutative property of multiplication, such as 7 x 3 = 3 x 7 · applying the distributive property of multiplication, such as 8 x 7 = (8 x 5) + (8 x 2) · noting and applying patterns in the 'facts tables,' such as the regularity in the 'nines' · using the zero and identity properties of multiplication. **(MA.A.3.2.1)**	
	23. Explains the inverse relationship of multiplication and division and writes related fact families. **(MA.A.3.2.1)**	
	24. Predicts the relative size of solutions in addition, subtraction, multiplication, and division of whole numbers. **(MA.A.3.2.1)**	
	25. Estimates solutions to and solves relevant consumer problems involving operations with money. **(MA.A.3.2.1)**	
	26. Solves problems involving addition and subtraction of fractions with like denominators. **(MA.A.3.2.1)**	

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COMPONENT	OBJECTIVES	COMPETENCY
	27. Justifies the solution to a problem using the inverse operation. **(MA.A.3.2.1)** 28. Writes number sentences and word problems associated with addition, subtraction, multiplication and division problems. **(MA.A.3.2.2)** 29. Uses problem solving strategies to determine the operation needed to solve one-step problems involving addition, subtraction, multiplication and division of whole numbers. **(MA.A.3.2.2)** 30. Solves real-world problems involving addition, subtraction, multiplication, and division of whole numbers using an appropriate method. **(MA.A.3.2.3)** 31. Explains the reason for choosing a particular computing method for a particular problem. **(MA.A.3.2.3)** 32. Solves real-world multiplication problems with whole numbers (two digits by one digit) using concrete materials, drawings, and paper and pencil. **(MA.A.3.2.3)** 33. Solves real-world division problems having divisors of one digit, dividends not exceeding two digits, with or without remainders. **(MA.A.3.2.3)** 34. Uses manipulatives, counting by multiples, mental arithmetic, and calculators to determine sums, differences, products, and quotients. **(MA.A.3.2.3)** 35. Solves problems involving the relative size, order, and position of numbers through 4 digits using a variety of experiences (manipulatives, language experiences, and number lines). **(MA.A.3.2.3)**	

COMPONENT	OBJECTIVES	COMPETENCY
	36. Determines whether estimation or precise calculation is appropriate for a given situation. **(MA.A.3.2.3)**	
	37. Uses estimation strategies to determine a reasonable estimate of a quantity. **(MA.A.4.2.1)**	D. The student uses estimation in problem solving and computation.
	38. Estimates quantities of objects to 250 or more. **(MA.A.4.2.1)**	
	39. Chooses estimation strategies such as front-end, rounding in real-world problem situations and explains the choice. **(MA.A.4.2.1)**	
	40. Rounds up, rounds down, or rounds to the nearest ten and hundred for a given problem situation using numbers through 4 digits. **(MA.A.4.2.1)**	
	41. Knows multiples of whole numbers with products to 81 or more (times tables). **(MA.A.5.2.1)**	E. The student understands and applies theories related to numbers.
	42. Uses manipulatives to build model to determine factors of whole numbers through 100. **(MA.A.5.2.1)**	
	43. Uses tables and charts to determine multiples of whole numbers 1-10 (for example, hundred chart, calendar). **(MA.A.5.2.1)**	

COMPONENT	OBJECTIVES	COMPETENCY
II Measurement	1. Uses oral and written language to communicate measurement concepts. **(MA.B.1.2.1)** 2. Uses physical models and manipulatives to investigate measures of length, weight, capacity, perimeter, area and volume. **(MA.B.1.2.1)** 3. Uses measurement of time including A.M. and P.M., clocks, and calendars. **(MA.B.1.2.1)** 4. Uses thermometers (both Celsius and Fahrenheit) to determine temperature. **(MA.B.1.2.1)** 5. Identifies right angles (90°). **(MA.B.1.2.1)** 6. Solves real-world problems involving measurement using concrete and pictorial models for: · length (cm, 1/2 in.) · weight (pounds, kilograms) · time (15, 5, and 1 minute intervals, analog and digital) · capacity (cup, liter) · temperature (Fahrenheit and Celsius) · angles (right). **(MA.B.1.2.2)** 7. Writes and solves real-world problems related to area, perimeter, and volume using concrete material or graphic models and communicates the appropriateness of the solution. **(MA.B.1.2.2)** 8. Uses schedules, calendars and clocks to solve elapsed-time problems, including A.M. and P.M. **(MA.B.1.2.2)**	A. The student measures quantities in the real world and uses the measures to solve problems.

COMPONENT	OBJECTIVES	COMPETENCY
	9. Calculates and compares measurable characteristics using manipulatives. **(MA.B.2.2.1)** 10. Devises nonstandard, indirect ways to compare lengths that cannot be physically compared (side-by-side). **(MA.B.2.2.1)** 11. Uses customary and metric units to measure and compare length, weight, and capacity. **(MA.B.2.2.1)** 12. Selects an appropriate unit of measure to determine the dimension(s), weight, or capacity of a given object. **(MA.B.2.2.2)**	B. The student compares, contrasts, and converts within systems of measurement (both standard/nonstandard and metric/customary).
	13. Knows how to determine if an accurate or estimated measurement is needed for a solution. **(MA.B.3.2.1)** 14. Solves real-world problems involving estimated measurements, with the aid of manipulatives, graph paper or charts, including the following: · length to nearest inch or centimeter · weight to nearest pound or kilogram · time to nearest half hour intervals · temperature to nearest five-degree interval · money to nearest \$1 or \$10 (combination of coin and currency). **(MA.B.3.2.1)** 15. Knows how to estimate the area and perimeter of square/rectangular shapes using graph paper, geoboard, or other manipulative. **(MA.B.3.2.1)** 16. Knows how to estimate the volume of a rectangular prism using manipulatives. **(MA.B.3.2.1)**	C. The student estimates measurements in real-world problem situations.

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COMPONENT	OBJECTIVES	COMPETENCY
	17. Estimates solutions to and solve relevant consumer problems involving money. **(MA.B.3.2.1)** 18. Rounds fractional lengths, weights, capacities, and temperatures obtained from measurement tools to the nearest whole using both metric and customary units. **(MA.B.3.2.1)** 19. Identifies the proper unit of measurement for a given situation. **(MA.B.4.2.1)** 20. Selects and uses the appropriate tool for situational measures. **(MA.B.4.2.2)**	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.
III Geometry and Spatial Sense	1. Uses appropriate geometric vocabulary to identify, describe and compare two-dimensional and three-dimensional figures (for example, parallel and perpendicular lines, intersection, similar, congruent, circumference, perimeter, quadrilateral, right angle). **(MA.C.1.2.1)** 2. Draws and classifies two-dimensional figures having up to six or more sides. **(MA.C.1.2.1)** 3. Recognizes and explores properties of right/acute/obtuse angles, lines, line segments, rays, planes, regular and irregular polygons. **(MA.C.1.2.1)**	A. The student describes, draws, identifies, and analyzes two- and three- dimensional shapes.

COMPONENT	OBJECTIVES	COMPETENCY
	4. Uses manipulatives and/or draws a geometric figure as an aid to solve problems requiring spatial visualization. (MA.C.2.2.1) 5. Knows symmetry, congruency, and reflections in geometric figures using concrete materials. (MA.C.2.2.1) 6. Knows congruent and similar figures. (MA.C.2.2.1) 7. Uses manipulatives to perform geometric transformations: flip/reflection, turn/ rotation, slide/translation. (MA.C.2.2.2) 8. Knows the effect of a flip, slide, and turn (180°) on a geometric figure. (MA.C.2.2.2) 9. Explores tessellations. (MA.C.2.2.2) 10. Compares the concepts of area and perimeter through the use of concrete and graphic materials. (MA.C.3.2.1) 11. Applies the concepts of area and perimeter of rectangles to solve real-world and mathematical problems through the use of concrete materials. (MA.C.3.2.1) 12. Knows how to identify, locate, and plot ordered pairs of whole numbers on a graph. (MA.C.3.2.2)	B. The student visualizes and illustrates ways in which shapes can be combined, subdivided, and changed. C. The student uses coordinate geometry to locate objects in both two- and three-dimensions and to describe objects algebraically.

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COMPONENT	OBJECTIVES	COMPETENCY
IV Algebraic Thinking	1. Identifies missing parts in patterns. **(MA.D.1.2.1)** 2. Describes, extends, and creates numerical and geometric patterns through models, (for example: concrete objects, drawings, simple number sequences). **(MA.D.1.2.1)** 3. Poses and solves problems by identifying a predictable visual or numerical pattern. **(MA.D.1.2.1)** 4. Knows mathematical relationships in patterns. **(MA.D.1.2.2)** 5. Analyzes number patterns and states the rule for relationships. **(MA.D.1.2.2)** 6. Discusses and explains the choice of the rule that applies to the pattern. **(MA.D.1.2.2)** 7. Identifies and extends a pattern according to the given rule. **(MA.D.1.2.2)** 8. Applies and explains the appropriate rule to complete a table or chart. **(MA.D.1.2.2)** 9. Uses concrete materials to model and solve a number sentence with a missing addend for simple word problems. **(MA.D.2.2.1)** 10. Creates a simple word problem for a given number sentence, diagram, or model. **(MA.D.2.2.1)**	A. The student describes, analyzes, and generalizes a wide variety of patterns, relations, and functions. B. The student uses expressions, equations, inequalities, graphs, and formulas to represent and interpret situations.

COMPONENT	OBJECTIVES	COMPETENCY
V Data Analysis and Probability	11. Knows that an equation is a number sentence stating that two quantities are equal. **(MA.D.2.2.1)** 12. Uses physical models (cubes, or number lines) and graphs to solve real-world equations and inequalities. **(MA.D.2.2.2)** 13. Uses information from physical models and graphs to solve problems. **(MA.D.2.2.2)** 1. Identifies the different parts of a graph (title, labels, intervals, and key). **(MA.E.1.2.1)** 2. Compares information from picto- and bar graphs including graphs from content-area materials and periodicals. **(MA.E.1.2.1)** 3. Poses simple questions, gathers information and displays data in a table, pictograph or bar graph. **(MA.E.1.2.1)** 4. Interprets and explains orally and in writing the conclusions of displays of data. **(MA.E.1.2.1)** 5. Uses concrete materials to determine the mean in a set. **(MA.E.1.2.2)** 6. Identifies the median and mode from a set of numerical data. **(MA.E.1.2.2)** 7. Uses concrete materials, pictures, or graphs to display data and identify range, median, and mode. **(MA.E.1.2.2)**	A. The student makes graphs by sorting, counting, and comparing physical objects.

COMPONENT	OBJECTIVES	COMPETENCY
	8. Identifies the range in a set of numerical data. **(MA.E.1.2.2)**	
	9. Uses a calculator to compare data. **(MA.E.1.2.3)**	
	10. In class projects, constructs and discusses patterns in computer-generated graphs using real-world problems. **(MA.E.1.2.3)**	
	11. Determines the number of possible combinations of given items and displays them in an organized way. **(MA.E.2.2.1)**	B. The student identifies patterns and makes predictions from an orderly display of data using concepts of probability and statistics.
	12. Represents all possible outcomes for a particular probability situation or event using models such as charts or lists. **(MA.E.2.2.1)**	
	13. Calculates the probability of a particular event occurring from a set of all possible outcomes. **(MA.E.2.2.1)**	
	14. Identifies and records the possible outcomes of simple experiments using concrete materials such as, spinners, number cubes, and coin toss. **(MA.E.2.2.2)**	
	15. Determines the likelihood of simple events occurring and verifies the prediction. **(MA.E.2.2.2)**	
	16. Designs questions for a class survey. **(MA.E.3.2.1)**	C. The student uses statistical methods to make inferences and valid arguments about real-world situations.
	17. Creates appropriate pictograph or bar graphs to display data. **(MA.E.3.2.1)**	

COMPONENT	OBJECTIVES	COMPETENCY
	18. Explains the results from the data of a given survey. **(MA.E.3.2.1)** 19. Uses statistical data to recognize trends. **(MA.E.3.2.2)** 20. Makes generalizations from the statistical data. **(MA.E.3.2.2)** 21. Explains generalizations. **(MA.E.3.2.2)**	