

North Carolina Curriculum Matrix for Mathematics (2003 Revisions to Standard Course of Study)

North Carolina Mathematics Strands/Goals/Objectives Grade 3	National Essential Skills Study (NESS) Rankings Rank		NC End-of-Grade Field Test	NESS	Priority
Strands: Number and Operations, Measurement, Geometry, Data Analysis and Probability, Algebra					
COMPETENCY GOAL 1: The learner will model, identify, and compute with whole numbers through 9,999.					
1.01 Develop number sense for whole numbers through 9,999. a) Connect model, number word, and number using a variety of representations. b) Build understanding of place value (ones through thousands). c) Compare and order.	M35	Use the properties of real (rational and irrational) numbers and demonstrate understanding of ordering and absolute value.	H	M	H
1.02 Develop fluency with multi-digit addition and subtraction through 9,999 using: a) Strategies for adding and subtracting numbers. b) Estimation of sums and differences in appropriate situations. c) Relationships between operations.	M1	Perform operations fluently with positive and negative numbers, including decimals, ratios, percents, and fractions, and show reasoning to justify results.	H	H	H
	M35	Use the properties of real (rational and irrational) numbers and demonstrate understanding of ordering and absolute value.			
1.03 Develop fluency with multiplication from 1x1 to 12x12 and division up to two-digit by one-digit numbers using: a) Strategies for multiplying and dividing numbers. b) Estimation of products and quotients in appropriate situations. c) Relationships between operations.	M1	Perform operations fluently with positive and negative numbers, including decimals, ratios, percents, and fractions, and show reasoning to justify results.	H	H	H
	M35	Use the properties of real (rational and irrational) numbers and demonstrate understanding of ordering and absolute value.			

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1.04 Use basic properties (identity, commutative, associative, order of operations) for addition, subtraction, multiplication, and division.	M1	Perform operations fluently with positive and negative numbers, including decimals, ratios, percents, and fractions, and show reasoning to justify results.	H	H	H
	M2	Understand and apply basic algebraic properties (commutative and associative laws of addition and multiplication, distributive law of multiplication over addition, and identities and inverses).			
	M7	Simplify and solve algebraic equations by identifying and using the correct order of operations and techniques necessary to carry out the solution.			
1.05 Use area or region models and set models of fractions to explore part-whole relationships. a) Represent fractions concretely and symbolically (halves, fourths, thirds, sixths, eighths). b) Compare and order fractions (halves, fourths, thirds, sixths, eighths) using models and benchmark numbers (zero, one-half, one); describe comparisons. c) Model and describe common equivalents, especially relationships among halves, fourths, and eighths, and thirds and sixths. d) Understand that the fractional relationships that occur between zero and one also occur between every two consecutive whole numbers. e) Understand and use mixed numbers and their equivalent fraction forms.	M35	Use the properties of real (rational and irrational) numbers and demonstrate understanding of ordering and absolute value.	H	M	H
1.06 Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.	M1	Perform operations fluently with positive and negative numbers, including decimals, ratios, percents, and fractions, and show reasoning to justify results.	H	H	H
	M2	Understand and apply basic algebraic properties (commutative and associative laws of addition and multiplication, distributive law of multiplication over addition, and identities and inverses).			
	M10	Understand and apply a systematic methodology or procedure (e.g., direct or indirect measurement, direct or indirect proof, inductive or deductive reasoning) to model and solve problems.			

North Carolina Mathematics Strands/Goals/Objectives Grade 3	National Essential Skills Study (NESS) Rankings		NC End-of-Grade Field Test	NESS	Priority
COMPETENCY GOAL 2: The learner will recognize and use standard units of metric and customary measurement.					
2.01 Solve problems using measurement concepts and procedures involving: a) Elapsed time. b) Equivalent measures within the same measurement system.	M8	Solve problems using units of metric measure and convert between metric and English/customary units.	L	H	M
	M10	Understand and apply a systematic methodology or procedure (e.g., direct or indirect measurement, direct or indirect proof, inductive or deductive reasoning) to model and solve problems.			
2.02 Estimate and measure using appropriate units. a) Capacity (cups, pints, quarts, gallons, liters). b) Length (miles, kilometers) c) Mass (ounces, pounds, grams, kilograms). d) Temperature (Fahrenheit, Celsius).	M10	Understand and apply a systematic methodology or procedure (e.g., direct or indirect measurement, direct or indirect proof, inductive or deductive reasoning) to model and solve problems.	L	H	M
	M12	Understand accuracy and precision of measurement, round off numbers according to the correct number of significant figures, and determine percent error.			
	M13	Use the technique of dimensional analysis to convert units of measure (e.g., kilometers/hour to meters/minute) and apply ratios in real-world situations (e.g., scale drawings).			
COMPETENCY GOAL 3: The learner will recognize and use basic geometric properties of two- and three-dimensional figures.					
3.01 Use appropriate vocabulary to compare, describe, and classify two- and three-dimensional figures.	M18	Understand the properties of circles (radius, arc, diameter, chord, secant, and tangent) and apply circle quantities (lengths of line segments, angle measure within a circle, circumference, and area) in problem-solving situations.	M	M	M
	M26	Know the classification and properties of three-dimensional figures (prisms, rectangular solids, pyramids, right circular cylinders, cones, and spheres) and be able to compute the volume and surface area of common solids.			
	M34	Understand the properties and classification of polygons (triangles, the family of quadrilaterals, pentagon, hexagon, etc.) and apply knowledge of angle and side relationships of geometric shapes in problem-solving situations.			

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3.02 Use a rectangular coordinate system to solve problems. a) Graph and identify points with whole number and/or letter coordinates. b) Describe the path between given points on the plane.	M30	Know and apply the components and properties of the rectangular coordinate system: x–y axis, origin, quadrants, abscissa (x-coordinate) and ordinate (y-coordinate), and general representation of a point (x,y).	M	M	M
COMPETENCY GOAL 4: The learner will understand and use data and simple probability concepts.					
4.01 Collect, organize, analyze, and display data (including circle graphs and tables) to solve problems.	M21	Evaluate and employ accurate and appropriate procedures for statistical data collection, organization, analysis, and display including making estimates and predictions, critiquing data, and drawing inferences (e.g., using the normal curve and z-scores, line of best fit).	M	M	M
4.02 Determine the number of permutations and combinations of up to three items.	M51	Determine combinations (the various groupings a set may be arranged in without regard to order) and permutations (arrangements of a set where order matters).	M	L	M
4.03 Solve probability problems using permutations and combinations.	M5	Examine problem-solving situations involving simple probability and use probabilistic reasoning to compare and communicate the theoretical or empirical likelihood of events.	M	H	H
	M51	Determine combinations (the various groupings a set may be arranged in without regard to order) and permutations (arrangements of a set where order matters).			
COMPETENCY GOAL 5: The learner will recognize, determine, and represent patterns and simple mathematical relationships.					
5.01 Describe and extend numeric and geometric patterns.	M16	Apply pattern recognition in data sets and series to reason or solve problems involving arithmetic, geometry, exponents, etc.	H	H	H
5.02 Extend and find missing terms of repeating and growing patterns.	M16	Apply pattern recognition in data sets and series to reason or solve problems involving arithmetic, geometry, exponents, etc.	H	H	H

North Carolina Mathematics Strands/Goals/Objectives Grade 3	National Essential Skills Study (NESS) Rankings		NC End-of-Grade Field Test	NESS	Priority
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5.03 Use symbols to represent unknown quantities in number sentences.	M11	Apply variables in expressions and equations to solve problems (i.e., write mathematical equations for given situation, create a mathematical model to understand the relationships between variables, or make connections between the structures of mathematically abstract concepts and the real world).	H	H	H
5.04 Find the value of the unknown in a number sentence.	M7	Simplify and solve algebraic equations by identifying and using the correct order of operations and techniques necessary to carry out the solution.	H	H	H
	M11	Apply variables in expressions and equations to solve problems (i.e., write mathematical equations for given situation, create a mathematical model to understand the relationships between variables, or make connections between the structures of mathematically abstract concepts and the real world).			

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North Carolina Mathematics Strands/Goals/Objectives Grade 4	National Essential Skills Study (NESS) Rankings Rank	N.C. End-of- Grade Test	NESS	Priority	
Strands: Number and Operations, Measurement, Geometry, Data Analysis and Probability, Algebra					
COMPETENCY GOAL 1: The learner will read, write, model, and compute with nonnegative rational numbers.					
1.01 Develop number sense for rational numbers 0.01 through 99,999. a) Connect model, number word, and number using a variety of representations. b) Build understanding of place value (hundredths through ten thousands). c) Compare and order rational numbers. d) Make estimates of rational numbers in appropriate situations.	M1	Perform operations fluently with positive and negative numbers, including decimals, ratios, percents, and fractions, and show reasoning to justify results.	H	H	H
	M6	Demonstrate understanding of, and accurately apply, place value to round off numbers.			
	M39	Apply techniques to obtain a rational approximation or estimate of a quantity or number (including irrational numbers such as radicals).			
1.02 Develop fluency with multiplication and division: a) Two-digit by two-digit multiplication (larger numbers with calculator). b) Up to three-digit by two-digit division (larger numbers with calculator). c) Strategies for multiplying and dividing numbers. d) Estimation of products and quotients in appropriate situations. e) Relationships between operations.	M1	Perform operations fluently with positive and negative numbers, including decimals, ratios, percents, and fractions, and show reasoning to justify results.	H	H	H
	M6	Demonstrate understanding of, and accurately apply, place value to round off numbers.			
	M35	Use the properties of real (rational and irrational) numbers and demonstrate understanding of ordering and absolute value.			
1.03 Solve problems using models, diagrams, and reasoning about fractions and relationships among fractions involving halves, fourths, eighths, thirds, sixths, twelfths, fifths, tenths, hundredths, and mixed numbers.	M1	Perform operations fluently with positive and negative numbers, including decimals, ratios, percents, and fractions, and show reasoning to justify results.	H	H	H

North Carolina Mathematics Strands/Goals/Objectives Grade 4	National Essential Skills Study (NESS) Rankings		N.C. End-of- Grade Test	NESS	Priority
1.04 Develop fluency with addition and subtraction of non-negative rational numbers with like denominators, including decimal fractions through hundredths. a) Develop and analyze strategies for adding and subtracting numbers. b) Estimate sums and differences. c) Judge the reasonableness of solutions.	M1	Perform operations fluently with positive and negative numbers, including decimals, ratios, percents, and fractions, and show reasoning to justify results.	H	H	H
	M2	Understand and apply basic algebraic properties (commutative and associative laws of addition and multiplication, distributive law of multiplication over addition, and identities and inverses).			
1.05 Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.	M1	Perform operations fluently with positive and negative numbers, including decimals, ratios, percents, and fractions, and show reasoning to justify results.	H	H	H
	M2	Understand and apply basic algebraic properties (commutative and associative laws of addition and multiplication, distributive law of multiplication over addition, and identities and inverses).			
	M10	Understand and apply a systematic methodology or procedure (e.g., direct or indirect measurement, direct or indirect proof, inductive or deductive reasoning) to model and solve problems.			
COMPETENCY GOAL 2: The learner will understand and use perimeter and area.					
2.01 Develop strategies to determine the area of rectangles and the perimeter of plane figures.	M9	Compute the perimeter and area of common two-dimensional figures.	L	H	M
2.02 Solve problems involving perimeter of plane figures and areas of rectangles.	M9	Compute the perimeter and area of common two-dimensional figures.	L	H	M
COMPETENCY GOAL 3: The learner will recognize and use geometric properties and relationships.					
3.01 Use the coordinate system to describe the location and relative position of points and draw figures in the first quadrant.	M30	Know and apply the components and properties of the rectangular coordinate system: x–y axis, origin, quadrants, abscissa (x-coordinate) and ordinate (y-coordinate), and general representation of a point (x,y).	L	M	M
3.02 Describe the relative position of lines using concepts of parallelism and perpendicularity.	M4	Understand the properties of and apply parallel, perpendicular, and intersecting lines in problem-solving situations.	L	H	M

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3.03 Identify, predict, and describe the results of transformations of plane figures. a) Reflections. b) Translations. c) Rotations.	M54	Apply transformations (reflection, rotation, translation, and dilation) of 2-dimensional figures graphically to interpret, analyze, and illustrate the concepts of congruency, similarity, and symmetry.	L	L	L
COMPETENCY GOAL 4: The learner will understand and use graphs, probability, and data analysis.					
4.01 Collect, organize, analyze, and display data (including line graphs and bar graphs) to solve problems.	M21	Evaluate and employ accurate and appropriate procedures for statistical data collection, organization, analysis, and display including making estimates and predictions, critiquing data, and drawing inferences (e.g., using the normal curve and z-scores, line of best fit).	M	M	M
4.02 Describe the distribution of data using median, range and mode.	M14	Understand and apply measures of central tendency (mean, median, and mode, and representative sampling of a population).	M	H	H
	M31	Understand and apply measures of dispersion (range, mean deviation, variance, and standard deviation).			
4.03 Solve problems by comparing two sets of related data.	M21	Evaluate and employ accurate and appropriate procedures for statistical data collection, organization, analysis, and display including making estimates and predictions, critiquing data, and drawing inferences (e.g., using the normal curve and z-scores, line of best fit).	M	M	M
4.04 Design experiments and list all possible outcomes and probabilities for an event.	M5	Examine problem-solving situations involving simple probability and use probabilistic reasoning to compare and communicate the theoretical or empirical likelihood of events.	M	H	H
	M51	Determine combinations (the various groupings a set may be arranged in without regard to order) and permutations (arrangements of a set where order matters).			

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COMPETENCY GOAL 5: The learner will demonstrate an understanding of mathematical relationships.					
5.01 Identify, describe, and generalize relationships in which: a) Quantities change proportionally. b) Change in one quantity relates to change in a second quantity.	M3	Use proportional reasoning to solve real-world problems.	H	H	H
	M57	Solve and graphically sketch problems involving two variables that exhibit direct and indirect variation.			
5.02 Translate among symbolic, numeric, verbal, and pictorial representations of number relationships.	M11	Apply variables in expressions and equations to solve problems (i.e., write mathematical equations for given situation, create a mathematical model to understand the relationships between variables, or make connections between the structures of mathematically abstract concepts and the real world).	H	H	H
	M35	Use the properties of real (rational and irrational) numbers and demonstrate understanding of ordering and absolute value.			
5.03 Verify mathematical relationships using: a) Models, words, and numbers. b) Order of operations and the identity, commutative, associative, and distributive properties.	M2	Understand and apply basic algebraic properties (commutative and associative laws of addition and multiplication, distributive law of multiplication over addition, and identities and inverses).	H	H	H
	M7	Simplify and solve algebraic equations by identifying and using the correct order of operations and techniques necessary to carry out the solution.			
	M35	Use the properties of real (rational and irrational) numbers and demonstrate understanding of ordering and absolute value.			

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Strands: Number and Operations, Measurement, Geometry, Data Analysis and Probability, Algebra					
COMPETENCY GOAL 1: The learner will understand and compute with nonnegative rational numbers.					
1.01 Develop number sense for rational numbers 0.001 through 999,999. a) Connect model, number word, and number using a variety of representations. b) Build understanding of place value (thousandths through hundred thousands). c) Compare and order rational numbers. d) Make estimates of rational numbers in appropriate situations.	M35	Use the properties of real (rational and irrational) numbers and demonstrate understanding of ordering and absolute value.	H	M	H
	M39	Apply techniques to obtain a rational approximation or estimate of a quantity or number (including irrational numbers such as radicals).			
1.02 Develop fluency in adding and subtracting non-negative rational numbers (halves, fourths, eighths; thirds, sixths, twelfths; fifths, tenths, hundredths, thousandths; mixed numbers). a) Develop and analyze strategies for adding and subtracting numbers. b) Estimate sums and differences. c) Judge the reasonableness of solutions.	M1	Perform operations fluently with positive and negative numbers, including decimals, ratios, percents, and fractions, and show reasoning to justify results.	H	H	H
	M35	Use the properties of real (rational and irrational) numbers and demonstrate understanding of ordering and absolute value.			
1.03 Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.	M1	Perform operations fluently with positive and negative numbers, including decimals, ratios, percents, and fractions, and show reasoning to justify results.	H	H	H
	M2	Understand and apply basic algebraic properties (commutative and associative laws of addition and multiplication, distributive law of multiplication over addition, and identities and inverses).			
	M10	Understand and apply a systematic methodology or procedure (e.g., direct or indirect measurement, direct or indirect proof, inductive or deductive reasoning) to model and solve problems.			

North Carolina Mathematics Strands/Goals/Objectives Grade 5	National Essential Skills Study (NESS) Rankings		N.C. End-of- Grade Test	NESS	Priority
COMPETENCY GOAL 2: The learner will recognize and use standard units of metric and customary measurement.					
2.01 Estimate the measure of an object in one system given the measure of that object in another system.	M13	Use the technique of dimensional analysis to convert units of measure (e.g., kilometers/hour to meters/minute) and apply ratios in real-world situations (e.g., scale drawings).	M	H	H
2.02 Identify, estimate, and measure the angles of plane figures using appropriate tools.	M15	Classify angles by measure (acute, right, obtuse, and straight) and understand angle relationships (supplementary, complementary, and vertical).	M	H	H
COMPETENCY GOAL 3: The learner will understand and use properties and relationships of plane figures.					
3.01 Identify, define, describe, and accurately represent triangles, quadrilaterals, and other polygons.	M34	Understand the properties and classification of polygons (triangles, the family of quadrilaterals, pentagon, hexagon, etc.) and apply knowledge of angle and side relationships of geometric shapes in problem-solving situations.	H	M	H
3.02 Make and test conjectures about polygons involving: a) Sum of the measures of interior angles. b) Lengths of sides and diagonals. c) Parallelism and perpendicularity of sides and diagonals.	M4	Understand the properties of and apply parallel, perpendicular, and intersecting lines in problem-solving situations.	H	H	H
	M15	Classify angles by measure (acute, right, obtuse, and straight) and understand angle relationships (supplementary, complementary, and vertical).			
	M34	Understand the properties and classification of polygons (triangles, the family of quadrilaterals, pentagon, hexagon, etc.) and apply knowledge of angle and side relationships of geometric shapes in problem-solving situations.			
3.03 Classify plane figures according to types of symmetry (line, rotational).	M54	Apply transformations (reflection, rotation, translation, and dilation) of 2-dimensional figures graphically to interpret, analyze, and illustrate the concepts of congruency, similarity, and symmetry.	H	L	M

North Carolina Mathematics Strands/Goals/Objectives Grade 5	National Essential Skills Study (NESS) Rankings Rank		N.C. End-of- Grade Test	NESS	Priority
3.04 Solve problems involving the properties of triangles, quadrilaterals, and other polygons. a) Sum of the measures of interior angles. b) Lengths of sides and diagonals. c) Parallelism and perpendicularity of sides and diagonals.	M4	Understand the properties of and apply parallel, perpendicular, and intersecting lines in problem-solving situations.	H	H	H
	M15	Classify angles by measure (acute, right, obtuse, and straight) and understand angle relationships (supplementary, complementary, and vertical).			
	M34	Understand the properties and classification of polygons (triangles, the family of quadrilaterals, pentagon, hexagon, etc.) and apply knowledge of angle and side relationships of geometric shapes in problem-solving situations.			
COMPETENCY GOAL 4: The learner will understand and use graphs and data analysis.					
4.01 Collect, organize, analyze, and display data (including stem-and-leaf plots) to solve problems.	M21	Evaluate and employ accurate and appropriate procedures for statistical data collection, organization, analysis, and display including making estimates and predictions, critiquing data, and drawing inferences (e.g., using the normal curve and z-scores, line of best fit).	M	M	M
4.02 Compare and contrast different representations of the same data; discuss the effectiveness of each representation.	M21	Evaluate and employ accurate and appropriate procedures for statistical data collection, organization, analysis, and display including making estimates and predictions, critiquing data, and drawing inferences (e.g., using the normal curve and z-scores, line of best fit).	M	M	M
4.03 Solve problems with data from a single set or multiple sets of data using median, range, and mode.	M14	Understand and apply measures of central tendency (mean, median, and mode, and representative sampling of a population).	M	H	H
	M21	Evaluate and employ accurate and appropriate procedures for statistical data collection, organization, analysis, and display including making estimates and predictions, critiquing data, and drawing inferences (e.g., using the normal curve and z-scores, line of best fit).			
	M31	Understand and apply measures of dispersion (range, mean deviation, variance, and standard deviation).			

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Rank					
COMPETENCY GOAL 5:					
The learner will demonstrate an understanding of patterns, relationships, and elementary algebraic representation.					
5.01 Describe, extend, and generalize numeric and geometric patterns using tables, graphs, words, and symbols.	M16	Apply pattern recognition in data sets and series to reason or solve problems involving arithmetic, geometry, exponents, etc.	H	H	H
	M21	Evaluate and employ accurate and appropriate procedures for statistical data collection, organization, analysis, and display including making estimates and predictions, critiquing data, and drawing inferences (e.g., using the normal curve and z-scores, line of best fit).			
5.02 Use algebraic expressions, patterns, and one-step equations and inequalities to solve problems.	M7	Simplify and solve algebraic equations by identifying and using the correct order of operations and techniques necessary to carry out the solution.	H	H	H
	M16	Apply pattern recognition in data sets and series to reason or solve problems involving arithmetic, geometry, exponents, etc.			
	M27	Find the solution of linear equations and inequalities where the variable appears on either or both sides and in which one or both sides must be simplified before solving the equation (e.g., solve $x + 2(x - 3) = -4x + 5$ for x).			
5.03 Identify, describe, and analyze situations with constant or varying rates of change.	M3	Use proportional reasoning to solve real-world problems.	H	H	H
	M21	Evaluate and employ accurate and appropriate procedures for statistical data collection, organization, analysis, and display including making estimates and predictions, critiquing data, and drawing inferences (e.g., using the normal curve and z-scores, line of best fit).			
	M57	Solve and graphically sketch problems involving two variables that exhibit direct and indirect variation.			

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Strands: Number and Operations, Measurement, Geometry, Data Analysis and Probability, Algebra					
COMPETENCY GOAL 1: The learner will understand and compute with rational numbers.					
1.01 Develop number sense for negative rational numbers. a) Connect the model, number word, and number using a variety of representations, including the number line. b) Compare and order. c) Make estimates in appropriate situations.	M35	Use the properties of real (rational and irrational) numbers and demonstrate understanding of ordering and absolute value.	H	M	H
1.02 Develop meaning for percents. a) Connect the model, number word, and number using a variety of representations. b) Make estimates in appropriate situations.	M1	Perform operations fluently with positive and negative numbers, including decimals, ratios, percents, and fractions, and show reasoning to justify results.	H	H	H
	M35	Use the properties of real (rational and irrational) numbers and demonstrate understanding of ordering and absolute value.			
1.03 Compare and order rational numbers.	M35	Use the properties of real (rational and irrational) numbers and demonstrate understanding of ordering and absolute value.	H	H	H
1.04 Develop fluency in addition, subtraction, multiplication, and division of nonnegative rational numbers. a) Analyze computational strategies. b) Describe the effect of operations on size. c) Estimate the results of computations. d) Judge the reasonableness of solutions.	M1	Perform operations fluently with positive and negative numbers, including decimals, ratios, percents, and fractions, and show reasoning to justify results.	H	H	H
	M2	Understand and apply basic algebraic properties (commutative and associative laws of addition and multiplication, distributive law of multiplication over addition, and identities and inverses).			
	M35	Use the properties of real (rational and irrational) numbers and demonstrate understanding of ordering and absolute value.			

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1.05 Develop fluency in the use of factors, multiples, exponential notation, and prime factorization.	M20	Understand and apply the basic properties and laws of exponents and scientific notation to solve problems, including those with fractional, negative, and zero exponents.	H	M	H
	M29	Factor a composite number into its prime components and use least common denominators or least common multiples to solve equations.			
1.06 Use exponential, scientific, and calculator notation to write very large and very small numbers.	M20	Understand and apply the basic properties and laws of exponents and scientific notation to solve problems, including those with fractional, negative, and zero exponents.	H	M	H
1.07 Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.	M1	Perform operations fluently with positive and negative numbers, including decimals, ratios, percents, and fractions, and show reasoning to justify results.	H	H	H
	M2	Understand and apply basic algebraic properties (commutative and associative laws of addition and multiplication, distributive law of multiplication over addition, and identities and inverses).			
	M10	Understand and apply a systematic methodology or procedure (e.g., direct or indirect measurement, direct or indirect proof, inductive or deductive reasoning) to model and solve problems.			

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COMPETENCY GOAL 2: The learner will select and use appropriate tools to measure two- and three-dimensional figures.					
2.01 Estimate and measure length, perimeter, area, angles, weight, and mass of two- and three-dimensional figures, using appropriate tools.	M8	Solve problems using units of metric measure and convert between metric and English/customary units.	M	H	H
	M9	Compute the perimeter and area of common two-dimensional figures.			
	M12	Understand accuracy and precision of measurement, round off numbers according to the correct number of significant figures, and determine percent error.			
	M13	Use the technique of dimensional analysis to convert units of measure (e.g., kilometers/hour to meters/minute) and apply ratios in real-world situations (e.g., scale drawings).			
	M26	Know the classification and properties of three-dimensional figures (prisms, rectangular solids, pyramids, right circular cylinders, cones, and spheres) and be able to compute the volume and surface area of common solids.			
2.02 Solve problems involving perimeter/circumference and area of plane figures.	M9	Compute the perimeter and area of common two-dimensional figures.	M	H	H
	M18	Understand the properties of circles (radius, arc, diameter, chord, secant, and tangent) and apply circle quantities (lengths of line segments, angle measure within a circle, circumference, and area) in problem-solving situations.			
COMPETENCY GOAL 3: The learner will understand and use properties and relationships of geometric figures in the coordinate plane.					
3.01 Identify and describe the intersection of figures in a plane.	M4	Understand the properties of and apply parallel, perpendicular, and intersecting lines in problem-solving situations.	M	H	H
	M15	Classify angles by measure (acute, right, obtuse, and straight) and understand angle relationships (supplementary, complementary, and vertical).			
3.02 Identify the radius, diameter, chord, center, and circumference of a circle; determine the relationships among them.	M18	Understand the properties of circles (radius, arc, diameter, chord, secant, and tangent) and apply circle quantities (lengths of line segments, angle measure within a circle, circumference, and area) in problem-solving situations.	M	M	M

North Carolina Mathematics Strands/Goals/Objectives Grade 6	National Essential Skills Study (NESS) Rankings		N.C. End-of- Grade Test	NESS	Priority
3.03 Transform figures in the coordinate plane and describe the transformation.	M54	Apply transformations (reflection, rotation, translation, and dilation) of 2-dimensional figures graphically to interpret, analyze, and illustrate the concepts of congruency, similarity, and symmetry.	M	L	M
3.04 Solve problems involving geometric figures in the coordinate plane.	M9	Compute the perimeter and area of common two-dimensional figures.	M	H	H
	M19	Compute the distance between two points on a coordinate plane (length of a line segment) and determine the midpoint of a line segment between two points.			
	M30	Know and apply the components and properties of the rectangular coordinate system: x - y axis, origin, quadrants, abscissa (x -coordinate) and ordinate (y -coordinate), and general representation of a point (x,y) .			
	M54	Apply transformations (reflection, rotation, translation, and dilation) of 2-dimensional figures graphically to interpret, analyze, and illustrate the concepts of congruency, similarity, and symmetry.			

North Carolina Mathematics Strands/Goals/Objectives Grade 6	National Essential Skills Study (NESS) Rankings		N.C. End-of- Grade Test	NESS	Priority
COMPETENCY GOAL 4: The learner will understand and determine probabilities.					
4.01 Develop fluency with counting strategies to determine the sample space for an event. Include lists, tree diagrams, frequency distribution tables, permutations, combinations, and the Fundamental Counting Principle.	M5	Examine problem-solving situations involving simple probability and use probabilistic reasoning to compare and communicate the theoretical or empirical likelihood of events.	H	H	H
	M21	Evaluate and employ accurate and appropriate procedures for statistical data collection, organization, analysis, and display including making estimates and predictions, critiquing data, and drawing inferences (e.g., using the normal curve and z-scores, line of best fit).			
	M32	Determine the probability of single and compound events and use the Counting Principle to determine the probability of independent events occurring jointly.			
	M51	Determine combinations (the various groupings a set may be arranged in without regard to order) and permutations (arrangements of a set where order matters).			
4.02 Use a sample space to determine the probability of an event.	M5	Examine problem-solving situations involving simple probability and use probabilistic reasoning to compare and communicate the theoretical or empirical likelihood of events.	H	H	H
4.03 Conduct experiments involving simple and compound events.	M5	Examine problem-solving situations involving simple probability and use probabilistic reasoning to compare and communicate the theoretical or empirical likelihood of events.	H	H	H
	M32	Determine the probability of single and compound events and use the Counting Principle to determine the probability of independent events occurring jointly.			

North Carolina Mathematics Strands/Goals/Objectives Grade 6	National Essential Skills Study (NESS) Rankings		N.C. End-of- Grade Test	NESS	Priority
	Rank				
4.04 Determine and compare experimental and theoretical probabilities for simple and compound events.	M5	Examine problem-solving situations involving simple probability and use probabilistic reasoning to compare and communicate the theoretical or empirical likelihood of events.	H	H	H
	M32	Determine the probability of single and compound events and use the Counting Principle to determine the probability of independent events occurring jointly.			
4.05 Determine and compare experimental and theoretical probabilities for independent and dependent events.	M5	Examine problem-solving situations involving simple probability and use probabilistic reasoning to compare and communicate the theoretical or empirical likelihood of events.	H	H	H
	M32	Determine the probability of single and compound events and use the Counting Principle to determine the probability of independent events occurring jointly.			
4.06 Design and conduct experiments or surveys to solve problems; report and analyze results.	M17	Understand the importance of random sampling and sample size in generating representative data.	H	M	H
	M21	Evaluate and employ accurate and appropriate procedures for statistical data collection, organization, analysis, and display including making estimates and predictions, critiquing data, and drawing inferences (e.g., using the normal curve and z-scores, line of best fit).			

North Carolina Mathematics Strands/Goals/Objectives Grade 6	National Essential Skills Study (NESS) Rankings Rank		N.C. End-of- Grade Test	NESS	Priority
COMPETENCY GOAL 5: The learner will demonstrate an understanding of simple algebraic expressions.					
5.01 Simplify algebraic expressions and verify the results using the basic properties of rational numbers. a) Identity. b) Commutative. c) Associative. d) Distributive. e) Order of operations.	M2	Understand and apply basic algebraic properties (commutative and associative laws of addition and multiplication, distributive law of multiplication over addition, and identities and inverses).	H	H	H
	M7	Simplify and solve algebraic equations by identifying and using the correct order of operations and techniques necessary to carry out the solution.			
	M11	Apply variables in expressions and equations to solve problems (i.e., write mathematical equations for given situation, create a mathematical model to understand the relationships between variables, or make connections between the structures of mathematically abstract concepts and the real world).			
5.02 Use and evaluate algebraic expressions.	M11	Apply variables in expressions and equations to solve problems (i.e., write mathematical equations for given situation, create a mathematical model to understand the relationships between variables, or make connections between the structures of mathematically abstract concepts and the real world).	H	H	H
5.03 Solve simple (one- and two-step) equations or inequalities.	M7	Simplify and solve algebraic equations by identifying and using the correct order of operations and techniques necessary to carry out the solution.	H	H	H
	M27	Find the solution of linear equations and inequalities where the variable appears on either or both sides and in which one or both sides must be simplified before solving the equation (e.g., solve $x + 2(x - 3) = -4x + 5$ for x).			

North Carolina Mathematics Strands/Goals/Objectives Grade 6	National Essential Skills Study (NESS) Rankings		N.C. End-of- Grade Test	NESS	Priority
5.04 Use graphs, tables, and symbols to model and solve problems involving rates of change and ratios.	Rank	Use proportional reasoning to solve real-world problems.	H	H	H
	M13	Use the technique of dimensional analysis to convert units of measure (e.g., kilometers/hour to meters/minute) and apply ratios in real-world situations (e.g., scale drawings).			
	M21	Evaluate and employ accurate and appropriate procedures for statistical data collection, organization, analysis, and display including making estimates and predictions, critiquing data, and drawing inferences (e.g., using the normal curve and z-scores, line of best fit).			

North Carolina Curriculum Matrix for Mathematics (2003 Revisions to Standard Course of Study)

North Carolina Mathematics Strands/Goals/Objectives Grade 7	National Essential Skills Study (NESS) Rankings Rank		N.C. End-of- Grade Test	NESS	Priority
Strands: Number and Operations, Measurement, Geometry, Data Analysis and Probability, Algebra					
COMPETENCY GOAL 1: The learner will understand and compute with rational numbers.					
1.01 Develop and use ratios, proportions, and percents to solve problems.	M1	Perform operations fluently with positive and negative numbers, including decimals, ratios, percents, and fractions, and show reasoning to justify results.	H	H	H
	M3	Use proportional reasoning to solve real-world problems.			
1.02 Develop fluency in addition, subtraction, multiplication, and division of rational numbers. a) Analyze computational strategies. b) Describe the effect of operations on size. c) Estimate the results of computations. d) Judge the reasonableness of solutions.	M1	Perform operations fluently with positive and negative numbers, including decimals, ratios, percents, and fractions, and show reasoning to justify results.	H	H	H
	M2	Understand and apply basic algebraic properties (commutative and associative laws of addition and multiplication, distributive law of multiplication over addition, and identities and inverses).			
	M10	Understand and apply a systematic methodology or procedure (e.g., direct or indirect measurement, direct or indirect proof, inductive or deductive reasoning) to model and solve problems.			
1.03 Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.	M1	Perform operations fluently with positive and negative numbers, including decimals, ratios, percents, and fractions, and show reasoning to justify results.	H	H	H
	M2	Understand and apply basic algebraic properties (commutative and associative laws of addition and multiplication, distributive law of multiplication over addition, and identities and inverses).			
	M10	Understand and apply a systematic methodology or procedure (e.g., direct or indirect measurement, direct or indirect proof, inductive or deductive reasoning) to model and solve problems.			

North Carolina Mathematics Strands/Goals/Objectives Grade 7	National Essential Skills Study (NESS) Rankings		N.C. End-of- Grade Test	NESS	Priority
COMPETENCY GOAL 2: The learner will understand and use measurement involving two- and three-dimensional figures.					
2.01 Draw objects to scale and use scale drawings to solve problems.	M3	Use proportional reasoning to solve real-world problems.	M	H	H
	M13	Use the technique of dimensional analysis to convert units of measure (e.g., kilometers/hour to meters/minute) and apply ratios in real-world situations (e.g., scale drawings).			
2.02 Solve problems involving volume and surface area of cylinders, prisms, and composite shapes.	M26	Know the classification and properties of three-dimensional figures (prisms, rectangular solids, pyramids, right circular cylinders, cones, and spheres) and be able to compute the volume and surface area of common solids.	M	M	M
COMPETENCY GOAL 3: The learner will understand and use properties and relationships in geometry.					
3.01 Using three-dimensional figures: a) Identify, describe, and draw from various views (top, side, front, corner). b) Build from various views. c) Describe cross-sectional views.	M26	Know the classification and properties of three-dimensional figures (prisms, rectangular solids, pyramids, right circular cylinders, cones, and spheres) and be able to compute the volume and surface area of common solids.	H	M	H
	M66	Know how to sketch basic conic sections (e.g., circles, parabolas) by using their equations and solve systems of non-linear equations graphically.			
	M68	Apply transformation concepts to examine two-dimensional aspects or representations of three-dimensional figures (e.g., isometries and nets).			
3.02 Identify, define, and describe similar and congruent polygons with respect to angle measures, length of sides, and proportionality of sides.	M13	Use the technique of dimensional analysis to convert units of measure (e.g., kilometers/hour to meters/minute) and apply ratios in real-world situations (e.g., scale drawings).	H	H	H
	M15	Classify angles by measure (acute, right, obtuse, and straight) and understand angle relationships (supplementary, complementary, and vertical).			
	M54	Apply transformations (reflection, rotation, translation, and dilation) of 2-dimensional figures graphically to interpret, analyze, and illustrate the concepts of congruency, similarity, and symmetry.			

North Carolina Mathematics Strands/Goals/Objectives Grade 7	National Essential Skills Study (NESS) Rankings Rank		N.C. End-of- Grade Test	NESS	Priority
3.03 Use scaling and proportional reasoning to solve problems related to similar and congruent polygons.	M3	Use proportional reasoning to solve real-world problems.	H	H	H
	M13	Use the technique of dimensional analysis to convert units of measure (e.g., kilometers/hour to meters/minute) and apply ratios in real-world situations (e.g., scale drawings).			
	M54	Apply transformations (reflection, rotation, translation, and dilation) of 2-dimensional figures graphically to interpret, analyze, and illustrate the concepts of congruency, similarity, and symmetry.			
COMPETENCY GOAL 4: The learner will understand and use graphs and data analysis.					
4.01 Collect, organize, analyze, and display data (including box plots and histograms) to solve problems.	M21	Evaluate and employ accurate and appropriate procedures for statistical data collection, organization, analysis, and display including making estimates and predictions, critiquing data, and drawing inferences (e.g., using the normal curve and z-scores, line of best fit).	H	M	H
4.02 Calculate, use, and interpret the mean, median, mode, range, frequency distribution, and inter-quartile range for a set of data.	M14	Understand and apply measures of central tendency (mean, median, and mode, and representative sampling of a population).	H	H	H
	M31	Understand and apply measures of dispersion (range, mean deviation, variance, and standard deviation).			
	M43	Understand and apply the concepts and applications of quartiles (distributing groups into four equal sizes), percentiles (distributing individuals into 100 groups of equal size), and random distribution to understand and interpret data.			

North Carolina Mathematics Strands/Goals/Objectives Grade 7	National Essential Skills Study (NESS) Rankings Rank		N.C. End-of- Grade Test	NESS	Priority
4.03 Describe how the mean, median, mode, range, frequency distribution, and inter-quartile range of a set of data affect its graph.	M14	Understand and apply measures of central tendency (mean, median, and mode, and representative sampling of a population).	H	H	H
	M21	Evaluate and employ accurate and appropriate procedures for statistical data collection, organization, analysis, and display including making estimates and predictions, critiquing data, and drawing inferences (e.g., using the normal curve and z-scores, line of best fit).			
	M31	Understand and apply measures of dispersion (range, mean deviation, variance, and standard deviation).			
	M43	Understand and apply the concepts and applications of quartiles (distributing groups into four equal sizes), percentiles (distributing individuals into 100 groups of equal size), and random distribution to understand and interpret data.			
4.04 Identify outliers and determine their effect on the mean, median, mode, and range of a set of data.	M14	Understand and apply measures of central tendency (mean, median, and mode, and representative sampling of a population).	H	H	H
	M21	Evaluate and employ accurate and appropriate procedures for statistical data collection, organization, analysis, and display including making estimates and predictions, critiquing data, and drawing inferences (e.g., using the normal curve and z-scores, line of best fit).			
	M31	Understand and apply measures of dispersion (range, mean deviation, variance, and standard deviation).			

North Carolina Mathematics Strands/Goals/Objectives Grade 7	National Essential Skills Study (NESS) Rankings Rank		N.C. End-of- Grade Test	NESS	Priority
4.05 Solve problems involving two or more sets of data using appropriate statistical measures.	M14	Understand and apply measures of central tendency (mean, median, and mode, and representative sampling of a population).	H	H	H
	M21	Evaluate and employ accurate and appropriate procedures for statistical data collection, organization, analysis, and display including making estimates and predictions, critiquing data, and drawing inferences (e.g., using the normal curve and z-scores, line of best fit).			
	M31	Understand and apply measures of dispersion (range, mean deviation, variance, and standard deviation).			
	M43	Understand and apply the concepts and applications of quartiles (distributing groups into four equal sizes), percentiles (distributing individuals into 100 groups of equal size), and random distribution to understand and interpret data.			
COMPETENCY GOAL 5: The learner will demonstrate an understanding of linear relations and fundamental algebraic concepts.					
5.01 Identify, analyze, and create linear relations, sequences, and functions using symbols, graphs, tables, diagrams, and written descriptions.	M21	Evaluate and employ accurate and appropriate procedures for statistical data collection, organization, analysis, and display including making estimates and predictions, critiquing data, and drawing inferences (e.g., using the normal curve and z-scores, line of best fit).	H	M	H
	M37	Define and apply the properties of relations and functions (domain, range, function composition, and inverses) and use algebraic and graphic methods to determine if a relation is a function.			
	M56	Express a linear function ($f(x) = mx + b$) with the appropriate notation and determine the ordered pairs.			

North Carolina Mathematics Strands/Goals/Objectives Grade 7	National Essential Skills Study (NESS) Rankings Rank		N.C. End-of- Grade Test	NESS	Priority
5.02 Translate among different representations of algebraic expressions, equations and inequalities.	M7	Simplify and solve algebraic equations by identifying and using the correct order of operations and techniques necessary to carry out the solution.	H	H	H
	M11	Apply variables in expressions and equations to solve problems (i.e., write mathematical equations for given situation, create a mathematical model to understand the relationships between variables, or make connections between the structures of mathematically abstract concepts and the real world).			
	M27	Find the solution of linear equations and inequalities where the variable appears on either or both sides and in which one or both sides must be simplified before solving the equation (e.g., solve $x + 2(x - 3) = -4x + 5$ for x).			
5.03 Use and evaluate algebraic expressions, linear equations or inequalities to solve problems.	M7	Simplify and solve algebraic equations by identifying and using the correct order of operations and techniques necessary to carry out the solution.	H	H	H
	M11	Apply variables in expressions and equations to solve problems (i.e., write mathematical equations for given situation, create a mathematical model to understand the relationships between variables, or make connections between the structures of mathematically abstract concepts and the real world).			
	M27	Find the solution of linear equations and inequalities where the variable appears on either or both sides and in which one or both sides must be simplified before solving the equation (e.g., solve $x + 2(x - 3) = -4x + 5$ for x).			

North Carolina Mathematics Strands/Goals/Objectives Grade 7	National Essential Skills Study (NESS) Rankings		N.C. End-of- Grade Test	NESS	Priority
5.04 Develop fluency in the use of formulas to solve problems.	Rank		H	H	H
	M7	Simplify and solve algebraic equations by identifying and using the correct order of operations and techniques necessary to carry out the solution.			
	M11	Apply variables in expressions and equations to solve problems (i.e., write mathematical equations for given situation, create a mathematical model to understand the relationships between variables, or make connections between the structures of mathematically abstract concepts and the real world).			
M17	Understand the importance of random sampling and sample size in generating representative data.				

North Carolina Curriculum Matrix for Mathematics (2003 Revisions to Standard Course of Study)

North Carolina Mathematics Strands/Goals/Objectives Grade 8	National Essential Skills Study (NESS) Rankings Rank	N.C. End-of- Grade Test	NESS	Priority	
Strands: Number and Operations, Measurement, Geometry, Data Analysis and Probability, Algebra					
COMPETENCY GOAL 1: The learner will understand and compute with real numbers.					
1.01 Develop number sense for the real numbers. a) Define and use irrational numbers. b) Compare and order. c) Use estimates of irrational numbers in appropriate situations.	M35	Use the properties of real (rational and irrational) numbers and demonstrate understanding of ordering and absolute value.	M	M	M
	M39	Apply techniques to obtain a rational approximation or estimate of a quantity or number (including irrational numbers such as radicals).			
1.02 Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.	M1	Perform operations fluently with positive and negative numbers, including decimals, ratios, percents, and fractions, and show reasoning to justify results.	M	H	H
	M2	Understand and apply basic algebraic properties (commutative and associative laws of addition and multiplication, distributive law of multiplication over addition, and identities and inverses).			
	M10	Understand and apply a systematic methodology or procedure (e.g., direct or indirect measurement, direct or indirect proof, inductive or deductive reasoning) to model and solve problems.			
	M39	Apply techniques to obtain a rational approximation or estimate of a quantity or number (including irrational numbers such as radicals).			

North Carolina Mathematics Strands/Goals/Objectives Grade 8	National Essential Skills Study (NESS) Rankings		N.C. End-of- Grade Test	NESS	Priority
COMPETENCY GOAL 2: The learner will understand and use measurement concepts.					
2.01 Determine the effect on perimeter, area or volume when one or more dimensions of two- and three-dimensional figures are changed.	M9	Compute the perimeter and area of common two-dimensional figures.	M	H	H
	M13	Use the technique of dimensional analysis to convert units of measure (e.g., kilometers/hour to meters/minute) and apply ratios in real-world situations (e.g., scale drawings).			
	M18	Understand the properties of circles (radius, arc, diameter, chord, secant, and tangent) and apply circle quantities (lengths of line segments, angle measure within a circle, circumference, and area) in problem-solving situations.			
	M36	Simplify polynomials by performing operations (addition, subtraction, multiplication, and division) to simplify expressions (e.g., $(2a + 2) + (3a - 1) = 5a + 1$).			
2.02 Apply and use concepts of indirect measurement.	M10	Understand and apply a systematic methodology or procedure (e.g., direct or indirect measurement, direct or indirect proof, inductive or deductive reasoning) to model and solve problems.	M	H	H
COMPETENCY GOAL 3: The learner will understand and use properties and relationships in geometry.					
3.01 Represent problem situations with geometric models.	M9	Compute the perimeter and area of common two-dimensional figures.	M	H	H
	M13	Use the technique of dimensional analysis to convert units of measure (e.g., kilometers/hour to meters/minute) and apply ratios in real-world situations (e.g., scale drawings).			
	M26	Know the classification and properties of three-dimensional figures (prisms, rectangular solids, pyramids, right circular cylinders, cones, and spheres) and be able to compute the volume and surface area of common solids.			

North Carolina Mathematics Strands/Goals/Objectives Grade 8	National Essential Skills Study (NESS) Rankings		N.C. End-of- Grade Test	NESS	Priority
	Rank				
3.02 Apply geometric properties and relationships, including the Pythagorean theorem, to solve problems.	M9	Compute the perimeter and area of common two-dimensional figures.	M	H	H
	M18	Understand the properties of circles (radius, arc, diameter, chord, secant, and tangent) and apply circle quantities (lengths of line segments, angle measure within a circle, circumference, and area) in problem-solving situations.			
	M23	Apply the Pythagorean Theorem to right triangles.			
	M26	Know the classification and properties of three-dimensional figures (prisms, rectangular solids, pyramids, right circular cylinders, cones, and spheres) and be able to compute the volume and surface area of common solids.			
3.03 Identify, predict, and describe dilations in the coordinate plane.	M54	Apply transformations (reflection, rotation, translation, and dilation) of 2-dimensional figures graphically to interpret, analyze, and illustrate the concepts of congruency, similarity, and symmetry.	M	L	M
COMPETENCY GOAL 4: The learner will understand and use graphs and data analysis.					
4.01 Collect, organize, analyze, and display data (including scatterplots) to solve problems.	M21	Evaluate and employ accurate and appropriate procedures for statistical data collection, organization, analysis, and display including making estimates and predictions, critiquing data, and drawing inferences (e.g., using the normal curve and z-scores, line of best fit).	H	M	H
4.02 Approximate a line of best fit for a given scatterplot; explain the meaning of the line as it relates to the problem and make predictions.	M21	Evaluate and employ accurate and appropriate procedures for statistical data collection, organization, analysis, and display including making estimates and predictions, critiquing data, and drawing inferences (e.g., using the normal curve and z-scores, line of best fit).	H	M	H

North Carolina Mathematics Strands/Goals/Objectives Grade 8	National Essential Skills Study (NESS) Rankings		N.C. End-of- Grade Test	NESS	Priority
	Rank				
4.03 Identify misuses of statistical and numerical data.	M14	Understand and apply measures of central tendency (mean, median, and mode, and representative sampling of a population).	H	H	H
	M17	Understand the importance of random sampling and sample size in generating representative data.			
	M21	Evaluate and employ accurate and appropriate procedures for statistical data collection, organization, analysis, and display including making estimates and predictions, critiquing data, and drawing inferences (e.g., using the normal curve and z-scores, line of best fit).			
	M31	Understand and apply measures of dispersion (range, mean deviation, variance, and standard deviation).			
	M43	Understand and apply the concepts and applications of quartiles (distributing groups into four equal sizes), percentiles (distributing individuals into 100 groups of equal size), and random distribution to understand and interpret data.			
COMPETENCY GOAL 5: The learner will understand and use linear relations and functions.					
5.01 Develop an understanding of function. a) Translate among verbal, tabular, graphic, and algebraic representations of functions. b) Identify relations and functions as linear or nonlinear. c) Find, identify, and interpret the slope (rate of change) and intercepts of a linear relation. d) Interpret and compare properties of linear functions from tables, graphs, or equations.	M21	Evaluate and employ accurate and appropriate procedures for statistical data collection, organization, analysis, and display including making estimates and predictions, critiquing data, and drawing inferences (e.g., using the normal curve and z-scores, line of best fit).	H	M	H
	M37	Define and apply the properties of relations and functions (domain, range, function composition, and inverses) and use algebraic and graphic methods to determine if a relation is a function.			
	M46	Know the equation for the slope of a line and compute slope given the coordinates of two points.			
	M53	Express, graph, and interpret polynomial functions (linear, quadratic, cubic, etc.).			
	M56	Express a linear function ($f(x) = mx + b$) with the appropriate notation and determine the ordered pairs.			

North Carolina Mathematics Strands/Goals/Objectives Grade 8	National Essential Skills Study (NESS) Rankings Rank		N.C. End-of- Grade Test	NESS	Priority
5.02 Write an equation of a linear relationship given: two points, the slope and one point on the line, or the slope and y-intercept.	M44	Know the equation of a line and interpret graphically using the slope-intercept form ($y = mx+b$) and the point-slope form ($y-b = m(x-a)$).	H	L	M
	M46	Know the equation for the slope of a line and compute slope given the coordinates of two points.			
5.03 Solve problems using linear equations and inequalities; justify symbolically and graphically.	M7	Simplify and solve algebraic equations by identifying and using the correct order of operations and techniques necessary to carry out the solution.	H	H	H
	M27	Find the solution of linear equations and inequalities where the variable appears on either or both sides and in which one or both sides must be simplified before solving the equation (e.g., solve $x + 2(x - 3) = -4x + 5$ for x).			
	M44	Know the equation of a line and interpret graphically using the slope-intercept form ($y = mx+b$) and the point-slope form ($y-b = m(x-a)$).			
5.04 Solve equations using the inverse relationships of addition and subtraction, multiplication and division, squares and square roots, and cubes and cube roots.	M2	Understand and apply basic algebraic properties (commutative and associative laws of addition and multiplication, distributive law of multiplication over addition, and identities and inverses).	H	H	H
	M7	Simplify and solve algebraic equations by identifying and using the correct order of operations and techniques necessary to carry out the solution.			
	M20	Understand and apply the basic properties and laws of exponents and scientific notation to solve problems, including those with fractional, negative, and zero exponents.			
	M29	Factor a composite number into its prime components and use least common denominators or least common multiples to solve equations.			
	M33	Perform operations with radicals, such as addition, subtraction, and multiplication.			