



High School Mathematics Curriculum Framework

	Mathematics Curriculum Framework	I CAN Learn [®] Lesson Number	I CAN Learn [®] Lesson Title
NUMBER AND OPERATIONS			
M(N&O)–10–2	Demonstrates understanding of the relative magnitude of real numbers by solving problems involving ordering or comparing rational numbers, common irrational numbers (e.g., π), rational bases with integer exponents, square roots, absolute values, integers, or numbers represented in scientific notation using number lines or equality and inequality symbols. (State)	HA1-015	Graphing Real Numbers Using a Number Line
		HA1-020	Classifying Numbers into Subsets of Real Numbers
		HA1-035	Adding Real Numbers Using a Number Line
		HA1-025	Comparing and Ordering Real Numbers
		HA1-235	Applying Scientific Notation
*M(N&O)–10–4	Accurately solves problems that involve but are not limited to proportional relationships, percents, ratios, and rates. (The problems might be drawn from contexts outside of and within mathematics including those that cut across content strands or disciplines.) (State)	HA1-360	Expressing Ratios in Simplest Form and Solving Equations Involving Proportions
		HA1-150	Writing an Equation to Solve Word Problems
		HA1-155	Writing an Equation to Solve Consecutive Integer Problems
		HA1-160	Writing an Equation to Solve Distance, Rate, and Time Problems
		HA1-362	Solving Work Problems
		HA1-165	Using Equations to Solve Percent Problems
		HA1-170	Solving Percent of Change Problems
M(N&O)–10–6	Uses a variety of mental computation strategies to solve problems. Calculates benchmark perfect squares and related square roots (e.g., 1^2 , 2^2 , ..., 12^2 , 15^2 , 20^2 , 25^2 , 100^2 , 1000^2). Determines any whole number percentage of a number or any multiples of 100% up to 500%. Determines benchmark fractions of a number. (Local)	HA1-810	Simplifying Expressions Using the Multiplication Properties of Exponents
		HA1-480	Finding the Square Roots of Rational Numbers
		HA1-165	Using Equations to Solve Percent Problems
M(N&O)–10–7	Makes appropriate estimates in a given situation by determining the level of accuracy needed and analyzing the accuracy of results. Estimates tips, discounts, and tax and estimates the value of a non-perfect square root or cube root. (Local)	Throughout	
M(N&O)–10–8	Applies properties of numbers to solve problems, to simplify computations, or to compare and contrast the properties of numbers and number systems. (Local)	HA1-020	Classifying Numbers into Subsets of Real Numbers
		HA1-130	Identifying Postulates, Theorems, and Properties
GEOMETRY AND MEASUREMENT			
*M(G&M)–10–2	Creates formal proofs of propositions (e.g. angles, lines, circles, distance, midpoint and polygons including triangle ratios). (Local)	HGM-005	Applying Postulates and Undefined Terms

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		HGM-020	Using Inductive Reasoning
		HGM-027	Identifying Counterexamples and Using Proof by Contradiction
		HGM-030	Deductive Reasoning: Writing Conditional Statements
		HGM-035	Using Deductive Reasoning: Algebraic Proof
		HGM-080	Finding the Midpoint of a Segment
		HGM-085	Finding the Distance Between Two Points
*M(G&M)-10-2	Makes and defends conjectures, constructs geometric arguments, uses geometric properties, or uses theorems to solve problems involving angles, lines, polygons, circles, or right triangle ratios (sine, cosine, tangent) within mathematics or across disciplines or contexts (e.g., Pythagorean Theorem, Triangle Inequality Theorem). (State)	HGM-060	Examining Angle Relationships and Parallel Lines
		HGM-065	Proving Lines Parallel
		HGM-070	Identifying Relationships: Parallel Lines and Segments
		HGM-075	Examining Perpendicular Lines
		HGM-145	Classifying Triangles and Applying Angle Relationships
		HGM-215	Investigating Properties of the 30°-60°-90° Triangle
		HGM-220	Investigating Properties of the 45°-45°-90° Triangle
		HA1-515	Using the Pythagorean Theorem
		HA1-516	Applications of the Pythagorean Theorem
		HGM-160	Investigating Inequalities Involving One Triangle (Future Release)
		HGM-165	Investigating Inequalities Involving Two Triangles (Future Release)
		HGM-340	Exploring Trigonometric Ratios (Future Release)
		HGM-410	Applying Properties of Secants and Tangents (Future Release)
		HGM-412	Proving Statements Using Properties of Circles (Future Release)
*M(G&M)-10-4	Applies the concepts of congruency by solving problems on or off a coordinate plane involving reflections, translations, or rotations; or solves problems using congruency involving problems within mathematics or across disciplines or contexts. (State)	HGM-100	Exploring Translations (Future Release)
		HGM-105	Exploring Reflections (Future Release)
		HGM-110	Exploring Rotations (Future Release)
		HGM-115	Exploring Dilations (Future Release)
		HGM-120	Exploring Composite Transformations (Future Release)
		HGM-175	Identifying Corresponding Parts of Congruent Triangles (Future Release)
		HGM-180	Proving Triangles Congruent Using SSS and SAS (Future Release)
		HGM-190	Proving Triangles Congruent Using AAS and ASA (Future Release)
		HGM-195	Proving Triangles Congruent Using SSS, SAS, AAS and ASA (Future Release)
		HGM-200	Using Congruent Triangles (Future Release)
*M(G&M)-10-5	Applies concepts of similarity by solving problems within mathematics or across disciplines or contexts. (State)	HGM-295	Applying Properties of Similar Polygons (Future Release)
		HGM-310	Relating Perimeter and Area of Similar Polygons (Future Release)
		HGM-315	Investigating Triangle Similarity Theorems (Future Release)
		HGM-325	Exploring Proportionality Within a Triangle (Future Release)
*M(G&M)-10-6	Solves problems involving perimeter, circumference, or area of two-dimensional figures (including composite figures) or surface area or volume of three-dimensional figures (including composite figures) within mathematics or across disciplines or contexts. (State)	HA1-890	Using Models to Derive Formulas for Two-Dimensional Geometric Figures
		HA1-891	Using Models to Derive Formulas for Three-Dimensional Solids
*M(G&M)-10-7	Uses units of measure appropriately and consistently when solving problems across content strands; makes conversions within or across systems and makes decisions concerning an appropriate degree of accuracy in problem situations involving measurement in other GSEs. (State)	Throughout	

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*M(G&M)–10–9	Solves problems on and off the coordinate plane involving distance, midpoint, perpendicular and parallel lines, or slope. (State)	HGM-080	Finding the Midpoint of a Segment
		HGM-085	Finding the Distance Between Two Points
		HGM-060	Examining Angle Relationships and Parallel Lines
		HGM-065	Proving Lines Parallel
		HGM-070	Identifying Relationships: Parallel Lines and Segments
		HGM-075	Examining Perpendicular Lines
		HGM-090	Examining Slopes of Parallel and Perpendicular Lines
M(G&M)–10–10	Demonstrates conceptual understanding of spatial reasoning and visualization by sketching or using dynamic geometric software to generate three-dimensional objects from two-dimensional perspectives, or to generate two-dimensional perspectives from three-dimensional objects, or by solving related problems. (Local)	HA1-890	Using Models to Derive Formulas for Two-Dimensional Geometric Figures
		HA1-891	Using Models to Derive Formulas for Three-Dimensional Solids
		HA1-893	Constructing Solids from Different Perspectives
FUNCTIONS AND ALGEBRA			
*M(F&A)–10–1	Identifies, extends, and generalizes a variety of patterns (linear and nonlinear) represented by models, tables, sequences, or graphs to solve problems. (State)	HA1-447	Identifying Number Patterns
		HA1-448	Finding the nth Term of a Pattern
		HA1-402	Translating Among Multiple Representations of Functions
		HA1-892	Data Analysis Using the Graphing Calculator
		HA1-441	Applications of Functions and Relations Involving Distance, Rate, and Time
		HA1-442	Interpreting Graphs of Functions in Real-Life Situations
*M(F&A)–10–2	Demonstrates conceptual understanding of linear and nonlinear functions and relations (including characteristics of classes of functions) through an analysis of constant, variable, or average rates of change, intercepts, domain, range, maximum and minimum values, increasing and decreasing intervals and rates of change (e.g., the height is increasing at a decreasing rate); describes how change in the value of one variable relates to change in the value of a second variable; or works between and among different representations of functions and relations (e.g., graphs, tables, equations, function notation). (State)	HA1-955	Analyzing Linear Functions
		HA1-441	Applications of Functions and Relations Involving Distance, Rate, and Time
		HA1-442	Interpreting Graphs of Functions in Real-Life Situations
		HA1-935	Analyzing Graphs of Quadratic Functions
		HA1-402	Translating Among Multiple Representations of Functions
*M(F&A)–10–3	Demonstrates conceptual understanding of algebraic expressions by solving problems involving algebraic expressions, by simplifying expressions (e.g., simplifying polynomial or rational expressions, or expressions involving integer exponents, square roots, or absolute values), by evaluating expressions, or by translating problem situations into algebraic expressions. (State)	HA1-085	Simplifying Expressions Using the Properties of Real Numbers
		HA1-079	Using a Concrete Model to Simplify Algebraic Expressions
		HA1-090	Simplifying Expressions Using the Property of -1
		HA1-080	Simplifying and Evaluating Algebraic Expressions Containing Grouping Symbols
		HA1-920	Simplifying Algebraic Expressions Using the Distributive Property
		HA1-320	Simplifying Rational Expressions
		HA1-810	Simplifying Expressions Using the Multiplication Properties of Exponents
		HA1-815	Simplifying Expressions with Negative and Zero Exponents
		HA1-818	Simplifying Expressions Using the Division Properties of Exponents
		HA1-492	Simplifying Square and Cube Roots
		HA1-030	Using Opposites and Absolute Values

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*M(F&A)–10–4	Demonstrates conceptual understanding of equality by solving problems involving algebraic reasoning about equality; by translating problem situations into equations; by solving linear equations (symbolically and graphically) and expressing the solution set symbolically or graphically, or provides the meaning of the graphical interpretations of solution(s) in problem-solving situations; or by solving problems involving systems of linear equations in a context (using equations or graphs) or using models or representations. (State)	HA1-104	Translating Word Statements into Equations
		HA1-150	Writing an Equation to Solve Word Problems
		HA1-155	Writing an Equation to Solve Consecutive Integer Problems
		HA1-160	Writing an Equation to Solve Distance, Rate, and Time Problems
		HA1-362	Solving Work Problems
		HA1-165	Using Equations to Solve Percent Problems
		HA1-170	Solving Percent of Change Problems
		HA1-380	Graphing Linear Equations
		HA1-442	Interpreting Graphs of Functions in Real-Life Situations
		HA1-960	Real-World Applications of Linear Functions
		HA1-870	Solving Problems with Systems of Linear Equations and Inequalities
DATA, STATISTICS, AND PROBABILITY			
*M(DSP)–10–1	Interprets a given representation (e.g., box-and-whisker plots, scatter plots, bar graphs, line graphs, circle graphs, histograms, frequency charts) to make observations, to answer questions, to analyze the data to formulate or justify conclusions, critique conclusions, make predictions, or to solve problems within mathematics or across disciplines or contexts (e.g. media, workplace, social and environmental situations). (State)	HA1-545	Making a Frequency Distribution Table
		HA1-965	Determining the Best-Fitting Line
		HA1-885	Histograms and the Normal Distribution
		MPA-092	Reading and Interpreting Bar, Line, and Circle Graphs
		MPA-097	Constructing Box-and-Whisker Plots
		MPA-131	Interpreting and Creating Histograms
		MPA-132	Interpreting and Creating Scatterplots
*M(DSP)–10–2	Analyzes patterns, trends, or distributions in data in a variety of contexts by determining, using, or analyzing measures of central tendency (mean, median, or mode), dispersion (range or variation), outliers, quartile values, estimated line of best fit, regression line, or correlation (strong positive, strong negative, or no correlation) to solve problems; and solve problems involving conceptual understanding of the sample from which the statistics were developed. (State)	HA1-540	Finding the Mean, Median, and Mode from Data and Frequency Distribution Tables
		HA1-541	Analyzing Data Using the Measures of Central Tendency and the Range
		HA1-965	Determining the Best-Fitting Line
		HA1-555	Computing the Range, Variance, and Standard Deviation of a Set of Data
		HA1-877	Drawing Inferences and Making Predictions from Tables and Graphs
		HA1-892	Data Analysis Using the Graphing Calculator
*M(DSP)–10–3	Identifies or describes representations or elements of representations that best display a given set of data or situation, consistent with the representations required in M(DSP)–10–1. (State)	HA1-877	Drawing Inferences and Making Predictions from Tables and Graphs
*M(DSP)–10–4	Uses counting techniques to solve contextualized problems involving combinations or permutations (e.g., organized lists, tables, tree diagrams, models, Fundamental Counting Principle, or others). (State)	HA1-879	Applying Counting Techniques to Permutations and Combinations
		MPA-089	Using Tree Diagrams
		HA1-545	Making a Frequency Distribution Table
*M(DSP)–10–5	Solves problems involving experimental or theoretical probability. (State)	HA1-560	Determining Probability of an Event and Complementary Event from a Random

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			Experiment
		HA1-565	Solving Problems Involving Independent, Dependent, and Mutually Exclusive and Inclusive Events
M(DSP)-10-6	In response to a teacher or student generated question or hypothesis decides the most effective method (e.g., survey, observation, research, experimentation) and sampling techniques (e.g., random sample, stratified random sample) to collect the data necessary to answer the question; collects, organizes, and appropriately displays the data; analyzes the data to draw conclusions about the questions or hypotheses being tested while considering the limitations of the data that could effect interpretations; and when appropriate makes predications, asks new questions, or makes connections to real-world situations. (Local)	Grade level content under review	

**Indicates the GSEs that are tested on the NECAP.*

MM1-Fundamentals of Mathematics

MPA- Pre-Algebra

HA1-Algebra 1

HGM - Geometry (New course in development)

Note: Standards were taken from the Grade-Span Expectations for High School Mathematics document adopted by the New Hampshire State Board of Education in June 2006.