Trimester	Topic	North Carolina Mathematical Standards (Integrated Mathematics 1)
Trimester 1	**Solving Equations and Inequalities** • Linear Equations With Variables on Both Sides (1 day) • Linear Equations With Parentheses (2 days) • Analyzing the Number of Solutions to Linear Equations (2 days) • Linear Equations With Unknown Coefficients (2 days) • Multi-Step Inequalities (1 day) • Compound Inequalities (2 days)	**Solving Equations and Inequalities** • NC.M1.A-REI.3 Solve linear equations and inequalities in one variable. • NC.M1.A-CED.3 Create systems of linear equations and inequalities to model situations in context. • NC.M1.A-CED.1 Create equations and inequalities in one variable that represent linear, exponential, and quadratic relationships and use them to solve problems.

Trimester 1	**Linear Equations and Graphs** • Two-Variable Linear Equations Introduction (1 day) • x-intercepts and y-intercepts (1 day) • Slope (1 day) • Horizontal and Vertical Lines (1 day) • Introduction to Slope-Intercept Form (2 days) • Graphing Slope-Intercept Equations (1 day) • Writing Slope-Intercept Equations (2 days) • Point-Slope Form (1 day) • Standard Form (1 day) • Summary: Forms of Two-Variable Linear Equations (2 days)	**Linear Equations and Graphs** • NC.M1.A-CED.2 Create and graph equations in two variables to represent linear, exponential, and quadratic relationships between quantities. • NC.M1.A-CED.4 Solve for a quantity of interest in formulas used in science and mathematics using the same reasoning as in solving equations. • NC.M1.A-REI.1 Justify a chosen solution method and each step of the solving process for linear and quadratic equations using mathematical reasoning.
Trimester 1	**Functions** • Evaluating Functions (1 day) • Inputs and Outputs of a Function (1 day) • Functions and Equations (2 days) • Interpreting Function Notation (2 days) • Introduction to the Domain and Range of a Function (1 day) • Determining the Domain of a Function (1 day) • Recognizing Functions (1 day) • Maximum and Minimum Points (1 day)	**Functions** • NC.M1.F-IF.1 Build an understanding that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range by recognizing that: ➢ If f is a function and x is an element of its domain, then f(x) denotes the output of corresponding to the input x. ➢ The graph of f is the graph of the equation $y = f(x)$.

	• Intervals Where a Function is Positive, Negative, Increasing, or Decreasing (2 days) • Interpreting Features of Graphs (1 day) • Average Rate of Change (1 day) • Average Rate of Change Word Problems (2 days)	• NC.M1.F-IF.2 Use function notation to evaluate linear, quadratic, and exponential functions for inputs in their domains, and interpret statements that use function notation in terms of a context. • NC.MI.F-IF.3 Recognize that recursively and explicitly defined sequences are functions whose domain is a subset of the integers, the terms of an arithmetic sequence are a subset of the range of a linear function, and the terms of a geometric sequence are a subset of the range of an exponential function. • NC.M1.F-IF.6 Calculate and interpret the average rate of change over a specified interval for a function presented numerically, graphically, and/or symbolically.
Trimester 1	**Linear Word Problems** • Interpreting Linear Functions and Equations (2 days) • Comparing Linear Functions (2 days) • Constructing Linear Models for Real-World Relationships (2 days) • Linear Models Word Problems (3 days)	**Linear Word Problems** • NC.M1.F-LE.1 Identify situations that can be modeled with linear and exponential functions, and justify the most appropriate model for a situation based on the rate of change over equal intervals. • NC.M1.F-LE.3 Compare the end behavior of linear, exponential, and quadratic functions using graphs and tables to show that a quantity increasing exponentially eventually exceeds a quantity increasing linearly.
Trimester 2	**Systems of Equations** • Systems of Equations Overview (3 days) • Introduction to Systems of Equations (3 days) • Equivalent Systems of Equations and the Elimination Method (4 days) • Solving Systems of Equations With Substitution (4 days) • Manipulating Expressions With	**Systems of Equations** • NC.M1.A-REI.5 Explain why replacing one equation in a system of linear equations by the sum of that equation and a multiple of the other produces a system with the same solutions. • NC.M1.A-REI.6 Use tables, graphs, or algebraic methods (substitution and elimination) to find approximate or exact solutions to systems

	Unknown Variables (3 days) • Number of Solutions to Systems of Equations (2 days) • Solving Any System of Linear Equations (3 days) • Systems of Equations Word Problems (4 days)	of linear equations and interpret solutions in terms of a context.
Trimester 2	**Inequalities (Systems and Graphs)** • Checking Solutions of Two-Variable Inequalities (3 days) • Graphing Two-Variable Inequalities (3 days) • Modeling With Linear Inequalities (4 days)	**Inequalities (Systems and Graphs)** • NC.M1.A-REI.10 Understand that the graph of a two variable equation represents the set of all solutions to the equation. • NC.M1.A-REI.11 Build an understanding of why the x-coordinates of the points where the graphs of two linear, exponential, and/or quadratic equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$ and approximate solutions using graphing technology or successive approximations with a table of values. • NC.M1.A-REI.12 Represent the solutions of a linear inequality or a system of linear inequalities graphically as a region of the plane.
Trimester 2	**Scatterplots** • Creating and Interpreting Scatterplots (2 days) • Estimating With Trend Lines (2 days)	**Scatterplots** • NC.M1.S-ID.6 Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. • NC.M1.S-ID.6a Fit a least squares regression line to linear data using technology. Use the fitted function to solve problems. • NC.M1.S-ID.6b Assess the fit of a linear function by analyzing residuals. • NC.M1.S-ID.6c Fit a function to exponential data using technology. Use the fitted function to solve problems

Trimester 2	**Data Distributions** • Displays of Distributions (2 days) • Summarizing Center of Distributions (Central Tendency) (2 days) • Box and Whisker Plots (2 days) • Comparing Distributions (2 days)	**Data Distributions** • NC.M1.S-ID.1 Use technology to represent data with plots on the real number line (histograms, and box plots). • NC.M1.S-ID.2 Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets. Interpret differences in shape, center, and spread in the context of the data sets. • NC.M1.S-ID.3 Examine the effects of extreme data points (outliers) on shape, center, and/or spread.
Trimester 2	**Two-Way Tables** • Two-Way Frequency Tables (2 days) • Two-Way Relative Frequency Tables (2 days)	**Two-Way Tables** • NC.M1.S-ID.1 Use technology to represent data with plots on the real number line (histograms, and box plots).
Trimester 3	**Sequences** • Introduction to Arithmetic Sequences (1 day) • Constructing Arithmetic Sequences (2 days) • Introduction to Geometric Sequences (1 day) • Constructing Geometric Sequences (2 days) • Modeling With Sequences (3 days)	**Sequences** • NC.MI.F-IF.3 Recognize that recursively and explicitly defined sequences are functions whose domain is a subset of the integers, the terms of an arithmetic sequence are a subset of the range of a linear function, and the terms of a geometric sequence are a subset of the range of an exponential function.

	• General Sequences (3 days)	
Trimester 3	**Rational Exponents and Radicals** • Exponent Properties Review (2 days) • Radicals (2 days) • Rational Exponents Introduction (2 days) • Properties of Exponents (Rational Exponents) (2 days) • Advanced Exponent and Radical Evaluation (2 days) • Simplifying Square Roots (2 days) • Simplifying Radicals (Higher Index Roots) (3 days)	**Rational Exponents and Radicals** • NC.M1.N-RN.2 Rewrite algebraic expressions with integer exponents using the properties of exponents.
Trimester 3	**Exponential Growth and Decay** • Exponential vs. Linear Growth (2 days) • Exponential Expressions (2 days) • Graphs of Exponential Growth (2 days) • Exponential vs. Linear Growth Over Time (2 days) • Exponential Decay (3 days) • Exponential Functions From Tables and Graphs (2 days)	**Exponential Growth and Decay** • NC.M1.F-LE.1 Identify situations that can be modeled with linear and exponential functions, and justify the most appropriate model for a situation based on the rate of change over equal intervals. • NC.M1.F-LE.3 Compare the end behavior of linear, exponential, and quadratic functions using graphs and tables to show that a quantity increasing exponentially eventually exceeds a quantity increasing linearly or quadratically. • NC.M1.F-LE.5 Interpret the parameters $a$and b in a linear function $f(x)=ax+b$ or an exponential function $g(x)=ab^x$ in terms of a context.
Trimester 3	**Analytic Geometry** • Distance and Midpoints (2 days) • Dividing Line Segments (2 days) • Problem Solving With Distance on the Coordinate Plane (3 days) • Parallel and Perpendicular Lines on the Coordinate Plane (3 days) • Equations of Parallel and	**Analytic Geometry** • NC.M1.G-GPE.4 Use coordinates to solve geometric problems involving polygons algebraically. ➢ Use coordinates to compute perimeters of polygons and areas of triangles and rectangles. ➢ Use coordinates to verify

	Perpendicular Lines (3 days) • Coordinate Plane Proofs (2 days)	algebraically that a given set of points produces a particular type of triangle or quadrilateral. • NC.M1.G-GPE.5 Use coordinates to prove the slope criteria for parallel and perpendicular lines and use them to solve problems. ➢ Determine if two lines are parallel, perpendicular, or neither. ➢ Find the equation of a line parallel or perpendicular to a given line that passes through a given point. • NC.M1.G-GPE.6 Use coordinates to find the midpoint or endpoint of a line segment.