

Trimester	Topic	North Carolina Mathematical Standards Pre-Algebra 7
Trimester 1	<p>Arithmetic Properties</p> <ul style="list-style-type: none"> • Place Value (1 day) • Rounding Whole Numbers (1 day) • Regrouping Whole Numbers (1 day) • Order of Operations (1 day) • Arithmetic Properties (1 day) • Distributive Property (1 day) • Rational and Irrational Numbers (2 days) 	<p>Arithmetic Properties</p> <ul style="list-style-type: none"> • NC.7.NS.1 Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers, using the properties of operations, and describing real world contexts using sums and differences. • NC.7.NS.2 Apply and understand previous understandings of multiplication and division. <ul style="list-style-type: none"> ➤ Understand that a rational number is any number that can be written as a quotient of integers with a non-zero divisor. ➤ Apply properties of operations as strategies, including the standard algorithms, to multiply and divide rational numbers and describe the product and quotient in real-world contexts. • NC.7.NS.3 Solve real-world and mathematical problems involving numerical expressions with rational numbers using the four operations.
Trimester 1	<p>Factors and Multiples</p> <ul style="list-style-type: none"> • Divisibility Tests (2 days) • Factors and Multiples (1 day) • Prime Numbers (1 day) • Prime Factorization (1 day) • Least Common Multiple (1 day) • Greatest Common Factor (1 day) 	<p>Factors and Multiples</p> <ul style="list-style-type: none"> • NC.7.EE.1 Apply properties of operations as strategies to: <ul style="list-style-type: none"> ➤ Add, subtract, and expand linear expressions with rational coefficients. ➤ Factor linear expressions with an integer greatest common factor.

<p>Trimester 2</p>	<p>Reading and Interpreting Data/Statistics and Probability</p> <ul style="list-style-type: none"> • Representing Data (1 day) • Stem & Leaf Plots (1 day) • Picture Graphs, Bar Graphs, and Histograms (1 day) • Frequency Tables and Dot Plots (1 day) • Number Patterns (1 day) • Basic Probability (1 day) • Probability Models (1 day) • Compound Events and Sample Spaces (2 days) • Comparing and Sampling Populations (1 day) 	<p>Reading and Interpreting Data/Statistics and Probability</p> <ul style="list-style-type: none"> • NC.7.SP.1 Understand that statistics can be used to gain information about a population by: <ul style="list-style-type: none"> ➤ Recognizing that generalizations about a population from a sample are valid only if the sample is representative of that population. ➤ Using random sampling to produce representative samples to support valid inferences • NC.7.SP.5 Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. • NC.7.SP.8 Determine probabilities of compound events using organized lists, tables, tree diagrams, and simulation. <ul style="list-style-type: none"> ➤ Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. ➤ For an event described in everyday language, identify the outcomes in the sample space that compose the event, when the sample space is represented using organized lists, tables, and tree diagrams. ➤ Design and use a simulation to generate frequencies for compound events.
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<p>Trimester 1</p>	<p>Measurement</p> <ul style="list-style-type: none"> • Area of Rectangles (1 day) • Perimeter (1 day) • Volume of a Rectangular Prism (1 day) 	<p>Measurement</p> <ul style="list-style-type: none"> • NC.7.G.6 Solve real-world and mathematical problems involving: <ul style="list-style-type: none"> ➤ Area and perimeter of two-dimensional objects composed of triangles, quadrilaterals, and polygons ➤ Volume and surface area of pyramids, prisms, or three-dimensional objects composed of cubes, pyramids, and right prisms.
<p>Trimester 1</p>	<p>Fractions</p> <ul style="list-style-type: none"> • Fractions Introduction (1 day) • Fractions on the Number Line (1 day) • Equivalent Fractions (1 day) • Comparing Fractions (1 day) • Common Denominators (1 day) • Decomposing Fractions (2 days) • Adding and Subtracting Fractions With Like Denominators (1 day) • Mixed Numbers (1 day) • Adding and Subtracting Fractions With Unlike Denominators (1 day) • Adding and Subtracting Mixed Numbers With Unlike Denominators (1 day) • Adding and Subtracting Fractions Word Problems (2 days) • Multiplying Whole Numbers and Fractions (1 day) • Multiplication as Scaling (1 day) • Multiplying Fractions (1 day) • Multiplying Mixed Numbers (1 day) • Multiplying Fractions Word Problems (2 days) • Fractions as Division (1 day) • Dividing Unit Fractions and Whole Numbers (1 day) • Dividing Fractions by Fractions (1 	<p>Fractions</p> <ul style="list-style-type: none"> • NC.7.NS.1 Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers, using the properties of operations, and describing real world contexts using sums and differences. • NC.7.NS.2 Apply and understand previous understandings of multiplication and division. <ul style="list-style-type: none"> ➤ Understand that a rational number is any number that can be written as a quotient of integers with a non-zero divisor. ➤ Apply properties of operations as strategies, including the standard algorithms, to multiply and divide rational numbers and describe the product and quotient in real-world contexts. • NC.7.EE.3 Solve multi-step real-world and mathematical problems posed with rational numbers in algebraic expressions. <ul style="list-style-type: none"> ➤ Apply properties of operations to calculate with positive and negative numbers in any form. ➤ Convert between different forms of a number and equivalent forms of the expression as appropriate.

	<p>day)</p> <ul style="list-style-type: none"> Dividing Fractions Word Problems (2 days) 	
Trimester 2	<p>Decimals</p> <ul style="list-style-type: none"> Introduction to Decimals (1 day) Decimals on the Number Line (1 day) Rounding Decimals (1 day) Comparing Decimals (2 days) Rewriting Decimals as Fractions (2 days) Adding Decimals (1 day) Subtracting Decimals (1 day) Adding and Subtracting Decimals Word Problems (2 days) Multiplying Decimals (1 day) Dividing Decimals (1 day) 	<p>Decimals</p> <ul style="list-style-type: none"> NC.6.NS.3 Apply and extend previous understandings of decimals to develop and fluently use the standard algorithms for addition, subtraction, multiplication, and division of decimals
Trimester 2	<p>Negative Numbers and Coordinate Plane</p> <ul style="list-style-type: none"> Introduction to Negative Numbers (1 day) Order Negative Numbers (1 day) Number Opposites (1 day) Absolute Value (2 days) Introduction to Adding Negative Numbers (2 days) Introduction to Subtracting Negative Numbers (2 days) Adding and Subtracting Negative Numbers (2 days) Multiplying and Dividing Negative Numbers (1 day) Coordinate Plane (1 day) 	<p>Negative Numbers and Coordinate Plane</p> <ul style="list-style-type: none"> NC6.NS.5 Understand and use rational numbers to: <ul style="list-style-type: none"> Describe quantities having opposite directions or values. Represent quantities in real world contexts, explaining the meaning of zero in each situation. Understand the absolute value of a rational number as its distance from zero on the number line to: <ul style="list-style-type: none"> Interpret absolute value as magnitude for a positive or negative quantity in a real world context. Distinguish comparisons of absolute value from statements about order. NC.6.NS.6 Understand rational numbers as points on the number line and as ordered pairs on a coordinate plane. On a number line:

		<ul style="list-style-type: none"> ➤ Recognize opposite signs of numbers as indicating locations on opposite sides of 0 and that the opposite of the opposite of a number is the number itself. ➤ Find and position rational numbers on a horizontal or vertical number line. <p>On a coordinate plane:</p> <ul style="list-style-type: none"> ➤ Understand signs of numbers in ordered pairs as indicating locations in quadrants. ➤ Recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. ➤ Find and position pairs of rational numbers on a coordinate plane. <ul style="list-style-type: none"> • NC.6.NS.8 Solve real world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.
Trimester 2	<p>Ratios, Rates, and Proportions</p> <ul style="list-style-type: none"> • Introduction to Ratios (1 day) • Visualize Ratios (1 day) • Ratio Application (3 days) • Introduction to Rates (1 day) • Introduction to Percent (1 day) • Percent, Fraction, and Decimal Conversions (3 days) • Percent Problems (3 days) • Percent Word Problems (3 days) • Constant of Proportionality (3 days) • Identifying Proportional Relationships (2 days) • Writing and Solving Proportions (3 days) 	<p>Ratios, Rates, and Proportions</p> <ul style="list-style-type: none"> • NC.7.RP.1 Compute unit rates associated with ratios of fractions to solve real-world and mathematical problems. • NC.7.RP.2 Recognize and represent proportional relationships between quantities. <ul style="list-style-type: none"> ➤ Understand that a proportion is a relationship of equality between ratios. <ul style="list-style-type: none"> ▪ Represent proportional relationships using tables and graphs. ▪ Recognize whether ratios are in a proportional relationship using tables and graphs.

		<ul style="list-style-type: none"> ▪ Compare different proportional relationships using tables, graphs, equations, and verbal descriptions. ➤ Identify the unit rate (constant of proportionality) within two quantities in a proportional relationship using tables, graphs, equations, and verbal descriptions. ➤ Create equations and graphs to represent proportional relationships. ➤ Use a graphical representation of a proportional relationship in context to: <ul style="list-style-type: none"> ▪ Explain the meaning of any point (x,y) ▪ Explain the meaning of $(0,0)$ and why it is included. ▪ Understand that the y-coordinate of the ordered pair $(1,r)$ corresponds to the unit rate and explain its meaning. • NC.7.RP.3 Use scale factors and unit rates in proportional relationships to solve ratio and percent problems.
Trimester 3	<p>Equations, Expressions, and Inequalities</p> <ul style="list-style-type: none"> • Introduction to Variables (1 day) • Substituting and Evaluating Expressions (3 days) • Expression Value Intuition (2 days) • Constructing Numeric Expressions (2 days) • Evaluating Expressions Word Problems (3 days) • Writing Algebraic Expressions Introduction (2 days) • Writing Basic Algebraic Expressions Word Problems (2 	<p>Equations, Expressions, and Inequalities</p> <ul style="list-style-type: none"> • NC.7.EE.1 Apply properties of operations as strategies to: <ul style="list-style-type: none"> ➤ Add, subtract, and expand linear expressions with rational coefficients. ➤ Factor linear expressions with an integer GCF. • NC.7.EE.2 Understand that equivalent expressions can reveal real-world and mathematical relationships. Interpret the meaning of the parts of each expression in context. • NC.7.EE.3

	<p>days)</p> <ul style="list-style-type: none"> • Algebraic Equations Basics (3 days) • One-Step Equations Intuition (2 days) • One Step Addition and Subtraction Equations (3 days) • One-Step Multiplication and Division Equations (3 days) • One-Step Equation Word Problems (3 days) • Inequalities: Greater than and less than basics (2 days) • Two-Step Equations Introduction (2 days) • Dependent and Independent Variables (3 days) 	<p>Solve multi-step real-world and mathematical problems posed with rational numbers in algebraic expressions.</p> <ul style="list-style-type: none"> ➤ Apply properties of operations to calculate with positive and negative numbers in any form. ➤ Convert between different forms of a number and equivalent forms of the expression as appropriate. <ul style="list-style-type: none"> • NC.7.EE.4 Use variables to represent quantities to solve real-world or mathematical problems. <ul style="list-style-type: none"> ➤ Construct equations to solve problems by reasoning about the quantities. <ul style="list-style-type: none"> ▪ Fluently solve multistep equations with the variable on one side, including those generated by word problems. ▪ Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. ▪ Interpret the solution in context. ➤ Construct inequalities to solve problems by reasoning about the quantities. <ul style="list-style-type: none"> ▪ Fluently solve multi-step inequalities with the variable on one side, including those generated by word problems. ▪ Compare an algebraic solution process for equations and an algebraic solution process for inequalities. ▪ Graph the solution set of the inequality and interpret
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		in context.
Trimester 3	<p>Exponents, Radicals, and Scientific Notation</p> <ul style="list-style-type: none"> • Exponents (3 days) • Square Roots (2 days) • Cube Roots (2 days) • Exponent Properties (2 days) • Negative Exponents (2 days) • Scientific Notation (3 days) • Orders of Magnitude (2 days) • Computing With Scientific Notation (3 days) 	<p>Exponents, Radicals, and Scientific Notation</p> <ul style="list-style-type: none"> • NC.8.EE.1 Develop and apply the properties of integer exponents to generate equivalent numerical expressions. • NC.8.EE.2 Use square root and cube root symbols to: <ul style="list-style-type: none"> ➤ Represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. ➤ Evaluate square roots of perfect squares and cube roots of perfect cubes for positive numbers less than or equal to 400. • NC.8.EE.3 Use numbers expressed in scientific notation to estimate very large or very small quantities and to express how many times as much one is than the other. • NC.8.EE.4 Perform multiplication and division with numbers expressed in scientific notation to solve real-world problems, including problems where both decimal and scientific notation are used.