

Sterling Middle School Scope and Sequence

Internal Document



CC8 MATH



Block 1: Identity & Character	
Central Concepts	Supporting Concepts
<ul style="list-style-type: none"> ○ Chapter 2 Transformations ○ Chapter 1 Equations ○ Chapter 3 Angles and Triangles 	<ul style="list-style-type: none"> ○ 2.1 Congruent Figures ○ 2.2 Translations ○ 2.3 Reflections ○ 2.4 Rotations ○ 2.5 Similar Figures ○ 2.6 Perimeter and Areas of Similar Figures ○ 2.7 Dilations ○ 1.1 Solving Simple Equations ○ 1.2 Solving Multistep Equations ○ 1.3 Solving Equations with Variables on Both Sides ○ 1.4 Rewriting Equations and Formulas ○ 3.1 Parallel Lines and Transversals ○ 3.2 Angles of Triangles ○ 3.3 Angles of Polygons ○ 3.4 Using Similar Triangles
Essential Question(s)	NC State Standards Alignment
<p>Chapter 2 Transformations How can you identify congruent triangles? How can you arrange tiles to make a tessellation? How can you use reflections to classify a frieze pattern? What are the three basic ways to move an object in a plane? How can you use proportions to help make decisions in art, design, and magazine layouts? How do changes in dimensions of similar geometric figures affect the perimeters and the areas of the figures? How can you enlarge or reduce a figure in the coordinate plane?</p> <p>Chapter 1 Equations How can you use inductive reasoning to discover rules in mathematics? How can you test a rule? How can you solve a multi-step equation? How can you check the reasonableness of your solution? How can you solve an equation that has variables on both sides? How can you use a formula for one measurement to write a formula for a different measurement?</p> <p>Chapter 3 Angles and Triangles How can you describe angles formed by parallel lines and transversals? How can you describe the relationships among the angles of a triangle? How can you find the sum of the interior angle measures and the sum of the exterior angle measures of a polygon? How can you use angles to tell whether triangles are similar?</p>	<ul style="list-style-type: none"> ○ Equations 8.EE.7a, 8.EE.7b ○ Transformations 8.G.1, 8.G.2, 8.G.3, 8.G.4 ○ Angles and Triangles 8.G.5

Block 2: Systems & Organizations	
Central Concepts	Supporting Concepts
<ul style="list-style-type: none"> ○ Chapter 4 Graphing and Writing Linear Equations ○ Chapter 5 Systems of Linear Equations ○ Chapter 6 Functions 	<ul style="list-style-type: none"> ○ 4.1 Graphing Linear Equations (8.EE.5) ○ 4.2 Slope of a Line (8.EE.6) ○ 4.3 Graphing Proportional Relationships (8.EE.5, 8.EE.6) ○ 4.4 Graphing Linear Equations in Slope-Intercept Form (8.EE.6) ○ 4.5 Graphing Linear Equations in Standard Form (8.EE.6) ○ 4.6 Writing Equations in Slope-Intercept Form (8.F.4) ○ 4.7 Writing Equations in Point-Slope Form (8.F.4) ○ 5.1 Solving Systems of Linear Equations by Graphing ○ 5.2 Solving Systems of Linear Equations by Substitution ○ 5.3 Solving Systems of Linear Equations by Elimination ○ 5.4 Solving Special Systems of Linear Equations ○ 6.1 Relations and Functions ○ 6.2 Representations of Functions ○ 6.3 Linear Functions ○ 6.4 Comparing Linear and Nonlinear Functions ○ 6.5 Analyzing and Sketching Graphs
Central Question(s)	NC State Standards Alignment
<p>Chapter 4 Graphing and Writing Linear Equations How can you recognize a linear equation? How can you draw its graph? How can you use the slope of a line to describe the line? How can you describe the graph of the equation $y = mx$? How can you describe the graph of the equation $y = mx + b$? How can you describe the graph of the equation $ax + by = c$? How can you write an equation of a line when you are given the slope and the y-intercept of the line? How can you write an equation of a line when you are given the slope and a point on the line?</p> <p>Chapter 5 Systems of Linear Equations How can you solve a system of linear equations? How can you use substitution to solve a system of linear equations? How can you use elimination to solve a system of linear equations? Can a system of linear equations have no solution and/or many solutions?</p> <p>Chapter 6 Functions How can you use a mapping diagram to show the relationship between two data sets? How can you represent a function in different ways? How can you use a function to describe a linear pattern? How can you recognize when a pattern in real life is linear or nonlinear? How can you use a graph to represent relationships between quantities without using numbers?</p>	<ul style="list-style-type: none"> ○ Graphing and Writing Linear Equations 8.EE.5, 8.EE.6, 8.F.4 ○ Systems of Linear Equations 8.EE.7, 8.EE.8 ○ Functions 8.F.1, 8.F.2, 8.F.3, 8.F.4, 8.F.5

Block 3: Connections & Associations	
Central Concepts	Supporting Concepts
<ul style="list-style-type: none"> ○ Chapter 7 Real Numbers and the Pythagorean Theorem ○ Chapter 8 Volume and Similar Solids 	<ul style="list-style-type: none"> ○ 7.1 Finding Square Roots ○ 7.2 Finding Cube Roots ○ 7.3 The Pythagorean Theorem ○ 7.4 Approximating Square Roots ○ 7.5 Using the Pythagorean Theorem ○ 8.1 Volumes of Cylinders ○ 8.2 Volumes of Cones ○ 8.3 Volumes of Spheres ○ 8.4 Surface Areas and Volumes of Similar Solids
Central Question(s)	NC State Standards Alignment
<p>Chapter 7 Real Numbers and the Pythagorean Theorem How can you find the dimensions of a square or a circle when you are given its area? How is the cube root of a number different from the square root of a number? How are the lengths of the sides of a right triangle related? How can you find decimal approximations of square roots that are not rational? In what other ways can you use the Pythagorean Theorem?</p> <p>Chapter 8 Volume and Similar Solids How can you find the volume of a cylinder? How can you find the volume of a cone? How can you find the volume of a sphere? When the dimensions of a solid increase by a factor of k, how does the surface area change? How does the volume change?</p>	<ul style="list-style-type: none"> ○ Real Numbers and the Pythagorean Theorem 8.NS.1, 8.NS.2, 8.EE.2, 8.G.6, 8.G.7, 8.G.8 ○ Volume and Similar Solids 8.G.9

Block 4: Explorations & Discoveries	
Central Concepts	Supporting Concepts
<ul style="list-style-type: none"> ○ Chapter 9 Data Analysis and Displays ○ Chapter 10 Exponents and Scientific Notation 	<ul style="list-style-type: none"> ○ 9.1 Scatter Plot ○ 9.2 Lines of Fit ○ 9.3 Two-Way Tables ○ 9.4 Choosing a Data Display ○ ○ 10.1 Exponents (8.EE.1) ○ 10.2 Product of Powers Property (8.EE.1) ○ 10.3 Quotient of Powers Property (8.EE.1) ○ 10.4 Zero and Negative Exponents (8.EE.1) ○ 10.5 Reading Scientific Notation (8.EE.3, 8.EE.4) ○ 10.6 Writing Scientific Notation (8.EE.3, 8.EE.4) ○ 10.7 Operations in Scientific Notation (8.EE.3, 8.EE.4)
Central Question(s)	NC State Standards Alignment
<p>Chapter 9 Data Analysis and Displays How can you construct and interpret a scatter plot? How can you use data to predict an event? How can you read and make a two-way table? How can you display data in a way that helps you make decisions?</p> <p>Chapter 10 Exponents and Scientific Notation How can you use exponents to write numbers? How can you use inductive reasoning to observe patterns and write general rules involving properties of exponents? How can you divide two powers that have the same base? How can you evaluate a nonzero number with an exponent of zero? How can you evaluate a nonzero number with a negative integer exponent? How can you read numbers that are written in scientific notation? How can you write a number in scientific notation? How can you perform operations with numbers written in scientific notation?</p>	<ul style="list-style-type: none"> ○ Data Analysis and Displays 8.SP.1, 8.SP.2, 8.SP.3, 8.SP.4 ○ Exponents and Scientific Notation 8.EE.1, 8.EE.3, 8.EE.4