

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</p> <p>How can you identify congruent triangles?</p> <p>How can you arrange tiles to make a tessellation?</p> <p>How can you use reflections to classify a frieze pattern?</p> <p>What are the three basic ways to move an object in a plane?</p> <p>How can you use proportions to help make decisions in art, design, and magazine layouts?</p> <p>How do changes in dimensions of similar geometric figures affect the perimeters and the areas of the figures?</p> <p>How can you enlarge or reduce a figure in the coordinate plane?</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
<p>Chapter 1 Equations</p> <p>How can you use inductive reasoning to discover rules in mathematics?</p> <p>How can you test a rule?</p> <p>How can you solve a multi-step equation?</p> <p>How can you check the reasonableness of your solution?</p> <p>How can you solve an equation that has variables on both sides?</p> <p>How can you use a formula for one measurement to write a formula for a different measurement?</p>	
<p>Chapter 3 Angles and Triangles</p> <p>How can you describe angles formed by parallel lines and transversals?</p> <p>How can you describe the relationships among the angles of a triangle?</p> <p>How can you find the sum of the interior angle measures and the sum of the exterior angle measures of a polygon?</p> <p>How can you use angles to tell whether triangles are similar?</p>	

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</p> <p>How can you recognize a linear equation? How can you draw its graph?</p> <p>How can you use the slope of a line to describe the line?</p> <p>How can you describe the graph of the equation $y = mx$?</p> <p>How can you describe the graph of the equation $y = mx + b$?</p> <p>How can you describe the graph of the equation $ax + by = c$?</p> <p>How can you write an equation of a line when you are given the slope and the y- intercept of the line?</p> <p>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</p> <p>How can you solve a system of linear equations?</p> <p>How can you use substitution to solve a system of linear equations?</p> <p>How can you use elimination to solve a system of linear equations?</p> <p>Can a system of linear equations have no solution and/or many solutions?</p> <p>Chapter 6 Functions</p> <p>How can you use a mapping diagram to show the relationship between two data sets?</p> <p>How can you represent a function in different ways? How can you use a function to describe a linear pattern?</p> <p>How can you recognize when a pattern in real life is linear or nonlinear?</p> <p>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</p> <p>How can you find the dimensions of a square or a circle when you are given its area?</p> <p>How is the cube root of a number different from the square root of a number?</p> <p>How are the lengths of the sides of a right triangle related?</p> <p>How can you find decimal approximations of square roots that are not rational?</p> <p>In what other ways can you use the Pythagorean Theorem?</p> <p>Chapter 8 Volume and Similar Solids</p> <p>How can you find the volume of a cylinder?</p> <p>How can you find the volume of a cone?</p> <p>How can you find the volume of a sphere?</p> <p>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</p> <p>How can you construct and interpret a scatter plot?</p> <p>How can you use data to predict an event?</p> <p>How can you read and make a two-way table?</p> <p>How can you display data in a way that helps you make decisions?</p> <p> </p> <p>Chapter 10 Exponents and Scientific Notation</p> <p>How can you use exponents to write numbers?</p> <p>How can you use inductive reasoning to observe patterns and write general rules involving properties of exponents?</p> <p>How can you divide two powers that have the same base?</p> <p>How can you evaluate a nonzero number with an exponent of zero?</p> <p>How can you evaluate a nonzero number with a negative integer exponent?</p> <p>How can you read numbers that are written in scientific notation?</p> <p>How can you write a number in scientific notation?</p> <p>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