

West Deptford Middle School Curriculum Map  
Math - Grade 8

Unit/ Duration	Essential Questions	Content	Skills	Assessment	Standards
Unit 1: Geometry  7 Weeks	<ul style="list-style-type: none"> <li>• How can geometric/algebraic relationships best be represented and verified?</li> <li>• How can measurements be used to solve problems?</li> <li>• How can physical models be used to clarify mathematical relationships?</li> <li>• How can spatial relationships be described by careful use of geometric language?</li> <li>• How do geometric relationships help to solve problems and/or make</li> </ul>	<ul style="list-style-type: none"> <li>• Definition of corresponding parts of congruent figures and will be able to name congruent figures accordingly.</li> <li>• Definitions of translations, reflections and rotations.</li> <li>• Definitions of vertical angles, alternate interior angles, alternate exterior angles, corresponding angles.</li> <li>• Properties of polygons and be able to apply algebraic equations to find missing measures.</li> </ul>	<ul style="list-style-type: none"> <li>• Find corresponding parts of congruent figures.</li> <li>• Find missing angle measures within polygons using algebraic equations.</li> <li>• Identify and find the measure of angles formed by intersecting lines (vertical angles, alternate interior angles, alternate exterior angles, and corresponding angles).</li> <li>• Transform figures on the coordinate plane using translations,</li> </ul>	<ul style="list-style-type: none"> <li>• Exit Tickets</li> <li>• Homework</li> <li>• Informal/formal classroom and classwork assessments</li> <li>• Notebook</li> <li>• Quizzes</li> <li>• Renaissance Learning</li> <li>• Test</li> </ul>	<ul style="list-style-type: none"> <li>• MA.8.CCSS.Math.Content.8.G.A.1</li> <li>• MA.8.CCSS.Math.Content.8.G.A.1a</li> <li>• MA.8.CCSS.Math.Content.8.G.A.1b</li> <li>• MA.8.CCSS.Math.Content.8.G.A.1c</li> <li>• MA.8.CCSS.Math.Content.8.G.A.2</li> <li>• MA.8.CCSS.Math.Content.8.G.A.3</li> <li>• MA.8.CCSS.Math.Content.8.G.A.4</li> <li>• MA.8.CCSS.Math.Content.8.G.A.5</li> <li>• CPI 9.1.8.C.1</li> </ul>

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	<p>sense of phenomena?</p> <ul style="list-style-type: none"> <li>• How do transformations play a part in your life?</li> <li>• What situations can be analyzed using transformations and symmetries?</li> </ul>	<ul style="list-style-type: none"> <li>• Collaboration and teamwork enable individuals or groups to achieve common goals with greater efficiency.</li> </ul>	<p>reflections, and rotations.</p> <ul style="list-style-type: none"> <li>• Use algebraic equations to find measures in angle relationships (including complementary and supplementary angles).</li> </ul>		
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<b>Unit/ Duration</b>	<b>Essential Questions</b>	<b>Content</b>	<b>Skills</b>	<b>Assessment</b>	<b>Standards</b>
<p>Unit 2: The Number System</p> <p>7 Weeks</p>	<ul style="list-style-type: none"> <li>• How can counting, measuring, or labeling help to make sense of the world around us?</li> <li>• How can we compare and</li> </ul>	<ul style="list-style-type: none"> <li>• Rational and irrational numbers, exponents, and scientific notation</li> <li>• The meaning of negative exponents</li> </ul>	<ul style="list-style-type: none"> <li>• Know that there are numbers that are not rational, and approximate them by rational numbers.</li> <li>• Know that numbers that are</li> </ul>	<ul style="list-style-type: none"> <li>• Exit Tickets</li> <li>• Homework</li> <li>• Informal/formal classroom and classwork assessments</li> <li>• Notebook</li> </ul>	<ul style="list-style-type: none"> <li>• MA.8.CCSS.Math.Content.8.NS.A</li> <li>• MA.8.CCSS.Math.Content.8.NS.A.1</li> <li>• MA.8.CCSS.Math.Content.8.NS.A.2</li> <li>• MA.8.CCSS.Math.Content.8.EE.A.1</li> <li>• MA.8.CCSS.Math.Content.8.EE.A.3</li> <li>• MA.8.CCSS.Math.Content.8.EE.A.4</li> <li>• CPI 9.1.8.B.1</li> <li>• CPI 9.1.8.B.2</li> <li>• CPI 9.1.8.C.1</li> </ul>

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	<p>contrast numbers?</p> <ul style="list-style-type: none"> <li>• How do mathematical ideas interconnect and build on one another to produce a coherent whole?</li> <li>• How do mathematical representations reflect the needs of society across cultures?</li> </ul>	<ul style="list-style-type: none"> <li>• The rules for multiplying and dividing exponent expressions with like bases</li> <li>• The rules for raising exponent expressions to powers</li> <li>• The value of <math>n^0</math> and <math>n^1</math></li> <li>• What scientific notation is and why it is used</li> <li>• Gathering and evaluating knowledge and information from a variety of sources, including global perspectives, fosters creativity and innovative thinking.</li> <li>• Leadership abilities develop over time through</li> </ul>	<p>not rational are called irrational.</p> <ul style="list-style-type: none"> <li>• Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.</li> <li>• Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of</li> </ul>	<ul style="list-style-type: none"> <li>• Quizzes</li> <li>• Renaissance Learning</li> <li>• Test</li> </ul>	<ul style="list-style-type: none"> <li>• CPI 9.1.8.C.2</li> <li>• CPI 9.1.8.C.3</li> <li>• NJCCCS 8.1.8.A.1</li> <li>• NJCCCS 8.1.8.A.2</li> <li>• NJCCCS 8.1.8.A.3</li> <li>• NJCCCS 8.1.8.A.4</li> <li>• NJCCCS 8.1.8.A.5</li> </ul>
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		<p>participation in groups and/or teams that are engaged in challenging or competitive activities.</p> <ul style="list-style-type: none"> <li>• Collaboration and teamwork enable individuals or groups to achieve common goals with greater efficiency.</li> <li>• Understand and use technology systems.</li> <li>• Select and use applications effectively and productively.</li> </ul>	<p>expressions (e.g., <math>\pi^2</math>).</p> <ul style="list-style-type: none"> <li>• Know and apply the properties of integer exponents to generate equivalent numerical expressions.</li> <li>• Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other.</li> <li>• Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation</li> </ul>		
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			<p>are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.</p>		
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Unit/ Duration	Essential Questions	Content	Skills	Assessment	Standards
Unit 3: Equations 7 Weeks	<ul style="list-style-type: none"> <li>How can change be best represented mathematically?</li> <li>How can geometric/algebraic relationships best be</li> </ul>	<ul style="list-style-type: none"> <li>Algebraic representation can be used to generalize patterns and relationships.</li> <li>Coordinate geometry can be used to represent and verify</li> </ul>	<ul style="list-style-type: none"> <li>Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships</li> </ul>	<ul style="list-style-type: none"> <li>Exit Tickets</li> <li>Homework</li> <li>Informal/formal classroom and classwork assessments</li> <li>Notebook</li> </ul>	<ul style="list-style-type: none"> <li>MA.8.CCSS.Math.Content.8.EE.B.5</li> <li>MA.8.CCSS.Math.Content.8.EE.B.6</li> <li>MA.8.CCSS.Math.Content.8.EE.C.7a</li> <li>MA.8.CCSS.Math.Content.8.EE.C.7b</li> <li>MA.8.CCSS.Math.Content.8.EE.C.8</li> <li>MA.8.CCSS.Math.Content.8.EE.C.8a</li> <li>MA.8.CCSS.Math.Content.8.EE.C.8b</li> </ul>

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	<p>represented and verified?</p> <ul style="list-style-type: none"> <li>• How can patterns, relations, and functions be used as tools to best describe and help explain real-life situations?</li> <li>• What makes an algebraic algorithm both effective and efficient?</li> <li>• Why can using various versions of real numbers be useful?</li> <li>• How can geometric/algebraic relationships best be represented and verified?</li> <li>• How can change be best</li> </ul>	<p>geometric/algebraic relationships.</p> <ul style="list-style-type: none"> <li>• The symbolic language of algebra is used to communicate and generalize the patterns in mathematics.</li> <li>• Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table.</li> <li>• Ethical behaviors support human rights and dignity in all aspects of life.</li> <li>• Educational achievement, career choice, and</li> </ul>	<p>represented in different ways.</p> <ul style="list-style-type: none"> <li>• Use similar triangles to explain why the slope <math>m</math> is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation <math>y = mx</math> for a line through the origin and the equation <math>y = mx + b</math> for a line intercepting the vertical axis at <math>b</math>.</li> <li>• Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the</li> </ul>	<ul style="list-style-type: none"> <li>• Quizzes</li> <li>• Renaissance Learning</li> <li>• Test</li> </ul>	<ul style="list-style-type: none"> <li>• <b>MA.8.CCSS.Math.Content.8.F.B.4</b></li> <li>• <b>MA.8.CCSS.Math.Content.8.F.B.5</b></li> <li>• <b>CPI 9.1.8.F.2</b></li> <li>• <b>CPI 9.1.8.F.3</b></li> <li>• <b>CPI 9.2.8.A.1</b></li> <li>• <b>CPI 9.2.8.A.2</b></li> <li>• <b>CPI 9.2.8.A.3</b></li> <li>• <b>CPI 9.2.8.A.4</b></li> <li>• <b>CPI 9.2.8.A.5</b></li> <li>• <b>CPI 9.2.8.A.6</b></li> <li>• <b>CPI 9.2.8.A.7</b></li> <li>• <b>CPI 9.2.8.A.8</b></li> <li>• <b>CPI 9.2.8.A.9</b></li> <li>• <b>CPI 9.2.8.E.4</b></li> <li>• <b>CPI 9.2.8.E.7</b></li> <li>• <b>NJCCCS 8.1.8.C.1</b></li> <li>• <b>NJCCCS 8.1.8.F.1</b></li> </ul>
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	<p>represented mathematically?</p> <ul style="list-style-type: none"> <li>• How can patterns, relations, and functions be used as tools to best describe and help explain real-life situations?</li> <li>• What makes an algebraic algorithm both effective and efficient?</li> </ul>	<p>entrepreneurial skills all play a role in achieving a desired lifestyle.</p> <ul style="list-style-type: none"> <li>• Income often comes from different sources, including alternative sources.</li> <li>• Income affects spending decisions and lifestyles</li> <li>• Taxes and the cost of employee benefits affect the amount of disposable income.</li> <li>• Cost-benefit analysis informs responsible spending practices.</li> <li>• Consumer protection</li> </ul>	<p>given equation into simpler forms, until an equivalent equation of the form <math>x = a</math>, <math>a = a</math>, or <math>a = b</math> results (where <math>a</math> and <math>b</math> are different numbers).</p> <ul style="list-style-type: none"> <li>• Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.</li> <li>• Analyze and solve pairs of simultaneous linear equations.</li> <li>• Understand that solutions to a</li> </ul>		
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		<p>includes providing information about the range of products and services and about consumer resources, rights, and responsibilities.</p> <p>Interact, collaborate, and publish with peers, experts, or others by employing a variety of digital environments and media.</p> <p>Communicate information and ideas to multiple audiences using a variety of media and formats.</p> <p>Develop cultural understanding and global awareness by engaging with</p>	<p>system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.</p> <ul style="list-style-type: none"> <li>• Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection.</li> <li>• Construct a function to model a linear relationship between two quantities. Determine the rate of change</li> </ul>		
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		<p>learners of other cultures.</p> <ul style="list-style-type: none"> <li>Contribute to project teams to produce original works or solve problems.</li> </ul> <p>Identify and define authentic problems and significant questions for investigation.</p> <p>Plan and manage activities to develop a solution or complete a project.</p> <p>Collect and analyze data to identify solutions and/or make informed decisions.</p> <ul style="list-style-type: none"> <li>Use multiple processes and diverse perspectives to</li> </ul>	<p>and initial value of the function from a description of a relationship or from two <math>(x, y)</math> values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.</p> <ul style="list-style-type: none"> <li>Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph</li> </ul>		
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		explore alternative solutions.	that exhibits the qualitative features of a function that has been described verbally. <ul style="list-style-type: none"><li>• Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables.</li></ul>		
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Unit/ Duration	Essential Questions	Content	Skills	Assessment	Standards
Unit 4: Functions and Geometry  7 Weeks	<ul style="list-style-type: none"> <li>• Which side is the hypotenuse?</li> <li>• How are patterns of change related to the behavior of functions?</li> <li>• How can change be best represented mathematically?</li> <li>• How do patterns help solve problems?</li> <li>• How do you simplify a square root?</li> </ul>	<ul style="list-style-type: none"> <li>• Equations involving two variables</li> <li>• Methods to apply the properties of operations, numbers, equations &amp; inequalities.</li> <li>• Properties of a right triangle</li> <li>• Properties of square roots</li> <li>• Cost-benefit analysis informs responsible spending practices.</li> <li>• Advocate and practice safe, legal, and responsible use of information and technology.</li> </ul>	<ul style="list-style-type: none"> <li>• Differentiate between linear &amp; non-linear graphs/tables/equations</li> <li>• Find square roots and cube number roots to understand powers and roots.</li> <li>• Find the length of one side of a right triangle given the length of the other two sides.</li> <li>• Graph functions and understand and describe general behavior.</li> <li>• Identify the hypotenuse and the legs of a right triangle.</li> <li>• Solve linear equations using simple multi-step,</li> </ul>	<ul style="list-style-type: none"> <li>• Exit Tickets</li> <li>• Homework</li> <li>• Informal/formal classroom and classwork assessments</li> <li>• Notebook</li> <li>• Quizzes</li> <li>• Renaissance Learning</li> <li>• Test</li> </ul>	<ul style="list-style-type: none"> <li>• MA.8.CCSS.Math.Content.8.EE.A.2</li> <li>• MA.8.CCSS.Math.Content.8.F.A.1</li> <li>• MA.8.CCSS.Math.Content.8.F.A.2</li> <li>• MA.8.CCSS.Math.Content.8.F.A.3</li> <li>• MA.8.CCSS.Math.Content.8.G.B.6</li> <li>• MA.8.CCSS.Math.Content.8.G.B.7</li> <li>• MA.8.CCSS.Math.Content.8.G.B.8</li> <li>• CPI 9.2.8.E.2</li> <li>• NJCCCS 8.1.8.D.1</li> <li>• NJCCCS 8.1.8.D.2</li> <li>• NJCCCS 8.1.8.D.3</li> <li>• NJCCCS 8.1.8.D.4</li> <li>• NJCCCS 8.1.8.D.5</li> </ul>

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		<ul style="list-style-type: none"> <li>• Demonstrate personal responsibility for lifelong learning.</li> <li>• Exhibit leadership for digital citizenship.</li> </ul>	<p>distributive property with variables on both sides of the equation.</p> <ul style="list-style-type: none"> <li>• Use the Pythagorean theorem to solve problems</li> <li>• Use the Pythagorean Theorem to solve problems.</li> </ul>		
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Unit/ Duration	Essential Questions	Content	Skills	Assessment	Standards
Unit 5: Statistics and Geometry  7 Weeks	<ul style="list-style-type: none"> <li>• How can attributes be used to classify data/objects?</li> <li>• How can experimental and theoretical probabilities be used to make predictions or</li> </ul>	<ul style="list-style-type: none"> <li>• How to recognize volume and surface area formulas.</li> <li>• The purpose for using volume and surface area.</li> <li>• Experimental results tend to approach</li> </ul>	<ul style="list-style-type: none"> <li>• Find volume of prisms, cylinder, pyramids, and cones.</li> <li>• Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and</li> </ul>	<ul style="list-style-type: none"> <li>• Exit Tickets</li> <li>• Homework</li> <li>• Informal/formal classroom and classwork assessments</li> <li>• Notebook</li> </ul>	<ul style="list-style-type: none"> <li>• MA.8.CCSS.Math.Content.8.G.C.9</li> <li>• MA.8.CCSS.Math.Content.8.SP.A</li> <li>• MA.8.CCSS.Math.Content.8.SP.A.1</li> <li>• MA.8.CCSS.Math.Content.8.SP.A.2</li> <li>• MA.8.CCSS.Math.Content.8.SP.A.3</li> <li>• MA.8.CCSS.Math.Content.8.SP.A.4</li> <li>• NJCCCS 8.1.8.E.1</li> </ul>

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	<p>draw conclusions?</p> <ul style="list-style-type: none"> <li>• How can the collection, organization, interpretation, and display of data be used to answer questions?</li> </ul>	<p>theoretical probabilities after a large number of trials.</p> <ul style="list-style-type: none"> <li>• The message conveyed by the data depends on how the data is collected, represented, and summarized.</li> <li>• The results of a statistical investigation can be used to support or refute an argument.</li> </ul> <p>Plan strategies to guide inquiry.</p> <p>Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.</p> <p>Evaluate and select information sources and</p>	<p>mathematical problems.</p> <ul style="list-style-type: none"> <li>• Investigate patterns of association in bivariate data.</li> <li>• Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.</li> <li>• Know that straight lines are widely used to model</li> </ul>	<ul style="list-style-type: none"> <li>• Quizzes</li> <li>• Renaissance Learning</li> <li>• Test</li> </ul>	
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		<p>digital tools based on the appropriateness for specific tasks.</p> <ul style="list-style-type: none"><li>• Process data and report results.</li></ul>	<p>relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.</p> <ul style="list-style-type: none"><li>• Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.</li><li>• Understand that patterns of association can also be seen in bivariate categorical data by displaying</li></ul>		
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			<p>frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables.</p>		
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