

## NJDOE MODEL CURRICULUM PROJECT

**CONTENT AREA: Mathematics**

**GRADE: 8**

**UNIT #: 1**

**UNIT NAME: Geometry**

STUDENT LEARNING OBJECTIVES		CORRESPONDING CCSS/NJCCCS	
<b>1</b>	Utilize the properties of rotation, reflection, and translation to model and relate pre-images of lines, line segments, and angles to their resultant image through physical representations and/or Geometry software.	<b>8.G.1</b>	Verify experimentally the properties of rotations, reflections, and translations. <ul style="list-style-type: none"> <li>a. Lines are taken to lines, and line segments to line segments of the same length.</li> <li>b. Angles are taken to angles of the same measure.</li> <li>c. Parallel lines are taken to parallel lines.</li> </ul>
<b>2</b>	Apply an effective sequence of rotations, reflections, and translations to prove that two dimensional figures are congruent.	<b>8.G.2</b>	Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.
<b>3</b>	Use the coordinate plane to locate pre-images of two-dimensional figures and determine the coordinates of a resultant image after applying dilations, rotations, reflections, and translations.	<b>8.G.3</b>	Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
<b>4</b>	Recognize dilation as a reduction or an enlargement of a figure and determine the scale factor.	<b>8.G.3</b>	Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them
<b>5</b>	Apply an effective sequence of transformations to determine that figures are similar when corresponding angles are congruent and corresponding sides are proportional. Write similarity statements based on such transformations.	<b>8.G.4</b>	Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. <i>For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.</i>
<b>6</b>	Justify facts about angles created when parallel lines are cut by a transversal.	<b>8.G.5</b>	Verify experimentally the properties of rotations, reflections, and translations. <ul style="list-style-type: none"> <li>a. Lines are taken to lines, and line segments to line segments of the same length.</li> <li>b. Angles are taken to angles of the same measure.</li> <li>c. Parallel lines are taken to parallel lines.</li> </ul>
<b>7</b>	Justify facts about the exterior angles of a triangle, the sum of the measures of the interior angles of a triangle and the angle-angle relationship used to identify similar triangles.		

**Major** **Supporting** **Additional** (identified by PARCC Model Content Frameworks) **Bold type indicates grade level fluency requirements.** (identified by PARCC Model Content Frameworks)

## Greater Brunswick Charter School Curriculum

Grade level: 8		Subject: Math			Unit #: 1		
Day	Topic	SLO CCSS	Learning Objectives	Essential Questions	Suggested Student Activities		Possible Resources (in addition to MyMath)
					Whole Group	Small Group / Stations	
1	Parallel lines	6, 7	Identify angles formed by parallel lines cut by a transversal	<i>What specials angles are formed by intersecting lines?</i>		<ul style="list-style-type: none"> <li>• Lesson</li> <li>• Guided Practice</li> <li>• Independent Practice</li> <li>• i-Ready</li> </ul>	GlencoeMath p.369-370
2	Intersecting lines	6	Identify relationships between angles formed with a transversal	<i>What relationships exist between angles formed by transversals?</i>		<ul style="list-style-type: none"> <li>• Lesson</li> <li>• Guided Practice</li> <li>• Independent Practice</li> <li>• i-Ready</li> </ul>	GlencoeMath p.371-375
3						<ul style="list-style-type: none"> <li>• HOTS</li> <li>• Extra Practice</li> <li>• RTI mini lesson</li> <li>• i-Ready</li> </ul>	GlencoeMath p.376-377
4	Angles of triangles	7	<ul style="list-style-type: none"> <li>• Identify relationships between interior and exterior angles of a triangle</li> <li>• Find missing angle measures</li> </ul>	<i>How can I know missing measures in a triangle if I know other measures?</i>		<ul style="list-style-type: none"> <li>• Lesson</li> <li>• Guided Practice</li> <li>• Independent Practice</li> <li>• i-Ready</li> </ul>	GlencoeMath p.389-393
5						<ul style="list-style-type: none"> <li>• HOTS</li> <li>• Extra Practice</li> <li>• RTI mini lesson</li> <li>• i-Ready</li> </ul>	GlencoeMath p.394-395
6	Triangles and angles	7				<ul style="list-style-type: none"> <li>• Review</li> <li>• Assessment</li> </ul>	
7	Transformations	1	Determine what is already known	<i>What do I know about transformations without realizing it?</i>		<ul style="list-style-type: none"> <li>• Lesson</li> <li>• Hands on Activity</li> <li>• Collaborate</li> <li>• Independent Practice</li> <li>• i-Ready</li> </ul>	GlencoeMath p.449-452
8	Translations	1, 3	Graph translations on the coordinate plane	<i>How do I make sure each point in my transformation is placed correctly?</i>		<ul style="list-style-type: none"> <li>• Lesson</li> <li>• Guided Practice</li> <li>• Independent Practice</li> <li>• i-Ready</li> </ul>	GlencoeMath p.453-459

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					Whole Group	Small Group / Stations	
9	Reflections*	1, 3	Graph reflections on the coordinate plane	<i>How do I count to and from the line of reflection?</i>		<ul style="list-style-type: none"> <li>• Lesson</li> <li>• Guided Practice</li> <li>• Independent Practice</li> <li>• i-Ready</li> </ul>	GlencoeMath p.461-467
10	RTI Reflections	1, 3	Use 4 step problem solving strategy	<i>How does having a concrete example help me solve a problem?</i>		<ul style="list-style-type: none"> <li>• Lesson</li> <li>• Guided Practice</li> <li>• Independent Practice</li> <li>• i-Ready</li> </ul>	GlencoeMath p.469-471
11	Rotations	1, 3	Graph rotations on the coordinate plane	<i>How is a rotation like a translation around a point?</i>		<ul style="list-style-type: none"> <li>• Lesson</li> <li>• Guided Practice</li> <li>• Independent Practice</li> <li>• i-Ready</li> </ul>	GlencoeMath p.475-481
12	<ul style="list-style-type: none"> <li>• RTI</li> <li>• Dilations</li> </ul>	4	Identify and draw dilations	<i>How is a dilation like my camera's zoom feature?</i>		<ul style="list-style-type: none"> <li>• Review for need</li> <li>• Mini lesson</li> <li>• Guided Practice</li> <li>• Independent practice</li> <li>• i-Ready</li> </ul>	GlencoeMath p483-485
13	Dilations					<ul style="list-style-type: none"> <li>• Lesson</li> <li>• Guided Practice</li> <li>• Independent Practice</li> <li>• i-Ready</li> </ul>	GlencoeMath p.487-493
14	Simple Transformations	1, 3, 4				<ul style="list-style-type: none"> <li>• Review</li> <li>• Assessment</li> </ul>	
15	<ul style="list-style-type: none"> <li>• Simple Transformations</li> <li>• Congruence</li> </ul>	2	Determine what is known about congruence and similarity in figures	<i>How do I know when figures are the same size or the same shape?</i>		<ul style="list-style-type: none"> <li>• Lesson</li> <li>• Guided Practice</li> <li>• Independent Practice</li> <li>• i-Ready</li> </ul>	GlencoeMath p.501-504
16	Compositions of figure movement	1, 3, 4, 5	Draw compositions of translations, reflections, and rotations	<i>How does a combination of transformations differ from a single transformation?</i>		<ul style="list-style-type: none"> <li>• Lesson</li> <li>• Guided Practice</li> <li>• Independent Practice</li> <li>• i-Ready</li> </ul>	GlencoeMath p.505-507

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					Whole Group	Small Group / Stations	
17	Transformations to congruence	2, 3, 5	Use a series of transformations to make congruent figures	<i>How is using a series of transformations to arrive at congruent figures like adding and subtracting numbers until you arrive at an answer?</i>		<ul style="list-style-type: none"> <li>• Lesson</li> <li>• Guided Practice</li> <li>• Independent Practice</li> <li>• i-Ready</li> </ul>	GlencoeMath p.509-515
18	Congruent triangles	7	Determine which three parts of two triangles can be used to prove they are congruent	<i>What tools do I have to PROVE two triangles are exactly the same?</i>		<ul style="list-style-type: none"> <li>• Lesson</li> <li>• Guided Practice</li> <li>• Independent Practice</li> <li>• i-Ready</li> </ul>	GlencoeMath p.517-519
19	Congruence	7	Write congruence statements for congruent figures	<i>How can I show two figures are congruent?</i>		<ul style="list-style-type: none"> <li>• Lesson</li> <li>• Guided Practice</li> <li>• Independent Practice</li> <li>• i-Ready</li> </ul>	GlencoeMath p.521-527
20						<ul style="list-style-type: none"> <li>• Review lesson</li> <li>• Guided Practice</li> <li>• Independent Practice</li> <li>• i-Ready</li> </ul>	<a href="#">SuperTeacher worksheets</a> <a href="#">MathIsland worksheets</a> <a href="#">ABCTeach practice</a>
21	Congruence	1, 2, 5				<ul style="list-style-type: none"> <li>• Review</li> <li>• Assessment</li> </ul>	
22	Congruence Diagrams		Solve problems using diagrams			<ul style="list-style-type: none"> <li>• Review assessment</li> <li>• Lesson</li> <li>• Independent Practice</li> <li>• i-Ready</li> </ul>	GlencoeMath p.531-533
23	Similar triangles Transversals	5, 6	Define and recognize similar triangles	<i>How can I show two triangles are similar from intersecting transversals?</i>		<ul style="list-style-type: none"> <li>• Lesson</li> <li>• Guided Practice</li> <li>• Independent Practice</li> <li>• i-Ready</li> </ul>	GlencoeMath p.535-536

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					Whole Group	Small Group / Stations	
24	Similar figures and transformations	5	Use transformations to create similar figures	<i>How can I show two figures are similar by a ratio of their side lengths?</i>		<ul style="list-style-type: none"> <li>• Lesson</li> <li>• Guided Practice</li> <li>• Independent Practice</li> <li>• i-Ready</li> </ul>	GlencoeMath p.537-540
25						<ul style="list-style-type: none"> <li>• Lesson</li> <li>• Guided Practice</li> <li>• Independent Practice</li> <li>• i-Ready</li> </ul>	GlencoeMath p.541-543
26	Similar polygons	5	Identify similar polygons and find missing measures	<i>How can I calculate the measures of sides of a polygon given a similar figure</i>		<ul style="list-style-type: none"> <li>• Lesson</li> <li>• Guided Practice</li> <li>• Independent Practice</li> <li>• i-Ready</li> </ul>	GlencoeMath p.545-551
27	Indirect measurements	5	Solve problems, find measures, using similar triangles	<i>How can I find the length of distances I cannot measure myself?</i>		<ul style="list-style-type: none"> <li>• Lesson</li> <li>• Guided Practice</li> <li>• Independent Practice</li> <li>• i-Ready</li> </ul>	GlencoeMath p.553-559
28	Slope and Similar triangles	5	Relate the slope of a line to similar triangles	<i>How does the slope of line relate to the lengths of the sides of two similar right triangles?</i>		<ul style="list-style-type: none"> <li>• Lesson</li> <li>• Guided Practice</li> <li>• Independent Practice</li> <li>• i-Ready</li> </ul>	GlencoeMath p.561-565
29						<ul style="list-style-type: none"> <li>• HOTS</li> <li>• Extra Practice</li> <li>• RTI mini lesson</li> <li>• i-Ready</li> </ul>	GlencoeMath p.566-567
30	Area and perimeter of similar figures	5	Find relationships between areas and perimeters of similar figures			<ul style="list-style-type: none"> <li>• Lesson</li> <li>• Guided Practice</li> <li>• Independent Practice</li> <li>• i-Ready</li> </ul>	GlencoeMath p.569-573
31						<ul style="list-style-type: none"> <li>• HOTS</li> <li>• Extra Practice</li> <li>• RTI mini lesson</li> <li>• i-Ready</li> </ul>	GlencoeMath p.574-575
32	Similar figures					<ul style="list-style-type: none"> <li>• Review</li> <li>• Assessment</li> </ul>	

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<u>Word Wall Candidates</u>							
	Alternate interior angles		Corresponding angles	Exterior angles	Parallel	Polygon	
	Alternate exterior angles		Remote interior angles	Interior angles	Transversal	Triangle	
	Transformation		Translation	Rotation	Reflection	Similar	
	Congruent		Scale factor	Composition			
<u>Authentic Application</u>							
	Your Goal:	To create a logo for your team consisting of at least two congruent or similar triangles					
	Your Role:	To research, design, and present information related to your team logo					
	Your Audience:	You will present your logo to the class and to school administration					
	The Situation:	First, you will use the internet to research triangular logos and find logos for certain areas listed in the process section. You will copy the logos and construct a congruent triangle.					
		Second, you will find a company design or logo from one of the categories you researched that contains at least one pair of congruent triangles to copy.					
		Third, you will create your own logo that contains at least one pair of congruent or similar triangles.					
	The Product:	You will create a logo that has special and specific meaning for your team.					
	Success Criteria:	Your score will be based on the quality of your research, the copies you make of logos and how they influenced your logo design. Your score will also be impacted by the quality of your logo and the creativity and intricacy your logo exhibits.					