

Geometry Unit 5: Topic 5
Updated Nov. 2021

Marking Period	Unit Title	Recommended Instructional Days
2	Relationships in Triangles	15-20
Domain:		Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSL-S-CLKS within Unit
<p><i>NJSLS Strand:</i> <i>G.CO.C.9: Prove theorems about lines and angles.</i> <i>G.CO.C.10: Prove theorems about triangles.</i> <i>G.CO.D.12: Make formal geometric constructions with a variety of tools and methods.</i> <i>G.C.A.3: Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.</i> <i>G.SRT.B.5: Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.</i> <i>G.GPE.B.5: Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems.</i> <i>A.REI.B.3: Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.</i> <i>A.REI.C.6: Solve systems of linear equations exactly and approximately, focusing on pairs of linear equations in two variables.</i></p>	<p><i>Progress Indicator:</i> <i>Tests • Quizzes • Practice problems for homework • Online textbook • Worksheets • IXL • Leveled assessments</i></p>	<p>Essential Questions:</p> <ol style="list-style-type: none"> 1. What is the relationship between a segment and the points on its perpendicular bisector? Between an angle and the points on its bisector? 2. What are the properties of the perpendicular bisectors in a triangle? What are the properties of the angle bisectors in a triangle? 3. What are the properties of the median in a triangle? What are the properties of the altitudes in a triangle? 4. What are some relationships between the sides and angles of any triangles? 5. When two triangles have pairs of congruent sides, how are the third pair of sides and the pair of angles opposite the third pair of sides related? <p>Activity Description:</p> <ul style="list-style-type: none"> • Perpendicular and Angle Bisectors • Bisectors in Triangles • Medians and Altitudes • Inequalities in One Triangle • Inequalities in Two Triangles

A.REI.D.10: Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).

Example Tasks:

Task 1:

Mr. Lee wants to park his ice cream cart on Main Street so that he is equidistant from the entrances of the amusement park and the zoo. Where should Mr. Lee park? How can he determine where to park?



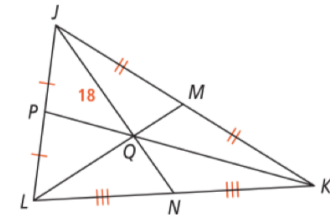
Mr. Lee can use the perpendicular bisector of the segment that connects the two entrances to find the location.



Mr. Lee should park his cart at point T, because it is equidistant from both entrances

Task 2:

What is the length of \overline{JN} in the figure?



The medians of $\triangle JKL$ are \overline{JN} , \overline{KP} , and \overline{LM} .
Point Q is the point of concurrency of the medians. The point of concurrency of the medians of a triangle is called the **centroid**.
Use the Concurrency of Medians Theorem.

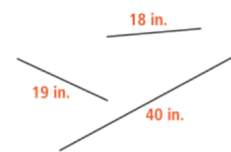
$$\frac{2}{3} JN = JQ$$

$$\frac{2}{3} JN = 18$$

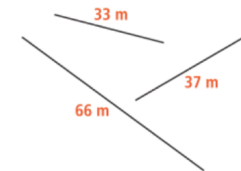
$$JN = 27$$

Task 3:

Which of the following sets of segments could be the sides of a triangle?



Set 1



Set 2

Determine if the sum of the two shorter side lengths is longer than the longest side length.

$$18 + 19 = 37$$

Since $37 < 40$, the segments in Set 1 cannot form a triangle.

$$33 + 37 = 70$$

Since $70 > 66$, the segments in Set 2 can form a triangle.

Interdisciplinary Connections:

Topic 5 Project, enVision STEM: Find the Center of Mass. Textbook page 200 and online

		<p>Career Readiness, Life Literacies and Key Skills Content: Science; Athletics. NJSL-S#: G.CO.C.10, G.SRT.B.4 (Next Generation Science Standards HS-PS2-1, HS-PS2-2)</p> <p>Spot Light On:</p> <ul style="list-style-type: none"> • <i>Seek multiple perspectives and different answers to questions.</i>
Mathematics Practices		
<ol style="list-style-type: none"> 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reason of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning. 		
Social and Emotional Learning: <i>Competencies</i>	Social and Emotional Learning: <i>Sub-Competencies</i>	
<p>Self- awareness</p> <p>Social Awareness</p> <p>Self- Management</p> <p>Relationship Skills</p> <p>Responsible Decision-Making</p>	<p>Recognizing the importance of self-confidence in handling daily tasks and challenges.</p> <p>Demonstrate an awareness of the expectations for social interactions in a variety of ways.</p> <p>Demonstrate an understanding of the need for mutual respect when viewpoints differ.</p> <p>Recognize the skills needed to establish and achieve personal and educational goals.</p>	

	<p>Utilize positive communication and social skills to interact effectively with others. Develop, implement, and model effective problem solving and critical thinking skills.</p>		
<p>Assessments (Formative) <i>To show evidence of meeting the standard/s, students will successfully engage within:</i></p>		<p>Assessments (Summative) <i>To show evidence of meeting the standard/s, students will successfully complete:</i></p>	
<p>Formative Assessments:</p> <ul style="list-style-type: none"> • Entry and Exit Slips • Quizzes • Self Assessments 		<p>Benchmarks:</p> <ul style="list-style-type: none"> • Chapter Tests • Projects <p>Summative Assessments:</p> <ul style="list-style-type: none"> • District Assessments • Midterms • Standardized Tests 	
<p>Differentiated Student Access to Content: Teaching and Learning Resources/Materials</p>			
<p>Core Resources</p>	<p>Alternate Core Resources <i>IEP/504/At-Risk/ESL</i></p>	<p>ELL Core Resources</p>	<p>Gifted & Talented Core Resources</p>
<ul style="list-style-type: none"> • Textbooks websites • Achieve the core • Khan Academy • Desmos • IXL 	<ul style="list-style-type: none"> • Skill building worksheets • Math Manipulatives 	<ul style="list-style-type: none"> • Dictionary for native languages • Videos in their native language. 	<ul style="list-style-type: none"> • Leveled Assessments • Enrichment worksheets
<p>Supplemental Resources</p>			
<p>Technology:</p> <ul style="list-style-type: none"> • Chromebooks, Graphing Calculators, Online math manipulatives <p>Other:</p> <ul style="list-style-type: none"> • Zoom and Google Meets, Google Classroom, Interactive Textbooks, Private Tutoring 			
<p>Differentiated Student Access to Content: Recommended Strategies & Techniques</p>			

Core Resources	Alternate Core Resources <i>IEP/504/At-Risk/ESL</i>	ELL Core Resources	Gifted & Talented Core
<ul style="list-style-type: none"> Deliver instruction utilizing varied learning styles including audio, visual, and tactile/kinesthetic, provide individual instruction as needed, modify assessments and/or rubrics, repeat 	<ul style="list-style-type: none"> Utilize a multi-sensory (VAKT) approach during instruction, provide alternate presentations of skills by varying the method (repetition, simple explanations, additional examples, modeling, etc.), modify test content and/or format, allow students to retake test for additional credit, provide additional times and preferential seating as needed, review, restate and repeat directions, provide study guides, and/or break assignments into segments of shorter tasks. 	<ul style="list-style-type: none"> Extend time requirements, preferred seating, positive reinforcement, check often for understanding/review, oral/visual directions/prompts when necessary, supplemental materials including use of an online bilingual dictionary, and modified assessment and/or rubric. 	<ul style="list-style-type: none"> Create an enhanced set of introductory activities, integrate active teaching/learning opportunities, incorporate authentic components, propose interest-based extension activities, and connect student to related

<p>NJSLs CAREER READINESS, LIFE LITERACIES & KEY SKILLS</p>	<p>Disciplinary Concept: Creativity and Innovation</p>	
	<p><i>Core Ideas:</i></p>	<p>With a growth mindset, failure is an important part of success</p>
	<p><i>Performance Expectation/s:</i></p>	<p>9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a).</p>
	<p>Career Readiness, Life Literacies, & Key Skills Practices</p>	
	<p>Act as a responsible and contributing community member and employee. Attend to financial well-being. Consider the environmental, social and economic impacts of decisions. Demonstrate creativity and innovation. Utilize critical thinking to make sense of problems and persevere in solving them.</p>	

	<p>Model integrity, ethical leadership and effective management. Plan education and career paths aligned to personal goals. Use technology to enhance productivity, increase collaboration and communicate effectively. Work productively in teams while using cultural/global competence.</p>
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New Jersey Legislative Statutes and Administrative Code (place an "X" before each law/statute if/when present within the curriculum map)							
Amistad Law: <i>N.J.S.A. 18A 52:16A-88</i>		Holocaust Law: <i>N.J.S.A. 18A:35-28</i>	X	LGBT and Disabilities Law: <i>N.J.S.A. 18A:35-4.35</i>	X	Diversity & Inclusion: <i>N.J.S.A. 18A:35-4.36a</i>	Standards in Action: <i>Climate Change</i>