PETERSBURG City Public Schools

Geometry Week 1- Semester

August 19-22nd 2025

Note: Give Geometry Readiness Assessment on August 19th

Subject/Course:	**Date: Wednesday August 20th** **Geometry Topic 1: Foundations of Geometry** **Lesson 1-1: Measuring Segments and Angles**
Targeted SOL- Standard(s) and/or Sub-standards (if applicable)	**G.RLT.1** The student will translate logic statements, identify conditional statements, and use and interpret Venn diagrams. a-d **G.RLT.2** The student will analyze, prove, and justify the relationships of parallel lines cut by a transversal**.** a-c **G.TR.2** The student will, given information in the form of a figure or statement, prove and justify two triangles are congruent using direct and indirect proofs, and solve problems involving measured attributes of congruent triangles. a,c,d **G.TR.3** The student will, given information in the form of a figure or statement, prove and justify two triangles are similar using direct and indirect proofs, and solve problems, including those in context, involving measured attributes of similar triangles. a **G.PC.1** The student will prove and justify theorems and properties of quadrilaterals and verify and use properties of quadrilaterals to solve problems, including the relationships between the sides, angles, and diagonals. b,d
Vocabulary	**Review:** Irrational number, rational number, real number **New:** Collinear points, line, plane, point, postulate
Learning Objective:	• Communicate precise definitions of angle and segment using the undefeated terms: point, line and plane • Use absolute value and the Segment Addition Postulate • Use the Protractor Postulate and the Angle Addition Postulate

Learning Experience: (Gradual Release)

Lesson Components	Lesson Flow	Page #s

Step 1- Explore (We Do)	Lesson Presentation Slides
	
	Note: Answers to all questions can be found in the Teacher Edition. Page numbers listed in the right hand column.
	
	Explore and Reason: Students use different strategies to find the length of the line.
	• Before-What do you notice about the locations of points A and B?
	• During- Support Productive Struggle
	  ○ Is the distance between A and B the same as the distance between B and A? Explain
	  ○ How far from 0 is point A? How far from 0 is point B? How can you use those distances to find the total distance between A and B? Will that method always work?
	• After- Meaningful math discourse
	  ○ What criteria did you use to decide which method you prefer to find distances?
		5B- Show using digital platform
		
		Students complete in their workbook

Step 2- Understand & Apply (I/We Do):	**Introduce Essential Question:** How are the properties of segments and angles used to determine their measure? **Concept:** Undefined Terms • Why do you think point, line, and plane are considered undefined terms? • Look at the line ***l*** through points A and B. Do you think A and B are the only	5- Show using digital platform Students

	points on line ***l***? Explain. ● How long do you think line l is ? Explain ● What is an everyday objective that could be used to represent a plane? What limitations does this representation have? **Concept:** Defined Terms- Example 1: Find Segment Lengths ● Compare the segment and the ray in the concept box ● Compare opposite rays and a line. ● How are the opposite rays similar to an angle? How are they different? ● In Example 1, why must the length of the segment be a positive number? ● To find the length of C and D, you count the units of length between C and D. Does it matter if you move in a negative or a positive direction? Explain. ○ **Try It:** ■ How do you find the length of AC? ● What do you notice about the coordinate of A? Will that affect the strategy you use to find the length of AC? ● How do you think the length of AC will compare to the length of CD? Explain **Postulate Rule: Example 2** ● Describe how you find the distance algebraically between two points on a number line. ● In Example 2, you are asked to find KM. What does KM represent? How can you find KM? ● Could you have used either the expression **|** 16-12 **|** or the expression **|** 12-16 **|** to find KL? Explain ○ Try It ■ Does the order in which you subtract coordinates matter? ■ In what order will you subtract the coordinates when finding JK? When finding JM? Explain. **Segment Addition Postulate: Example 3** ● How do you know points, F, G, and H are collinear ● What information are you given about GH? How can you use that information to help you find FH? ● In step 2, how do you know you can use the segment additional postulate to find FH? ● In Step 2 how does 5x +1 follow from FG + GH? What does 5x+1 represent? **Use Protractor Postulate Measure and Angle: Example 4** ● Which rays form angle BEC? ● What number on the protractor is ray EB assigned to? ● Note: Review the common error described on page 8 **Use the Angle Addition Postulate to Solve Problems: Example 5** ● Look at the diagram for the Angle Addition Postulate. What does it mean for point D to be "in the interior of" angle ABC? ● Restate the Angle Addition Postulate in your own words. ● In Example 5, look at the diagram in the formulate section. What does x represent? What does y represent? ● How can you determine if the designer can use the spotlight to light the chair? The table? Explain. ● How do you know the equations in the Compute section are true? ○ Try It ■ How is this problem similar to the one in Example 6? How is it different? ■ What equation can you use to determine if the designer can use the spotlight to light the chair? The table? ■ What must be true about the values of z and u in order for the designer to be able to use the spotlight to light the chair and the table? **Content Summary: Measuring Segments and Angles** ● Look at the points on the number line. How many numbers are J, K, and L each paired with? Will the same be true for any point on the number line? Explain. ● Look at the trays that form the angels. How many real numbers on the protractor does each ray align with? How many measures does each angle have? Explain ● Look at the last row of the table. How are the Segment Addition Postulate and the Angle Addition Postulate similar? How are they different? **Do You Understand? Do you Know How? (Complete)**	complete in their workbook
Step 3: Practice and Problem Solving	**Complete Practice and Problem Solve (Answers in Teacher's Edition)** Engagement Through Student Choice- need a total of 20 points ● Understand and Apply- 2 points each ● Practice- 1 point each ● Assessment practice- 1 point each	Page 11-12

	• Performance task 3 points each	
Step 4: Assess and Differentiate:	Lesson Quiz: Give on Savvas Platform	
Closure (Check for Understanding):	Review: **Do You Understand? Do You Know How?**	Page 10
Small Group (data-driven) **Based on student performance on Lesson Quizzes** **IXL:** Lessons linked here	Tier 1: 1-1 Additional Practice- access online and print off Tier 2 and 3: Reteach Rebuild 1-1: Access online and print off IXL: Construct a congruent segment	

Differentiation: (Found at the Bottom of Step 2: Visual Learning within each Lesson in Teacher Book)
 	
• Gifted: "Enrichment"
• ELLs : "English Language Learners"
• SWD: " Response to Intervention"
	Gifted: Use Example 2
	• Have students explore this more challenging example that involves finding the length of a segment
	• On a number line, A is at -5 and B is at 7. What is the coordinate of C, which is ¾ of the way from A to B?
	  ○ Before you can find the coordinate of C, what do you need to know? What is AB? Explain
	  ○ What is ¾ of 12? Explain
	  ○ How can you find the coordinate of c? What i s it?
	
	ELLS: Use Example 2
	• Very detailed suggested are listed on page 9 of the Teacher's Edition
	
	SWD: Use Example 1
	• In the "Try It" some students may be confused when working with negative numbers. Explain that they should count units, just as they would if the coordinates are both positive
	• Provide extra practice by displaying the figure in Example 1, but include point K at -2 and point : at -1.
	  ○ What i s KD?
	  ○ What is AL?
	  ○ What is KB?
		Pages 6-9

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Subject/Course:	**Date: Thursday August 21st** **Geometry Topic 1: Foundations of Geometry** **Lesson 1-2: Basic Constructions**
Targeted SOL- Standard(s) and/or Sub-standards (if applicable)	**G.TR.2** The student will, given information in the form of a figure or statement, prove and justify two triangles are congruent using direct and indirect proofs, and solve problems involving measured attributes of congruent triangles. ,d **G.PC.1** The student will prove and justify theorems and properties of quadrilaterals and verify and use properties of quadrilaterals to solve problems, including the relationships between the sides, angles, and diagonals. d
Vocabulary	**Review:** parallel, perpendicular **New:** angle bisector, construction
Learning Objective:	• Construct copies of segments and angles • Construct segments and bisectors of angles • Apply construction to problems involving portions of segments and angles • Identify congruent segments and congruent angles

Learning Experience: (Gradual Release)

Lesson Components	Lesson Flow	Page #s

Step 1- Explore (We Do)	Lesson Presentation Slides
	
	Note: Answers to all questions can be found in the Teacher Edition. Page numbers listed in the right hand column.
	
	Explore and Reason: Students will experiment with reproducing simple figures of circles and segments using a compass and streightedge to prepare them for learning basic constructs.
	• Before:
	  ○ How would you describe this design?
	  ○ Does it matter how large your circles are? Could you match the diagram exactly?
	• During
	  ○ In which order will you draw the circles?
	  ○ After you draw your first circle, how will you choose where to place the compass to draw the second circle?
	  ○ Can you make a pattern with three circles that intersect to form a triangle?
	• After
	  ○ Did the last circle you drew exactly meet up with the other circles you drew? If not, do you know why?
	  ○ Why is accuracy important when drawing geometric figures?
		13A- Show using digital platform
		
		Students complete in their workbook **and** online so they can use the online tool.

Step 2- Understand & Apply (I/We Do):	**Introduce Essential Question:** How are a straightedge and compass used to make basic constructions?
	
	Concept: Congruent Segments and Congruent Angles
	• How would you describe the difference between congruence and equality?
	• In the Concept box, $\overline{PQ} \cong \overline{RS}$. What equality statement follows from that congruence statement?
	• What equality statement follows from ∠FGH ≅ ∠JKL
	Use Congruent Angles and Congruent Segments: Example 1
	• Look at the diagram in Example 1. What do the arc marks tell you? Explain.
	• What is the measure of ∠VWZ? Explain
	• How do you know you can use the Angel Addition Postulate to help you find ∠YWZ?
	  ○ **Try It:**
	  ▪ What equation relates m∠NOQ, m∠NOP, m∠POQ?
	Copy a Segment: Example 2
	• How many different segments can be drawn between points A and B? Explain
		13- Show using digital platform
		
		Students complete in their workbook

	• How could you construct a segment with twice the length of the given statement? **Copy An Angle: Example 3** • What do you notice about points B and C compared to point A? • How could you make an angle with twice the measure of ∠A? ○ Try It ■ How do you begin constructing a copy of an angel **Construct and Angle Bisector: Example 4** • Is it necessary to reset the compass while constructing an angle bisector? Why might you open the compass? • If you repeat the construction on the same angle using different compass settings, what do you expect? ○ Try It ■ How do you choose how far to open the compass to strike the first arc? ■ Is it better to open the compass wider to strike the first arc? Explain **Use Constructions Example 5** • What do you think is meant by center-aligned? Explain • If the diagram of the museum lobby had a scale that showed distances in feet, could you measure the distance from scripture to the bay window? ○ Try It ■ How do you plan to determine the desired position for the sculpture? Explain **Content Summary: Constructions** • What is a construction? • What is the purpose of the straightedge in constructions? The compass? **Do You Understand? Do you Know How? (Complete)**	
Step 3: Practice and Problem Solving	**Complete Practice and Problem Solve (Answers in Teacher's Edition)** Engagement Through Student Choice- need a total of 20 points • Understand and Apply- 2 points each • Practice- 1 point each • Assessment practice- 1 point each • Performance task 3 points each	Page 19-20
Step 4: Assess and Differentiate:	Lesson Quiz: Give on Savvas Platform	
Closure (Check for Understanding):	Review: **Do You Understand? Do You Know How?**	Page 18
Small Group (data-driven) **Based on student performance on Lesson Quizzes** **IXL:** Lessons linked here	Tier 1: 1-2 Additional Practice- access online and print off Tier 2 and 3: Reteach Rebuild 1-2: Access online and print off IXL GTR2d Construct a congruent segment Construct a congruent angle Construct a perpendicular line Construct parallel lines GPC1d Construct a congruent segment	

	Construct the midpoint or perpendicular bisector of a segment Construct an angle bisector Construct a congruent angle Construct a perpendicular line Construct parallel line	
Differentiation: (Found at the Bottom of Step 2: Visual Learning within each Lesson in Teacher Book) ● Gifted: "Enrichment" ● ELLs : "English Language Learners" ● SWD: " Response to Intervention"	Gifted: Use Example 4 ● Have students bisect a straight angle. ● Ask students to draw straight angle A on a piece of paper. ○ Construct the angle bisector of straight angle A. ○ What do you notice about the ray you have constructed? ○ Why does this make sense? ELLS: Use Example 2 ● Very detailed suggested are listed on page 14 of the Teacher's Edition SWD: Use Example 4 ● Have students produce and check their own procedure for completing constructions ● Have the students take turns telling you how to construct the bisector of an angle on the board. Students should make a list on paper of the steps you take. ● If a student gives an incorrect step, elicit the correct step but have students note the step and why is was incorrect. ○ Were any of the steps you wrote down incorrect? If yes, write why they were not correct. ○ Follow the list of steps you wrote to construct the bisector of an angle. ○ Was the list of steps you made complete? Review your list an add or correct anything you did differently while making the construction.	Pages 14-16

Subject/Course:	**Date: Friday Aug 22, 2025** **Geometry Topic 1: Foundations of Geometry** **Lesson 1-3: Midpoint and Distance**
Targeted SOL- Standard(s) and/or Sub-standards (if applicable)	**G.TR.2c:** Use coordinate methods, such as slope formula and distance formulas, to prove triangles are congruent. **G.TR.3c:** Use coordinate methods, such as slope formula and distance formulas, to prove triangles are similar. **G.PC.1** b Prove and justify that quadrilaterals have specific properties, using coordinate and algebraic methods, such as the slope formula, the distance formula, and midpoint formula.
Vocabulary	**Review:** pythagorean theorem **New:** midpoint
Learning Objective:	● Use the midpoint formula to find the midpoint of a segment drawn on a coordinate plane. ● Use the distance formula to find the length of a segment drawn on the coordinate plane.

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Learning Experience: (Gradual Release)		
Lesson Components	**Lesson Flow**	**Page #s**

Step 1- Explore (We Do)	Lesson Presentation Slides
	
	Note: Answers to all questions can be found in the Teacher Edition. Page numbers listed in the right hand column.
	
	Model and Discuss: Students locate a midpoint of a segment on a coordinate plane in order to prepare them for formally developing a distance and a midpoint formula later in the lesson.
	• Before:
	  ○ How could LaTanya find the correct orient to hang the picture using tape measure?
	  ○ How do you find a point exactly between two points?
	• During
	  ○ Can you find the location for the lamp by finding the x and y-intercepts separately?
	• After
	  ○ Find the average of the x-coordinates for points A and B. How does that compare with where the picture should be hung?
	  ○ Find the average of the x- and y-coordinates for points C and D. How does that compare with where the lamp should be placed?
		21B- Show using digital platform
		
		Students complete in their workbook **and** online so they can use the online tool.

Step 2- Understand & Apply (I/We Do):	**Introduce Essential Question:** How are the midpoint and length of a segment on the coordinate plane determined? **Find a Midpoint: Example 1** • For the midpoint formula, what is the meaning of the numbers used in the subscript? • For the midpoint formula, should it matter if you choose A or B for point 1? • How is the midpoint related to the mean of a set of numbers? **Partition a Segment: Example 2** • Why is it important to add the fraction of the distance to the coordinates of one endpoint rather than the other? **Derive the Distance Formula: Example 3** • The example uses points P and Q but does not give coordinates for them. Why? **Find the Distance: Example 4** • How does the distance formula resemble the Pythagorean theorem? • The problem asks you to find the total distance. How many lengths must you calculate using the distance formula? • Would the distance be the same if you converted the grid units to fee before you calculated the distance? **Content Summary: Midpoint and Distance on the Coordinate Plane** • How does the Midpoint formula locate the midpoint of a segment in the coordinate plane? • How does the distance formula find the length of a segment on the coordinate plane? **Do You Understand? Do you Know How? (Complete)**	21- Show using digital platform Students complete in their workbook
Step 3: Practice and Problem Solving	**Complete Practice and Problem Solve (Answers in Teacher's Edition)** Engagement Through Student Choice- need a total of 20 points • Understand and Apply- 2 points each • Practice- 1 point each • Assessment practice- 1 point each • Performance task 3 points each	Page 25-26
Step 4: Assess and Differentiate:	Lesson Quiz: Give on Savvas Platform	
Closure (Check for Understanding):	Review: **Do You Understand? Do You Know How?**	Page 24

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Small Group (data-driven) **Based on student performance on Lesson Quizzes** **IXL:** Lessons linked here	Tier 1: 1-3 Additional Practice- access online and print off Tier 2 and 3: Reteach Rebuild 1-3: Access online and print off IXL GTR2c Distance formula Slopes of lines SSS Theorem in the coordinate plane GTR3c Distance formula Slopes of lines GPC1b Midpoints Midpoint formula: find the midpoint Midpoint formula: find the endpoint Classify quadrilaterals on the coordinate plane: justify your answer	
Differentiation: (Found at the Bottom of Step 2: Visual Learning within each Lesson in Teacher Book) • Gifted: "Enrichment" • ELLs : "English Language Learners" • SWD: " Response to Intervention"	Gifted: Use Example 4 • Have students consider the distance formula in three dimensions • Draw the x-y-z axes for plotting 3-dimensional points on the board. Show how to locate the point (3,4,12) **Q:** What is the point on the *xy*-plane directly beneath (3, 4, 12)? [(3, 4, 0)] • Draw the new point (3, 4, 0). **Q:** How far is the point (3, 4, 0) from the origin? [5 units] **Q:** Does a segment from the origin to (3, 4, 0) make a right angle with the segment from (3, 4, 12) to (3, 4, 0)? [yes] **Q:** How far is it from the origin to (3, 4, 12)? [13 units] **Q:** Use the formula $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2 + (z_2 - z_1)^2}$. Is the answer the same? [yes, d =13] ○ ELLS: Use Example 2 • Very detailed suggested are listed on page 22 of the Teacher's Edition SWD: Use Example 4 • Have students verify distance formula results with a movement activity • Have students stand in an open area. Students place a small piece of masking tape on the fllore where they are standing. • Direct students to take 4 steps to the right and place another piece of tape on the Floor. Then direct students to take 3 steps forward and	Pages 22-23

	place another piece of tape on the floor ○ How many steps do you think it would take to walk back to the first piece of tape? ○ How does your count compare to your estimate? ○ How could you calculate how many steps it would take to return?	