

Teacher Name: Danielle Love

Subject/Grade Level: Geometry

PART I: LESSON PREVIEW

Unit: Quadrilaterals

Lesson duration: One ninety-minute block

Summary/description of lesson: Properties of Squares and Parallelogram Distinction

PART II: LESSON BACKGROUND

Primary Objectives:

- Virginia Geometry SOL G.9 The student will verify characteristics of quadrilaterals and use properties of quadrilaterals to solve real-world problems.

Secondary Objectives:

- To use relationships among sides and angles of parallelograms.
- To use relationships among diagonals of parallelograms.
- To define and classify special types of parallelograms.
- To use properties of diagonals of rectangles, rhombi, and squares.
- To determine whether a parallelogram is a rhombus, rectangle, or square.

Pre-Assessment(s): Students will fill in a Thinking Map of their prior knowledge of each quadrilateral's properties. Pre-Assessment will be given on the first day of the unit.

Formative assessments:

- Poster Shape Sort: Each poster hung around the room names a specific property. With a partner, students will walk around the room and stick each shape name for which the property applies. Each set of partners will have a different color set of shapes.

Summative assessment (Identify/describe the tool used):

- Homework: Quadrilateral Table: The table lists the properties of all of the quadrilaterals. Students place a check mark under each shape for which the property applies.

PART II: LEARNING TARGETS (ALL STUDENTS)

Know	Understand	Be Able to Do
<ul style="list-style-type: none"> • Properties of quadrilaterals (parallelogram, rectangle, rhombus, square, isosceles trapezoid, trapezoid, kite). 	<ul style="list-style-type: none"> • Quadrilaterals have a hierarchical nature based on relationships between sides, angles, and diagonals. • Properties of quadrilaterals can be used to identify the quadrilateral and find the measures of sides and angles. 	<ul style="list-style-type: none"> • Solve problems using properties specific to parallelograms, rectangles, rhombi, squares, isosceles trapezoids, and trapezoids. • Prove quadrilaterals have specific properties using deductive reasoning, algebraic, and

		coordinate methods (distance, midpoint and slope formulas).
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PART III: LEARNING TIERS

Identification of tiers based on pre-assessment data (describe what you will do to help students master content objectives for each tier)		
Tier 1 (Enhanced)	Tier 2 (Target)	Tier 3 (Prerequisite)

PART IV: INSTRUCTIONAL AND ENGAGEMENT STRATEGIES

Instructional Strategies (Check All That Apply)	Qualities of Engaging Work (Check All That Apply)
<input type="checkbox"/> Identify similarities and differences Describe Activity: <i>As students complete the poster sort and the Quadrilateral Table, similarities and differences among the shapes are reinforced.</i>	<input type="checkbox"/> Personal response Describe Activity: <i>The free-response questions/authentic learning activities throughout the unit will provide students an opportunity to incorporate their background knowledge to responses.</i>
<input type="checkbox"/> Summarizing and note-taking Describe Activity: <i>The Smartboard lesson with a completed list of properties is presented for filling in missing notes and review discovery.</i>	<input type="checkbox"/> Clear/modeled expectations Describe Activity: <i>The popsicle exploration activity will be explained and demonstrated prior to being completed by students.</i>
<input type="checkbox"/> Reinforcing effort and providing recognition Describe Activity: <i>The poster sort and the Quadrilateral Table will both provide additional opportunities to reinforce the shapes and their properties.</i>	<input type="checkbox"/> Emotional/intellectual safety Describe Activity: <i>Students will work in partners for the poster sort. The partners will place shapes that exhibit the property on the poster, each group with a different color set of shapes.</i>
<input type="checkbox"/> Homework and practice Describe Activity: <i>Students will complete a "Quadrilateral Table" worksheet to demonstrate understanding of the square's properties.</i>	<input type="checkbox"/> Learning with others Describe Activity: <i>The poster shape sort activity will be completed with a partner.</i>
<input type="checkbox"/> Nonlinguistic representations Describe Activity: <i>Students will be illustrating the properties of parallelograms with a series of labeled pictures.</i>	<input type="checkbox"/> Sense of audience Describe Activity:
<input type="checkbox"/> Cooperative learning Describe Activity: <i>Students will work with partners to complete the poster sort of the shapes based on their</i>	<input type="checkbox"/> Choice Describe Activity:
	<input type="checkbox"/> Novelty and variety

<p>properties.</p> <p><input type="checkbox"/> Setting objectives and providing feedback Describe Activity:</p> <p><input type="checkbox"/> Generating and testing hypotheses Describe Activity:</p> <p><input type="checkbox"/> Cues, questions, and advance organizers Describe Activity: <i>Students will use a foldable to compile properties of all quadrilaterals. Each fold will have a Bubble Thinking Map to describe the properties. The poster sort and Quadrilateral Table will also be used.</i></p>	<p>Describe Activity: Students will be completing a kinesthetic sorting activity.</p> <p><input type="checkbox"/> Authenticity Describe Activity: <i>The free-response questions due at the end of the unit provide students with a real-world and authentic learning experience.</i></p>
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PART V: PROCEDURES

	Teacher Actions	Student Actions	Materials/Resources (including technology)	Time
Warm up/Activating Prior Knowledge/Emotional Hook	Guide students to predicting the connection between squares and what they already discovered about the rest of the parallelograms.	Students can reference the thinking map of quadrilaterals to determine their prediction for square properties.	<ul style="list-style-type: none"> Foldable notes* <p>*see attachments in unit plan binder</p>	10 min
Teacher Input	<ul style="list-style-type: none"> Smartboard presentation of complete list of properties for squares. Teacher guides students through completion of examples of applying properties to problems. 	<ul style="list-style-type: none"> Students fill missing properties into their Bubble Map. Students come to board to identify properties in the picture example. Students copy and complete examples of applying properties to problems. 	<ul style="list-style-type: none"> Foldable notes* Notebooks <p>* see attachments in unit plan binder</p>	20 min
Guided Student Practice	<ul style="list-style-type: none"> Assign “Properties of Squares” worksheet Walk around the room to help students. 	<ul style="list-style-type: none"> Students work on “Properties of Squares” worksheet independently Students ask questions. 	<ul style="list-style-type: none"> “Properties of Squares” worksheet* Foldable notes* <p>*see attachments in unit plan binder</p>	20 min
Independent Student Practice	Assign Homework: “Quadrilateral Table” worksheet	Complete Homework: Students will complete “Quadrilateral Table” worksheet	<p>“Quadrilateral Table” Worksheet*</p> <p>*see attachments in unit plan binder</p>	N/A

Lesson Synthesis through Review (with opportunity to Analyze, Evaluate, and Create)	Explain and demonstrate the poster shape sort, where partners will sort names of shapes based on the characteristic listed on the poster.	<ul style="list-style-type: none"> • With a partner, students will complete a poster shape sort. • Free-response questions due at the end of the unit • Accelerated Math quadrilateral objectives 	<ul style="list-style-type: none"> • Quadrilateral posters displayed in classroom.* • Multiple sets of colored shape cards.* • Free-response question packet* • Accelerated Math quadrilateral objective packet* <p>*see attachments in unit plan binder</p>	10 min
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PART VI: PRE-PLANNED GUIDING QUESTIONS

Bloom's Level	Question Exemplars (Specific to Unit)	Acceptable Student Responses (Must Match Level of Questioning)
Knowledge	Identify the properties of the square.	All the properties of parallelograms, rectangles, and rhombi combined.
Comprehension	Compare/contrast the properties of squares with those of parallelograms, rectangles, and rhombi.	Squares are a combination of parallelograms, rectangles, and rhombi.
Application	Illustrate each property in a picture of a parallelogram.	Picture must be a square with the properties listed above appropriately labeled.
Analysis	Discuss relationships with other previously learned quadrilaterals.	Ex. A parallelogram is "sometimes" a square.
Synthesis	Predict the properties of squares (warm-up).	All the properties of parallelograms, rectangles, and rhombi.
Evaluation	Ex. Justify why the shape is a square, instead of assuming it's a rhombus.	Squares also have congruent diagonals.

PART VII: TEACHER SELF-EVALUATION AND REFLECTION ON LESSON PLANNING AND DELIVERY

Strengths of Lesson	Opportunities for Growth
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LESSON DESIGN

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