Quadrilateral Properties – A Co-Teaching Lesson Plan

Co-Teaching Approaches
A "(Y)" in front of the following list items indicates the approach is outlined in the lesson. An "(N)" in front of the following list items indicates the approach is not outlined in the lesson.

- (Y) Parallel Teaching
- (Y) Team Teaching
- (Y) Station Teaching
- (N) One Teach/One Observe
- (N) Alternative Teaching
- (N) One Teach/One Assist

Subject
Grade 4 Mathematics

Strand
Geometry

Topic
Investigating polygons – reviewing names of polygons by number of sides, determining properties of quadrilaterals

SOL
4.12   The student will classify quadrilaterals as parallelograms, rectangles, squares, rhombi, and/or trapezoids.

Outcomes
The students will define/name polygons, and identify the properties of polygons with 10 or fewer sides,

Materials
- Plane Geometric Figures activity sheet (attached)
- Plane Geometric Figures Sort activity sheet (attached)
- Plane Geometric Figures Sort Answer Key (attached)
- Quadrilaterals activity sheet (attached)
- Quadrilateral Properties Summary Sheet (attached)

Vocabulary

Right angle, congruent, parallel, perpendicular, circle, plane figure, parallelogram, polygon, properties, quadrilateral, rectangle, rhombus, square, trapezoid, triangle

Co-Teacher Actions

Lesson Component	Co-Teaching Approach(es)	General Educator (GE)	Special Educator (SE)
Anticipatory Set	Team Teaching	Place the vocabulary words on the board before class. Have students working in pairs try to come up with a definition and a sketch for each. Monitor students as they discuss the terms, listening for misconceptions, appropriate use of the vocabulary used, and selecting students to share their thinking with the class. Assist with the share-out about the terms.	This is a great pre-assessment of prior knowledge and new vocabulary. Monitor students as they discuss the terms, listening for misconceptions, appropriate use of the vocabulary used, and selecting students to share out their thinking with the class. Facilitate the share-out, allowing students to describe the terms they recall. The names trapezoid and parallelogram may not come forward during this discussion, and that is OK. The students will develop in this lesson.
Lesson Activities/ Procedures	Parallel Teaching	Divide the class into two groups: those with stronger prior knowledge and those needing additional support for an exploration activity. Students will be working with a partner to investigate and determine properties of polygons. Distribute the Plane Geometric Figures activity sheet and the Plane Geometric Figures Sort activity sheet. Have the partners work through the chart together.	Students will be working with a partner while the SE facilitates the exploration of the whole group. Distribute the Plane Geometric Figures activity sheet and the Plane Geometric Figures Sort activity sheet. Ask general questions about the figures as a whole group: What do the students notice and recognize? Lead a discussion through the first few entries on the sheet, and then have the

Lesson Component	Co-Teaching Approach(es)	General Educator (GE)	Special Educator (SE)
		Monitor the students as they discuss the sort, asking the "Why?" and "How do you know?" questions, selecting students to share their thinking with the entire group.	partners work through the chart together. Closely monitor the student work and discussions, listening for misconceptions and asking clarifying "Why?" questions. Provide support for the students where needed. Also, select students to share their thinking with the entire group.
Guided/ Independent Practice	Team Teaching	Create new partnerships from the entire class. Distribute the Quadrilaterals activity sheet. As the students work through this sheet, monitor and listen for vocabulary use, asking the "Why?" and "How do you know?" questions. Select students to share their thinking at the end of this activity. Facilitate a discussion of results. Choose students to share their thinking.	Create new partnerships from the entire class. Distribute the Quadrilateral activity sheet. As the students work through this sheet, monitor and listen for vocabulary use, asking the why and how do you know questions. Select students to share their thinking at the end of this activity.
Closure	Team Teaching	1. Have the selected students share their thinking and results. Ask questions of the whole class to ensure all students follow the discussions on properties.	2. Ask students to compare and contrast the quadrilaterals. Record their findings on the board.
Formative Assessment Strategies	Team Teaching	Monitoring student discussions. Listening to students sharing out their thinking. Assessing worksheets.	
Homework		Take each of the five quadrilaterals and draw two different examples of each one. Make sure your drawings meet all of the properties of that quadrilateral. Be ready	

Lesson Component	Co-Teaching Approach(es)	General Educator (GE)	Special Educator (SE)
		to share and discuss your pictures in class tomorrow.	

Specially Designed Instruction
- Teacher will make thinking "visible" to students.   Teacher will verbally "think aloud" the types of properties that each polygon/quadrilateral shows.
- Teacher will ask students to verbalize their thinking as they match properties to polygons.
- Teacher will provide direct instruction/review of prior knowledge vocabulary.

Accommodations
- Limit the size of and/or enlarge the Plane Geometric Figures Sort activity sheet.
- Cut out the figures on the Plane Geometric Figures Sort activity sheet ahead of time so students can examine one figure at a time and for students who have difficulty with fine motor skills.
- The Quadrilateral Properties Summary Sheet could be turned into a fill-in-the blank format, or matching format.
- Properties and markings on quadrilaterals can be color coded.

Modifications
- For students who need a modified curriculum, content could be modified to only include polygons and number of associated sides.

Notes
- "Special educator" as noted in this lesson plan might be an EL teacher, speech pathologist, or other specialist co-teaching with a general educator.

Note: The following pages are intended for classroom use for students as a visual aid to learning.

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Plane Geometric Figures

A

H

I

B

C

F

G

E

K

D

L

J

M
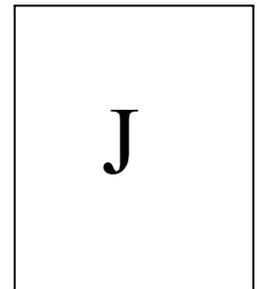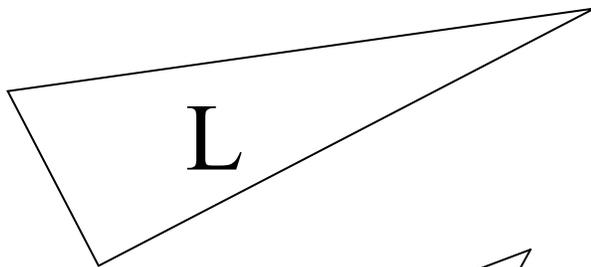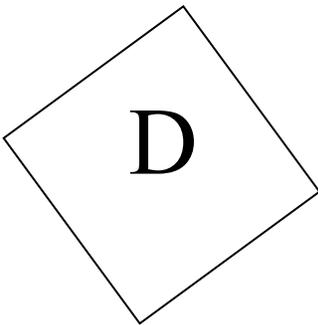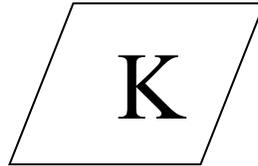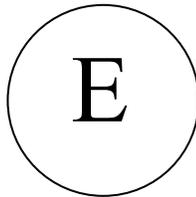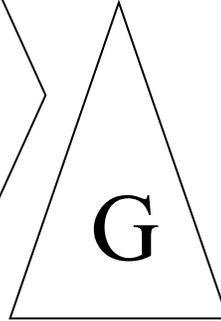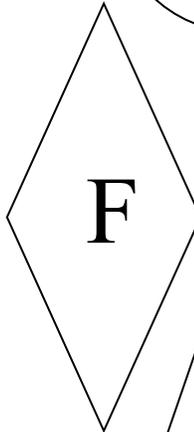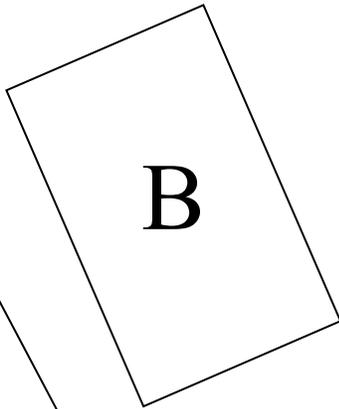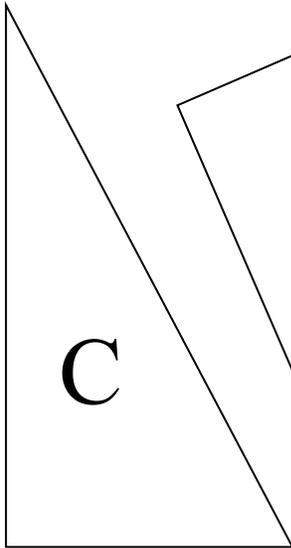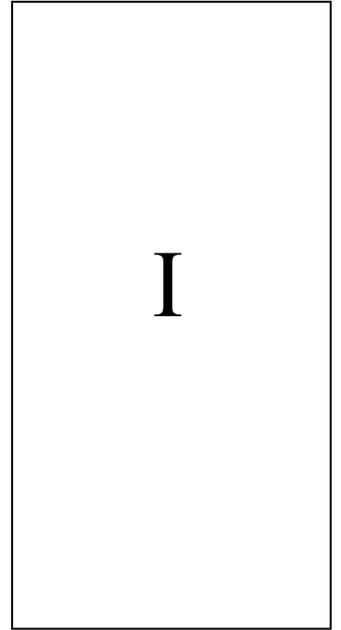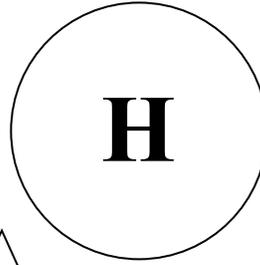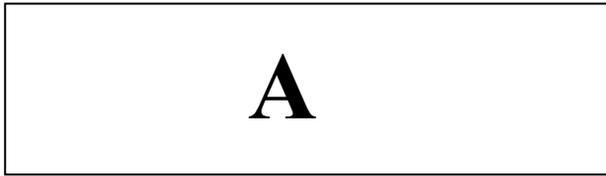
Plane Geometric Figures Sort

Name: _____ **Date:** _____

Directions: Look carefully at each figure on the Plane Geometric Figures sheet. Check all the columns that apply to each figure. Based on the chart, answer the questions that follow.

Figure	No sides	Three sides	Four sides	At least one right angle	All sides of equal length	Opposite sides of equal length	Opposite sides parallel
A							
B							
C							
D							
E							
F							
G							
H							
I							
J							
K							
L							
M							

Questions

1. A figure with no sides or line segments and with all points on the figure the same distance from a center point is called a _____.

2. A figure with three sides is called a _____.

3. Can a figure with three sides have a right angle? _____

Plane Geometric Figures Sort Answer Key

Figure	No sides	Three sides	Four sides	At least one right angle	All sides of equal length	Opposite sides of equal length	Opposite sides parallel
A			X	X		X	X
B			X	X		X	X
C		X		X			
D			X	X	X	X	X
E	X						
F			X		X	X	X
G		X					
H	X						
I			X	X		X	X
J			X	X	X	X	X
K			X			X	X
L		X		X			
M		X					

Questions

1. A figure with no sides or line segments and with all points on the figure the same distance from a center point is called a <u>circle</u>.

2. A figure with three sides is called a <u>triangle</u>.

3. Can a figure with three sides have a right angle? <u>Yes</u>

Quadrilaterals
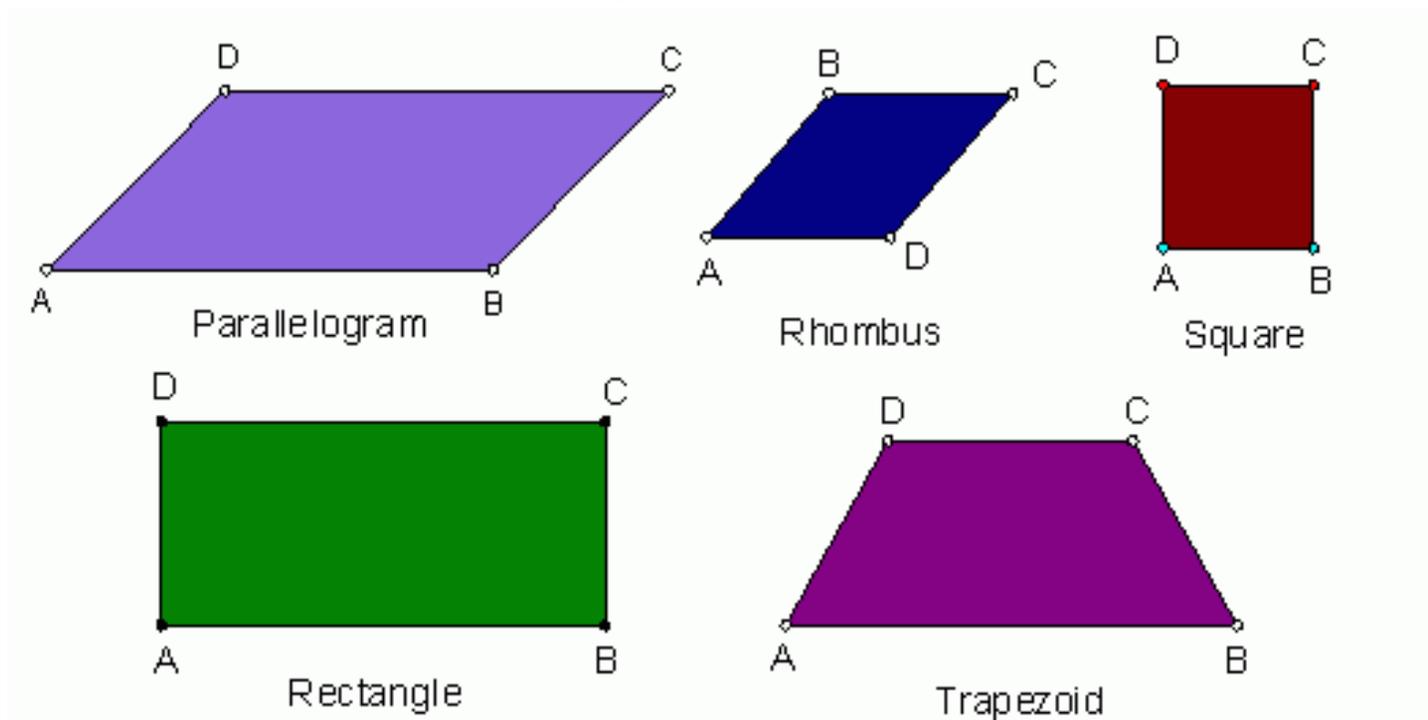
1. In each quadrilateral above, write the letter of each polygon from the first activity sheet that fits this type.

2. A quadrilateral with opposite sides of equal length and four right angles is called a _____.

3. A quadrilateral with all four sides of equal length and four right angles is called a _____.

4. A quadrilateral with all four sides of equal length and any kind of angles is called a _____.

5. A quadrilateral with two pairs of parallel sides is called a _____.

6. George said that Figure D was a square. Amy said D is a rectangle. Amondre said D is a parallelogram. Who do you think is right and why?

Quadrilateral Properties Summary Sheet

Directions: List the properties under each of the pictured quadrilaterals. Write the name of the figure inside.
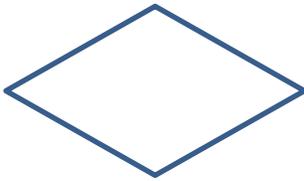
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