

# Exploring Quadrilaterals

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**Reporting Category** Geometry

**Topic** Sorting quadrilaterals to describe and identify properties

**Primary SOL** 6.13 The student will describe and identify properties of quadrilaterals.

## Materials

- Quadrilaterals Sorting Labels (attached)
- Quadrilateral Sorting Shapes (attached)
- Scissors
- Baggies
- Quadrilateral Notes (attached)

## Vocabulary

*square, rectangle, parallelogram, rhombus, trapezoid, pentagon, triangle, hexagon, quadrilateral, polygon, congruent, parallel, angle* (earlier grades)  
*kite* (6.13)

## Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

Prior to the lesson, make multiple copies of the attached Quadrilateral Sorting Labels, including blank labels, and Quadrilateral Sorting Shapes on cardstock. Make one set of labels and shapes for each pair of students. Cut out the labels and shapes.

1. Review the types of polygons by displaying a triangle, quadrilateral, pentagon, and hexagon and having students name and describe each shape.
2. Put students into pairs, and give each pair a baggie containing a set of quadrilateral sorting labels and a set of quadrilateral sorting shapes. Ask partners to examine and analyze the shapes. Challenge them to think of a category into which all of the shapes will fit. (quadrilateral)
3. Ask students how else the shapes could be classified. Display the names of the quadrilateral shapes—parallelogram, rectangle, rhombus, square, trapezoid, and kite—and ensure that all students know and understand them. You might display a large drawing of each quadrilateral next to its name.
4. Instruct students to sort the shapes according to their attributes. Have them use the labels to help them sort. Blank labels are provided for students to create categories of their own. Allow students to describe the categories they created.
5. Distribute copies of the attached Quadrilateral Notes, and instruct students to complete the notes, using their sorting as an aide.
6. Discuss the completed notes as a whole class. Have students describe how they decided where to place each shape.
7. Have students use what they have learned about quadrilaterals to write riddles about the shapes. The riddles should describe the characteristics of the quadrilaterals without actually naming them. Have student partners share and solve each other's riddles.

## Assessment

- **Questions**
  - How did you decide where to put each quadrilateral sorting shape?
  - How else could you sort these quadrilaterals?
  - Which shapes have similar attributes? What are their similar attributes? How do you know?
  - Can a quadrilateral shape belong to more than one subset of quadrilaterals? Why, or why not? How do you know?
- **Journal/Writing Prompts**
  - Describe the three ways in which you can classify quadrilaterals by their attributes. Give examples.
- **Other**
  - Use the Quadrilateral Notes handout as an assessment
  - Use students' riddles as an assessment

## Extensions and Connections (for all students)

- Give students riddles about quadrilaterals to solve.
- Have students find quadrilaterals around the classroom and classify them by their attributes.

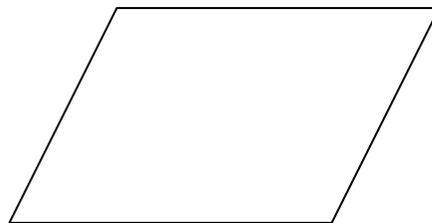
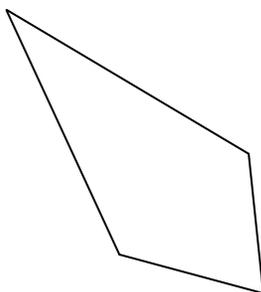
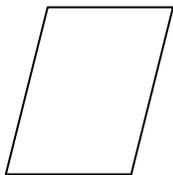
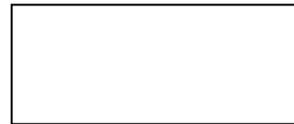
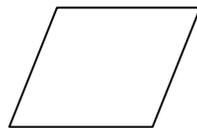
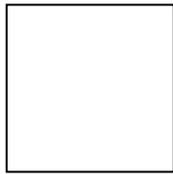
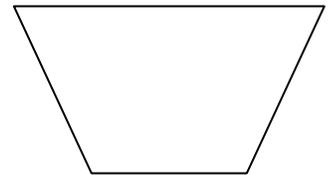
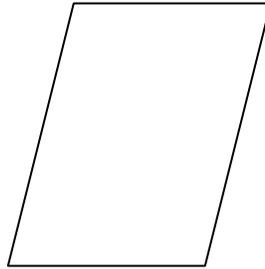
## Strategies for Differentiation

- Provide students with string to make sorting circles.
- Assign specific sorting labels for students to use when sorting quadrilaterals.
- Provide drawings for students to glue in the “Drawing” boxes on the Quadrilateral Notes handout instead of having them draw each shape.

# Quadrilaterals Sorting Labels

Has four sides and four angles
Has four right angles
Opposite angles are congruent.
Has four congruent sides
Has two pairs of congruent sides
Opposite sides are parallel, and opposite angles are congruent.
Opposite sides are parallel.
Has one pair of parallel sides
One pair of opposite angles is congruent.
Has two pairs of parallel sides.
Has no parallel sides
Has no right angles
Has one or two right angles

# Quadrilateral Sorting Shapes



# Quadrilateral Notes

Name \_\_\_\_\_ Date \_\_\_\_\_

Fill in the boxes below with the appropriate names of the quadrilateral shapes.

Number of Parallel Sides		
No Parallel Sides	One Pair of Parallel Sides	Two Pairs of Parallel Sides
Measure of the Angles		
No 90° Angles	One or Two 90° Angles	Four 90° Angles
Number of Congruent Sides		
No Sides Congruent	Two Pairs of Congruent Sides	All Four Sides Congruent

Fill in the boxes below.

Name of Quadrilateral	Description	Drawing