

Core Content

Cluster Title: Reason with shapes and their attributes.

Standard 1: Understand that shapes in different categories (e.g., rhombi, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombi, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

MASTERY Patterns of Reasoning:**Conceptual:**

Students will understand the attributes of different categories of quadrilaterals.

Students will understand shapes that are examples and non-examples of quadrilaterals.

Students will understand shared attributes can define a larger category of polygons.

Procedural:

Students can classify shapes based on the number of sides.

Students can classify shapes based on length of sides.

Students can classify shapes based on angles.

Students can articulate proper vocabulary and details when describing the properties of quadrilaterals.

Students can show examples of quadrilaterals that do not belong.

Representational:

Students can create or represent many varied and unusual squares, rectangles, rhombuses, parallelograms, rhombi, and trapezoids and explain them verbally or in written form.

Students can sort geometric figures and identify squares, rectangles, rhombi, trapezoids, and parallelograms as quadrilaterals based on their attributes.

Students can draw quadrilaterals that do not belong to these subcategories (squares, rectangles, rhombus, trapezoid, and parallelograms).

Supports for Teachers

Critical Background Knowledge**Conceptual:**

Students will know basic shapes and their attributes.

Code: 3G1

Students will show a basic understanding of angles, sides, and faces.
 Students will know closed shapes.

Procedural:

Students can identify basic shapes.
 Students can sort shapes based on attributes.

Representational:

Students can draw basic shapes.
 Students can draw a representation of a shape sort.
 Students can make a list of common attributes of different shapes.

Academic Vocabulary and Notation

attribute, angle, closed figure, faces, polygon, rhombus, rectangle, side, square, parallel, parallelogram, quadrilateral, trapezoid, vertex, ||, right angle, 

** It would be helpful for the teacher to understand that rectilinear figures must have 4 right angles.

** Teach correct plural forms. Rhombus=Rhombi, Vertex= Vertices

Instructional Strategies Used

Provide many different and varied examples of quadrilaterals.

Do a shape scavenger hunt to find quadrilaterals around the classroom or school. Have the students sort them into different groups. Students will explain how they grouped the quadrilaterals.

Choose a quadrilateral and describe how you would change it to make it fit another group.

Use geoboards, geo dot paper or other manipulatives to build many and varied examples of quadrilaterals.

Resources Used

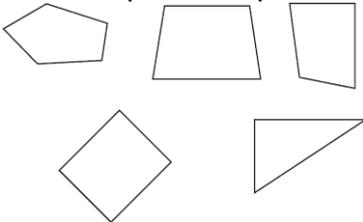
Blaisdell, Molly. *If You Were a Quadrilateral*. Picture Window Books, 2009.

Wentz, Stephen. *Square and the Missing Quadrilaterals*. Bookemon, 2011.

http://www.Bookemon.com/book_read_flip.php?book_id=97264&size=1.4&style=popup2

<http://ww.mathsisfun.com/quadrilaterals.html>

<http://www.teachervision.fen.com/math-instruments/grapic-organizers/44643.html>

<p>Draw non-examples of quadrilaterals that do fit the subcategories (e.g., convex quadrilaterals).</p>	<p>http://www.nlv.m.usu.edu/en/nav/frames_asid_172_g_2_t_3.html</p>
<p>Assessment Tasks Used</p>	
<p>Skill-Based Task:</p> <ul style="list-style-type: none"> Which of these shapes is a quadrilateral? <div style="text-align: center;">  </div> <ul style="list-style-type: none"> Sort many, varied quadrilaterals based on their attributes. 	<p>Problem Task:</p> <p>Compare two quadrilaterals. How are they alike and how are they different? List an example of each quadrilateral that you can see in the classroom.</p>