**MCC. 3.G.1 (Geometry)**

Understand that shapes in different categories (e.g., rhombuses, 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 rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

**ENDURING UNDERSTANDINGS**

Identify and describe properties of two-dimensional shapes using properties that are shared between the shapes.

• Generalize that shapes fit into a particular classification.

• Compare and classify shapes by their sides and angles, and connect these with definitions of shapes.

• Geometric figures can be classified according to their properties.

• Quadrilaterals can be classified according to the lengths of their sides.

• Recognize shapes that are and are not quadrilaterals by examining the properties of the geometric figures.

• Conceptualize that a quadrilateral must be a closed figure with four straight sides and begin to notice characteristics of the angles and the relationship between opposite sides

Provided details and use proper vocabulary when describing the properties of quadrilaterals.

• Sort geometric figures and identify squares, rectangles, and rhombuses as quadrilaterals.

• Classify shapes by attributes and by drawing shapes that fit specific categories. (e.g.; parallelograms include: squares, rectangles, rhombi, or other shapes that have two pairs of parallel sides.

• The broad category “Quadrilaterals” includes all types of parallelograms, trapezoids and other four-sided figures.

• Shapes can be partitioned with equal areas in a variety of ways to show halves, thirds, fourths, sixths, and eighths.

**ESSENTIAL QUESTIONS**

Can all shapes be split into halves, thirds, fourths, sixths and eighths? Prove it.

• Describe what a fraction looks like in a shape?

• Do quadrilaterals have to look like rectangles? How do you know?

• Do rectangles and squares always look the same? How do you know?

• Do you think shapes could be grouped together in the same family or classification? Explain.

• Does a \_\_\_\_\_\_\_\_\_\_\_\_\_\_ (include any shape) always look the same?

• Does the direction that a shape is facing change the way it looks? Does it change the shape’s name?

• How are quadrilaterals alike and different?

• How are the quadrilaterals alike?

• How can common shapes be used to create pictures?

• How can I use attributes to compare and contrast shapes?

• How can rectangles have the same perimeter but have different areas?

• How can we use two- dimensional shapes to solve problems?

• How can you create different types of quadrilaterals?

• How can you show what you have learned about quadrilaterals and other shapes?

• How do attributes help us describe shapes?

• How do the attributes help us identify the different shapes?

• How do you know if a shape is a \_\_\_\_\_\_\_\_(square, rectangle, rhombus, trapezoid, parallelogram etc) quadrilateral?

• How do you know if a shape shows \_\_\_\_\_(halves, thirds, fourths, sixths, or eighths?)

• How do you know the difference between a square, a rectangle, a trapezoid, and a rhombus?

• How do you know the difference between shapes if several of them have the same number of sides?

• How is a rhombus different from a square, rectangle, or trapezoid?

• How it is possible to have a shape that has fits into more than one category?

• How might finding shapes within other shapes help me in life?

• How would you explain to a younger student about the different shapes and how some shapes can share attributes?

• Is a rectangle a rhombus? Why?

• Is it possible for a square to be a rectangle? Is a rectangle a square?

• Is it possible to find more than 1 way for shapes to fit together to make another shape?

• Is there a way to use parts of shapes to help create shapes?

• What are some differences between the quadrilaterals?

• What are some different ways to identify shapes?

• What are some things you have learned about quadrilaterals?

• What are some ways that a hexagon (or pentagon) can look?

• What do know about a quadrilateral that you didn’t know at the beginning of this unit?

• What does it mean to partition a shape into parts?

• What is the difference between a regular and an irregular polygon?

• What is the purpose of studying fractions?

• What might a quadrilateral look like?

• What might an irregular shaped quadrilateral look like?

• Why are the attributes of shapes important?

• Why can some shapes be called by different names?

• Why do quadrilaterals have different attributes?

• Why do some quadrilaterals look so much alike?

• Why is it important to know what quadrilaterals are and the differences between them?

**CONCEPTS/SKILLS TO MAINTAIN**

It is expected that students will have prior knowledge/experience related to the concepts and skills identified below. It may be necessary to pre-assess in order to determine if time needs to be spent on conceptual activities that help students develop a deeper understanding of these ideas.

• Represent and solve problems involving multiplication and division

• Understand properties of multiplication and the relationship between multiplication and division

• Multiply and divide within 100

• Solve problems involving the four operations, and identify and explain patterns in arithmetic

• Use place value

• Recognize basic geometric figures and spatial relationships of triangle, quadrilateral (squares, rectangles, and trapezoids), pentagon, hexagon, cube, trapezoid, half/quarter circle, circle, cone, cylinder, sphere

**STRATEGIES FOR TEACHING AND LEARNING**

In earlier grades, students have experiences with informal reasoning about particular shapes through sorting and classifying using their geometric attributes. Students have built and drawn shapes given the number of faces, number of angles and number of sides.

The focus now is on identifying and describing properties of two-dimensional shapes in more precise ways using properties that are shared rather than the appearances of individual shapes. These properties allow for generalizations of all shapes that fit a particular classification. Development in focusing on the identification and description of shapes’ properties should include examples and non-examples, as well as examples and non-examples drawn by students of shapes in a particular category. For example, students could start with identifying shapes with right angles. An explanation as to why the remaining shapes do not fit this category should be discussed. Students should determine common characteristics of the remaining shapes.



In Grade 2, students partitioned rectangles into two, three or four equal shares, recognizing that the equal shares need not have the same shape. They described the shares using words such as, halves, thirds, half of, a third of, etc., and described the whole as two halves, three thirds or four fourths. In Grade 3 students will partition shapes into parts with equal areas (the spaces in the whole of the shape). These equal areas need to be expressed as unit fractions of the whole shape, i.e., describe each part of a shape partitioned into four parts as ¼ of the area of the shape.

Have students draw different shapes and see how many ways they can partition the shapes into parts with equal areas.

**EVIDENCE OF LEARNING**

By the conclusion of this unit, students should be able to demonstrate the following competencies:

Identify and draw triangles, quadrilaterals (square, rectangle, parallelogram, trapezoid, and rhombus), pentagons, and hexagons.

• Draw common polygons.

• Sort, compare and classify geometric figures according to their properties.

• Identify and describe examples and non-examples of shapes based on properties.

• Partition shapes into equal shares of halves, thirds, fourths, sixths, and eighths.

• Use tangrams to combine (compose) shapes to make other shapes.

• Reason with shapes and their attributes.

**LEARNZILLION:**

<https://learnzillion.com/lessonsets/694-understand-shape-categories-and-attributes>

<https://learnzillion.com/lessonsets/392-understand-shape-categories-and-attributes>