5th Grade Unit 5 Mathematics

Dear Parents,

The Mathematics Georgia Standards of Excellence (MGSE), present a balanced approach to mathematics that stresses understanding, fluency, and real world application equally. Know that your child is not learning math the way many of us did in school, so hopefully being more informed about this curriculum will assist you when you help your child at home.

Below you will find the standards from Unit Five in bold print and underlined. Following each standard is an explanation with student examples. Please contact your child's teacher if you have any questions.

G.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. *For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles*

This standard calls for students to reason about the attributes (properties) of shapes. Students should have experiences discussing the properties of shapes and reasoning about those properties to better understand why shapes in one category also belong to other subcategories.

Example: Examine whether all quadrilaterals have right angles. Give examples and non-examples.
Examples of questions that might be posed to students:
- If the opposite sides on a figure are parallel and equal in length, then the figure is a rectangle. True or false? Why or why not?
- A parallelogram has 4 sides with both sets of opposite sides parallel. What types of quadrilaterals are parallelograms?
- Regular polygons have all sides the same length and all angles the same measure. Name or draw some regular polygons.
- All rectangles have 4 right angles. Squares have 4 right angles so they are also rectangles. True or false? Justify your answer.
- A trapezoid has 2 sides parallel so it must be a parallelogram. True or False? Why or why not?

## G.4 Classify two-dimensional figures in a hierarchy based on properties.

This standard builds on ideas that were studied in previous grades. Two-dimensional figures from previous grades include: polygon, rhombus, rectangle, square, triangle, quadrilateral, pentagon, hexagon, trapezoid, parallelogram, half/quarter circle, and circle.

Example:
Create a hierarchy diagram using the following terms.

- polygons – a closed plane figure formed from line segments that meet only at their endpoints
- rectangles - a quadrilateral with opposite sides the same length and four right angles
- rhombus – a parallelogram with all four sides equal in length
- quadrilateral – a four-sided polygon
- parallelogram – a quadrilateral with two pairs of parallel sides
- square – a parallelogram with all four sides equal in length and four right angles

Possible student solution:
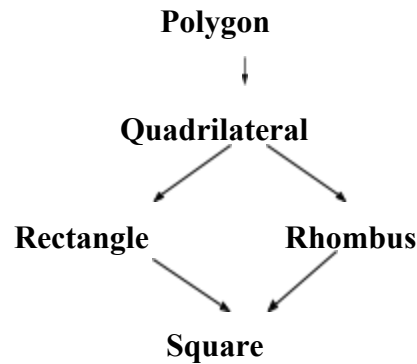
Possible student solution:
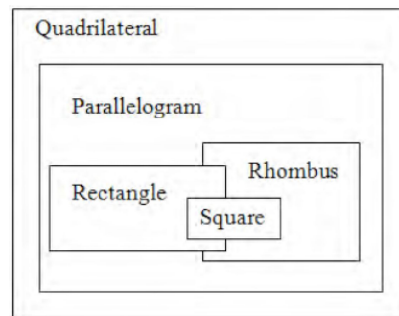
Students should be able to reason about the attributes of shapes by examining questions like the following:

- What are ways to classify triangles?
- Why can't trapezoids be classified as parallelograms?
- Which quadrilaterals have opposite angles the same measure?
- How many lines of symmetry does a regular polygon have? Do you see a pattern?