Dear Parents,

We want to make sure that you have an understanding of the mathematics your child will be learning this year. Below you will find the standards we will be learning in Unit One. Each standard is in bold print and underlined and below it is an explanation with student examples. Your child is not learning math the way we did when we were in school, so hopefully this will assist you when you help your child at home. Please let your teacher know if you have any questions ☺

CLUSTER #1: IDENTIFY AND DESCRIBE SHAPES (SQUARES, CIRCLES, TRIANGLES, RECTANGLES, HEXAGONS, CUBES, CONES, CYLINDERS, AND SPHERES).

This entire cluster asks students to understand that certain attributes define what a shape is called (number of sides, number of angles, etc.) and other attributes do not (color, size, orientation). Then, using geometric attributes, the student identifies and describes particular shapes listed above. Throughout the year, Kindergarten students move from informal language to describe what shapes look like (e.g., "That looks like an ice cream cone!") to more formal mathematical language (e.g., "That is a triangle. All of its sides are the same length").

In Kindergarten, students need ample experiences exploring various forms of the shapes (e.g., size: big and small; types: triangles, equilateral, isosceles, scalene; orientation: rotated slightly to the left, "upside down") using geometric vocabulary to describe the different shapes. In addition, students need numerous experiences comparing one shape to another, rather than focusing on one shape at a time. This type of experience solidifies the understanding of the various attributes and how those attributes are different- or similar- from one shape to another. Students in Kindergarten typically recognize figures by appearance alone, often by comparing them to a known example of a shape, such as the triangle on the left. For example, students in Kindergarten typically recognize that the figure on the left is a triangle, but claim that the figure on the right is not a triangle, since it does not have a flat bottom. The properties of a figure are not recognized or known. Students make decisions on identifying and describing shapes based on perception, not reasoning.
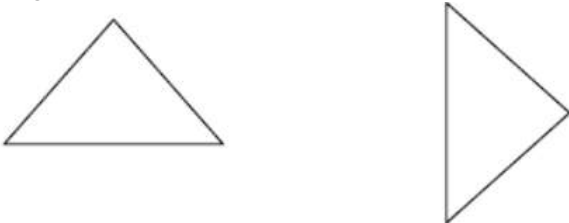
MGSEK.G.1 Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as *above, below, beside, in front of, behind, and next to.*

>   This standard expects students to use positional words (such as those italicized above) to describe objects in the environment. Kindergarten students need to focus first on location and position of two-and-three-dimensional objects in the real world prior to describing location and position of two-and-three-dimension representations on paper.

MGSEK.G.2 Correctly name shapes regardless of their orientations or overall size.

>   This standard addresses students" identification of shapes based on known examples." Students at this level do not yet recognize triangles that are turned upside down as triangles, since they don't "look like" triangles. Students need ample experiences looking at and manipulating shapes with various typical and atypical orientations. Through these experiences, students will begin to move beyond what a shape "looks like" to identifying particular geometric attributes (e.g., number of sides or corners) that define a shape.

MGSEK.G.3 Identify shapes as two-dimensional (lying in a plane, "flat") or three dimensional ("solid").

>   This standard asks students to identify flat objects (2 dimensional) and solid objects (3 dimensional). This standard can be done by having students sort flat and solid objects, or by having students describe the appearance or thickness of shapes.

MGSEK.G.4 Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).
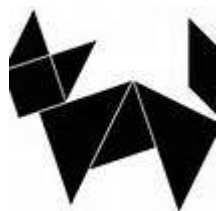
This standard asks students to note similarities and differences between and among 2-D and 3-D shapes using informal language. These experiences help young students begin to understand how 3-dimensional shapes are composed of 2-dimensional shapes (e.g.., the base and the top of a cylinder is a circle; a circle is formed when tracing a sphere).

MGSEK.G.5 Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

This standard asks students to apply their understanding of geometric attributes of shapes in order to create given shapes. For example, a student may roll a clump of play-doh into a sphere or use their finger to draw a triangle in the sand table, recalling various attributes in order to create that particular shape.

MGSEK.G.6 Compose simple shapes to form larger shapes. For example, "Can you join these two triangles with full sides touching to make a rectangle?"

This standard moves beyond identifying and classifying simple shapes to manipulating two or more shapes to create a new shape. This concept begins to develop as students" first move, rotate, flip, and arrange puzzle pieces. Next, students use their experiences with puzzles to move given shapes to make a design (e.g., "Use the 7 tangram pieces to make a fox."). Finally, using these previous foundational experiences, students manipulate simple shapes to make a new shape.

MGSEK.MD.3 Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. (Limit category counts to be less than or equal to 10.)

This standard asks students to identify similarities and differences between objects (e.g., size, color, shape) and use the identified attributes to sort a collection of objects. Once the objects are sorted, the student counts the amount in each set. Once each set is counted, then the student is asked to sort (or group) each of the sets by the amount in each set.

For example, when given a collection of buttons, the student separates the buttons into different piles based on color (all the blue buttons are in one pile, all the orange buttons are in a different pile, etc.). Then the student counts the number of buttons in each pile: blue (5), green (4), orange (3), purple (4). Finally, the student organizes the groups by the quantity in each group (Orange buttons (3), Green buttons next (4), Purple buttons with the green buttons because purple also had (4), Blue buttons last (5).

This objective helps to build a foundation for data collection in future grades. In later grade, students will transfer these skills to creating and analyzing various graphical representations.