

MATH NEWS



First Grade Newsletter

Winter/ Spring

Math Tips for Families

Unit 5: Geometry

Identifying, Composing, & Partitioning Shapes

In this unit, students will revisit their kindergarten work with geometric shapes. They will sort, analyze, compare, and create two- and three dimensional shapes, and put them together to create new shapes. They will also, as in their work with number bonds & addition and subtraction, examine the part-whole relationship through this new geometric lens.

2-dimensional shapes		
Trapezoid	4 straight sides and 4 corners. Sides are not the same length	
Square	Is a type of rectangle and a type of rhombus	
Hexagon	6 sides and 6 corners	
Rhombus	4 straight sides of equal length and 4 corners	
Triangle	3 straight sides and 3 corners	
3-dimensional shapes		
Cube	3-dimensional shape with 6 square faces	
Sphere	3-dimensional shape with no flat faces	
Cylinder	3-dimensional shape with 2 circles or oval faces that are the same size	
Cone	3-dimensional shape with only one circle or oval face and one point	
Rectangular Prism	3-dimensional shape with 6 rectangle faces	

Key Math Strategies:

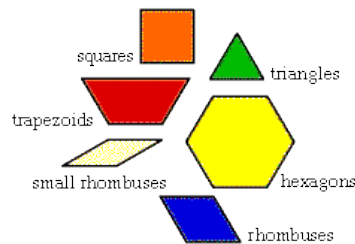
In this unit, students will learn the proper names of all the pattern block shapes: triangle, square, rhombus, hexagon, and trapezoid. We will also use the blocks to discuss equal parts, for example, students can compose a hexagon out of several different pattern blocks.



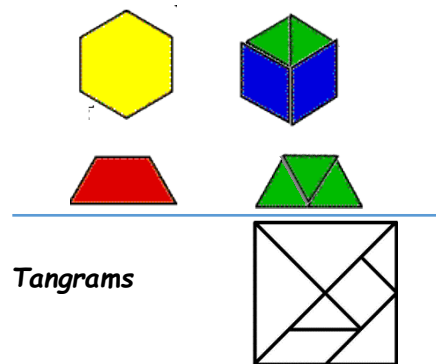
How You Can Help

Look at the "Foldable" that your child brings home. Ask questions about geometric shapes you can find all around. If you have pattern blocks or tangram piece at home, use them to practice the skills your student will be working on in this unit.

Pattern Blocks-



Students will use these to make composite shapes from other shapes as with the two triangles and two rhombuses used to create a hexagon.



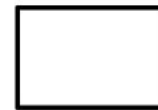
Tangrams

How Are Shapes Named?

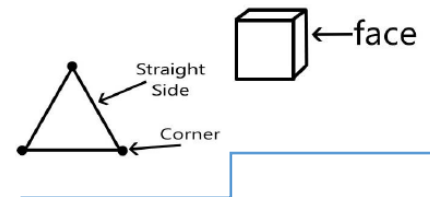
All shapes are named based on their **attributes** or **characteristics**.

Closed shape

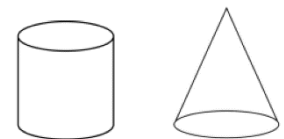
Open Shape



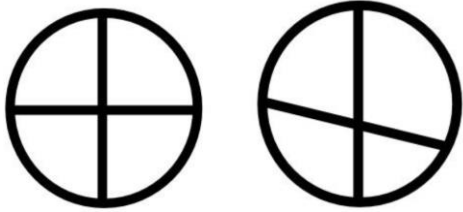

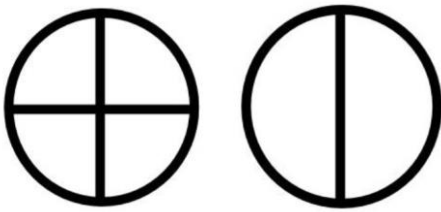

In first grade we focus on open or closed, number of straight sides, and number of corners/points/vertices.



Students should also recognize 3 dimensional shapes and use them to build new structures.



They will also have to describe a structure already built using the names of 3-dimensional shapes. In the picture the student would explain that the cylinder is below the cone and the cone is on top of the cylinder.

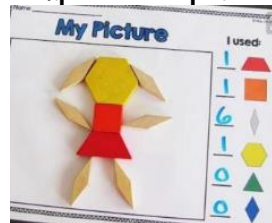
<p>Equal Parts Non-Equal Parts</p>  <p>Asking students to analyze what they notice is helpful.</p> 	<p><u>Partitioning</u></p> <p>Through their exploration, students will realize that when we partition or break apart a shape, we will have either equal or non equal parts.</p> <p>They will also learn that something in 4 equal parts is in fourths and a shape in 2 equal parts is broken into halves.</p>	<p>Fourths Halves</p>  <p><i>This skill will help with a skill from our next unit.</i></p> <p>Telling Time</p>  <p><i>Half an hour is halfway around the clock with the minute hand. There are 30 minutes in that half of the clock.</i></p>
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Key California Content Standards for this Unit

Reason with shapes and their attributes.

1. Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.
2. Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape
3. Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths, and quarters, and use the phrases half of, fourth of, and quarter of. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.

Example of a student created composite shape.



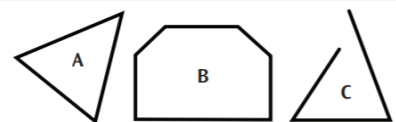
Students need to be able to describe what shapes they used and how many.

Examples: Using Attributes to Name Shapes

1.G.1

Teacher: "Which figure is a triangle? How do you know?"

Student: "I know that shape A has three sides and the shape is closed up, so it is a triangle. Shape B has too many sides, and shape C has an opening, so it's not closed."



Teacher: "Are both figures presented here squares? Explain how you know."

Student: "I know that a square has 4 sides and that each side has the same length. Even though figure E has a point facing down, it is still a square."



The concepts in this newsletter have been informed and adapted from these sources:

- Teaching Student Centered Mathematics
- California Mathematics Content Standards
- California Mathematics Framework
- Eureka Math Tips for Parent
- Lafayette Parish School System: "All Hands on Deck with Math" webpage



TUSD ~

Supporting community & family understanding