

Curriculum Parent Overview (Kindergarten)

MATHEMATICS

UNIT #5: Build a Block, Build a Wall

CONTENT FOCUS:

Students look for 3-D shapes in their environment and describe and compare the shapes they find. They make 3-D shapes out of connecting cubes, clay, and Geoblocks. There is also a focus on looking carefully at the 2-D faces of 3-D shapes and on combining 3-D shapes to make other shapes.

UNIT FOCUS:

- Describing, identifying, and comparing 3-D shapes: A main focus of this unit is observing and describing a variety of 3-D shapes. Such descriptions include features such as size (e.g., "It's big."), overall shape (e.g., "It's round like a ball."), function (e.g., "I would use that to make a ramp."), attributes (e.g., the number of faces or vertices, the size and shape of the faces, and whether the shape is curved or has straight sides), and relative position (e.g., above/on top of, below/under, in front of, behind, and beside/next to). Discussions that ask them to compare shapes (e.g., a cylinder and a cone) encourage students to further refine their ideas about what makes a [cone] a [cone]. Games such as *Matching Faces*, *Geoblock Match-Up*, and *Matching Faces Go Fish* encourage students to look more closely at the 2-D faces of 3-D shapes. It's important that young students see many different examples of the shapes they are studying so that they do not think that one particular example of a shape defines that shape. Therefore, in addition to describing the 3-D shapes that are provided, students look for examples in their classroom, neighborhood, and home, and they use clay, interlocking cubes, and GeoBlocks to construct 3-D shapes. The result of such activities is that students see, construct, describe, name, and compare a wide variety of shapes. Through these activities and discussions, students begin to build an understanding of a shape that is not tied to size or orientation. Kindergarten students begin to learn geometric terms just as they learn other vocabulary, by hearing them used correctly in the context of meaningful activities and conversations. This unit provides many opportunities for students to describe and name familiar two- and three-dimensional shapes.
- Composing and decomposing 3-D shapes: Another way students develop an understanding of shape is by constructing shapes themselves. Having opportunities to work with and construct 3-D shapes, students begin to develop an understanding about important attributes of each shape - what makes a sphere a sphere. In this unit, students construct 3-D shapes with materials such as clay, interlocking cubes, and Geoblocks. Constructing a shape requires that students think carefully about its attributes - Is it curved? How many faces does it have? What do the vertices (or corners) look like? In other words, in order to make a particular shape, students have to think about all the parts of a shape and how they go together. The work with clay encourages students to feel the flat faces, edges, curves, and vertices of shapes. Their visual and tactile impressions are combined as they work to make a shape "look right." Constructing shapes helps students deepen their understanding of what constitutes a particular shape, regardless of size or orientation, and how it compares with other shapes. Students

combine 3-D shapes to make other shapes, and think about ways to decompose a given shape. For example, as students combine small blocks to construct a copy of a larger Geoblock, they compare the faces of the small blocks to see if they are the same size and shape and think about how they can be combined to replicate the overall shape and size of the model block. When students construct a replica of a GeoBlock cube from interlocking cubes, they must consider, for example, how the faces of the larger cube can be constructed. What begins as an attempt to build a model that “looks” the same as the Geoblock cube can lead students to notice an important attribute of the cube: that all of the faces are congruent squares. All of these activities encourage students to look more carefully at shapes as they analyze and compare their characteristics.

- Counting and representing quantities: While number work is not the main focus of this unit, the Counting Jar provides continued opportunities to develop and refine strategies for counting and representing quantities. In this unit, students count a set of objects that can be organized into smaller subsets, providing the opportunity to count on from a number. Students are also given a numeral and asked to assemble that quantity of objects and then represent the amount on paper. The class discussion for this Counting Jar introduces counting back as a strategy for double-checking the number of objects assembled.

MATHEMATICAL PRACTICES:

MP4: Model with Mathematics.

MP3: Construct viable arguments and critique the reasoning of others.

CONNECTIONS TO PREVIOUS CONTENT:

Students entering Kindergarten bring with them a good deal of informal experiences with geometry. As young children use their eyes and hands to interact with shapes and images in the everyday world, they develop an intuitive sense of how they are the same and different. This unit parallels the work students did with identifying, describing, naming, making, and composing 2-D shapes in Unit 3. It specifically draws on their familiarity with 2-D shapes as students examine the faces of 3-D shapes.

CONNECTIONS TO FUTURE CONTENT:

The work of this unit lays the foundation for the geometry units in Grade 1 where students will continue to observe, describe, compare, and build 3-D shapes; distinguish between defining and non-defining attribute; develop vocabulary for naming, and describing 2-D and 3-D shapes; and compose (and decompose) larger shapes from (and into) smaller shapes.

MATH AT HOME:

- Play any of the following games with your child on SavvasRealize site after it has been introduced in the classroom:
 - Matching Faces
 - GeoBlock Match Up
 - Matching Faces Go Fish
 - Build a Block
- Talk about the shapes you see everyday.
- Make shapes out of materials such as clay, building blocks, drinking straws and clay, or other types of materials.
- Review the Math Words and Ideas videos for this unit on SavvasRealize site.