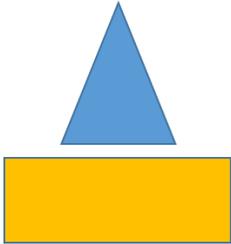
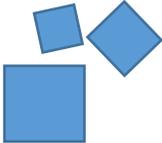
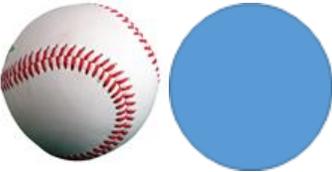


Identify and describe shapes, including squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres (Standards K.G.1–3).	
Standard K.G.1 Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to.	
Concepts and Skills to Master	
<ul style="list-style-type: none"> • Locate and identify shapes in the environment (notice tiles on the floor are squares or the clock is a circle) moving from informal language (ball, box, can, etc.) to formal vocabulary (sphere, cube, cylinder, etc.) • Use positional words to indicate relative position of objects; such as above, below, beside, in front of, behind, next to, etc. <p>Teacher note: Students develop geometric concepts and spatial reasoning from experience with two perspectives on space: the shapes of objects and the relative positions of objects. Students refine their informal language by learning mathematical concepts and vocabulary to increasingly describe their physical world from geometric perspectives including shape, orientation, and spatial relations.</p>	
Related Standards: Current Grade Level	Related Standards: Future Grade Levels
<p>K.G.2 Correctly name shapes regardless of orientation and size</p> <p>K.G.3 Identify shapes as 2-D (flat) or 3-D (solid)</p> <p>K.G.4 Analyze and compare 2-D and 3-D shapes using informal language</p> <p>K.G.5 Model shapes by building and drawing</p> <p>K.G.6 Compose simple shapes to form larger shapes</p>	<p>1.G.1 Distinguish between defining attributes. Build and draw shapes that possess defining attributes</p> <p>1.G.2 Compose shapes built from more than one shape</p> <p>2.G.1 Recognize and draw shapes having specified attributes</p>
Critical Background Knowledge	
<ul style="list-style-type: none"> • Recognize and informally name two- and three-dimensional shapes (tiles, bricks, clocks, balls, boxes, cans, hats, etc.) 	
Academic Vocabulary	
square, circle, triangle, rectangle, hexagon, cube, cone, cylinder, sphere, above, on top, below, under, beside, in front of, behind, between, next to	
Suggested Models	Suggested Strategies
 <p>Ask students to describe what they notice. Students may say, “The triangle is above the rectangle. The rectangle is below the triangle.”</p>	<ul style="list-style-type: none"> • Describe the location of shapes in pictures • Using both two-dimensional and three-dimensional shapes, find the object in the environment and describe the relative positions compared to other objects • Use manipulatives to model and investigate position words • Identify 2-dimensional and 3-dimensional shapes in the classroom and environment

Identify and describe shapes, including squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres (Standards K.G.1–3).	
Standard K.G.2 Correctly name shapes regardless of their orientations or overall sizes.	
Concepts and Skills to Master	
<ul style="list-style-type: none"> • Understand orientation does not change the name of the shape • Understand size of shape does not change the name of the shape • Reorient shapes to show that translating, rotating, or reflecting the shape does not change the shape (students are not expected to use formal vocabulary for these transformations) <p>Teacher Note: In learning about shapes, it is important to vary the examples in many ways so that students do not learn limited concepts that they must later unlearn. Common misconceptions will occur when shapes are rotated or reflected. Students may struggle to identify triangles without a side positioned horizontally on the bottom. Squares rotated with a vertex on top are still squares. The measures of angles and side lengths are preserved and therefore the shape is still a square. “Diamond” is not a mathematical term, and therefore should not be used to describe shapes.</p>	
Related Standards: Current Grade Level	Related Standards: Future Grade Levels
<p>K.G.1 Describe objects in the environment using names of shapes and positional words</p> <p>K.G.3 Identify shapes as 2-D (flat) or 3-D (solid)</p> <p>K.G.4 Analyze and compare 2-D and 3-D shapes using informal language</p> <p>K.G.5 Model shapes by building and drawing</p> <p>K.G.6 Compose simple shapes to form larger shapes</p>	<p>1.G.1 Distinguish between defining attributes. Build and draw shapes that possess defining attributes</p> <p>1.G.2 Compose shapes built from more than one shape</p> <p>2.G.1 Recognize and draw shapes having specified attributes</p>
Critical Background Knowledge	
<ul style="list-style-type: none"> • Recognize and informally name two and three-dimensional shapes (tiles, bricks, clocks, balls, boxes, cans, hats, etc.) 	
Academic Vocabulary	
<p>square, circle, triangle, rectangle, hexagon, cube, cone, cylinder, sphere, shape, size, large, small, medium</p> <p>Students may, but are not expected to use words such as reflect, flip, rotate, turn, slide, move up, move down, etc.</p>	
Suggested Models	Suggested Strategies
 <p>Triangles in various orientations and sizes</p>  <p>Squares in various orientations and sizes</p>	<ul style="list-style-type: none"> • Use geoboards to make shapes in differing sizes and/or orientations • Use a long string, pipe cleaners, toothpicks, clay, linking cubes, etc. to create shapes of differing sizes (stretch string into circles, squares, rectangles, triangles, etc.) • Use a pattern block shape to describe a similar larger shape in the room, have a partner guess the item • Sort shapes of various sizes and orientations into categories based on the name of the shapes • Show a shape and have students draw another example of the shape

Identify and describe shapes, including squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres (Standards K.G.1–3).	
Standard K.G.3 Identify shapes as two-dimensional ("flat") or three-dimensional ("solid").	
Concepts and Skills to Master	
<ul style="list-style-type: none"> • Distinguish between flat and solid shapes (flat shapes are drawn, solid shapes can be held) • Use appropriate vocabulary to name shapes and identify them as two-dimensional or three-dimensional shapes <p>Teacher Note: When identifying an object as a shape, use two-dimensional vocabulary when referring to two-dimensional shapes and use three-dimensional vocabulary when referring to three-dimensional shapes (a ball is a sphere, not a circle). While pattern blocks are three-dimensional shapes, in kindergarten it is appropriate to refer to the base of the pattern block as the name of the two-dimensional shape.</p>	
Related Standards: Current Grade Level	Related Standards: Future Grade Levels
<p>K.G.1 Describe objects in the environment using names of shapes and positional words</p> <p>K.G.2 Correctly name shapes regardless of orientation and size</p> <p>K.G.4 Analyze and compare 2-D and 3-D shapes using informal language</p> <p>K.G.5 Model shapes by building and drawing</p> <p>K.G.6 Compose simple shapes to form larger shapes</p>	<p>1.G.1 Distinguish between defining attributes. Build and draw shapes that possess defining attributes</p> <p>1.G.2 Compose two- and three-dimensional shapes built from more than one shape</p> <p>2.G.1 Recognize and draw shapes having specified attributes</p>
Critical Background Knowledge	
<ul style="list-style-type: none"> • Recognize and informally name shapes as flat or solid (a baseball is a ball and something that can be held in a hand) 	
Academic Vocabulary	
square, circle, triangle, rectangle, hexagon, cube, cone, cylinder, sphere, flat, solid, two-dimensional, three-dimensional	
Suggested Models	Suggested Strategies
 <p>Name the shapes and tell if they are flat or solid</p>	<ul style="list-style-type: none"> • Choose a shape from a collection, identify it as flat or solid • Go on a shape walk to find two- and three- dimensional shapes • Use magnetic shapes to construct two- and three-dimensional shapes • Trace the face of a three-dimensional object (such as a pattern block) to identify the two-dimensional shape

Analyze, compare, create, and compose shapes (Standards K.G.4–6).

Standard K.G.4 Analyze, compare, and sort two- and three-dimensional shapes and objects, in different sizes and orientations, using informal language to describe their similarities, differences, and other attributes (*for example, color, size, shape, number of sides*).

Concepts and Skills to Master

- Understand that shapes must be closed; circles are round; squares, triangles, rectangles, and hexagons are composed of straight sides
- Analyze two- and three-dimensional shapes noticing the similarities and differences
- Analyze/describe shapes by recognizing the size and color of shapes
- Compare two-dimensional shapes with two-dimensional shapes, compare three-dimensional shapes with three-dimensional shapes, and compare two-dimensional shapes with three-dimensional shapes
- Sort shapes based on number of dimensions (two-dimensional, three-dimensional), number of sides (three sides, four sides, etc.), size (small, large, etc.), shape (circles, spheres, squares, rectangles, etc.), color (green, blue, etc.) (The teacher should not convey the misconception that size and color are defining attributes of shape; for example, not all triangles should be green and not all squares should be orange. Students will distinguish between defining and non-defining attributes in first grade.)
- Identify individual faces of three-dimensional solids as two-dimensional geometric shapes (for example, a cylinder has two faces that are circles)

Teacher Note: “The emphasis at (this) level . . . is on shapes that students can observe, feel, build take apart, or work with in some manner. The general goal is to explore how shapes are alike and different and to use these ideas to create classes of shapes (both physically and mentally). Some of these classes of shapes have names-- rectangles, triangles, prisms, cylinders, and so on.” (Van de Walle, J. A, Karp, K., & Bay-Williams, J. M. (2013). *Elementary and middle school mathematics: teaching developmentally*. 8th ed. / Boston: Pearson. pp. 403)

Related Standards: Current Grade Level

- K.G.1** Describe objects in the environment using names of shapes and positional words
- K.G.2** Correctly name shapes regardless of orientation and size
- K.G.3** Identify shapes as 2-D (flat) or 3-D (solid)
- K.G.5** Model shapes by building and drawing
- K.G.6** Compose simple shapes to form larger shapes

Related Standards: Future Grade Levels

- 1.G.1** Distinguish between defining attributes. Build and draw shapes that possess defining attributes
- 2.G.1** Recognize and draw shapes having specified attributes

Critical Background Knowledge

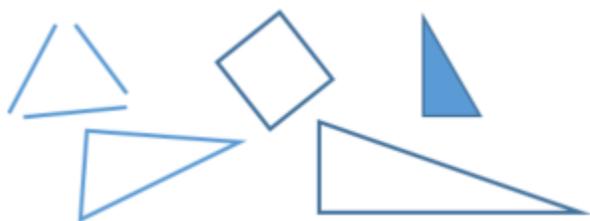
- Related Standards: Current Grade Level (see above)

Academic Vocabulary

shape, square, circle, triangle, rectangle, hexagon, cube, cone, cylinder, sphere, flat, solid, two-dimensional, three-dimensional, describe, compare, sort, same, alike, different, size, attributes, sides, straight, round

Suggested Models

Ring all the shapes that are triangles:

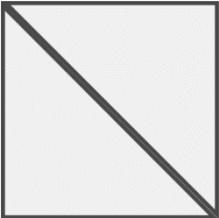


Suggested Strategies

- Given a collection of two- and/or three-dimensional shapes, sort them and explain why
- Trace a single face of a three-dimensional figure to identify the two-dimensional shape of that face
- Identify the similarities and differences of two given shapes
- Given a piece of paper with different shapes drawn on it, circle or color all of the same shape regardless of size or orientation
- Given a list of attributes describing a shape, point to the correct shape

Image source: <http://www.ncpublicschools.org/docs/curriculum/mathematics/scos/kindergarten.pdf>

Analyze, compare, create, and compose shapes (Standards K.G.4–6).	
Standard K.G.5 Model and create shapes from components such as sticks and clay balls.	
Concepts and Skills to Master	
<ul style="list-style-type: none"> Model shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres) given a name or attributes (such as number of sides or corners) by drawing and creating shapes with clay, sticks, and other materials (accuracy of drawings may be limited by a student’s fine motor skills; students are not expected to draw three-dimensional shapes) <p>Teacher Note: Students learn to represent shapes informally with drawings and by building them from components. With repeated experiences such as these, students become more precise. They begin to attend to attributes, such as being a triangle, square, or rectangle, and being closed figures with straight sides. (http://commoncoretools.me/wp-content/uploads/2014/12/ccss_progression_gk6_2014_12_27.pdf)</p>	
Related Standards: Current Grade Level	Related Standards: Future Grade Levels
<p>K.G.1 Describe objects in the environment using names of shapes and positional words</p> <p>K.G.2 Correctly name shapes regardless of orientation and size</p> <p>K.G.3 Identify shapes as 2-D (flat) or 3-D (solid)</p> <p>K.G.4 Analyze and compare 2-D and 3-D shapes using informal language</p> <p>K.G.6 Compose simple shapes to form larger shapes</p>	<p>1.G.1 Distinguish between defining attributes. Build and draw shapes that possess defining attributes</p> <p>1.G.2 Compose 2-D and 3-D shapes to create composite shapes</p> <p>2.G.1 Recognize and draw shapes having specified attributes</p>
Critical Background Knowledge	
<ul style="list-style-type: none"> Related Standards: Current Grade Level (see above) Recognize and informally name two- and three-dimensional shapes (tiles, bricks, clocks, balls, boxes, cans, hats, etc.) 	
Academic Vocabulary	
shape, square, circle, triangle, rectangle, hexagon, cube, cone, cylinder, sphere, flat, solid, two-dimensional, three-dimensional, build, create, draw, attribute, sides, corners/vertices, straight, round	
Suggested Models	Suggested Strategies
	<ul style="list-style-type: none"> Draw/reproduce shapes in the air, in sand, in clay, etc. Practice modeling/drawing shapes after teacher modeling Move flexibly between shape names, pictured shapes, and physical shape models Identify a shape in a picture, then reproduce that shape Lead the class to count the number of sides in a shape, then instruct the students to draw the shape Create two-dimensional and three-dimensional shapes using components such as sticks, marshmallows, pipe cleaners, etc.

Analyze, compare, create, and compose shapes (Standards K.G.4–6).	
Standard K.G.6 Compose simple shapes to form larger shapes. <i>For example, “Can you join these two triangles with full sides touching to make a rectangle?”</i>	
Concepts and Skills to Master	
<ul style="list-style-type: none"> Manipulate two or more shapes to create a different shape (two triangles make a square) or larger shape (four triangles make a larger triangle) Understand that larger shapes can be composed of smaller shapes Describe the larger shape made from smaller shapes <p>Teacher Note: This is a concrete standard. Students should informally explore combining physical objects through trial and error. Composing shapes supports measurement concepts and provides students with opportunities to informally examine attributes such as equal side lengths or angle sizes. Composing shapes supports composing and decomposing numbers and also supports partitioning shapes for development of fraction understanding.</p>	
Related Standards: Current Grade Level	Related Standards: Future Grade Levels
<p>K.G.1 Describe objects in the environment using names of shapes and positional words</p> <p>K.G.2 Correctly name shapes regardless of orientation and size</p> <p>K.G.3 Identify shapes as 2-D (flat) or 3-D (solid)</p> <p>K.G.4 Analyze and compare 2-D and 3-D shapes using informal language</p> <p>K.G.5 Model shapes by building and drawing</p>	<p>1.G.2 Compose 2-D and 3-D shapes to create composite shapes and compose new shapes from the composite shapes (trapezoids, half and quarter circles)</p> <p>1.G.3 Partition circles and rectangles into two and four equal shares; describe the shares as halves, fourths, and quarters</p> <p>1.MD.2 Measure length by laying multiple copies of an object (align edges of shapes or objects)</p> <p>2.G.3 Partition circles and rectangles into two, three, and four equal shares; describe the shares as halves, thirds, half of, etc.</p>
Critical Background Knowledge	
<ul style="list-style-type: none"> Students may have experience informally manipulating shapes 	
Academic Vocabulary	
create, compose, combine, build, add to, different, larger, simple shape, square, triangle, rectangle, hexagon	
Suggested Models	Suggested Strategies
  	<ul style="list-style-type: none"> Use media such as clay, string, pipe cleaners, etc. to create, build, and add to shapes Use manipulatives such as pattern blocks, tangrams, paper shapes, etc. to create, build, and add to shapes Solve puzzles or create pictures from various shapes Describe new shapes comprised of smaller shapes