

Kindergarten Mathematics

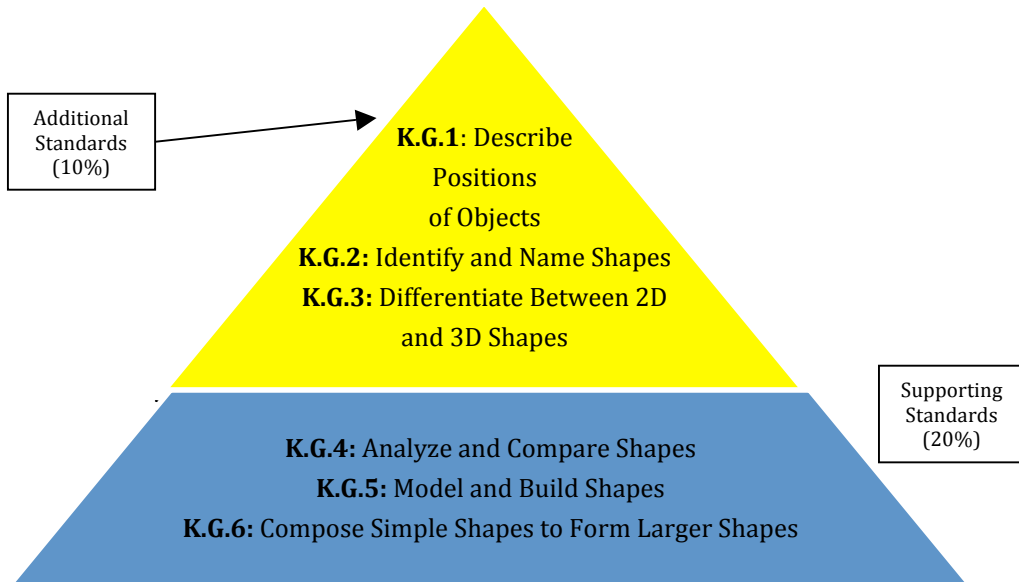
Unit 2: Sorting, Analyzing and Composing Shapes Pacing: 25 Days

In this Unit Overview

In this unit, students will describe their physical world using geometric ideas (e.g., shape, orientation, spatial relations) and vocabulary. Students will identify, name, and describe basic two-dimensional shapes (e.g. squares, triangles, circles, rectangles, and hexagons) and three-dimensional shapes (e.g. cubes, cones, cylinders and spheres) when presented in a variety of ways (e.g., with different sizes and orientations). As students explore 2D and 3D shapes, they will begin to notice that as the number of sides increase on a shape, a new shape is created (triangle has 3 sides, a rectangle has 4 sides, a pentagon has 5 sides, a hexagon has 6 sides), which can be contributed to their understanding of regularity in repeated reasoning (**MP.8**). Students will use manipulatives and basic 2D shapes, in conjunction with spatial reasoning to model objects in their environment. Students will also construct/compose and decompose more complex shapes, thus gaining exposure to modeling with mathematics (**MP4**). As students move through the unit, they will engage in more formal ways of using mathematical and geometrical terms to describe the world around them, such as positional words (e.g. on, over, under) and descriptive words (e.g. small, medium, large, big, curved, straight). Over the course of this unit students will become more precise in their descriptions of shapes by moving from describing them with informal language based on “what they look like” to defining them by name based on their specific attributes. They will also distinguish between and identify shapes as either flat (two-dimensional) or solid (three-dimensional) and should have multiple opportunities to work with shapes of different sizes and orientations. According to the NC unpacked standards guide, “**Kindergarten students typically do not yet recognize triangles that are turned upside down as triangles, since they don’t “look like” triangles. Students need ample experiences manipulating shapes and looking at 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 that define a shape.**” **Finally, since this unit is comprised entirely of Additional and Supporting Standards, it is important for numbers and counting to be incorporated frequently throughout the unit in the form of centers.**

Prerequisite Skills	Vocabulary			Mathematical Practices
<ul style="list-style-type: none"> ➤ Identify basic shapes (squares, circles and triangles) ➤ Know how to describe the similarities and differences between two objects ➤ Identify and distinguish between colors ➤ Describe the size of two objects as smaller or larger ➤ Sort objects by color and size 	Compare/Contrast Similar/Alike Position/Location Orientation Attributes Above/below Behind/in front of Beside/next to Underneath/beneath Left/right	Up-Side-Down Right-Side-Up Different Flat/Solid Two Dimensional Three Dimensional Sides Corners (Vertex) Face(s) Angle(s)	Circle Triangle Rectangle Square Hexagon Sphere Cone Cylinder Cube	MP.1: Make sense of problems and persevere in solving them MP.2: Reason abstractly and quantitatively MP.3: Construct viable arguments and critique the reasoning of others MP.4: Model with mathematics MP.5: Use appropriate tools strategically MP.6: Attend to precision MP.7: Look for and make use of structure MP.8: Look for and express regularity in repeated reasoning

Common Core State Standards



According to the PARCC Model Content Framework, Much of the learning in kindergarten — K.CC.6, all of K.OA and K.NBT, and K.MD.3 — depends on the foundational ability to count to answer “how many?” (K.CC.5), which itself is grounded in K.CC.4. Students can count vertices (see K.CC.5) as a strategy for recognizing shapes in different orientations (see K.G.2) and can use shapes as a setting in which to compare numbers (see K.CC.6; e.g., count to see which has more vertices, an octagon or a hexagon — see K.G.4).

According to the PARCC Model Content Framework, the key advances in mathematical concepts between Kindergarten and first grade are: “While Grade 1 students are dealing with the limited precision of only whole and half-hours, they must distinguish the position of the hour hand and connect this to geometry standard 1.G.3, partitioning circles into halves and quarters. This ultimately begins the process of partitioning objects into fractions of the whole”.

Progression of Skills

PK	Kindergarten	1 st Grade
MT.GS.1: Demonstrate use and understanding of words that relate to distance (near, far, close, etc.)	K.G.1: Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as <i>above</i> , <i>below</i> , <i>beside</i> , <i>in front of</i> , <i>behind</i> , and <i>next to</i> .	N/A
MT.GS.1: Identify 2D and 3D shapes	K.G.2: Correctly name shapes regardless of their orientations or overall size.	1.G.1: Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes; build and draw shapes to possess defining attributes.
	K.G.3: Identify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”).	
N/A	K.G.4: Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences	N/A
N/A	K.G.5: Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.	N/A
	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>	1.G.2: Compose two-dimensional or three-dimensional shapes to create a composite shape, and compose new shapes from the composite shape

Big Ideas	Students Will...	
<ul style="list-style-type: none"> • Shapes help us understand and describe the world we live in. • Certain attributes define what a shape is called (number of sides, number of angles, side lengths...). The shape of an object is independent of other attributes, such as size or orientation. • Shapes are categorized by their attributes, including dimensionality. Two-dimensional shapes are flat and lie in a plane and three-dimensional are solid. 	<p style="text-align: center;">Know/Understand</p> <ul style="list-style-type: none"> • Objects can be described and classified by their shape. • Shapes retain their identity regardless of color, orientation or size. • The meanings of positional terms such as above, below, beside, in front of, behind, and next to. • Use position words to describe the location of an object and/or shape • Two-dimensional shapes are flat, lying in a plane. • Squares, circles, triangles, rectangles, and hexagons are two-dimensional shapes. • A three-dimensional object is solid. • 3D shapes are often composed of 2D shapes • Names of two and three-dimensional shapes, such as squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres using formal geometric vocabulary (e.g., "sphere" not "ball"). • Know the defining attributes of the following shapes: <ul style="list-style-type: none"> Circle Spheres Square Cubes Rectangles Cylinders Triangles Cones Hexagons • 2D and 3D shapes can be compared to one another by identifying the similarities and differences of their attributes 	<p style="text-align: center;">Be Able To...</p> <ul style="list-style-type: none"> • Identify all of the 2D/3D shapes correctly. • Describe objects in the environment using names of shapes. • Correctly name shapes regardless of their orientations or overall size. • Use the correct positional terms to state where an object is located. • Identify defining attributes of a shape (i.e. number of faces (sides) or vertices (corners)) • Identify non-defining attributes of a shape (i.e. color or size) • Sort/Classify 2D and 3D shapes by their non-defining attributes • Sort/Classify 2D and 3D shapes by their defining attributes • Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using formal and/or 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).

Unit Sequence

	Student Friendly Objective SWBAT...	Key Points/ Teaching Tips	Exit Ticket	Instructional Resources
1	(K.MD.3) Compare and contrast objects by describing how they are alike and different		Show students pictures of two objects (or give them two objects) and give them a sentence frame for them to say at least one way the objects are similar and one way they are different: <ul style="list-style-type: none"> ➤ “These two things are alike because they _____. ➤ These two things are different because _____.” 	My Math Chapter 9, Lesson 1 My Math Game: Button Up!
2	(K.MD.3) Identify and describe objects that are alike in size from objects that are different in size as a way to sort.	Note: This is not Sorting & classifying objects into give categories; counting numbers of objects in each category and sort the categories by count (K.MD.3). Counting is not a major factor here. What we are talking about is a visual quick in order to arrange things big, medium and small and vice-versa.	My Math Chapter 9 “Check My Progress” Page 207 in Assessment Book *Students will circle objects that alike and put an X on objects that are different	My Math Chapter 9, Lesson 3
3	(K.MD.3) Identify and describe objects that are alike in shape from objects that are different in shape as a way to sort. (MP. 7) I will use the Foldable project to practice looking for and making use of structure.	Note: The focus here is not necessarily to name the shapes, but to look at the basic structure of the shape to identify and sort which objects are alike and which are different. Shapes for this lesson can be non-traditional, e.g. stars, crescent, diamond. Note: This is a good place to introduce My Foldable: Classifying Objects, Chapter 9, pg. 537	Standardized Test Practice Pages 220-221 in Assessment Book Finished Foldable Project	My Math Chapter 9, Lesson 4 My Math Graphic Novel: Sort It Out My Math Game: Sort It Out

4	<p>Apply various strategies, including counting, to sort objects</p>	<p>In My Math, this is introduced after lesson objective 1. However, it's more effective after ample practice sorting objects according to various attributes (e.g. size, color, shape).</p> <p>Note: Students tend to get lost in sorting, as they may focus on one attribute, i.e. sorting by color. Using this strategy may help reduce this common error.</p> <p>After this lesson, start the My Math: Calendar Time Project, page 538</p>		<p>My Math Chapter 9 Lessons 2 & 5</p> <p>http://www.sandi.net/cms/lib/CA01001235/Centricity/Domain/14642/illustrative_mathematics_Sort%20and%20Count%20k.pdf</p> <p>http://www.sandi.net/cms/lib/CA01001235/Centricity/Domain/14642/illustrative_mathematics_Sort%20and%20Count%20II%20k.pdf</p>
5	<p>(K.G.1) Use the words <u>Above</u> and <u>Below</u> to describe or place an object with relation to another object.</p> <p>Use Ordinal numbers up to the 6th position to describe the position of objects.</p>	<p>Students typical start this objective with “Look I see a/the ____”. When asked where? They often respond with “ By the ____”. By the end of the unit they will use more formal and detailed language to describe the location of objects.</p> <p>This is a great place to start the Positions Galore Chapter Project My Math Chapter 10, pg. 582.</p>	<p>Place an object in the student’s hands.</p> <ol style="list-style-type: none"> 1. Ask: Can you place the object above the desk? 2. Ask: Can you place the object below the desk. 3. Ask: Can you tell me a part of your body that is above your waist? 4. Ask: Can you tell me a part of your body that is below your knees? 	<p>My Math Chapter 10, Lesson 1</p> <p>My Math: Vocabulary Cards My Math Game: <i>Look Out Below</i></p> <p>Engage NY: Module 6 Lesson 4 (Appendix C)</p>

6	<p>(K.G.1) Use the words <u>In Front</u> and <u>Behind</u> to describe or place an object with relation to another object.</p> <p>Use Ordinal numbers up to the 6th position to describe the position of objects.</p>	<p>Students will need many opportunities to practice this skill and to infuse the new terms into their daily language. Force the terms to expand their math vocabulary with terms such as, “Give me more details.” or “Tell more.” or “Who can add on?”</p>	<p>Give the student the student a set of 12 counting bears (3 red, 3 yellow, 3 blue, and 3 green)</p> <ol style="list-style-type: none"> 1. Ask: Can you put all of the Red Bears in a line In Front of all of the Yellow Bears? Y/N 2. Ask: Can you put the all of the Green Bears in a line Behind all of the Yellow Bears? Y/N 3. Ask: Which color is in the front? Which is last? ___ and ___. 4. Ask: Can you put all of the Blue Bears on the line with the other Bears? Describe the position of the Blue Bears on line using the terms In Front or Behind. You may use the sentence starter: The Blue Bears are ___ the ___ Bears. 	<p>My Math Chapter 10, Lesson 2</p> <p>Engage NY: Module 6 Lesson 4 (Appendix C)</p>
7	<p>(K.G.1) Use the words <u>Next To</u> and <u>Beside</u> to describe or place an object with relation to another object.</p> <p>Use Ordinal numbers up to the 6th position to describe the position of objects.</p>	<p>As you push through this unit, it is important to weave in the Counting and Cardinality Standards. After this lesson, the Calendar Time Activity: <i>What Day Are We Pointing To?</i> can help. My Math: Chapter 10, pg.582</p> <p>Note: Some students may struggle with the position terms Next To and Beside because the words mean the same thing. This is a good time to introduce the term synonyms (two or more words that have the same meaning). Use a variety of examples to emphasize the this concepts.</p>	<p>Show the student a picture of a family. A family of 4 – 5 distinct members works best (e.g. Mom, dad, child, baby, grandparent) <u>Note:</u> You can substitute child and baby with brother and sister.</p> <ol style="list-style-type: none"> 1. Ask: How many people are in the family? Count and write the number _____. 2. How many people are adults? ___ Children? ___ 3. Ask: Can you put an X on the person standing Next to the dad? 4. Ask: Can you circle the person Beside the mother? 	<p>My Math Chapter 10, Lesson 3</p> <p>My Math Graphic Novel: <i>Making a Splash</i></p> <p>Engage NY: Module 6 Lesson 4 (Appendix C)</p>

8	<p>Use the Act It Out strategy to solve problems.</p> <p>(MP.5) Practice using the appropriate tools and vocabulary terms when solving problems.</p>	<p>At this point, proficient students are using the positional terms to communicate precisely their reasoning as they engage in class discussions about location and problem-solve.</p>	<p>Display a crayon, a book, a scarf and a manipulative.</p> <p>Tell the students its time to clean up. Ask the students to use 2 or more positional words to explain where the objects (Trial 1: the crayon Trial 2: the book. Trial 3: the scarf, Trial 4: the manipulative of Choice) belong.</p> <p>Score: # of Correct Trials out of the Total Trials (___ / 4)</p>	<p>My Math Chapter 10, Lesson 4</p> <p>My Math Activity Card: <i>Where Is It?</i></p>
9	<p>Flex Day (Instruction Based on Data) Recommended Resources: “Listen and Do” (Appendix C) My Math Chapter 10 Review and Reflect (Pages 609 – 612) My Math Chapter 10 Assessment</p>			
10	<p>Find and describe flat triangles, squares, rectangles, hexagons and circles without naming</p>	<p>Note: actual names of shapes should not be used in this lesson – this is an opportunity for students to focus solely on common attributes</p>		<p>Engage NY Module 2, Lesson 1 (Appendix C)</p>
11	<p>Describe the attributes of all triangles</p>	<ul style="list-style-type: none"> Teaching Tip: it is important for students to see and work with triangles of various sizes and orientations so they eventually realize that size and position do not define such shapes Note: Students should have ample practice with various types of triangles, such as right triangles, equilateral triangles, isosceles triangles, scalene triangles, obtuse triangles, so they can see them as the same shape (based on their defining attribute of 3 sides) 		<p>Engage NY Module 2, Lesson 2 (Appendix C)</p>

12	Identify squares and rectangles and describe their defining attributes	<p>*Teaching Tip: it is important for students to see and work with squares/rectangles of various sizes and orientations so they eventually realize that size and position do not define such shapes</p> <p>*Students may also build rectangles and squares using popsicle sticks/glue, pipe cleaners, geoboards, etc. When doing so, students must attend to precision when choosing materials (i.e. to build a square they can only use materials of equal lengths)</p>	<p>Squares and rectangles are similar in that _____, but they are different because _____.</p> <p>Draw a picture that matches your sentence to show how squares and rectangles are similar and different</p>	<p>My Math Chapter 11, Lesson 1</p> <p>Engage NY Module 2, Lesson 3 (Appendix C)</p>																														
13	Classify hexagons and circles, describing their defining attributes		<p>A hexagon has _____ sides and _____ vertices. A circle has _____ sides and _____ vertices.</p> <p>Now draw a picture that matches your sentence above to show many sides and vertices hexagons and circles have:</p>	<p>Engage NY Module 2, Lesson 4 (Appendix C)</p>																														
14	Sort and draw squares, rectangles, circles, triangles and hexagons.	<p>Give students a sorting mat (large piece of construction paper divided into 5 sections labeled “squares,” “rectangles,” “triangles,” “hexagons,” and “circles”) and a set of cut out shapes of various sizes and colors (including different types of triangles). Students will sort based on shape and glue them on to their map.</p> <p>For a challenge, include cut outs that do NOT fit into any of these 4 categories.</p>	<p>Complete the Shape Chart Below</p> <table border="1" data-bbox="1150 922 1669 1377"> <thead> <tr> <th>Trace/ glue Shape</th> <th>Write Shape Name</th> <th>Draw a real world shape</th> <th># of Sides</th> <th># of Verti ces</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2.</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3.</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>4.</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>5.</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Trace/ glue Shape	Write Shape Name	Draw a real world shape	# of Sides	# of Verti ces	1.					2.					3.					4.					5.					<p>KG Task 3b Blackline Master (Appendix C)</p> <p>My Math: Real World Problem Reader: <i>Playground Shapes</i> Graphic Novel: <i>Shape Hunt</i> Game: <i>Finding Shapes</i> Activity Card: <i>Shape Super Hero</i></p>
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15	(K.G.4, K.G.5) Identify, create and extend patterns with shapes	Students should fluently identify AB, AAB, ABB and ABC shape patterns. This can only occur once students are able to fluently name shapes and recognize the difference between shapes. Identifying where shapes repeat in a row is an effective strategy when comparing shape.	<p>Shapes and Patterns Check List</p> <ul style="list-style-type: none"> ➤ <i>Use two different pattern block shapes to create an AB pattern.</i> <ol style="list-style-type: none"> 1. Extend and explain the pattern. ➤ <i>Use two different pattern block shapes to create an AAB pattern.</i> <ol style="list-style-type: none"> 2. Extend and explain the pattern. ➤ <i>Use two different pattern block shapes to create an ABB pattern.</i> <ol style="list-style-type: none"> 3. Extend and explain the pattern. ➤ <i>Use three different pattern block shapes to create an ABC pattern.</i> <ol style="list-style-type: none"> 4. Extend and explain the pattern. <p>Score: Use Check List</p>	My Math Chapter 11, Lesson 5
16	(K.G.1, K.G.2, K.G.5) Describe objects using the names of shapes and their relative position.		Engage NY Exit Ticket Mid-Point Performance Assessment (Appendix C)	My Math Chapter 11, Lesson 6 Engage NY Module 2, Lesson 5 (Appendix C)
17 18	(K.G.2, K.G.3, K.G.4, K.G.6) Compose and decompose 2D shapes	<ul style="list-style-type: none"> • Pacing: two days • Through repeated experiences composing and decomposing shapes, students should recognize that shapes can be combined to create a different shape (i.e. two triangles can compose a square or rectangle, etc) 		Engage NY: Module 6 Lessons 5-6 (Appendix C) My Math Chapter 11, Lesson 7 My Math Games: Name that Shape It Takes Two

19	<p>(K.G.2, K.G.5) Model shapes in the real world; analyze real life objects and describe the various shapes that compose them.</p>	<p>At this point in the unit, students should be viewing objects in the world through a geometric prospective; regardless of their orientations or overall size.</p> <p>http://www.sandi.net/cms/lib/CA01001235/Centricity/Domain/14642/illustrative_mathematics_Shape%20Hunt%20Part%201%20k.pdf</p> <p>http://www.sandi.net/cms/lib/CA01001235/Centricity/Domain/14642/illustrative_mathematics_Shape%20Hunt%20Part%202%20k.pdf</p>	<p>Modeling Shapes in the World (Pattern Blocks)</p> <ol style="list-style-type: none"> 1. Draw a cat’s face using circles and triangles 2. Draw a house using squares and triangles 3. Draw an ice cream cone using two shapes 4. Draw a girl or a boy using any 2D shapes. <p>Score: # of Correct Activities out of the Total Number of Activities (___ / 4)</p>	<p>My Math Chapter 11, Lesson 9</p> <p>Engage NY Module 6 Lesson 7 (Appendix C)</p>
20	<p style="text-align: center;">Flex Day (Instruction Based on Data)</p> <p style="text-align: center;">Recommended Resources:</p> <p style="text-align: center;">My Math Chapter 11 Lesson 8 “What’s in the Bag?” (Appendix C) My Math Chapter 11 “Check My Progress” My Math Chapter 11 Review and Reflect My Math Chapter 11, Lesson 8 Logical Reasoning Chapter Test Form 3b (Pages 266 – 267 in Assess Masters Book)</p>			
21	<p>Describe the attributes of cubes, cones, spheres and cylinders. Sort 3D shapes in a variety of ways</p>	<ul style="list-style-type: none"> • Note: the emphasis is not on naming in this lesson but by defining and sorting by attributes and to allow students an opportunity to explore these 3D shapes to see how they are similar to/different from 2D shapes • It is helpful to use wooden shapes and clay models to emphasize the concept of “solid” shapes. • Tip: you may want to begin the Shape Museum Project (from My Math) now 	<p>Engage NY Exit Ticket</p>	<p>Engage NY Module 2 Lesson 6 (Appendix C)</p>

22	(K.G.2, K.G.3, K.G.4) Identify and describe 3D shapes (cubes, spheres, cones and cylinders)	<ul style="list-style-type: none"> Emphasize 3D shapes in our environment (sphere – tennis ball, globe, our Earth, the moon, etc; cube – game die, box, etc.) 		Engage NY Module 2 Lesson 7 (Appendix C) My Math Chapter 12 Lessons 1-2
23	(K.G.4) Analyze and Compare Solid Shapes. Distinguish 2D shapes from 3D shapes	Use the Calendar Time Activity to weave in the Counting and Cardinality Standards, as well as using positional terms in addition to identifying 3D shapes.		My Math Chapter 12, Lesson 3 Engage NY Module 2 Lesson 9 (Appendix C) My Math Graphic Novel: <i>Wishful Thinking</i> Activity Card: <i>Shapes in Our World</i>
24	(K.G.6) Compose 3D shapes using 2D shapes		Engage NY Exit Ticket	Engage NY Module 6 Lesson 3 (Appendix C)

Flex Day (Instruction Based on Data)

Recommended Resources:

- My Math Chapter 12 Lessons 4-5
- “Engage NY Module 2 Lesson 8” (Appendix C)
- “Shape Fair” (Appendix C)

End of Unit Assessment

“Engage NY Module Assessment”

Appendix B

Appendix A:

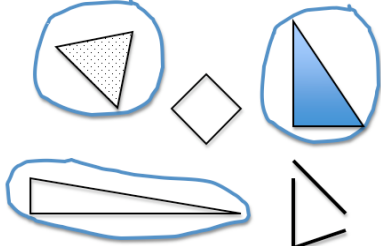
Unpacked Standards Guide

Source: Public Schools of North Carolina NCDPI Collaborative Workspace

Common Core Standards	Unpacking What do these standards mean a child will know and be able to do?
K.G.1 Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as <i>above</i> , <i>below</i> , <i>beside</i> , <i>in front of</i> , <i>behind</i> , and <i>next to</i> .	<p>Students locate and identify shapes in their environment. For example, a student may look at the tile pattern arrangement on the hall floor and say, “Look! I see squares! They are next to the triangle.” At first students may use informal names e.g., “balls,” “boxes,” “cans”. Eventually students refine their informal language by learning mathematical concepts and vocabulary and identify, compare, and sort shapes based on geometric attributes.*</p> <p>Students also use positional words (such as those italicized in the standard) to describe objects in the environment, developing their spatial reasoning competencies. Kindergarten students need numerous experiences identifying the location and position of actual two-and-three-dimensional objects in their classroom/school prior to describing location and position of two-and-three-dimension representations on paper.</p> <p><i>*Progressions for the CCSS in Mathematics: Geometry</i>, The Common Core Standards Writing Team, June 2012</p>
K.G.2 Correctly name shapes regardless of their orientations or overall size.	<p>Through numerous experiences exploring and discussing shapes, students begin to understand that certain attributes define what a shape is called (number of sides, number of angles, etc.) and that other attributes do not (color, size, orientation). As the teacher facilitates discussions about shapes (“Is it still a triangle if I turn it like this?”), children question what they “see” and begin to focus on the geometric attributes.</p> <p>Kindergarten students typically do not yet recognize triangles that are turned upside down as triangles, since they don’t “look like” triangles. Students need ample experiences manipulating shapes and looking at 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 that define a shape.</p>
K.G.3 Identify shapes as two-dimensional (lying in a plane, “flat”) or three dimensional (“solid”).	<p>Students identify objects as flat (2 dimensional) or solid (3 dimensional). As the teacher embeds the vocabulary into students’ exploration of various shapes, students use the terms two-dimensional and three-dimensional as they discuss the properties of various shapes.</p>

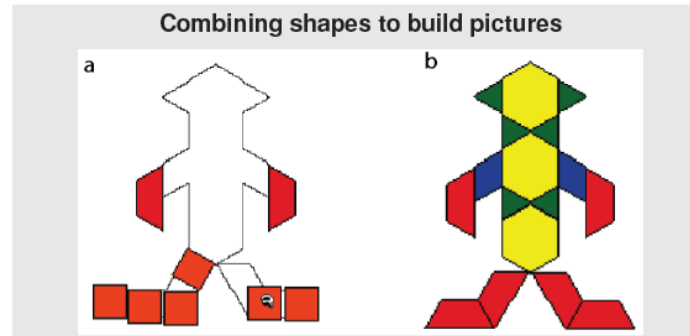
Common Core Cluster

Analyze, compare, create, and compose shapes.

Common Core Standard	Unpacking What do these standards mean a child will know and be able to do?
<p>K.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).</p>	<p>Students relate one shape to another as they note similarities and differences between and among 2-D and 3-D shapes using informal language.</p> <p>For example, when comparing a triangle and a square, they note that they both are closed figures, have straight sides, but the triangle has 3 sides while the square has 4. Or, when building in the Block Center, they notice that the faces on the cube are all square shapes.</p> <p>Kindergarteners also distinguish between the most typical examples of a shape from obvious non-examples.</p> <p><u>For example:</u> When identifying the triangles from a collection of shapes, a student circles all of the triangle examples from the non-examples.</p> 
<p>K.G.5 Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.</p>	<p>Students apply their understanding of geometric attributes of shapes in order to create given shapes. For example, students 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.</p> <p>Because two-dimensional shapes are flat and three-dimensional shapes are solid, students may draw or build two-dimensional shapes and only build three-dimensional shapes. Shapes could be built using materials such as clay, toothpicks, marshmallows, gumdrops, straws, pipe cleaners, etc. Students should understand and identify two-dimensional shapes used to construct three-dimensional shapes.</p>
<p>K.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?”</p>	<p>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 move, rotate, flip, and arrange puzzle pieces to complete a puzzle. Kindergarteners use their experiences with puzzles to use simple shapes to create different shapes.</p>

For example, when using basic shapes to create a picture, a student flips and turns triangles to make a rectangular house.

Students also combine shapes to build pictures. They first use trial and error (part a) and gradually consider components (part b)*.



**Progressions for the Common Core State Standards in Mathematics: Geometry, The Common Core Standards Writing Team, June 2012, page 7*