

## UNIT 5 – GEOMETRIC SHAPES

<p><b>Established Goals:</b> Standards</p> <p><b><u>Counting &amp; Cardinality</u></b></p> <p><b>K.CC.1</b> Count to 100 by ones and by tens.</p> <p><b><u>Geometry</u></b></p> <p><b>K.G.1</b> 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.</p> <p><b>K.G.2</b> Correctly name shapes regardless of their orientations or overall size.</p> <p><b>K.G.3</b> Identify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”).</p> <p><b>K.G.5</b> Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.</p> <p><b>K.G.6</b> 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><b>Mathematical Practice Standards</b></p> <p>Look for and make use of structure.</p> <p>Model with mathematics</p> <p>Model Curriculum Unit 5</p> <p>Reason abstractly and quantitatively.</p> <p>Construct viable arguments and critique the reasoning of others.</p> <p>Use appropriate tools strategically.</p> <p>Look for and express regularity in repeated reasoning.</p>	<b>Transfer</b>	
	<p><i>Students will be able to:</i></p> <p>Analyze, describe and make sense of objects in the environment.</p> <p>Use various concrete objects to compose a model of shapes in the environment</p>	
	<b>Meaning</b>	
	ENDURING UNDERSTANDING	ESSENTIAL QUESTIONS
	<p>Shapes are everywhere in our environment</p> <p>2D and 3D shapes have different characteristics and properties.</p> <p>Spatial relationships</p>	<p>Why might it be helpful to use simple shapes to describe an object?</p> <p>How can we observe, describe and compare shapes?</p> <p>What shapes can I see in the world around me?</p>
	<b>Acquisition</b>	
	KNOWLEDGE	SKILLS
	<p><i>Students will know how to...</i></p> <ul style="list-style-type: none"> <li>• How to count to 100 by ones and tens.</li> <li>• Two-dimensional are flat.</li> <li>• Three-dimensional are solid.</li> <li>• Shapes can be described and compared using their attributes.</li> <li>• The positional words (above, below, besides, in front of, behind, next to).</li> <li>• Shapes can be combined to make larger shapes.</li> </ul>	<p><i>Students will be skilled at...</i></p> <ul style="list-style-type: none"> <li>• Describe and give examples of both two-dimensional and three-dimensional shapes.</li> <li>• Correctly name shapes regardless of their orientations or overall size.</li> <li>• Investigate and predict the results of putting together and taking apart 2D and 3D shapes.</li> <li>• Locate and describe placement of objects in the environment.</li> </ul>

## Kindergarten Math Unit

	<ul style="list-style-type: none"> <li>• Shapes have names.</li> </ul>	
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Vocabulary	Instruction and Pacing (suggested order to teach)	
Inside, beside, above, below, in front of, behind, next to, outside, triangle, hexagon, cone, rectangle, cylinder, sphere, square, circle, cube, side (edge), corner (vertice), flat surface (face),	<b>Positional Words, Shapes &amp; Attributes</b>	<b>2 Weeks</b>
	<b>Identifying and Describing 2 Dimensional Shapes</b>	<b>2 Weeks</b>
	<b>Model with 2D and 3 Dimensional Shapes</b>	<b>1 Week</b>
	<b>Fluency Standards (Add/Sub 0-5) Counting 0-100 by tens&amp;ones Review &amp; Mastery</b>	<b>1 Week</b>
	<b>Benchmark Testing &amp; Reteaching</b>	<b>2 Weeks</b>
Common Misconceptions	Proper Conceptions	
Students mix up or don't remember names of flat and solid shapes	Each shape has a different name. Continually say shape names aloud.	
Sorting – students mix up items if they don't recognize shapes or colors	Like shapes and colors have same attributes	
Students have difficulty identifying same and different	Same is alike. Different is not alike	
Students have difficulty choosing the object that belongs in the group	Objects in the group must be alike in some way	
Students are distracted by the size or orientation of the shape	Shapes are the same shape regardless of size or orientation	
Students confuse rectangles and squares	A rectangle can also be a square	
Students confuse rectangle and triangle	Count the sides of each shape to determine the name of the shape	
Students infer that if a shape upside down or sideways it is a different shape	Solid and Flat Shapes are the same regardless of their orientation	
Students confuse left and right	Always review left and right using the dominant hand first	

Resources
Common Core Standards, New Jersey Model Curriculum, Envisions Math Program Suggested Topics Topic 14 Identifying and Describing Shapes Topic 15 Position and Location of Shapes Topic 16 Analyzing, Comparing and Composing Shapes <b>MANIPULATIVES &amp; GRAPHIC ORGANIZERS FOR UNIT 5</b> – Flat Shapes, Pattern Blocks, Solid (3-D Shapes), Everyday Solid Shapes (Cereal Boxes, Cylinders, Tissue Boxes, Small balls, etc.) Templates for Smart Pal Sleeves/Communicators  <b>Websites:</b> <a href="http://illuminations.nctm.org">http://illuminations.nctm.org</a> , <a href="https://www.illustrativemathematics.org">https://www.illustrativemathematics.org</a> <a href="https://gradeKcommoncoremath.wikispaces.hcpss.org/Kindergarten+Home">https://gradeKcommoncoremath.wikispaces.hcpss.org/Kindergarten+Home</a>  <b>Additional Resources for ELL Learners</b> <a href="http://pbskids.org/games/shapes/">http://pbskids.org/games/shapes/</a> <a href="http://www.eslprintables.com/vocabulary_worksheets/general_vocabulary/shapes/">http://www.eslprintables.com/vocabulary_worksheets/general_vocabulary/shapes/</a>

## Kindergarten Math Unit

<http://www.eslkidstuff.com/lesson-plans/pdf/shapes-lesson-plan.pdf>

<http://www.dreambox.com/teachertools> (activities for interactive whiteboard, some available in Spanish)

<http://www.njctl.org/courses/math/kindergarten-math/operations-and-algebraic-thinking/>

<http://www.njctl.org/courses/math/kindergarten-math/geometry-and-patterns/>

<http://www.state.nj.us/education/modelcurriculum/math/ellscaffolding/1u4.pdf>

**Math site for parents and Math from different countries** <http://www.aaamaticas.com/>

### Differentiation and Accommodations

Provide graphic organizers

Provide additional examples and opportunities for additional problems for repetition

Provide tutoring opportunities

Provide retesting opportunities after remediation (up to teacher and district discretion)

Teach for mastery not test

Teaching concepts in different modalities

Adjust pace and homework assignments

#### **ELL Modifications**

- Assess/teach prerequisite skills
- Student illustrated word wall of important math terms
- Allow students to count in native language.
- Read picture books for shapes to build vocabulary.
  - Sample books listed: <https://www.cantonpl.org/blog/post/picture-books-about-shapes>
- Bring in real life examples of two and three dimensional shapes. Allow students to explore shapes and gain experience to match the math vocabulary (vertices, faces, etc.)
- Students should compare and sort real objects before completing written exercises.
- When solving word problems, rather than solely reading, give students a printed copy so they can read along and highlight/circle numbers. Provide room for students to write number sentences and draw pictures on the same document.
- Use different colors to color code plus sign and minus sign to help students attend to the operation. Use math manipulatives to solve all math problems (two color counters, teddy bear counters, etc.).
- Complete hands on sorting activities before paper and pencil activities.
  - <http://www.kindergartenkindergarten.com/sorting-by-attributes/>
- Utilize Envision Spanish Version/Interactive Path and Printable Resources

#### **21<sup>st</sup> Century Skills**

Critical Thinking, Creative Thinking, Collaborating, Communicating, and Technology Literacy

#### **Instructional Strategies**

Fairfield Township School recognizes the importance of the varying methodologies that may be successfully employed by teachers within the classroom and, as a result, identifies a wide variety of possible instructional strategies that may be used effectively to support student achievement. These may include, but not be limited to, strategies that fall into categories identified by the Framework for Teaching by Charlotte Danielson:

- Communicating with students
- Using questioning and discussion techniques

## Kindergarten Math Unit

	<ul style="list-style-type: none"><li>• Engaging students in learning</li><li>• Using assessment in instruction</li><li>• Demonstrating Flexibility and Responsiveness</li></ul>
<b>Interdisciplinary Connections</b>	ELA, Science, and Technology

### Performance Task

You are an inventor of robots. It is your duty to build a unique kind of robot using different kinds of shapes. Your friend needs a robot to help clean up their toys, do their homework, and any kind of chore their mom or dad asks them to do. You will create a robot using 10 to 20 different shapes (2-D shapes). You must build the robot flat on the piece of paper. Then trace the shapes exactly how you placed them on the paper (be careful). Once you are done you need to label each shape (either write the word or write the first letter-might want to make a key to follow in the corner for the students). Once you are finished labeling you can color the robot in, using one color for each shape (example: squares blue, triangles green, etc). Students will be able to explain position of shapes using terms such as above, below, beside, in front of, behind, next to.

#### Rubric

**3- Students were able to complete the project completely. Created the robot first on the paper, next they traced each shape. Then they labeled each shape. Finally the colored in the robot using 1 color per shape. Can explain the position of each shape. (5 tasks)**

**2- Students were able to complete 4 or 3 tasks correctly.**

**1-Students were able to complete 2 or 1 tasks correctly.**

**0-Students were unable to complete the assignment.**

# ASSESSMENTS

## Suggested Formative Assessment

## Kindergarten Math Unit

Problem of the Day

Lesson Quizzes

Exit Ticket

Anecdotal Records (Topic Observation Checklist)

**Suggested Summative Assessment** - Grade Level developed Unit/Envisions Topic Tests/ Ed Connect Tests/ State Unit Benchmark/Performance Task