

# **Cedar Grove School District**

## **Cedar Grove, NJ**

# **2016**

**Mathematics**  
**Grade K**

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Approved by the Cedar Grove Board of Education  
November 15, 2016

Superintendent of Schools  
Michael Fetherman

Board of Education  
Mrs. Christine Dye, President  
Mr. Frank Mandala, Jr., Vice-President  
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# **Mathematics**

## **Kindergarten**

In Kindergarten, instructional time will focus on two critical areas: (1) representing and comparing whole numbers, initially with sets of objects; (2) describing shapes and space. More learning time in Kindergarten should be devoted to number than to other topics.

1. Students use numbers, including written numerals, to represent quantities and to solve quantitative problems, such as counting objects in a set; counting out a given number of objects; comparing sets or numerals; and modeling simple joining and separating situations with sets of objects, or eventually with equations such as  $5 + 2 = 7$  and  $7 - 2 = 5$ . (Kindergarten students should see addition and subtraction equations, and student writing of equations in kindergarten is encouraged, but it is not required.) Students choose, combine, and apply effective strategies for answering quantitative questions, including quickly recognizing the cardinalities of small sets of objects, counting and producing sets of given sizes, counting the number of objects in combined sets, or counting the number of objects that remain in a set after some are taken away
2. Students describe their physical world using geometric ideas (e.g., shape, orientation, spatial relations) and vocabulary. They identify, name, and describe basic two-dimensional shapes, such as squares, triangles, circles, rectangles, and hexagons, presented in a variety of ways (e.g., with different sizes and orientations), as well as three-dimensional shapes such as cubes, cones, cylinders, and spheres. They use basic shapes and spatial reasoning to model objects in their environment and to construct more complex shapes.

**This curriculum was written in accordance with the  
NEW JERSEY STUDENT LEARNING STANDARDS  
for Mathematics**

The standards can be viewed at  
<http://www.state.nj.us/education/cccs/2016/math/standards.pdf>

## **Kindergarten Overview**

## **Counting and Cardinality**

- Know number names and the count sequence.
- Count to tell the number of objects.
- Compare numbers.

## **Operations and Algebraic Thinking**

- Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.  
Number and Operations in Base Ten
- Work with numbers 11-19 to gain foundations for place value.  
Measurement and Data
- Describe and compare measurable attributes.
- Classify objects and count the number of objects in each category

## **Geometry**

- Identify and describe shapes.
- Analyze, compare, create, and compose shapes.

## **Mathematical Practices**

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

# Sequence

<b>Unit 1</b>	<b>September – October</b>
<b>Unit 2</b>	<b>November – January</b>
<b>Unit 3</b>	<b>January – February</b>
<b>Unit 4</b>	<b>March – April</b>
<b>Unit 5</b>	<b>April – June</b>

# Mathematics - Kindergarten

## Unit 1: Numbers Names and Count Sequences

### 21<sup>st</sup> Century Themes

X	Creativity and Innovation
X	Critical Thinking and Problem Solving
X	Communication
X	Collaboration

### Unit 1 Learning Targets

*Students will be able to...*

- *Identify and order numerals (0-20)*
- *Count sets using one-to-one correspondence (0-20)*
- *Count a set of objects and see sets and numerals in relationship to one another*
- *Count a set of objects and answer the question, "How many would there be if we added one more object?"*
- *Count 10 objects in a scattered arrangement*
- *Count 20 objects in a line, rectangular arrangement and circle*
- *Recognize that the number of objects is the same regardless of arrangement or order in which it is counted*
- *Count to 100 by ones and tens*
- *Count forward from a given number (other than 1)*
- *Construct sets and match to numerals (0-20)*
- *Write numbers from 0-20*
- *Compare sets and written numerals using vocabulary including: more, less, larger, smaller, fewer, equal*
- *Use ordinal numbers to describe position (1st-5th)*
- *Recognize correct numeral formation*

#	Student Learning Objectives	NJSLS	Learning Activity
1	Count by ones up to 10	K.CC.1	<ul style="list-style-type: none"> <li>• Count by ones while doing jumping jacks</li> <li>• Count by ones using calendar math</li> <li>• Number Puzzles</li> </ul>
2	Represent the number of objects by the correct numeral up to 5 (using zero to represent no objects).	K.CC.3	<ul style="list-style-type: none"> <li>• Given a group of objects, write the quantity.</li> <li>• Given a numeral, draw pictures or use unifix cubes to show the quantity</li> </ul>
3	Assign an ascending number name for each object in a group.	K.CC.4	<ul style="list-style-type: none"> <li>• Given a group of objects, label each object in numerical order.</li> </ul>
4	For objects named in the standard order, identify the last number named as the number of counted objects in the set (regardless of the order they are counted).	K.CC.4	<ul style="list-style-type: none"> <li>• Given a group of objects, identify the total quantity based on the last number stated</li> <li>• Change arrangement of objects and count again</li> </ul>
5	Know the next number name in counting is always one greater than the previous number.	K.CC.4	<ul style="list-style-type: none"> <li>• Use calendar math</li> <li>• Use counting on strategy</li> </ul>

6	Answer “how many?” questions about groups of objects up to 10 when arranged in a line or up to 5 in a scattered configuration.	K.CC.5	<ul style="list-style-type: none"> <li>Given various arrangements of objects, students will identify how many.</li> <li>When asked “how many?”, students will identify the quantity of objects in different arrangements</li> <li>When given a quantity, students will show that quantity in different configurations</li> </ul>
7	Create addition and subtraction events with objects (or make drawings) to represent a sum (putting together) or a difference (taking from) up to 10.	K.OA.1	<ul style="list-style-type: none"> <li>Use 2 colors of connecting cubes to compose and decompose numbers up to 10.</li> <li>Write the equations that represent the composition and decomposition of numbers up to 10.</li> </ul>

**Selected Opportunities for Connection to Mathematical Practices**

- Make sense of problems and persevere in solving them.  
SLO #7 Reason about and make sense of addition and subtraction events by drawing pictures and using diagrams to represent the sums or differences.
- Reason abstractly and quantitatively.  
SLO #2 Make sense of the numbers 1 through 10 and understand that they represent quantities.  
SLO #4 For objects named in order, understand the relationship of the last named number to the quantity of the set.  
SLO #6 Make sense of number relationships (up to 10) using objects regardless of configuration.
- Construct viable arguments and critique the reasoning of others.
- Model with mathematics.  
SLO #7 Make sense of and reason about addition and subtraction events (up to 10) by using pictures and diagrams to map or represent the equations relationships.
- Use appropriate tools strategically.
- Attend to precision.
- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

<b>Unit 1 Essential Questions</b>	<b>Unit 1 Enduring Understandings</b>
<ul style="list-style-type: none"> <li><i>Why are numbers necessary?</i></li> <li><i>What is the value of a number?</i></li> <li><i>How can quantities be represented?</i></li> <li><i>How do we count?</i></li> <li><i>If we move objects into a scattered configuration, does the amount change?</i></li> <li><i>Why should we count from left to right?</i></li> </ul>	<ul style="list-style-type: none"> <li><i>Quantities can be counted and compared using numbers, words and numerals.</i></li> <li><i>Numbers are symbols used to represent quantities.</i></li> <li><i>We start at 1 and count up to 10</i></li> <li><i>No, the last number counted represents the number of counted objects in the set</i></li> <li><i>We count from left to right to prepare for reading left to right. It shows us how the numbers are seen in an ascending order.</i></li> </ul>

Standard Code #	NJ Student Learning Standards
K.CC.1	Count to 100 by ones and by tens.
K.CC.3	Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).
K.CC.4	<p>Understand the relationship between numbers and quantities; connect counting to cardinality.</p> <p>a) When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.</p> <p>b) Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.</p> <p>Understand that each successive number name refers to a quantity that is one larger.</p>
K.CC.5	Count to answer “how many?” questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.
K.OA.1	Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.
<b>Evidence of Learning</b>	
<b>Summative Assessment</b>	
<ul style="list-style-type: none"> <li>● Model Curriculum Unit Assessment</li> <li>● Mid Chapter Check Point</li> <li>● Chapter Review/Test</li> </ul>	
<b>Formative Assessment</b>	
<ul style="list-style-type: none"> <li>● Lesson Check/Spiral Review</li> <li>● Lesson Quick Checks</li> </ul>	
<b>Instructional Materials and Resources</b>	
<ul style="list-style-type: none"> <li>● K6 ThinkCentral Website</li> <li>● Go Math Series</li> <li>● ABCYA.com</li> <li>● IXL</li> <li>● Base-ten blocks</li> <li>● MathBoards</li> <li>● Unifix cubes</li> <li>● <a href="#">Number Puzzles</a></li> </ul>	
<b>Integration of Technology</b>	
<ul style="list-style-type: none"> <li>● Computers</li> <li>● SMART Board</li> </ul>	
<b>Curriculum Development Resources</b>	
<ul style="list-style-type: none"> <li>● <a href="http://www.state.nj.us/education/cccs/2016/math/standards.pdf">http://www.state.nj.us/education/cccs/2016/math/standards.pdf</a></li> <li>● <a href="http://www.state.nj.us/education/modelcurriculum/math/ku1.shtml">http://www.state.nj.us/education/modelcurriculum/math/ku1.shtml</a></li> <li>● <a href="http://www.state.nj.us/education/cccs/standards/9/9.pdf">http://www.state.nj.us/education/cccs/standards/9/9.pdf</a></li> </ul>	

# Mathematics - Kindergarten

## Unit 2: Addition and Subtraction

### 21<sup>st</sup> Century Themes

X	Creativity and Innovation
X	Critical Thinking and Problem Solving
X	Communication
X	Collaboration

### Unit 2 Learning Targets

*Students will be able to...*

- *Develop an awareness of the meaning of addition and subtraction using manipulatives*
- *Find different combinations for a given number using manipulatives or drawings*
- *Combine and remove objects from sets and describe the results*
- *Use drawings or manipulatives to solve simple addition and subtraction word problems*
- *Begin to understand and use ten frames to represent number combinations of 10*
- *Begin to recognize that number combinations may be expressed in written equations*
- *Begin to develop fluency with addition and subtraction within 10*
- *Find the missing addend when given the rest of the equation up to a sum of 10, using part-part whole thinking*
- *Begin to develop mental math strategies for solving addition and subtraction within 10*

#	Student Learning Objectives	NJSLS	Learning Activity
1	Count and represent with a written numeral a number of objects to 10	K.CC.3	<ul style="list-style-type: none"> <li>• Count a set of objects and write the quantity in numerals (up to 10)</li> <li>• Roll dice, show quantity using counters, record numeral on paper</li> <li>• Roll dice, show quantity using ten frames</li> </ul>
2	Write numerals from zero to 10.	K.CC.3	<ul style="list-style-type: none"> <li>• Count a set of objects and write the amount in numerals (up to 10)</li> <li>• Writing Numerals Activity</li> </ul>
3	Count to 30 by ones and tens.	K.CC.1	<ul style="list-style-type: none"> <li>• Calendar Math</li> <li>• Fill in blank number grid with numbers to 30</li> </ul>
4	Count forward beginning from any given number up to 50 -- instead of having to begin at one.	K.CC.2	<ul style="list-style-type: none"> <li>• Start at a random number on a calendar or number grid and count on from that number.</li> <li>• Count on Two More Activity</li> </ul>
5	Use objects or drawings to	K.OA.2	<ul style="list-style-type: none"> <li>• Given addition and subtraction</li> </ul>

	represent and solve addition and subtraction word problems (within 10)		word problems, students will use base-ten blocks or quick pictures to solve <ul style="list-style-type: none"> <li>Act out addition and subtraction problems ( 4 students are at their table and 3 get up to get supplies. How many students are still at the table?)</li> </ul>
6	Fluently add within 5.	K.OA.5	<ul style="list-style-type: none"> <li>Timed Math Quiz to 5</li> <li>Triangular Flashcards</li> </ul>
7	Classify and sort objects into given categories and count the objects in each category (up to 10 objects).	K.MD.3	<ul style="list-style-type: none"> <li>Sort objects into categories based on various attributes (size, color, shape, etc.)</li> <li>Record quantity of objects in each category</li> </ul>

**Selected Opportunities for Connection to Mathematical Practices**

1. Make sense of problems and persevere in solving them.  
SLO #5 Think about and make sense of the steps to solve addition and subtraction word problems.
2. Reason abstractly and quantitatively.  
SLO #1 Understand that the quantity of objects is represented by its corresponding written numeral.  
SLO #5 Think and reason about the quantities and their relationships to each other (either addition or subtraction) in word problems
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.  
SLO #5 Consider and use available tools (drawings and diagrams) to help understand how to solve addition and subtraction word problems.
6. Attend to precision.
7. Look for and make use of structure.  
SLO #7 Use patterns or structure to classify objects and understand the numerical relationship between the classified objects.
8. Look for and express regularity in repeated reasoning.

Unit 2 Essential Questions	Unit 2 Enduring Understandings
<ul style="list-style-type: none"> <li>How can a mathematical problem be solved?</li> <li>How can quantities be taken apart and put together?</li> <li>Why do numbers have to have an order?</li> <li>How can we use manipulatives to solve addition and subtraction stories?</li> <li>How do we know when an object is counted?</li> </ul>	<ul style="list-style-type: none"> <li>Mathematical problems can be solved in more than one way.</li> <li>Quantities can be taken apart and put together.</li> <li>In order to solve problems, numbers must have an order</li> <li>We can use manipulatives to put together or take away</li> <li>We know an object is counted when we move it away from a group of objects or cross it out on paper.</li> </ul>

Standard Code #	NJ Student Learning Standards
<b>K.CC.3</b>	Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).

<b>K.CC.1</b>	Count to 100 by ones and by tens.
<b>K.CC.2</b>	Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
<b>K.OA.2</b>	Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.
<b>K.OA.5</b>	Fluently add and subtract within 5.
<b>K.MD.3</b>	Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.3
<b>Evidence of Learning</b>	
<b>Summative Assessment</b>	
<ul style="list-style-type: none"> <li>● Model Curriculum Unit Assessment</li> <li>● Mid-Chapter Check</li> <li>● Chapter Review/Test</li> </ul>	
<b>Formative Assessment</b>	
<ul style="list-style-type: none"> <li>● Lesson Check/Spiral Review</li> <li>● Lesson Quick Checks</li> </ul>	
<b>Instructional Materials and Resources</b>	
<ul style="list-style-type: none"> <li>● K6 ThinkCentral Website</li> <li>● Go Math Series</li> <li>● ABCYA.com</li> <li>● IXL</li> <li>● Dice</li> <li>● Ten Frames</li> <li>● Counters</li> <li>● Base-ten blocks</li> <li>● MathBoards</li> <li>● <a href="#">Count on Two More</a></li> <li>● <a href="#">Writing Numerals</a></li> <li>● Triangular Flashcards</li> </ul>	
<b>Integration of Technology</b>	
<ul style="list-style-type: none"> <li>● Computers</li> <li>● SMART Board</li> </ul>	
<b>Curriculum Development Resources</b>	
<ul style="list-style-type: none"> <li>● <a href="http://www.state.nj.us/education/cccs/2016/math/standards.pdf">http://www.state.nj.us/education/cccs/2016/math/standards.pdf</a></li> <li>● <a href="http://www.state.nj.us/education/modelcurriculum/math/ku1.shtml">http://www.state.nj.us/education/modelcurriculum/math/ku1.shtml</a></li> <li>● <a href="http://www.state.nj.us/education/cccs/standards/9/9.pdf">http://www.state.nj.us/education/cccs/standards/9/9.pdf</a></li> </ul>	

# Mathematics - Kindergarten

## Unit 3:

# Compare Numbers and Shapes

## 21<sup>st</sup> Century Themes

X	Creativity and Innovation
X	Critical Thinking and Problem Solving
X	Communication
X	Collaboration

## Unit 3 Learning Targets

*Students will be able to...*

- *Count/represent/write numerals from zero to 10*
- *Count to 30 by ones and tens*
- *Identify whether the number of objects in a group is greater than, less than, or equal to the number of objects in another group*
- *Compare numbers written as numerals (up to 10)*
- *Describe measurable attributes of objects (length and weight)*
- *Compare and describe two objects with a measurable attribute in common using "more/less"*
- *Analyze and compare two and three dimensional shapes in different sizes and orientations by counting sides or vertices*

#	Student Learning Objectives	NJSLs	Learning Activity
1	Count and represent with a written numeral a number of objects to 20.	<b>K.CC.3</b>	<ul style="list-style-type: none"> <li>● Count a set of objects and write the quantity in numerals (up to 20)</li> <li>● Roll dice, show quantity using counters, record numeral on paper</li> </ul>
2	Write numerals from zero to 20.	<b>K.CC.3</b>	<ul style="list-style-type: none"> <li>● Write numerals 0-20</li> <li>● Count a quantity of objects and record numeral which represents the amount</li> </ul>
3	Count to 30 by ones and tens.	<b>K.CC.1</b>	<ul style="list-style-type: none"> <li>● Use Calendar Math</li> <li>● Use counting songs</li> <li>● Orally count by ones to 30</li> </ul>
4	Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group. (groups of up to 10 objects).	<b>K.CC.6</b>	<ul style="list-style-type: none"> <li>● Who Has More? Activity</li> <li>● Making Sets Activity</li> </ul>
5	Compare numbers (up to 10) written as numerals.	<b>K.CC.7</b>	<ul style="list-style-type: none"> <li>● Top It! Use deck of cards with a partner. Flip over cards at same time, person with greater number wins.</li> </ul>
6	Describe measurable attributes of objects, e.g., length and weight.	<b>K.MD.1</b>	<ul style="list-style-type: none"> <li>● Discuss measureable attributes of various objects in room</li> <li>● Use unifix cubes to measure length of objects in room</li> </ul>
7	Directly compare and describe two objects with a measurable attribute in common using "more of"/"less of"	<b>K.MD.2</b>	<ul style="list-style-type: none"> <li>● Measurement Sentence Frames Activity</li> <li>● Using strips of paper cut into</li> </ul>

	the attribute. For example, directly compare the heights of two children and describe one child as taller/shorter.		different lengths, compare lengths
8	Analyze and compare two- and three-dimensional shapes in different sizes and orientations by counting sides or vertices (“corners”) or comparing attributes such as side lengths.	K.G.4	<ul style="list-style-type: none"> <li>• Geometry Sentence Frame Activity</li> <li>• Use pattern blocks to discuss attributes of shapes</li> </ul>

**Selected Opportunities for Connection to Mathematical Practices**

1. Make sense of problems and persevere in solving them.  
SLO #1 Understand that the quantity of objects is represented by its corresponding written numeral.  
SLO #7 and #8 Use given information to compare either two similar or dissimilar objects by analyzing the objects’ attributes.
2. Reason abstractly and quantitatively.  
SLO #4 Analyze the relationship between two groups of objects as either equivalent or non-equivalent.  
SLO #4 Abstractly reason about the numerical relationship (greater than, less than or equal to) between groups in order to reach a conclusion about the groups.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Unit 3 Essential Questions	Unit 3 Enduring Understandings
<ul style="list-style-type: none"> <li>• <i>How can we measure objects?</i></li> <li>• <i>How are numbers compared?</i></li> <li>• <i>How can you compare two objects by using descriptive words?</i></li> <li>• <i>How can we compare shapes?</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>We can measure the length and weight of an object.</i></li> <li>• <i>Numbers can be compared as greater than, less than or equal to.</i></li> <li>• <i>You can use words such as bigger/smaller, thinner/thicker, wider/narrower, and taller/shorter.</i></li> <li>• <i>We can compare sides, corners, or length.</i></li> </ul>

Standard Code #	NJ Student Learning Standards
<b>K.CC.3</b>	Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).
<b>K.CC.1</b>	Count to 100 by ones and by tens.
<b>K.CC.6</b>	Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. <sup>1</sup>
<b>K.CC.7</b>	Compare two numbers between 1 and 10 presented as written numerals.
<b>K.MD.1</b>	Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
<b>K.MD.2</b>	Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference. <i>For example, directly compare the heights of two children and describe one child as taller/shorter.</i>
<b>K.G.4</b>	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).

**Evidence of Learning**

**Summative Assessment**

- Model Curriculum Unit Assessment
- Mid-Chapter Check
- Chapter Review/Test

**Formative Assessment**

- Lesson Check/ Spiral Review
- Lesson Checks

**Instructional Materials and Resources**

- K6 ThinkCentral Website
- Go Math Series
- ABCYA.com
- IXL
- Base-ten blocks
- MathBoards
- Dice
- Unifix Cubes
- Counters
- Playing Cards
- [Making Sets](#)
- [Who Has More?](#)
- [Measurement Sentence Frames](#)
- [Geometry Sentence Frames](#)
- Pattern Blocks

**Integration of Technology**

- Computers
- SMART Board
- 

**Curriculum Development Resources**

- <http://www.corestandards.org/>
- <http://www.state.nj.us/education/modelcurriculum/math/ku1.shtml>
- <http://www.state.nj.us/education/cccs/standards/9/9.pdf>

**Mathematics - Kindergarten**

**Unit 4: Foundations for Place Value**

**21<sup>st</sup> Century Themes**

X	Creativity and Innovation
X	Critical Thinking and Problem Solving
X	Communication
X	Collaboration

**Unit 4 Learning Targets**

*Students will be able to...*

- *Develop an awareness of the concept of "ones" and "tens" using manipulatives*
- *Develop an understanding that numbers 11-19 are composed of one ten and a number of ones or ten ones and additional ones*
- *Begin to record numbers 11-19 as drawings, equations, or with manipulatives*
- *Recognize that the numbers zero through nine are repeated in the ones place in each column on a hundred chart*
- *Begin to identify patterns in number sequences using manipulatives and the hundred chart*

#	Student Learning Objectives	NJSLS	Learning Activity
1	Count orally to 70 by ones and tens.	<b>K.CC.1</b>	<ul style="list-style-type: none"> <li>• Count using hundred chart</li> <li>• Counting Songs</li> </ul>
2	Decompose numbers less than or equal to ten into pairs of numbers in more than one way and record with a drawing or equations (e.g., write 7 as $2 + 5$ and $6 + 1$ ).	<b>K.OA.3</b>	<ul style="list-style-type: none"> <li>• Using 2 different-colored unifix cubes, show and record different combinations of numbers 1-10</li> <li>• Using 2 different colors of crayons, color in ten frame to show numbers less than or equal to ten in pairs (e.g., show 7 as 2 red and 5 blue or 3 red and 4 blue)</li> </ul>
3	Given a number less than 10, find a number that makes 10 (e.g., $1 + 9$ , $2 + 8$ , $3 + 7$ , $4 + 6$ , $5 + 5$ , etc.).	<b>K.OA.4</b>	<ul style="list-style-type: none"> <li>• Triangular Flashcards</li> <li>• Roll a dice. Put that number into ten frame. Count how many more needed to get to 10.</li> <li>• Have 10 counters in a cup. Spill counters onto table, count number of red and yellow counters. Write equation to represent the counters.</li> </ul>
4	Use mental math strategies to solve addition and subtraction facts within 5.	<b>K.OA.5</b>	<ul style="list-style-type: none"> <li>• Timed Math Quiz to 5</li> <li>• Triangular Flashcards</li> <li>• Beat the Calculator!</li> </ul>
5	Compose and decompose numbers from 11 to 19 into a group of ten and one(s) with or without manipulatives. Record each composition or decomposition through a drawing or equation.	<b>K.NBT.1</b>	<ul style="list-style-type: none"> <li>• On ten frames, represent a group of objects or drawings as a group of 10 (1 full frame) and some ones. Record with an equation.</li> <li>• Represent teen numbers using popsicle sticks. Bundle a group of ten with rubberband and single popsicle sticks are ones.</li> </ul>

#### Selected Opportunities for Connection to Mathematical Practices

1. Make sense of problems and persevere in solving them.  
 SLO #3 Know how to explain that when two separate quantities are added they equal a third separate quantity.  
 SLO #5 Explain what it means to decompose a number into a group of ten and a group of one(s).
2. Reason abstractly and quantitatively.

SLOs #2 and #3 Reason about the quantities and relationship between two addends and their sum (up to 10).

SLO #5 Reason about the quantities and relationship between two addends and their sum (between 11 and 19).

3. Construct viable arguments and critique the reasoning of others.

SLO #2 Construct an argument about what it means to decompose a number into two parts (less than or equal to 10).

4. Model with mathematics.

5. Use appropriate tools strategically.

6. Attend to precision.

7. Look for and make use of structure.

SLO #2 Understand the structure of decomposed numbers (the two addends are equivalent to the number being decomposed).

SLO #3 Understand the various patterns when adding two numbers to get 10.

SLO #5 Understand the pattern of decomposing numbers 11-19 (e.g. 12 is equal to 1 group of 10 and two ones).

8. Look for and express regularity in repeated reasoning.

Unit 4 Essential Questions		Unit 4 Enduring Understandings	
<ul style="list-style-type: none"> <li>How does position of a digit impact its value?</li> <li>Where are patterns found in our numerical system?</li> <li>What is another way to say putting together or taking apart?</li> <li>How can we use manipulatives?</li> <li>How can you tell which place numbers are in?</li> </ul>		<ul style="list-style-type: none"> <li>Numerals are made of digits.</li> <li>Position of a digit within a numeral determines value.</li> <li>Patterns exist in our numerical system.</li> <li>Grouping is an efficient way to count many objects.</li> <li>Another way to say putting together is adding. Another way to say taking apart is subtracting</li> <li>We can show groups of numbers to sequence or classify. We can also show how to add and subtract numbers with manipulatives.</li> <li>A single digit is in the ones place, a double digit is in the tens place.</li> </ul>	
Standard Code #	NJ Student Learning Standards		
<b>K.CC.1</b>	Count to 100 by ones and by tens.		
<b>K.OA.3</b>	Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., $5 = 2 + 3$ and $5 = 4 + 1$ ).		
<b>K.OA.4</b>	For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.		
<b>K.OA.5</b>	Fluently add and subtract within 5.		
<b>K.NBT.1</b>	Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., $18 = 10 + 8$ ); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.		
Evidence of Learning			
Summative Assessment			
<ul style="list-style-type: none"> <li>Model Curriculum Unit Assessment</li> </ul>			

<ul style="list-style-type: none"> <li>• Mid-Chapter Checkpoint</li> <li>• Chapter Review/Test</li> </ul>
<b>Formative Assessment</b>
<ul style="list-style-type: none"> <li>• Lesson Check / Spiral Review</li> <li>• Lesson Quick Checks</li> </ul>
<b>Instructional Materials and Resources</b>
<ul style="list-style-type: none"> <li>• K-5 Think Central Website</li> <li>• Go Math Series</li> <li>• ABCYA.com</li> <li>• IXL</li> <li>• Base-ten blocks</li> <li>• MathBoards</li> <li>• Triangular Flashcards</li> <li>• Hundred Chart</li> <li>• Popsicle Sticks</li> <li>• Dice</li> <li>• Unifix Cubes</li> <li>• Counters</li> </ul>
<b>Integration of Technology</b>
<ul style="list-style-type: none"> <li>• Computers</li> <li>• SMART Board</li> <li>•</li> </ul>
<b>Curriculum Development Resources</b>
<ul style="list-style-type: none"> <li>• <a href="http://www.state.nj.us/education/cccs/2016/math/standards.pdf">http://www.state.nj.us/education/cccs/2016/math/standards.pdf</a></li> <li>• <a href="http://www.state.nj.us/education/modelcurriculum/math/ku1.shtml">http://www.state.nj.us/education/modelcurriculum/math/ku1.shtml</a></li> <li>• <a href="http://www.state.nj.us/education/cccs/standards/9/9.pdf">http://www.state.nj.us/education/cccs/standards/9/9.pdf</a></li> </ul>

<b>Kindergarten Mathematics</b>	
<b>Unit 5: Geometric Shapes</b>	
<b>21<sup>st</sup> Century Themes</b>	
X	Creativity and Innovation
X	Critical Thinking and Problem Solving
X	Communication
X	Collaboration
<b>Unit 5 Learning Targets</b>	
<i>Students will be able to...</i>	
<ul style="list-style-type: none"> <li>• Sort, identify, compare, and describe two dimensional shapes (circle, triangle, square, rectangle, hexagon) by their characteristics, such as sides and corners</li> <li>• Sort and identify the following shapes: trapezoid and rhombus (Attribute block sets often include a “regular” rhombus, which is blue, and a “skinny” rhombus which is</li> </ul>	

- *beige.)*
- *Sort, describe, and compare three dimensional shapes (sphere, cube, cone, cylinder, pyramid) by their characteristics or by comparing to real life objects*
- *Sort, classify and describe objects by shape and size*
- *Combine shapes to form new shapes*
- *Create shapes using a variety of materials*
- *Identify two and three dimensional shapes in the real world*
- *Identify shapes (circle, triangle, square, and rectangle) in typical and atypical orientations, varying sizes, and side lengths*

#	Student Learning Objectives	NJSLS	Learning Activity
1	Count to 100 by ones and by tens.	K.CC.1	<ul style="list-style-type: none"> <li>• Calendar Math</li> <li>• Counting Songs</li> <li>• Orally counting to 100 using a hundred chart</li> </ul>
2	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.	K.G.1	<ul style="list-style-type: none"> <li>• Describe objects in classroom using names of shapes and positional words</li> <li>• Using pattern blocks, form animals and describe shapes used in relation to other shapes in animal</li> </ul>
3	Correctly name shapes regardless of their orientations or overall size.	K.G.2	<ul style="list-style-type: none"> <li>• Show shapes in different sizes and orientations and students will name the shape correctly</li> </ul>
4	Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").	K.G.3	<ul style="list-style-type: none"> <li>• Solid Shapes BrainPop Jr.</li> <li>• Solid Shapes Powerpoint</li> <li>• Compose two-dimensional shapes using popsicle sticks</li> </ul>
5	Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.	K.G.5	<ul style="list-style-type: none"> <li>• Shapes on the Geoboard Activity</li> <li>• PlayDough Shapes Activity</li> <li>• Use straws and pipe cleaners to build shapes</li> </ul>
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>	K.G.6	<ul style="list-style-type: none"> <li>• Use pattern blocks to form larger shapes</li> <li>• Use pattern blocks to form an animal. Trace shapes used.</li> </ul>

**Selected Opportunities for Connection to Mathematical Practices**

1. Make sense of problems and persevere in solving them.  
SLO #2 Analyze, describe, and make sense of objects in the environment.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.  
SLO #5 Use various concrete objects to compose a model of shapes in the environment.  
SLO #6 Use simple concrete shapes to help conceptualize and model larger more complex shapes.

5. Use appropriate tools strategically.
6. Attend to precision.  
SLO #2 Be able to precisely communicate the names, shapes, and positions of objects to others.
7. Look for and make use of structure.  
SLOs #5 and #6 Look for a pattern or structure when composing and decomposing shapes.
8. Look for and express regularity in repeated reasoning.

Unit 5 Essential Questions	Unit 5 Enduring Understandings
<ul style="list-style-type: none"> <li>● <i>Where are shapes found in the world?</i></li> <li>● <i>How can shapes be described?</i></li> <li>● <i>In what ways can objects be sorted?</i></li> <li>● <i>Why do we need to learn skip counting?</i></li> <li>● <i>How do we know if a shape is two dimensional or three dimensional?</i></li> <li>● <i>How can you create larger shapes from smaller shapes?</i></li> </ul>	<ul style="list-style-type: none"> <li>● <i>Shapes can be found in the world around us.</i></li> <li>● <i>Shapes can be described by their characteristics.</i></li> <li>● <i>Objects can be sorted by similarities.</i></li> <li>● <i>Skip counting is another way to count in a given sequence. We see a pattern in skip counting which helps up memorize.</i></li> <li>● <i>A two dimensional shape is flat, a three dimensional shape is solid.</i></li> <li>● <i>Larger shapes can be formed by placing the full sides together so that they touch.</i></li> </ul>

Standard Code #	NJ Student Learning Standards
<b>K.CC.1</b>	Count to 100 by ones and by tens.
<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.
<b>K.G.2</b>	Correctly name shapes regardless of their orientations or overall size.
<b>K.G.3</b>	Identify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”).
<b>K.G.5</b>	Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.
<b>K.G.6</b>	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>

**Evidence of Learning**

**Summative Assessment**

- Model Curriculum Unit Assessment
- Mid-Chapter Check
- Chapter Review/Test

**Formative Assessment**

- Lesson Check/Spiral Review
- Lesson Quick Checks

**Instructional Materials and Resources**

- K6 ThinkCentral Website
- Go Math Series
- ABCYA.com
- Straws

- Pipecleaners
- IXL
- BrainPop Jr.
- [Solid Shapes Powerpoint](#)
- Base-ten blocks
- Pattern Blocks
- Geoboards
- Rubberbands
- [Shapes on the Geoboard](#)
- [PlayDough Shapes](#)
- PlayDough

#### Integration of Technology

- Computers
- SMART Board
- 

#### Curriculum Development Resources

- <http://www.state.nj.us/education/cccs/2016/math/standards.pdf>
- <http://www.state.nj.us/education/modelcurriculum/math/ku1.shtml>
- <http://www.state.nj.us/education/cccs/standards/9/9.pdf>

## Suggested Methods for Differentiation for the Kindergarten Curriculum

<b>Special Education</b> <i>(In accordance with IEP/504 documentation)</i>	<b>At Risk (I &amp; RS)</b> <i>(In accordance with I &amp; RS committee decisions)</i>
<p><b>Classroom Modifications</b></p> <ul style="list-style-type: none"> <li>● Pair visual prompts with verbal presentations.</li> <li>● Ask students to restate information, directions, and assignments.</li> <li>● Repetition and practice.</li> <li>● Model skills/techniques to be mastered.</li> <li>● Extended time to complete class work.</li> <li>● Provide copy of class notes.</li> <li>● Preferential seating to be mutually determined by the student and teacher.</li> <li>● Student may request to use a computer to complete assignments.</li> <li>● Extra textbooks for home.</li> <li>● Student may request books on tape/CD/digital media, as available and appropriate.</li> <li>● Assign a peer helper in the class setting.</li> <li>● Provide oral reminders and check student work during independent work time.</li> <li>● Assist student with long and short term planning of assignments.</li> <li>● Encourage student to proofread assignments and tests with expectations established for spelling.</li> <li>● Provide regular parent/school communication.</li> <li>● Teachers will check/sign student agenda daily.</li> <li>● Student requires use of other assistive technology device.</li> </ul> <p><b>Homework/Assignment Modifications</b></p> <ul style="list-style-type: none"> <li>● Extended time to complete assignments.</li> <li>● Student requires more complex</li> </ul>	<p><b>Classroom Modifications</b></p> <ul style="list-style-type: none"> <li>● Pair visual prompts with verbal presentations.</li> <li>● Ask students to restate information, directions, and assignments.</li> <li>● Repetition and practice.</li> <li>● Model skills/techniques to be mastered.</li> <li>● Extended time to complete class work.</li> <li>● Preferential seating to be mutually determined by the student and teacher.</li> <li>● Student may request to use a computer to complete assignments.</li> <li>● Extra textbooks for home.</li> <li>● Student may request books on tape/CD/digital media, as available and appropriate.</li> <li>● Assign a peer helper in the class setting.</li> <li>● Provide oral reminders and check student work during independent work time.</li> <li>● Assist student with long and short term planning of assignments.</li> <li>● Encourage student to proofread assignments and tests with expectations established for spelling.</li> <li>● Provide regular parent/school communication.</li> <li>● Teachers will check/sign student agenda daily.</li> </ul> <p><b>Homework/Assignment Modifications</b></p> <ul style="list-style-type: none"> <li>● Extended time to complete assignments.</li> <li>● Student requires more assignments to be broken up and explained in smaller units, with work to be submitted in phases.</li> <li>● Provide the student with clearly stated (written) expectations and grading criteria for assignments.</li> </ul> <p><b>Assessment Modifications</b></p> <ul style="list-style-type: none"> <li>● Extended time on classroom tests and quizzes.</li> <li>● Student may take/ complete tests</li> </ul>

<p>assignments to be broken up and explained in smaller units, with work to be submitted in phases.</p> <ul style="list-style-type: none"> <li>● Provide the student with clearly stated (written) expectations and grading criteria for assignments.</li> </ul> <p><b>Assessment Modifications</b></p> <ul style="list-style-type: none"> <li>● Extended time on classroom tests and quizzes.</li> <li>● Student may take/ complete tests in an alternate setting as needed.</li> <li>● Restate, reread, and clarify directions/ questions.</li> <li>● Distribute study guide for classroom tests. <ul style="list-style-type: none"> <li>● Establish procedures for accommodations/ modifications for assessments.</li> </ul> </li> </ul>	<p>in an alternate setting as needed.</p> <ul style="list-style-type: none"> <li>● Restate, reread, and clarify directions/ questions.</li> <li>● Distribute study guide for classroom tests.</li> <li>● Establish procedures for accommodations/ modifications for assessments.</li> </ul>
<p><b>English Language Learners (ELL)</b></p>	<p><b>Higher Level Enrichment</b></p>
<p><b>Classroom Modifications</b></p> <ul style="list-style-type: none"> <li>● Visual representations</li> <li>● Manipulatives</li> </ul> <p><b>Homework/Assignment Modifications</b></p> <ul style="list-style-type: none"> <li>● Modified Assignments</li> <li>● Native Language Translation (peer, online assistive technology, translation device, bilingual dictionary).</li> <li>● Extended time for assignment completion as needed.</li> <li>● Highlight key vocabulary. Use manipulatives.</li> </ul>	<p><b>Extension Activities</b></p> <ul style="list-style-type: none"> <li>● Conduct research and provide presentation of cultural topics.</li> <li>● Design surveys to generate and analyze data to be used in discussion.</li> <li>● Anchor Activities</li> <li>● Use of Higher Level Questioning Techniques. <ul style="list-style-type: none"> <li>● Provide assessments at a higher level of thinking.</li> </ul> </li> </ul>

# NJ Student Learning Standards for Mathematics Kindergarten

## Counting & Cardinality

### Standards in this domain

[NJSLs.MATH.CONTENT.K.CC.A.1](#)

[NJSLs.MATH.CONTENT.K.CC.A.2](#)

[NJSLs.MATH.CONTENT.K.CC.A.3](#)

[NJSLs.MATH.CONTENT.K.CC.B.4](#)

[NJSLs.MATH.CONTENT.K.CC.B.5](#)

[NJSLs.MATH.CONTENT.K.CC.C.6](#)

[NJSLs.MATH.CONTENT.K.CC.C.7](#)

### Know number names and the count sequence.

#### K.CC.A.1

Count to 100 by ones and by tens.

#### K.CC.A.2

Count forward beginning from a given number within the known sequence (instead of having to begin at 1).

#### K.CC.A.3

Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).

### Count to tell the number of objects.

#### K.CC.B.4

Understand the relationship between numbers and quantities; connect counting to cardinality.

- a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.
- b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.
- c. Understand that each successive number name refers to a quantity that is one larger.

#### K.CC.B.5

Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.

## Compare numbers.

### K.CC.C.6

Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.<sup>1</sup>

### K.CC.C.7

Compare two numbers between 1 and 10 presented as written numerals.

<sup>1</sup> Include groups with up to ten objects.

## Operations & Algebraic Thinking

### Standards in this domain

[NJSL.S.MATH.CONTENT.K.OA.A.1](#)

[NJSL.S.MATH.CONTENT.K.OA.A.2](#)

[NJSL.S.MATH.CONTENT.K.OA.A.3](#)

[NJSL.S.MATH.CONTENT.K.OA.A.4](#)

[NJSL.S.MATH.CONTENT.K.OA.A.5](#)

## Understand addition, and understand subtraction

### K.OA.A.1

Represent addition and subtraction with objects, fingers, mental images, drawings<sup>1</sup>, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.

### K.OA.A.2

Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.

### K.OA.A.3

Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g.,  $5 = 2 + 3$  and  $5 = 4 + 1$ ).

### K.OA.A.4

For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.

### K.OA.A.5

Fluently add and subtract within 5.

## Number & Operations in Base Ten

### Standards in this domain

[NJSL.S.MATH.CONTENT.K.NBT.A.1](#)

Work with numbers 11-19 to gain foundations for place value.

### [K.NBT.A.1](#)

Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (such as  $18 = 10 + 8$ ); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.

## Measurement & Data

### Standards in this domain

[NJSL.S.MATH.CONTENT.K.MD.A.1](#)

[NJSL.S.MATH.CONTENT.K.MD.A.2](#)

[NJSL.S.MATH.CONTENT.K.MD.B.3](#)

Describe and compare measurable attributes.

### [K.MD.A.1](#)

Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

### [K.MD.A.2](#)

Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. *For example, directly compare the heights of two children and describe one child as taller/shorter.*

Classify objects and count the number of objects in each category.

### [K.MD.B.3](#)

Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.<sup>1</sup>

## Geometry

### Standards in this Domain

[NJSL.S.MATH.CONTENT.K.G.A.1](#)

[NJSL.S.MATH.CONTENT.K.G.A.2](#)

[NJSL.S.MATH.CONTENT.K.G.A.3](#)

[NJSL.S.MATH.CONTENT.K.G.B.4](#)

[NJSL.S.MATH.CONTENT.K.G.B.5](#)

[NJSL.S.MATH.CONTENT.K.G.B.6](#)

## Identify and describe shapes.

### **K.G.A.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*.

### **K.G.A.2**

Correctly name shapes regardless of their orientations or overall size.

### **K.G.A.3**

Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").

## Analyze, compare, create, and compose shapes.

### **K.G.B.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).

### **K.G.B.5**

Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

### **K.G.B.6**

Compose simple shapes to form larger shapes. *For example, "Can you join these two triangles with full sides touching to make a rectangle?"*

