



**Allamuchy Township School District  
Allamuchy, NJ**

**Mathematics  
Kindergarten**

**CURRICULUM GUIDE**

**August 26, 2019**

**Mr. Joseph E. Flynn, Superintendent**

**Developed by: Robin Samiljan**

**Revised by: Anna Thomas**

**This curriculum may be modified through varying techniques,  
strategies and materials, as per an individual student's  
Individualized Education Plan (IEP).**

**Approved by the Allamuchy Board of Education  
At the regular meeting held on September 23, 2019  
And**

***Aligned with the New Jersey Core Curriculum Content Standards  
And Common Core Content Standards***

## Table of Contents

<b>Philosophy and Rationale:</b>	<b>Page 3</b>
<b>Mission Statement:</b>	<b>Page 3</b>
<b>Scope and Sequence:</b>	<b>Page 4</b>
<b>NJ Content Standards:</b>	<b>Page 5</b>
<b>Units:</b>	<b>Page 9</b>
<b>Modifications and Accommodations:</b>	<b>Page 23</b>
<b>Resources</b>	<b>Page 24</b>
<b>21<sup>st</sup> Century Skills:</b>	<b>Page 24</b>

## **Philosophy and Rationale**

The New Jersey DOE has adopted the Common Core State Standards (CCSS). Therefore, the following document reflects the revision of the Allamuchy Township School District's math curriculum for grades Kindergarten through 2<sup>nd</sup> grade. This revision is in compliance with the CCSS.

Within this document will be found Cumulative Progress Indicators (CPI) for each math standard. Along with these are listed suggested activities and resources to help students achieve mastery of each CPI.

This is a living document. It will be updated as new materials and strategies become available. Teachers should not limit themselves to the listed activities and resources but should feel encouraged to share different activities and resources with one another.

Learning to identify and manipulate numbers, understanding basic operations, manipulating data and information, and building critical thinking and problem solving skills enables students to identify, understand, and solve real world problems using abstract and quantitative reasoning, existing structures and appropriate tools. Learning to use mathematical skills gives students a range of skills and applications for success throughout their lives.

## **Mission Statement**

Building on tradition and success, the mission of the Allamuchy Township School District is to foster a caring and creative environment where students grow as learners and citizens while developing 21st century skills. We provide a culture for social emotional learning that contributes to a positive school climate, increased academic success, and a sense of ownership within the community.

## **The Allamuchy Learner**

The Allamuchy Township School District pursues a holistic approach to encouraging the educational growth of every student. We consider each student as an individual with particular strengths and weaknesses, likes and dislikes and varying motivations. The goal of the Allamuchy educational program is to develop young people who are curious, well rounded, knowledgeable, caring, respectful and responsible so that they can evolve into self-sufficient and confident citizens and members of a diverse society.

## **Scope and Sequence**

The scope and sequence of the math curriculum (ideas, concepts and topics) must provide a common framework which depicts the matters skills and processes that provide a coherent series of events which allows for a concrete understanding of given topics. Embedding processes throughout will promote the development of mathematical proficiency, allowing for understanding, continuity and progression. The scope and sequence is taught through the McGraw Hill My Math series over the course of a 180 day school year.

### **Unit 1**

#### **Counting and Cardinality**

- Know number names 1-10 and the count sequence.
- Count to tell the number of objects.
- Compare numbers.

### **Unit 2**

#### **Number Operations Addition**

- Understand addition as putting together.
- Writing Addition Sentences for 10.

### **Unit 3**

#### **Number Operations Subtraction**

- Understand subtraction as taking apart and taking from.
- Write Subtraction Sentences.
- Solving Addition and Subtraction Word Problems.

### **Unit 4**

#### **Number Operations in Base 10**

- Work with numbers 11-19 to gain foundations for place value.
- Count, Order, Write and Compare Numbers to 20.
- Count to 50 by Ones, Count to 100 by ones.
- Count to 100 by tens.

### **Unit 5**

#### **Measurement and Data**

- Describe and compare measurable attributes.
- Classify objects and count the number of objects in each category
- Comparison by Length and Height.
- Comparison by Weight.
- Classify and Count by Color, Shape and Size.
- Construct Graphs.

### **Unit 6**

#### **Geometry**

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

- Comparison of Two-Dimensional Shapes (by attributes).
- Joining Shapes to Create Additional Shapes.
- Building and or Drawing Two and Three Dimensional Shapes.
- Describing Objects in the Environment Using Position Words

**Stage 1: Desired Results**

**Units 1-6 Standards**

**Content Standards**

**Topics**

Grade K	Stran d	Behavioral Objective/ CPI	Activity
K.CC		<b>Unit 1 Counting and Cardinality</b> Know number names and count sequences.	T.G. lessons #16,17; 21,22; 24; 38,39; 40 p.65b Macaroni number cards; L.C. "Count" by Denise Fleming M. Win Them All game p.101b "Funny Number" game L.A. connection p.153 Monthly calendar activity
	1	Count to 100 by ones and tens	Use # chart to highlight 10, 20, 30, etc... Practice sheets; T.G. lessons # 38,39
	2	Count forward beginning from a given number within the known sequence (instead of having to begin at 10)	Duck Pond Game p.244/45 Pattern Game p.247/48
	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).	T.G. lessons #17; 22; 39; Number writing practice sheets Wiki sticks, sandwriting, etc...
		Count to tell the number of objects.	
	4	Understand the relationship between numbers and quantities; connect counting to cardinality.	T.G. lessons # 6; 8,9; 13
		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.	T.G. lessons # 4,5, 6

		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.	T.G. lessons # 4,5; 13
		c. Understand that each successive number name refers to a quantity that is one larger.	T.G. lesson #14; 18,20
	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.	
	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.1	T.G. lessons #7; 14, 15; 43; 49-54
	7	Compare two numbers between 1 and 10 presented as written numerals.	T.G lessons # 16,17; 21,22; 24; 38,39; 40
K.OA		<b>Unit 2 &amp; 3 Operations and Algebraic Thinking Addition/ Subtraction</b> Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.	
	1	Represent addition and subtraction up to 10 with objects, fingers, mental images, drawings <sup>2</sup> , sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.	T.G. lessons # 18, 20; 49-54 Listen & count game (see attached) Use number lines, unifix cubes
	2	Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.	T.G. lesson # 55 Duck Pond Game p. 244/45 Juggling Game p.246

	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 $5 = 4 + 1$ ).	T.G. lesson #56
	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.	T.G. lesson #56 L.C. "12 Ways to Count to 11" by Eve Merriam
	5	Demonstrate fluency for addition and subtraction within 5.	T.G. lesson # 51,52 Use a number line Duck Pond Game p.244/45 Juggling Game p.246
K.NBT		<b>Unit 4 Number and Operations in Base Ten</b> Work with numbers 11–19 to gain foundations for place value.	
	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 (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.	T.G. lessons # 38,39 L.A. connection p. 153 # line game, start at ten add ones p.157a Bunches of 10
K.MD		<b>Unit 5 Measurement and Data</b> Describe and compare measurable attributes.	
	1	Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.	p.115 review measuring with non-standard units p.117a estimating weight p.117 manipulatives L.C. "Inch by Inch" by Leo Lionni
	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	p.119b Activity units of children T.S. p119b p.123a Warm-up p.123b "What's My Rule?" game

		children and describe one child as taller/shorter.	
		Classify objects and count the number of objects in each category.	
	3	Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.	T.G. lessons # 1-5 p.119 math connection
K.G		<b>Unit 6 Geometry</b> Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).	
	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.	T.G: warm up p. 143a (make shape books) p.143 (yarn graph) p.150 (enrichment page)
	2	Correctly name shapes regardless of their orientations or overall size.	T.G. lessons # 32-34 M. activity- geoboards Shape bingo
	3	Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").	T.G. lessons# 32-34  M. p.141 review box
		Analyze, compare, create, and compose shapes.	
	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).	T.S. p.139B "guessing game: p. 139B A.L. "Boxes" by Rose Griffiths
	5	Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.	Geoboards/clay shapes
	6	Compose simple shapes to form larger shapes. For example, "Can you join these two triangles with full sides touching to make a rectangle?"	Use attribute blocks to create new shapes



## **Unit 1**

Topic: Counting and Cardinality

Identify, Represent, Count, Write and Compare Numbers to 10.

### **Essential Questions**

How can you show and count with objects?

How can you count and write with words and numbers?

How can you use two sets of objects to show numbers in more than one way?

### **Enduring Understandings**

Numbers can be represented in multiple ways.

Counting objects can result in a cardinal result.

Flexibility in thinking about numbers is a hallmark of number sense.

### **Knowledge and Skills (SWBAT embedded course proficiencies)**

- Use numbers, including written numbers to represent quantities and solve problems, 1-20.
- Count a set of objects using one to one correspondence.
- Understand that the placement of objects does not change the total amount.
- Use objects or drawing to decompose numbers in more than one way.
- Know that each successive number refers to a quantity that is one larger.
- Demonstrate knowledge and use of a tens frame.
- Represent objects with number name and a written numeral.
- Draw and use mental math to solve problems.
- Use matching and counting strategies to compare sets, equal, greater or less.
- Make a model to solve problems using a matching strategy.
- Use a counting strategy to compare sets of objects.

## **Stage 2: Evidence of Understanding, Learning Objectives and Expectations** **Benchmarks(embedded student proficiencies)**

### **By mid year Kindergarten students will be able to:**

- Identify numbers 1-10, in both written and numerical format, both in and out of sequence.
- Understand that the size of a set is demarcated by the last number in the count.

### **By end of Kindergarten year students will be able to:**

- Compare numbers by using Mathematical vocabulary such as: more than, less than, fewer, or equal to.

### **Assessment Methods** (formative, summative, other evidence and/or student self- assessment)

These include pre-knowledge, mastery checkpoints, mid-unit assessments, and end-of-unit assessments. Additionally, periodic benchmarks will be administered throughout the school year.

## **Stage 3: Learning Plan**

Students will be engaged through large and small group discussion allowing students to revise, rethink, and refine their understanding of topics covered. Differentiation will be provided through written, visual, auditory, and hands-on activities to meet all learning styles. We will use various learning centers, and My Math resources including modified activities for individual needs. Students will be provided with individualized instruction as needed. Introduction of new vocabulary will help students express their ideas and opinions. Collaborative group activities allow students to participate in conversations with diverse partners in small and large groups.

During Math lessons, students will be engaged through a variety of activities which will allow for differentiated learning styles and outcomes such as: Smartboard lessons, use of classroom technology, centers, daily classroom activities and projects, math games, educational songs, and video clips. School website links to math resources, manipulatives such as 2D and 3D shapes, magnetic numbers, tens frames, unifix cubes etc.

In this Unit, the students will practice the 21<sup>st</sup> Century Skills of Communication and Collaboration, Critical Thinking and Problem Solving, as well as Creativity and Innovation. We also focus on many Life and Career Skills by supporting students' interactions with peers and teachers throughout their school day.

### **Differentiation**

Differentiation will be seen in both cooperative and individual work. Various tasks will be modeled and contain activities that require doing, observing, talking and listening, discussing, reading and writing. Differentiation will incorporate student interests in engaging activities and be supported through songs, stories, rhymes, manipulatives, smart-board presentations, number videos and hands on activities etc.

## **Time Allotment**

**September/October**

## **Unit 2**

**Topic:** Number Operations Addition

### **Essential Questions.**

How can you show addition as adding to?

How can you show addition as putting together?

How can you use objects and drawings to solve addition word problems?

### **Enduring Understandings.**

Addition is the process of joining something to another so that there will be more.

### **Knowledge and Skills (SWBAT embedded course proficiencies).**

- Use manipulatives to develop the meaning for addition.
- \*Explore simple addition to 10 and use objects or drawings to represent the problem.
  - Use a drawing to find 10 from a given number and record the equation.
  - Decompose numbers within 10 in more than one way and record each decomposition with an equation.
  - Work to become fluent with addition problems to 5.

### **Stage 2: Evidence of understanding, Learn Objectives and Expectations Benchmarks** (embedded student proficiencies).

#### **By mid year Kindergarten students will be able to:**

Represent simple addition with a variety of strategies, e.g., Drawings or acting out situations.

#### **By end of Kindergarten year students will be able to:**

Demonstrate fluency with addition problems to 5.

### **Assessment Methods** (formative, summative, other evidence and/or student self- assessment)

Minimally teachers should use assessments included in the district approved text book/teacher's guides. These include pre-knowledge, mastery checkpoints, mid-unit assessments, and end-of-unit assessments. Additionally, periodic benchmarks will be administered throughout the school year.

### **Stage 3: Learning Plan**

Students will be engaged through large and small group discussion allowing students to revise, rethink, and refine their understanding of topics covered. Differentiation will be provided through written, visual, auditory, and hands-on activities to meet all learning styles. We will use various learning centers, and My Math resources including modified activities for individual needs. Students will be provided with individualized instruction as needed. Introduction of new vocabulary will help students express their ideas and opinions. Collaborative group activities allow students to participate in conversations with diverse partners in small and large groups.

During Math lessons, students will be engaged through a variety of activities which will allow for differentiated learning styles and outcomes such as: Smartboard lessons, use of classroom technology, centers, daily classroom activities and projects, math games, educational songs, and video clips. School website links to math resources, manipulatives such as 2D and 3D shapes, magnetic numbers, tens frames, unifix cubes etc.

In this Unit, the students will practice the 21<sup>st</sup> Century Skills of Communication and Collaboration, Critical Thinking and Problem Solving, as well as Creativity and Innovation. We also focus on many Life and Career Skills by supporting students' interactions with peers and teachers throughout their school day.

### **Differentiation**

Differentiation will be seen in both cooperative and individual work. Various tasks will be modeled and contain activities that require doing, observing, talking and listening, discussing, reading and writing. Differentiation will incorporate student interests in engaging activities and be supported through songs, stories, rhymes, manipulatives, smart-board presentations, number videos and hands on activities etc.

### **Time Allotment**

**November/December**

## **Unit 3**

Topic: Number Operations Subtraction

### **Essential Questions.**

How can you show subtraction as taking apart?

How can you use objects and drawings to solve subtraction word problems?

### **Enduring Understandings.**

Subtraction is the process of taking away from part of something that is whole.

### **Knowledge and Skills (SWBAT embedded course proficiencies).**

- Use manipulatives to develop the meaning for subtraction.
- Explore simple subtraction problems to 10, using objects or drawings to represent the problem.
- Use a variety of methods such as manipulatives or pictorial representations to practice subtraction facts.
- Work to become fluent with subtraction problems to 5.

### **Stage 2: Evidence of understanding, Learn Objectives and Expectations Benchmarks**

(embedded student proficiencies).

#### **By mid year Kindergarten students will be able to:**

Represent simple subtraction with a variety of strategies, e.g., Drawings or acting out situations.

#### **By end of Kindergarten year students will be able to:**

Demonstrate fluency with subtraction problems to 5.

### **Assessment Methods** (formative, summative, other evidence and/or student self- assessment)

Minimally teachers should use assessments included in the district approved text book/teacher's guides. These include pre-knowledge, mastery checkpoints, mid-unit assessments, and end-of-unit assessments. Additionally, periodic benchmarks will be administered throughout the school year.

### **Stage 3: Learning Plan**

Students will be engaged through large and small group discussion allowing students to revise, rethink, and refine their understanding of topics covered. Differentiation will be provided through written, visual, auditory, and hands-on activities to meet all learning styles. We will use various learning centers, and My Math resources including modified activities for individual needs. Students will be provided with individualized instruction as needed. Introduction of new vocabulary will help students express their ideas and opinions. Collaborative group activities allow students to participate in conversations with diverse partners in small and large groups.

During Math lessons, students will be engaged through a variety of activities which will allow for differentiated learning styles and outcomes such as: Smartboard lessons, use of classroom technology, centers, daily classroom activities and projects, math games, educational songs, and video

clips. School website links to math resources, manipulatives such as 2D and 3D shapes, magnetic numbers, tens frames, unifix cubes etc.

In this Unit, the students will practice the 21<sup>st</sup> Century Skills of Communication and Collaboration, Critical Thinking and Problem Solving, as well as Creativity and Innovation. We also focus on many Life and Career Skills by supporting students' interactions with peers and teachers throughout their school day.

### **Differentiation**

Differentiation will be seen in both cooperative and individual work. Various tasks will be modeled and contain activities that require doing, observing, talking and listening, discussing, reading and writing. Differentiation will incorporate student interests in engaging activities and be supported through songs, stories, rhymes, manipulatives, smart-board presentations, number videos and hands on activities etc.

### **Time Allotment**

**January/February**

## Unit 4

**Topic:** Identify, Represent, Count, Write and Compare Numbers to 11-20 and Beyond.

### **Essential Questions**

How can you use objects to show the numbers 11-20 as ten ones and some more ones?

How can you count and write the numbers 11-20 with words and numbers?

How can you show numbers 11-20 with tens frames and counters.

### **Enduring Understandings**

Numbers can be represented in multiple ways.

Counting objects can result in a cardinal result.

Flexibility in thinking about numbers is a hallmark of number sense.

### **Knowledge and Skills (SWBAT embedded course proficiencies)**

- Use numbers, including written numbers to represent quantities and solve problems, 1-20.
- Count a set of objects using one to one correspondence.
- Understand that the placement of objects does not change the total amount.
- Use objects or drawing to decompose numbers in more than one way.
- Know that each successive number refers to a quantity that is one larger.
- Demonstrate knowledge and use of a tens frame.
- Represent objects with number name and a written numeral.
- Draw and use mental math to solve problems.
- Use matching and counting strategies to compare sets, equal, greater or less.
- Make a model to solve problems using a matching strategy.
- Use a counting strategy to compare sets of objects.
- Demonstrate the ability to rote count from 1-100.
- Demonstrate the ability to count to 100 by 10's.

### **Stage 2: Evidence of Understanding, Learning Objectives and Expectations**

**Benchmarks**(embedded student proficiencies)

#### **By mid year Kindergarten students will:**

- Be introduced to numbers 11-20, in both written and numerical format, both in and out of sequence.
- Understand that the size of a set is demarcated by the last number in the count.
- Understand that the order of numbers helps you count to 100 by ones.

### **By end of Kindergarten year students will be able to:**

- Compare numbers by using Mathematical vocabulary such as: more than, less than, fewer, or equal to.
- Use numbers, including written numbers to represent quantities and solve problems.
- Students will demonstrate their ability to form numbers correctly.

### **Assessment Methods** (formative, summative, other evidence and/or student self- assessment)

Minimally teachers should use assessments included in the district approved text book/teacher's guides. These include pre-knowledge, mastery checkpoints, mid-unit assessments, and end-of-unit assessments. Additionally, periodic benchmarks will be administered throughout the school year.

### **Stage 3: Learning Plan**

Students will be engaged through large and small group discussion allowing students to revise, rethink, and refine their understanding of topics covered. Differentiation will be provided through written, visual, auditory, and hands-on activities to meet all learning styles. We will use various learning centers, and My Math resources including modified activities for individual needs. Students will be provided with individualized instruction as needed. Introduction of new vocabulary will help students express their ideas and opinions. Collaborative group activities allow students to participate in conversations with diverse partners in small and large groups.

During Math lessons, students will be engaged through a variety of activities which will allow for differentiated learning styles and outcomes such as: Smartboard lessons, use of classroom technology, centers, daily classroom activities and projects, math games, educational songs, and video clips. School website links to math resources, manipulatives such as 2D and 3D shapes, magnetic numbers, tens frames, unifix cubes etc.

In this Unit, the students will practice the 21<sup>st</sup> Century Skills of Communication and Collaboration, Critical Thinking and Problem Solving, as well as Creativity and Innovation. We also focus on many Life and Career Skills by supporting students' interactions with peers and teachers throughout their school day.

### **Differentiation**

Differentiation will be seen in both cooperative and individual work. Various tasks will be modeled and contain activities that require doing, observing, talking and listening, discussing, reading and writing. Differentiation will incorporate student interests in engaging activities and be supported through songs, stories, rhymes, manipulatives, smart-board presentations, number videos and hands on activities etc.

### **Time Allotment**

**March/April**



## **Unit 5**

### **Topic: Measurement and Data**

#### **Essential Questions.**

How can you compare the length and weight of two objects?

How can you describe several ways to measure one object?

How can you classify and count objects by color, size and shape?

How can you make a graph to count objects that have been classified into categories?

#### **Enduring Understandings.**

Objects have distinct attributes that can be measured.

We collect and use data to help us answer questions and make decisions.

#### **Knowledge and Skills (SWBAT embedded course proficiencies)**

- Students will be able to describe measurable attributes of objects, such as length or weight.
- Compare two objects with measurable attributes in common. Describe the differences: taller, shorter, heavier, lighter, etc.
- Use a variety of standard and non-standard units to explore measurement.
- Classify objects into given categories; count the number of objects in each category and sort the categories by count.
- Construct a simple graph and share observations.

#### **Stage 2: Evidence of Understanding, Learning Objectives and Expectations**

##### **Benchmarks**(embedded student proficiencies)

##### **By mid year Kindergarten students will:**

- Will be able to classify objects into given categories.
- Be able to compare length and weight.

##### **By end of Kindergarten year students will be able to:**

- Be able to create a simple graph.
- Be able to use a variety of standard and non-standard units to explore measurement.

##### **Assessment Methods** (formative, summative, other evidence and/or student self- assessment)

Minimally teachers should use assessments included in the district approved text book/teacher's guides. These include pre-knowledge, mastery checkpoints, mid-unit assessments, and end-of-unit assessments. Additionally, periodic benchmarks will be administered throughout the school year.

### **Stage 3: Learning Plan**

Students will be engaged through large and small group discussion allowing students to revise, rethink, and refine their understanding of topics covered. Differentiation will be provided through written, visual, auditory, and hands-on activities to meet all learning styles. We will use various learning centers, and My Math resources including modified activities for individual needs. Students will be provided with individualized instruction as needed. Introduction of new vocabulary will help students express their ideas and opinions. Collaborative group activities allow students to participate in conversations with diverse partners in small and large groups.

During Math lessons, students will be engaged through a variety of activities which will allow for differentiated learning styles and outcomes such as: Smartboard lessons, use of classroom technology, centers, daily classroom activities and projects, math games, educational songs, and video clips. School website links to math resources, manipulatives such as 2D and 3D shapes, magnetic numbers, tens frames, unifix cubes etc.

In this Unit, the students will practice the 21<sup>st</sup> Century Skills of Communication and Collaboration, Critical Thinking and Problem Solving, as well as Creativity and Innovation. We also focus on many Life and Career Skills by supporting students' interactions with peers and teachers throughout their school day.

### **Differentiation**

Differentiation will be seen in both cooperative and individual work. Various tasks will be modeled and contain activities that require doing, observing, talking and listening, discussing, reading and writing. Differentiation will incorporate student interests in engaging activities and be supported through songs, stories, rhymes, manipulatives, smart-board presentations, number videos and hands on activities etc.

### **Time Allotment**

**April/May**

## **Unit: 6**

### **Topic: Geometry**

**Identify and describe Two and Three-Dimensional Shapes.**

### **Essential Questions.**

How can objects be represented and compared using geometric attributes?

How can you model shapes in the real world?

How can you use position words to describe shapes in the environment?

### **Enduring Understandings.**

Objects can be described and compared using their geometric attributes.

Transforming an object does not affect its attributes.

### **Knowledge and Skills (SWBAT embedded course proficiencies)**

- Identify and describe shapes, (squares, circles, triangles, rectangles, ovals, diamonds, hexagons, cubes, cones, cylinders and spheres.)
- Analyze, compare, create, and compose shapes.
- Use vocabulary to identify and describe the parts of a shape.(e.g., Sides, lines, corners, vertices, curves, round.)
- Demonstrate the ability to draw different shapes.
- Use position words to describe shapers in the environment.

### **Stage 2: Evidence of Understanding, Learning Objectives and Expectations**

**Benchmarks**(embedded student proficiencies)

#### **By mid year Kindergarten students will:**

- Be able to identify 2D shapes in a variety of positions.
- Be able to determine the associated attributes of 2D shapes.
- Demonstrate the ability to recognize 2D shapes in the environment.

#### **By end of Kindergarten year students will be able to:**

- Be able to identify basic 3D shapes.
- Be able to determine the associated attributes of basic 3D shapes.
- Demonstrate the ability to recognize 3D shapes in the environment.

## **Assessment Methods** (formative, summative, other evidence and/or student self- assessment)

Minimally teachers should use assessments included in the district approved text book/teacher's guides. These include pre-knowledge, mastery checkpoints, mid-unit assessments, and end-of-unit assessments. Additionally, periodic benchmarks will be administered throughout the school year.

## **Stage 3: Learning Plan**

Students will be engaged through large and small group discussion allowing students to revise, rethink, and refine their understanding of topics covered. Differentiation will be provided through written, visual, auditory, and hands-on activities to meet all learning styles. We will use various learning centers, and My Math resources including modified activities for individual needs. Students will be provided with individualized instruction as needed. Introduction of new vocabulary will help students express their ideas and opinions. Collaborative group activities allow students to participate in conversations with diverse partners in small and large groups.

During Math lessons, students will be engaged through a variety of activities which will allow for differentiated learning styles and outcomes such as: Smartboard lessons, use of classroom technology, centers, daily classroom activities and projects, math games, educational songs, and video clips. School website links to math resources, manipulatives such as 2D and 3D shapes, magnetic numbers, tens frames, unifix cubes etc.

In this Unit, the students will practice the 21<sup>st</sup> Century Skills of Communication and Collaboration, Critical Thinking and Problem Solving, as well as Creativity and Innovation. We also focus on many Life and Career Skills by supporting students' interactions with peers and teachers throughout their school day.

## **Differentiation**

Differentiation will be seen in both cooperative and individual work. Various tasks will be modeled and contain activities that require doing, observing, talking and listening, discussing, reading and writing. Differentiation will incorporate student interests in engaging activities and be supported through songs, stories, rhymes, manipulatives, smart-board presentations, number videos and hands on activities etc.

## **Time Allotment**

**May/June**

## Thinking Stories

**Thinking Story Problems** are word problems that provide valuable problem solving practice. Some lessons include only Thinking Story problems, and some include both a story and a set of problems. Some of the problems relate to the accompanying stories, but others extend to new and different situations.

**Thinking Story Problems-choose one or two problems to do each day before the lesson begins.**

### **Kindergarten:**

#### **K.CC: (Counting and Cardinality)**

pp. 17d; 33b; 39b; 51b; 69b; 75b; 79b; 119b; 123b; 127b; 129b; 143b; 151b; 153b; 161b; 171b; 195b; 205b; 207b; 217b;

#### **K.OA: (Operations and Algebraic Thinking)**

pp. 17d; 33b; 39b; 47b; 51b; 55b; 61b; 69b; 75b; 85d; 95bl 113bl 119b; 123b; 127b; 129b; 139b; 143b; 151b; 153b; 157b; 171b; 185b; 195b; 199b; 205b; 207b; 215b; 217b; 219b

#### **K.MD: (Measurement and Data)**

pp. 43b; 47b; 65b; 75b; 101b; 147b; 149b; 163b; 179b; 207b211b; 215b

#### **K.G (Geometry)**

pp. 145b; 161b; 167b; 173b; 175b; 199b; 213b

## Resources

1.) Teachers should utilize SMARTboard tools. There are a wealth of visual aids and manipulative tools, too numerous to list, available using SMART technology.

Open a SMARTnotebook file.

Click on the 2<sup>nd</sup> icon down on the left. It looks like a picture frame.

Then choose "Gallery Essentials." Expand and select "Mathematics."

This is where you can find a great number of useful tools, separated by content type.

2.) Additional lesson ideas can be found at <http://exchange.smarttech.com>. This is a web based collection of lessons that other teachers have created using SMARTtechnology. There is a wealth of lessons here to choose from in all disciplines. As with any lesson, teachers are advised to preview the content for accuracy and grade level appropriateness before using.

Go to <http://exchange.smarttech.com>

Search by lesson content or browse by grade level or even by Common Core Standard

3.) Mailbox Magazine. There are many ideas for math centers, small and whole group instruction, as well as supplemental activities in Mailbox Magazine. Subscriptions for all grade levels are available through the ATS libraries. See library clerk for assistance.

4.) Additional instruction strategies can be found in the following cited mathematics teaching methodologies textbooks:

Cathcart, W. George, Pothier, Yvonne M., Vance, James H., Bezuk, Nadine S. (2006). *Learning Mathematics in Elementary and Middle Schools*. Upper Saddle River, NJ: Pearson Merrill Prentice Hall.

Van De Walle, John A. (2004). *Elementary and Middle School Mathematics: Teaching Developmentally*. Boston, MA: Pearson Education, Inc.

Van De Walle, John A. (1990). *Elementary School Mathematics: Teaching Developmentally*. White Plains, NY: Longman.

5) There is also a wealth of materials, manipulative and written, available in the Math Lab, room 147 at ATS.

## **Modifications and Accommodations for all units:**

### **For students receiving services under IDEA:**

- Models and/or manipulatives; Enlarged graph paper; Number line
- Small group instruction
- Hands on activities
- Visual cues
- Allow students to give answers orally
- Highlighted instructions/keywords and/or computation signs
- Reworded questions in simpler language
- Modified workload or length of assignments/tests
- Modified time demands

### **For students receiving services under Section 504 or Students at Risk:**

- Models and/or manipulatives; Enlarged graph paper; Number line
- Small group instruction
- Hands on activities
- Visual cues
- Highlighted instructions/keywords and/or computation signs
- Reworded questions in simpler language
- Modified workload or length of assignments/tests
- Modified time demands

### **For English Language Learner students:**

- Simplified Instruction (written and verbal)
- Simplified directions
- Online Dictionary
- Manipulatives
- Use lots of visuals
- Use physical activity; model, role-play
- Teacher modeling
- Partner talk
- Repeat/Rephrase often
- Alternate Responses / Nonverbal responses
- Prompts
- Extended Time

### **For Gifted and Talented students:**

- Differentiated curriculum for the gifted learner.
- Flexible groupings of students to facilitate differentiated instruction and curriculum.
- Centers / Interest centers
- Small group enrichment instruction or activities
- Active classroom discussion
- Challenging problem solving situations
- Learning log
- Extension activities

## New Jersey Core Curriculum and Common Core Content Standards

<http://www.state.nj.us/education/cccs/>

### **Integration of 21<sup>st</sup> Century Theme(s)**

The following websites are sources for the following 21<sup>st</sup> Century Themes and Skills:

<http://www.nj.gov/education/code/current/title6a/chap8.pdf>

<http://www.p21.org/about-us/p21-framework> .

<http://www.state.nj.us/education/cccs/standards/9/index.html>

### **21st Century Interdisciplinary Themes (into core subjects)**

- Global Awareness
- Financial, Economic, Business and Entrepreneurial Literacy
- Civic Literacy
- Health Literacy
- Environmental Literacy

### **Learning and Innovation Skills**

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

### **Information, Media and Technology Skills**

- Information Literacy
- Media Literacy
- ICT (Information, Communications and Technology) Literacy

### **Life and Career Skills**

- Flexibility and Adaptability
- Initiative and Self-Direction
- Social and Cross-Cultural Skills
- Productivity and Accountability
- Leadership and Responsibility

### **Integration of Digital Tools**

- Classroom computers/laptops/Chromebooks
- Technology Lab
- Voice amplification device
- Other software programs