Allamuchy Township School District
Allamuchy, NJ

Mathematics
Grade 1

CURRICULUM GUIDE

July 24, 2017

Mr. Joseph E. Flynn, Superintendent

Developed by:
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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 August 28, 2017
And
Aligned with the New Jersey Core Curriculum Content Standards
And Common Core Content Standards

Table of Contents

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 first 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 is 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

The mission of the Allamuchy Township District, in partnership with the larger community, is to provide a comprehensive, caring program for all of our students which:

> *Nurtures the unique talents and interests of each individual
> *Supports social responsibility and a love of learning
> *Embraces the total development of each student intellectually, morally and physically
> *Develops confidence, creativity and skills necessary to face the challenges of a technologically advanced and ever-changing society
> *Promotes a culture of mutual respect with all other community members
> *Supports the attainment of the New Jersey Core Curriculum Content Standards

The District seeks to exceed objective standards of achievement set by both the State and Federal government and to provide an educational experience beyond the boundaries established by the Core Curriculum Standards.

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
Operations and Algebraic Thinking
Addition and Subtraction Concepts

- Represent and solve problems involving addition and subtraction.
- Put together numbers to ten
- Addition to ten
- Subtract to compare
- Subtract all or zero
- Take apart numbers
- Subtraction from ten or less

Unit 2
Operations and Algebraic Thinking
Addition and Subtraction Strategies

- Understand and apply properties of operations and the relationship between addition and subtraction.
- Add and subtract within 20.
- Work with addition and subtraction equations.
- Use doubles to add
- Doubles plus 1 and minus 1
- Add 3 numbers
- Use addition strategies
- Count back
- Use 10 to subtract
- Break apart to subtract
- Use subtraction strategies

Unit 3
Operations and Algebraic Thinking
Addition and Subtraction Relationships

- Problem Solving: Add or Subtract?
- Use addition to check subtraction
- Ways to make numbers to 20
- Equal and not equal
- Facts practice to 20

Unit 4
Number and Operations Base Ten

- Extend the counting sequence.
- Understand place value.
- Count by ones to 120.
- Count by tens to 120.
- Understand tens, ones and hundreds.
- Make ten and ones.
- Model, read, and write numbers from 100-110.
- Model, read, and write numbers from 111-120.
- Use symbols to compare greater than and less than.

Unit 5
Two Digit Addition and Subtraction
- Use place value understanding and properties of operations to add and subtract.
- Add and subtract within 20.
- Use a hundred chart to add and subtract.
- Use place value to add and subtract.
- Addition and subtraction word problems.

Unit 6
Measurement and Data

- Measure lengths indirectly and by iterating length units.
- Tell and write time.
- Tell time to the hour and half hour using analog and digital clocks.
- Use the hour hand to draw and write times on analog and digital clock.
- Represent and interpret data.
- Make and read graphs.

Unit 7
Geometry

- Reason with shapes and their attributes.
- Identify and describe three-dimensional shapes.
- Identify and describe two- dimensional shapes.
- Decompose shapes into parts.

Stage 1: Desired Results
Units 1-7

		Units	Content Standards
Standard Grade 1	Strand	Behavioral Objective/ CPI	Resources G = Game L = Lesson in TE NLVM = Nat'l Library of Virtual Manipulatives SBR = Smart Board Resources
1.OA		**Unit 1** **Operations and Algebraic Thinking** **Addition and Subtraction Concepts**	
	A1	Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.	NLVM: Number Line Arithmetic G: "What Number Comes Next?" p 30 G: "What Number Comes Before?" p 32 L: 25, 125
	A2	Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.	NLVM: Number Line Bars L: 47, 72
	B3	Apply properties of operations as strategies to add and subtract.2 Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.) (Students need not use formal terms for these properties)	
	C6	Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies	

		such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$)	
	D8	Determine the unknown whole number in an addition or subtraction equation relating three whole numbers.	
		Unit 2 **Addition and Subtraction Strategies**	
	A1	Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.	
	A2	Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.	
	A3	Apply properties of operations as strategies to add and subtract.3 *Examples: If 8 + 3 = 11 is known, then*	L: 28

		3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.)	G: "Four Keys" p 284
	B3	Apply properties of operations as strategies to add and subtract.2 Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.) (Students need not use formal terms for these properties)	
	B4	Understand subtraction as an unknown-addend problem. *For example, subtract 10 – 8 by finding the number that makes 10 when added to 8.*	G: "Don't Take Them all Away" p 64 L: 26-38, 41-43, 53, 65
	C5	Relate counting to addition and subtraction (e.g., by counting on 2 to add 2)	
	C6	Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 - 4 = 13 - 3 - 1 = 10 - 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 - 8 = 4); and creating equivalent but easier or	

		known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).	
		Unit 3 **Addition and Subtraction Relationships** **Add and subtract within 20.**	
	C5	Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).	L: 26-38, 41-43, 48-49, 51, 76-77, 80 NLVM: Hundreds Chart G: Guess How Many p. 14 G: Count to 20 by Ones and Twos p 167
	C6	Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).	G: "Add the Counters", p 58 G: "Take Away the Counter" p 68 G: "Add or Take Away the Counters" p 72 G: "Flea Market" Game Mat G: "Roll a Double" p 128 G: "Roll and Add" p 142 G: "Roll a Ten" p 242 G: "Addition Table" Game Mat G: "Duck Pond" Game Mat G: "Frog Pond" Game Mat L: 26-38, 41-43, 47, 51, 53, 58, 61-64, 106, 110, 129-131, 133-135 NLVM: Diffy
		Work with addition and subtraction equations.	
	D7	Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. *For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 – 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2.*	NLVM: Number Line Bounce L: 34-37, 42, 51, 53
	D8	Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 + ? = 11, 5 = □ – 3, 6 + 6 = □.*	L: 34-35, 52, 60, 66, 102, 128 G: "Guess the Rule" p 184 G: "Hidden Counters Puzzle" p 217 G: "Space" Game Mat G: "Stolen treasure" p 284

1.NBT		**Unit 4** **Count, Model and Compare Numbers** **Number and Operations in Base Ten** **Extend the counting sequence.**	
	A1	Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.	L: 54-57, 74-75, 84, 91-92, 117 G: Get to 100 by Tens or Ones p 266
		Understand place value.	
	B2	Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:	NLVM: Base Blocks L: 55-57, 75-77, 80, 87-89, 111-113
	B2A	a. 10 can be thought of as a bundle of ten ones — called a "ten."	L: 47, 56-57 G: "Flea Market" Game Mat
	B2B	b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.	L: 56-57, 74-77, 80
	B2C	c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).	G: "Macaroni Tens" Game p 246 G: School Bookstore Game Mat G: Yard Sale Game Mat L: 87, 111-113, 118
	B3	Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.	G: "Hungry Alligator" Game p 148 G: "Make the Alligator Tell the Truth" Game p 280 L: 67-68, 97-99, 126-127, 144
	C5	Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.	NLVM: Place Value Number Line
1 NBT		**Unit 5** **Two Digit Addition and Subtraction** **Use place value understanding and properties of operations to add and subtract.**	NLVM: Base Blocks Addition
	C4	Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models (e.g., base ten blocks) or drawings and strategies based on place value, properties of	L: 92-93, 95, 97, 137-138 G: Get to 100 By Tens or Ones" Game p 266 G: "Yard Sale" Game Mat

		operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.	
	C5	Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.	NLVM: Place Value Number Line
	C6	Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.Describe several measurable attributes of a single object.	
1.MD		**Unit 6 Measurement and Data Measure lengths indirectly and by iterating length units.**	
	A1	Order three objects by length; compare the lengths of two objects indirectly by using a third object.	G: Number Strip Game, p 50 TE G: How Long Is It? p 52 TE L: 22, 24
	A2	Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. *Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.*	L: 25, 78-79, 94, 96, 104, 107 G: Measurement Game Mat G: Add to the Number Strip p 308
		Tell and write time.	
	B3	Tell and write time in hours and half-hours using analog and digital clocks.	NLVM: Time – Analog and Digital Clocks NLVM: Time – Matching Clocks L: 145-6 G: "Clock" Game Mat

		Represent and interpret data.	
	C4	Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.	NLVM: Bar Charts L: 17-21, 123
1.G.A		**Unit 7 Geometry Reason with shapes and their attributes.**	
	A1	Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.	NLVM: Color Patterns NLVM: Attribute Blocks NLVM: Attribute Trains L: 93, 121, 132
	A2	Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.	NLVM: Pattern Blocks
	A3	Partition circles and rectangles into two and four equal shares, describe the shares using the words *halves*, *fourths*, and *quarters*, and use the phrases *half of*, *fourth of*, and *quarter of*. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.	L: 89-90, 100-101, 103, 105, 148

Lessons 1 – 17 Review of Grade K standards, use only as needed.

Unit 1
Addition and Subtraction Concepts

Essential Questions
- How can you model adding within ten?
- How can you subtract numbers from ten or less?

Enduring Understandings
- Versatile mathematical thinkers apply numerous strategies to solve problems using addition and subtraction.

Knowledge and Skills (SWBAT embedded course proficiencies)
Students will be able to:
- Use pictures to "add to" and find sums.
- Use concrete objects to solve "adding to" addition problems.
- Use concrete objects to solve "putting together" addition problems.
- Solve adding to and putting together situations using the strategy *make a model*.
- Understand and apply the additive identity property for addition.
- Explore the commutative property of addition.
- Model and record all the ways to put together numbers within ten.
- Build fluency for addition within ten.
- Use pictures to show "taking from" and find differences.
- Use concrete objects to solve "taking from" subtraction problems.
- Use concrete objects to solve "taking apart" subtraction problems.
- Solve "taking from" and "taking apart" subtraction problems.
- Compare pictorial groups to understand subtraction.
- Model and compare groups to show the meaning of subtraction.
- Identify how many are left when subtracting all or 0.
- Model and record all the ways to take apart numbers within 10.
- Build fluency for subtraction within 10

Stage 2: Evidence of Understanding, Learning Objectives and Expectations
Benchmarks (embedded student proficiencies)
Assessment Methods (formative, summative, other evidence and/or student self- assessment)
- Chapter summative assessments
- Teacher observation
- Teacher created lessons
- Homework and practice pages as formative assessments

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. Students will be challenged and engaged through applicable real life problems and projects. Differentiation will be provided through written, visual, auditory, and hands-on activities to meet all learning styles. We will use various learning centers, differentiated lesson materials, resources including modified worksheets for individual needs. Students

will be provided with individualized instruction as needed. Introduction of new vocabulary will help students express their ideas, opinions, and feelings. These activities allow students to participate in collaborative conversations with diverse partners and adults in small and large groups.

Students will deepen learning through activities such as Smartboard lessons, mathematical games, use of classroom computers, educational songs and video clips and manipulatives such as counters, magnetic numbers, and school website links to online educational games.

In this Unit, the students will practice the 21st Century Skills of Communication and Collaboration, Critical Thinking and Problem Solving, as well as Creativity and Innovation. We will also focus on Life and Career Skills by supporting students' interactions with peers and teachers. We will integrate digital tools through use of the smartboard and classroom computers.

Differentiation
Whole Group Instruction, Small Group Instruction, One-on-one Instruction, Hands-on manipulatives (counters, connecting cubes, beads, string), Math Centers, Mathematics Readers, Learning Games, Computer games, Multi-Sensory explorations, In-Class Support, Smartboard and My Math Resources

Time Allotment
September/October

Unit 2
Addition and Subtraction Strategies

Essential Questions
- How do you solve addition problems?
- How do you solve subtraction problems?

Enduring Understandings
- Subtraction means separating two or more.
- Addition means joining or putting together two or more numbers.
- Versatile mathematical thinkers apply numerous strategies to solve problems using addition and subtraction.

Knowledge and Skills (SWBAT embedded course proficiencies)
Students will be able to:
- Understand and apply the Commutative Property of Addition for sums within 20
- Use count on 1, 2, or 3 as a strategy to find sums within 20
- Use doubles as a strategy to solve addition facts with sums within 20
- Use doubles to create equivalent but easier sums
- Use doubles plus 1 and doubles minus 1 as strategies to find sums within 20
- Use the strategies count on, doubles, doubles plus 1, and doubles minus 1 to practice addition facts within 20
- Use a ten frame to add 10 and an addend less than 10

- Use make a ten as a strategy to find sums within 20
- Use numbers to show how to use the make a ten strategy to add
- Use the Associative Property of Addition to add three addends
- Understand and apply the Associative Property or Commutative Property of Addition to add three addends
- Solve adding to and putting together situations using the strategy draw a picture
- Use count back 1, 2, or 3 as a strategy to subtract
- Recall addition facts to subtract numbers within 20
- Use addition as a strategy to subtract numbers within 20
- Use make a 10 as a strategy to subtract
- Subtract by breaking apart to make a ten
- Solve subtraction problem situations using the strategy act it out

Stage 2: Evidence of Understanding, Learning Objectives and Expectations

Benchmarks (embedded student proficiencies)

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

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Time Allotment
November/December

Unit 3
Addition and Subtraction Relationships

Essential Questions
- How can relating addition and subtraction help you to learn and understand facts within 20?

Enduring Understandings
- Subtraction has an inverse relationship with addition.
- Addition and subtraction strategies are useful to solve problems efficiently.   .

Knowledge and Skills (SWBAT embedded course proficiencies)
Students will be able to:
- Solve addition and subtraction problem situations using the strategy make a model.
- Record related facts within 20.
- Identify related addition and subtraction facts within 20.
- Apply the inverse relationship of addition and subtraction.
- Use related facts to determine unknown numbers.
- Use a related fact to subtract.
- Choose an operation and strategy to solve an addition or subtraction word problem.
- Represent equivalent forms of numbers using sums and differences within 20.
- Determine if an equation is true or false.
- Add and subtract facts within 20 and demonstrate fluency for addition and subtraction within 10.

Stage 2: Evidence of Understanding, Learning Objectives and Expectations
Benchmarks (embedded student proficiencies)
Assessment Methods (formative, summative, other evidence and/or student self- assessment)
- Chapter summative assessments
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Time Allotment
January/February

Unit 4
Count, Model, and Compare Numbers Base Ten

Essential Questions
- How do you use place value to model, read, and write numbers to 120?
- How do you use place value to compare numbers?

Enduring Understandings
- Numbers canbe used to tell how many.
- The Base Ten Numeration System helps to organize and understand large numbers.

Knowledge and Skills (SWBAT embedded course proficiencies)
Students will be able to:
- Count by ones to extend a counting sequence up to 120.
- Count by tens from any number to extend a counting sequence up to 120.
- Use models and write to represent equivalent forms of tens and ones.
- Use objects, pictures, and numbers to represent a ten and some ones.
- Use objects, pictures, and numbers to represent tens.
- Group objects to show numbers to 50 as tens and ones.
- Group objects to show numbers to 100 as tens and ones.
- Solve problems using the strategy make a model.
- Read and write numerals to represent a number of 100 to 110 objects.
- Read and write numerals to represent a number of 110 to 120 objects.
- Model and compare two-digit numbers to determine which is greater.
- Model and compare two-digit numbers to determine which is less.
- Use symbols for is less than "<", is greater than ">", and is equal to "=" to compare numbers.
- Solve problems using the strategy make a model.
- Identify numbers that are 10 less or 10 more than a given number.

Stage 2: Evidence of Understanding, Learning Objectives and Expectations
Benchmarks (embedded student proficiencies)
Assessment Methods (formative, summative, other evidence and/or student self- assessment)
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Time Allotment
March/April

Unit 5
Two-Digit Addition and Subtraction

Essential Questions
- What are ways to add with tens and ones?
- What are ways to subtract two-digit numbers?
- How does using objects and drawings help represent problems in multiple ways?

Enduring Understandings
- Two-digit numbers are composed of units of tens and ones.

- Using the properties of place value can help in adding or subtracting larger numbers.
- Regrouping with addition problems involves changing ones into tens

Knowledge and Skills (SWBAT embedded course proficiencies)

Students will be able to:
- Add and subtract within 20.
- Draw a model to add tens.
- Draw a model to subtract tens.
- Use a hundred chart to find sums.
- Use concrete models to add ones or tens to a two-digit number.
- Make a ten to add a two-digit number and a one-digit number.
- Use tens and ones to add two-digit numbers.
- Solve and explain two-digit addition word problems using the strategy draw a picture.
- Add and subtract within 100.

Stage 2: Evidence of Understanding, Learning Objectives and Expectations

Benchmarks (embedded student proficiencies)

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<u>Time Allotment</u>
April/May

<u>Unit 6</u>
Measurement and Data

<u>Essential Questions</u>
- How can you measure length and tell time?
- How can graphs and charts help you organize, represent, and interpret data?

<u>Enduring Understandings</u>
- Measuring length is a way of determining and comparing size in relation to other things in the world.
- Time is a way of organizing and understanding when things occur in our daily lives.
- Time is measured in hours and minutes and can be shown on different kinds of clocks.
- The hour hand tells the hour, and the minute hand tells the number of minutes after the hour.
- Graphs are useful ways to organize data because they quickly show us a large amount of information.

<u>Knowledge and Skills </u>(SWBAT embedded course proficiencies)
Students will be able to:
- Order objects by length.
- Use the Transitivity Principle to measure indirectly.
- Measure length using nonstandard units.
- Make a nonstandard measuring tool to measure length.
- Solve measurement problems using the strategy act it out.
- Write times to the hour and half hour shown on analog clocks.
- Tell times to the hour and half hour using analog and digital clocks.
- Use the hour hand to draw and write times on analog and digital clocks.
- Analyze and compare data shown in a picture graph where each symbol represents one.
- Make a picture graph where each symbol represents one and interpret information.
- Analyze and compare data shown in a bar graph.
- Make a bar graph and interpret the information.
- Analyze and compare data shown in a tally chart.
- Make a tally chart and interpret the information.
- Solve problem situations using the strategy make a graph.

<u>Stage 2: Evidence of Understanding, Learning Objectives and Expectations</u>
<u>Benchmarks </u>(embedded student proficiencies)
<u>Assessment Methods </u>(formative, summative, other evidence and/or student self- assessment)
- Chapter summative assessments
- Teacher observation
- Teacher created lessons
- Homework and practice pages as formative assessments

<u>Stage 3: Learning Plan</u>

       Students will be engaged through large and small group discussion allowing students to revise, rethink, and refine their understanding of topics covered. Students will be challenged and engaged through applicable real life problems and projects. Differentiation will be provided through written, visual, auditory, and hands-on activities to meet all learning styles. We will use various learning centers, differentiated lesson materials, resources including modified worksheets for individual needs. Students will be provided with individualized instruction as needed. Introduction of new vocabulary will help students express their ideas, opinions, and feelings. These activities allow students to participate in collaborative conversations with diverse partners and adults in small and large groups.

       Students will deepen learning through activities such as Smartboard lessons, mathematical games, use of classroom computers, educational songs and video clips and manipulatives such as counters, magnetic numbers, and school website links to online educational games.

       In this Unit, the students will practice the 21st Century Skills of Communication and Collaboration, Critical Thinking and Problem Solving, as well as Creativity and Innovation. We will also focus on Life and Career Skills by supporting students' interactions with peers and teachers. We will integrate digital tools through use of the smartboard and classroom computers.

<u>Differentiation</u>
Whole Group Instruction, Small Group Instruction, One-on-one Instruction, Hands-on manipulatives (counters, connecting cubes, beads, string), Math Centers, Mathematics Readers, Learning Games, Computer games, Multi-Sensory explorations, In-Class Support, Smartboard and My Math Resources

<u>Time Allotment</u>
May/June

<u>Unit 7</u>
Three-Dimensional and Two-Dimensional Geometry

<u>Essential Questions</u>
- How do you identify and describe three-dimensional shapes?
- How do you sort and describe two-dimensional shapes?
- What does it mean to have part of a whole?

<u>Enduring Understandings</u>
- Shapes are all around our world and can be put together or taken apart to form other shapes.
- Objects can be sorted, described or built based on certain attributes.
- A region can be divided into equal-sized parts in different ways.
- Decomposing into more equal shares creates smaller shares.

<u>Knowledge and Skills</u> (SWBAT embedded course proficiencies)
Students will be able to:
- Identify and describe three-dimensional shapes according to defining attributes.
- Compose a new shape by combining three-dimensional shapes.
- Use composite three-dimensional shapes to build new shapes.

- Identify three-dimensional shapes used to build a composite shape using the strategy act it out.
- Identify two-dimensional shapes on three-dimensional shapes.
- Use defining attributes to sort shapes.
- Describe attributes of two-dimensional shapes.
- Use objects to compose new two-dimensional shapes.
- Make new shapes from the composite two-dimensional shapes using the strategy act it out.
- Decompose combined shapes into shapes.
- Decompose two-dimensional shapes into parts.
- Identify equal and unequal parts (or shares) into two-dimensional shapes.
- Partition circles and rectangles into two and four equal shares.

Stage 2: Evidence of Understanding, Learning Objectives and Expectations
Benchmarks (embedded student proficiencies)
Assessment Methods (formative, summative, other evidence and/or student self- assessment)
- Chapter summative assessments
- Teacher observation
- Teacher created lessons
- Homework and practice pages as formative assessments

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. Students will be challenged and engaged through applicable real life problems and projects. Differentiation will be provided through written, visual, auditory, and hands-on activities to meet all learning styles. We will use various learning centers, differentiated lesson materials, resources including modified worksheets for individual needs. Students will be provided with individualized instruction as needed. Introduction of new vocabulary will help students express their ideas, opinions, and feelings. These activities allow students to participate in collaborative conversations with diverse partners and adults in small and large groups.

Students will deepen learning through activities such as Smartboard lessons, mathematical games, use of classroom computers, educational songs and video clips and manipulatives such as counters, magnetic numbers, and school website links to online educational games.

In this Unit, the students will practice the 21st Century Skills of Communication and Collaboration, Critical Thinking and Problem Solving, as well as Creativity and Innovation. We will also focus on Life and Career Skills by supporting students' interactions with peers and teachers. We will integrate digital tools through use of the smartboard and classroom computers.

Differentiation
Whole Group Instruction, Small Group Instruction, One-on-one Instruction, Hands-on manipulatives (counters, connecting cubes, beads, string), Math Centers, Mathematics Readers, Learning Games, Computer games, Multi-Sensory explorations, In-Class Support, Smartboard and My Math Resources

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.

First Grade:
1.OA (Operations and Algebraic Thinking)
pp. 10a-d; 26a-d; 52a-d; 64a-d; 76a-d; 96a-d; 116a-d; 144a-d; 164a-d; 196a-d; 210a-d; 228a-d; 248a-d; 274c-f; 330a-d

1.NBT (Number and Operations in Base Ten)
pp. 64a-d; 116a-d; 154a-d; 164a-d; 196a-d; 330a-d;

1.MD (Measurement and Data)
pp. 130a-d; 154a-d; 196a-d; 228a-d; 248a-d:296a-d; 314a-d

Additional 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 2nd 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.

New Jersey Core Curriculum and Common Core Content Standards

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

Integration of 21st Century Theme(s)
The following websites are sources for the following 21st 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**