Allamuchy Township School District
Allamuchy, NJ

Mathematics
Grade 2

CURRICULUM GUIDE

August 26, 2019

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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 September 23, 2019
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 second 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

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: Operations and Algebraic Thinking
Represent and solve problems involving addition and subtraction

- Use doubles facts as a strategy for finding sums for near doubles facts
- Recall sums for basic facts using properties and strategies
- Recall sums for addition facts using the make a ten strategy
- Find sums of three addends by applying the Commutative and Associative Properties of Addition
- Use the inverse relationship of addition and subtraction to recall basic facts
- Recall differences for basic facts using mental strategies
- Use bar models to represent a variety of addition and subtraction situations
- Write equations to represent and solve a variety of addition and subtraction situations
- Write equations using repeated addition to find the total number of objects in arrays

Unit 2: Number and Operation in Base Ten
Understand place value
Number Concepts to 1000

- Understand place value
- Odd and Even numbers
- Expanded form
- Group tens as hundreds
- Counting patterns within 1000
- Explore and model three digit numbers
- Hundreds, tens and ones
- Number names
- Count on and count back by 10 and 100

Unit 3: 2 and 3 Digit Addition and Subtraction

- Find a sum by breaking apart a 1-digit addend to make a s-digit addend a multiple of 10
- Apply place-value concepts when using a break-apart strategy for 2-digit addition
- Model 2-digit addition with regrouping
- Practice 2-digit addition with and without regrouping
- Rewrite horizontal addition problems vertically in the standard algorithm forma
- Solve problems involving 2-digit addition by using the strategy draw a diagram
- Represent addition situations with number sentences using a symbol for the unknown number
- Find sums of three and four 2-digit numbers

- Break apart a 1-digit and a 2-digit subtrahend to subtract it from a 2-digit number
- Model 2-digit subtraction with regrouping
- Record 2-digit subtraction using the standard algorithm
- Practice 2-digit subtraction with and without regrouping
- Rewrite horizontal subtraction problems vertically in the standard algorithm format
- Use addition to find differences
- Solve problems involving 2-digit subtraction by using the strategy draw a diagram
- Represent subtraction situations with number sentences using a symbol for the unknown number

Unit 4: Measurement and Data
Measure and estimate lengths in standard units.

- Make an inch ruler and use it to measure the lengths of objects
- Estimate the lengths of objects by mentally partitioning the lengths into inches
- Measure the lengths of objects to the nearest inch using an inch ruler
- Measure the lengths of objects in both inches and feet to explore the inverse relationship between size and number of units
- Estimate the length of objects in feet
- Use a concrete model to measure the lengths of objects in centimeters
- Estimate lengths of objects in centimeters by comparing them to known lengths
- Measure lengths of objects to the nearest centimeter using a centimeter ruler
- Measure the lengths of objects in both centimeters and meters to explore the inverse relationship between size and number of units
- Estimate the lengths of objects in meters
- Measure and then find the difference in the lengths of two objects

Unit 5: Money and Time

- Find the total values of collections of quarters, dimes, nickels, and pennies
- Order coins in a collection by value and then find the total value
- Represent money amounts less than a dollar using two different combinations of coins
- Show one dollar in a variety of ways
- Solve word problems involving money by using the strategy “act it out”
- Tell and write time to the hour, half hour, and nearest five minutes
- Practice telling time to the nearest five minutes
- Tell and write time using A.M. and P.M.

Unit 6: Represent and interpret data

- Interpret data in picture graphs and use that information to solve problems
- Collect data in a survey and record that data in a tally chart
- Make picture graphs to represent data
- Interpret data in bar graphs and use that information to solve problems
- Make bar graphs to represent data
- Solve problems involving data

Unit 7: Geometry

- Identify three-dimensional shapes
- Identify and describe three-dimensional shapes according to the number of faces, edges, and vertices
- Name 3-, 4-, 5-, and 6-sided shapes according to the number of sides and vertices
- Identify angles in two-dimensional shapes
- Sort two-dimensional shapes according to their attributes
- Partition rectangles into equal-size squares and find the total number of these squares
- Identify and name equal parts of circles and rectangles as halves, thirds, or fourths
- Partition shapes to show halves, thirds, or fourths
- Identify and describe one equal part as a half of, a third of, or a fourth of a whole

Standards Unit 1-7

Standard Grade 2	Strand	Behavioral Objective/ CPI	Activity
2.OA		**Unit 1 Operations and Algebraic Thinking Represent and solve problems involving addition and subtraction**	
	1	Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	T.G. lessons # 2; 6-8 Space game p. 425/26
		Add and subtract within 20	T.G. lesson # 8-19; 23-28; Addition Table game p. 408/9 Frog Pond Game p.416/17 Space game p. 425/26
	2	Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.	T.G. lesson # 8-19; 23-28; Space game p. 425/26
		Work with equal groups of objects to gain foundations for multiplication	T.G. lessons # 117-123 ; 134 Multiplication Table Game p.421/22
	3	Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2's.	T.G. lessons # 9; 102-105

		Write an equation to express an even number as a sum of two equal addends.	
	4	Use addition to find the total number objects arranged in rectangular arrays with up to 5 rows and up to 5 columns Write an equation to express the total as a sum of equal addends.	T.G. lessons # 117-122; T.G. lessons #123-124
2.NBT		**Unit 2** **Number and Operation in Base Ten** **Understand place value** **Number Concepts to 1000**	
	1	Understand that the three digits of a three-digit number represent amounts of hundreds, tens and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:	T.G. lessons # 36-38; 48; 92
		a. 100 can be thought of as a bundle of ten tens- called a “hundred”.	Get 100 by Tens or Ones game p.76
		b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).	Get to 100 by Tens or Ones game p. 76
	2	Count within 1000; skip-count by 5s, 10s, and 100s.	T.G. lesson # 38; 48; 58; 138-139; 152 Get to 100 by Tens or Ones game p. 76
	3	Read and write numbers to 1000 using base-ten numerals, number names, and expanded form	T.G. lesson# 48-52; 138-139
	4	Compare two three-digit numbers based on meaning of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons	T.G. lesson #91
		Unit 3 **Use place value understanding and properties of operations to add and subtract.** **Two and three digit addition/subtraction.**	T.G. lesson# 48-52; 138-139 Checkbook Game p.411/412

	5	Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.	T.G. lesson # 150 Checkbook Game p.411/412
	6	Add up to four two-digit numbers using strategies based on place value and properties of operations.	T.G. lesson# 153-154,156-57; Four Digit Addition game p.156 Make 1000 game p.338
	7	Add and subtract within 1000, 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. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.	T.G. lesson# 153-154,156-57; 155-157 Four Cubes from 10,000 to 0 p.354 Make 1000 game p.338
	8	Mentally add 10 or 100 to given number 100-900; and mentally subtract 10 or 100 from a given number 100-900.	T.G. lessons # 36-38 Get to 100 by Tens or Ones Game p. 76
	9	Explain why addition and subtraction strategies work, using place value and the properties of operations.	T.G. lessons # 6-17;
2.MD		**Unit 4** **Measurement and Data** **Measure and estimate lengths in standard units.**	
	1	Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes	Measurement game p. 419/20
	2	Measure the length of an object twice using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.	

	3	Estimate lengths using units of inches, feet, centimeters, and meters.	Find the Distance game p.413/414
	4	Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.	T.G. lessons # 39-44 Measurement Game p.244
		Relate addition and subtraction to length	T.G. lessons # 39-44 Measurement Game p.244
	5	Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.	T.G. lessons # 39-44 Measurement Game p.244
	6	Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, …, and represent whole-number sums and differences within 100 on a number line diagram.	T.G. lessons # 39-44 Measurement Game p.244
		Unit 5 **Work with time and money**	
	7	Tell and write the time from analog and digital clocks to nearest five minutes, using a.m. and p.m.	T.G. lessons # 70-72; 93-95 Time Game p.427/28
	8	Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and cent symbols appropriately. *Ex., if you have 2 dimes and 3 pennies, how many cents do you have?*	Rummage Sale game p. 423/24 Yard Sale game p.429/30
		Unit 6 **Represent and interpret data**	
	9	Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.	Find the Distance game p.413/414 Map Game p. 418

	10	Draw a picture graph and bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put together, take-apart, and compare problems using information presented in a bar graph.	
2.G		**Unit 7** **Geometry** **Reason with shapes and their attributes**	
	1	Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.	Fraction Game p. 415
	2	Partition a rectangle into rows and columns of same-size squares and count to find total number of them.	Fraction Game p. 415
	3	Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words *halves, thirds, half of, a third of,* etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.	T.G. lessons # 73-78Fraction Game p. 415

Unit: 1

Topic: Operations and Algebraic Thinking
Represent and solve problems involving addition and subtraction

Essential Questions:

1. **What are some ways to remember sums?**
2. **What are some ways to remember differences?**

Enduring Understandings:

- Use doubles facts
- Practice addition facts
- Make a ten to add
- Add 3 addends
- Relate addition and subtraction
- Practice subtraction facts
- Use ten to subtract
- Use drawings and equations to represent problems
- Work with equal groups of objects to gain foundations for multiplication
- Fluently add and subtract within 20 using mental strategies.

Knowledge and Skills

Upon completion of the unit, student learners will:

- Use doubles facts as a strategy for finding sums for near doubles
- Recall sums for basic facts using properties and strategies
- Recall sums for addition using the “Make a Ten” strategy
- Find the sums of 3 addends by applying the Commutative and Associative Properties of Addition
- Use the inverse relationship of addition and subtraction to recall basic facts
- Use fact families to find sums and differences
- Recall differences for basic facts using mental strategies
- Find differences on a number line to develop the mental strategy of decomposing to simplify facts
- Write equations to represent and solve a variety of addition and subtraction situations
- Write equations using repeated addition to find the total number of objects in arrays
- Work with equal groups of objects to gain foundations for multiplication

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
- Khan Academy
- periodic benchmarks
- pre-knowledge, mastery checkpoints,
- mid-unit assessments
- end-of-unit 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 and activities 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, Math Centers, Mathematics Readers, Learning Games, Computer games, Multi-Sensory explorations, In-Class Support, Smartboard, Math App resources and My Math Resources

Time Allotment

September/October

Unit 2
Number and Operation in Base Ten
Understand place value
Number Concepts to 1000

Essential Questions:

1. How do you know the value of a digit?
2. How do you compare numbers?

Enduring Understandings:

- Understand grouping and representing numbers in a variety of ways in order to build place-value concepts.
- Focus on the position of a digit in a number to determine its value.
- Even and odd numbers can be explored when building numbers in a ten frame
- Relationships can be explored using both language and symbols. The language “is greater than” and “is less than” can be used to compare single and multi-digit numbers.
- Compare numbers by looking at the values of the places.
- Count within 1000; skip-count by 5s, 10s, and 100s.

Knowledge and Skills

Upon completion of the unit, student learners will:

- Use place value to describe the values of digits in numbers.
- Use place value and expanded form to describe numbers.
- Apply place value concepts to write numbers in various ways.
- Apply place value concepts to find equivalent representations of numbers.
- Solve problems by using the strategy- make a list.
- Classify numbers as odd or even.
- Use symbols to compare and order numbers.

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Benchmarks (embedded student proficiencies)

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

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- Khan Academy
- periodic benchmarks
- pre-knowledge, mastery checkpoints,
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Time Allotment

October / November

Unit: 3

Topic: 2 and 3 Digit Addition and Subtraction

Essential Questions:

1. How does breaking apart a number make adding or subtracting easier?
2. How do you record the steps when adding or subtracting two digit numbers?
3. How do you know what steps to do to solve a problem?

Enduring Understandings:

- Computation involves breaking apart and combining numbers using a variety of approaches.
- Numbers can be represented in multiple ways
- Model two digit addition or subtraction with regrouping
- Draw quick pictures and record two digit addition or subtraction using the standard algorithm
- Represent addition and subtraction situations with number sentences using a symbol for the unknown number
- Mentally add 10 or 100 to given number 100-900; and mentally subtract 10 or 100 from a given number 100-900.

Knowledge and Skills:

Upon completion of the unit, student learners will:

- Find a sum by breaking apart a one digit addend to make a two digit addend a multiple of ten
- Break apart a two digit subtrahend to subtract it from a two digit number
- Model and then record two digit addition or subtraction using the standard algorithm
- Find sums for three two digit numbers
- Find sums and differences with or without regrouping
- Rewrite horizontal exercises vertically using the standard algorithm
- Write equations to represent and solve a variety of addition and subtraction situations

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
- Khan Academy
- periodic benchmarks
- pre-knowledge, mastery checkpoints,
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Time Allotment

November/December

Unit: 4

Topic: Measurement and Data
Measure and estimate lengths in standard units.

Essential Questions:

1. How do you choose a measuring tool to use when measuring lengths?
2. Why is measuring in feet different from measuring in inches?
3. How can a line plot be used to show measurement data?

Enduring Understandings:

- Objects have distinct attributes that can be measured with standard and non-standard units.
- Standard units of measure enable people to interpret results or data in the same way.
- Measurement is a process of comparing a unit to the object being measured.
- Measurements in the same unit can be added or subtracted in the same way as adding and subtracting whole numbers.
- The length of two objects can be compared by subtracting to find the difference.

Knowledge and Skills:

Upon completion of the unit, student learners will:

- Use concrete models to measure the length of objects in inches.
- Estimate the lengths of objects by mentally partitioning the lengths into inches.
- Measure the lengths of objects to the nearest inch using an inch ruler.
- Solve addition and subtraction problems involving the lengths of objects
- Measure the length of objects in both inches and feet along with centimeters and meters to explore the inverse relationship between size and number of units.
- Estimate the length of objects in feet and meters.
- Select appropriate tools for measuring different lengths.
- Measure the length of objects and use a line plot to display the measurement data.
- Use a concrete model to measure the length of objects in centimeters.
- Estimate lengths of objects by comparing them to known lengths.
- Measure lengths of objects to the nearest centimeter using a centimeter ruler.
- Measure and then find the difference in the lengths of two objects

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

December / January

Unit: 5

Topic: Money and Time

Essential Questions:

1. How do you find the total value of a group of coins?
2. How do you show money amounts greater than one dollar?
3. What are the different ways you can read time on a clock?
4. How do you use A.M. and P.M. to describe times?

Enduring Understandings:

- Through identification of coins, and assigning values to those coins, groups of coins can be counted.
- Using various clocks in different settings, time is measured in minutes and hours.

Knowledge and Skills:

Upon completion of the unit, student learners will:

- Count collections of dimes, nickels, and pennies.
- Count collections of coins that include half dollars and quarters
- Order coins by value and then find the total value.
- Show one dollar in a variety of ways.
- Write time to the hour and half hour shown on analog clocks.
- Tell and show time to the minute and five minutes.
- Understand relationships of units of time.

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

February / March

Unit: 6

Topic: Data

Essential Questions:

1. How do you use a picture graph to show data?
2. How do you use a bar graph to show data?
3. How do you make a bar graph to show data?

Enduring Understandings:

- Information can be sorted and presented on various graphs in order to be saved for future compare and contrast activities.
- The way that data is collected, organized and displayed influences interpretation.

Knowledge and Skills:

Upon completion of the unit, student learners will:

- Collect data in a survey and record that data in a tally chart.
- Interpret data in picture graphs and use that information to solve problems.
- Make picture graphs to represent data.
- Interpret data in bar graphs and use that information to solve problems.
- Make bar graphs to represent data.

Stage 2: Evidence of Understanding, Learning Objectives and Expectations

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Time Allotment

March/April

Unit: 7
Topic: Geometry and Fractions

Essential Questions:

- How would you describe a triangle, quadrilateral, pentagon, hexagon and cube?
- How do you find a half of, a third of, or a fourth of a whole?

Enduring Understandings:

- Students identify and describe three-dimensional shapes according to the number of faces, edges, and vertices.
- Name 3,4,5 and 6-sided shapes according to their attributes.
- Identify angles in two-dimensional shapes
- Partition shapes to show halves, thirds, or fourths
- Identify and name equal parts of circles and rectangles as halves, thirds or fourths.

Knowledge and Skills:

Upon completion of the unit, student learners will:

- Recognize and create shapes with a given number of equal faces; identifying triangles, quadrilaterals, pentagons, hexagons, and cubes.
- Partition a rectangle into rows and columns of same-sized squares and count to find the area.
- Partition circles and rectangles into halves, quarters, and thirds, describing the whole as two halves, three thirds, or four fourths.
- Divide rectangles and circles into fractional parts.

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
- Khan Academy
- periodic benchmarks
- pre-knowledge, mastery checkpoints,
- mid-unit assessments
- end-of-unit 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 and activities 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, Math Centers, Mathematics Readers, Learning Games, Computer games, Multi-Sensory explorations, In-Class Support, Smartboard, Math App resources and My Math Resources

Time Allotment

April/May

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.

Second Grade:
2.OA (Operations and Algebraic Thinking)
pp. 24a-d;58a-d; 76a-d; 88a-d; 128a-d; 144a-d; 158a-d;
170a-d; 218a-d; 268a-d; 284a-d; 300a-d;

2.NBT (Numbers and Operations in Base Ten)
24a-d; 46a-d; 188a-d; 204a-d; 218a-d;

2.MD (Measurement and Data)
pp. 8a-d; 88a-d;110a-d; 144a-d; 188a-d; 204a-d; 218a-d;
236a-d; 248a-d; 268a-d; 284a-d; 300a-d;

2.G (Geometry)
pp. 88a-d; 236a-d; 320a-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.

Modifications and Accommodations for all units:

For students receiving services under IDEA:

- Models and/or manipulatives; Enlarged graph paper; Number line; Addition and Subtraction charts
- 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
- Provision of number line for math tests
- Word bank of choices for answers to test questions
- 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; Addition and subtraction charts
- Small group instruction
- Hands on activities
- Visual cues
- Highlighted instructions/keywords and/or computation signs
- Reworded questions in simpler language
- Provision of number line for math tests
- Word bank of choices for answers to test questions
- Modified workload or length of assignments/tests
- Modified time demands

For English Language Learner students:

- Simplified Instruction (written and verbal)
- Simplified directions
- Provide notes in advance
- 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
- Vocabulary banks
- Extended Time
- Use lower level materials when appropriate

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
- Independent, innovative oral and written presentations
- Independent writing and research
- Learning log
- Extension activities

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**