Second Grade Math Required Elementary Schools

<u>Full Year</u>

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## Statement of Purpose

**Summary of the Course:** This Second Grade Math Curriculum will develop conceptual understanding, procedural knowledge, and problem solving skills as the students become proficient in the areas of: Operations and Algebraic Thinking, Numbers and Operations in Base Ten, Measurement and Data, and Geometry. The curriculum engages learning with 21st Century Skills, and connects to the appropriate grade-level *New Jersey Student Learning Standards*. Each unit includes suggestions for instructional activities and formative assessments, as well as a culminating project which integrates math with the other content areas.

In order to demonstrate a cohesive and complete implementation plan the following general suggestions are provided:

- The use of various formative assessments is encouraged in order to provide an ongoing method of determining the current level of understanding the students have of the material presented.
- Homework, when assigned should be relevant and reflective of the current teaching taking place in the classroom.
- Organizational strategies should be in place that allow the students the ability to take the information gained in the classroom and put it in terms that are relevant to them.
- Instruction should be differentiated to allow students the best opportunity to learn.
- Assessments should be varied and assess topics of instruction delivered in class.
- Modifications to the curriculum should be included that address students with Individualized Educational Plans (IEP), English Language Learners (ELL), and those requiring other modifications (504 plans).

## **Unit 1: Understanding Addition and Subtraction**

**Summary of the Unit:** In this unit, students will be taught the skills necessary for a strong mathematical foundation. They will learn that addition and subtraction are related, and that addition refers to the whole in terms of its parts, while subtraction talks about a missing part. Part-part-whole models will be used to help visualize this relationship. The unit culminates with a project that includes all of these concepts, as well as writing for math. The approximate scope for this unit is 13 days.

## **Enduring Understanding:**

- □ Parts of a whole are one interpretation of addition. Addition number sentences can be used to show parts of a whole.
- □ Joining parts to make a whole is one interpretation of addition. Addition number sentences can be used to show joining parts of a whole.
- Separating parts from a whole and comparison are two interpretations of subtraction. Subtraction number sentences can be used to show separating parts from a whole or comparison subtraction situations.
- Addition and subtraction have an inverse relationship. The inverse relationship between addition and subtraction can be used to find subtraction facts; every subtraction fact has a related addition fact.

## **Essential Questions:**

- Why is understanding the relationship between addition and subtraction useful?
- When would it be helpful to use a part-part-whole model?
- How can you write a story to show the relationships in a fact family?

## Summative Assessment and/ or Summative Criteria to demonstrate mastery of the Unit.

## -Cumulative Project: "Under the Sea"

Students will choose an animal that lives in the sea as the topic of their project.

Students will then choose a total amount of that animal to use as their "whole," and write it in the top of a part-part-whole model.

Students will draw "part" of the group of animals in one side of the model, and the other "part" of the group in the other side.

The background of the part-part-whole model should then be colored to look like a scene from under the sea.

Students then need to decide if they are going to write an addition or a subtraction story about their animals.

Students write a story problem to go with their part-part-whole picture, and then write the fact family sentences that relate to the model (stories should include key words, and the first number sentence should correspond to the story).

#### -Unit test.

## **Resources:**

#### enVision Math

Literacy:						
Rooster's Off to See the World by Eric Carle						
Mall Mania by Stuart J. Murphy						
A Fair Bear Share b	y Stuart J. Mu	rphy				
17 Kings and 42 Elep	phants by Mar	garet Murphy				
<b>Online State resour</b>	ces					
http://www.p21.org/i	index.php?opt	ion=com_content&task=	view&id=254&Itemid=119			
http://www.iste.org/s	standards/nets-	for-students.aspx				
Links:		-				
www.pearsonsuccessi	net.com					
www.nlvm.usu.edu/						
www.coolmath4kids	.com					
www.aplusmath.com	ı/					
www.kidsnumbers.c	om					
www.factmonster.co	m					
www.oswego.org/oc	sd-web/games	/Mathmagician/cathyma	.th.html			
www.primarygames.	com/fractions	/start.htm				
http://www.harcourts	school.com/thi	nkmath/index.html				
<b>Topic/ Selection</b>	Suggested	General Objectives	Instructional Activities	Suggested	New Jersey	
	Timeline			Benchmarks/	Student	
	per topic			Assessments	Learning	
					Standards	
Writing Addition	2 days	Students will join	Demonstrate (using the	-Performance task:	Math: 2.OA.1	
Number Sentences		two groups from	document camera and	Fill in a part-part-	Technology:	
		pictures and stories	Smartboard, Smart Exchange	whole model and	8.1.2.A.5	
		using a part-part-	activities, bulletin board sets,	write corresponding		
		whole model and	etc.) how a part-part-whole	addition sentences.		
		write addition	model can show the amounts	-Independent		
		number sentences to	of two separate groups as	practice		
		tell how many in all.	addends combining to make a	-Centers		
			sum. Demonstrate how a	-Teacher		
			written number sentence	observation		
			corresponds to the model.			

				-Teacher created "quick" assessment -Leveled homework	
Writing Subtraction	2 days	Students will separate parts from a	Demonstrate (using the document camera and	-Performance task: Fill in a part-part-	Math: 2.OA.1 Technology:
Number Sentences		whole, using	Smartboard, Smart Exchange	whole model and	8.1.2.A.5
		pictures, stories, and	activities, bulletin board sets,	write corresponding	
		a part-part-whole	etc.) how a part-part-whole	subtraction	
		model and write	model can show one part being	sentences.	
		subtraction number	taken from a whole to find the	-Independent	
		sentences to tell the	part that is left. Demonstrate	practice	
		difference.	how a written number sentence	-Centers	
			corresponds to the model.	-Teacher	
				observation	
				-Teacher created	
				"quick" assessment	
	1 1	Q <sub>1</sub> 1 ( )11 (		-Leveled homework	M (1 2 0 A 1
Stories About	I day	Students will write	Demonstrate (using the	-Performance task:	Math: 2.0A.1
Comparing		subtraction sentences	document camera and	Match objects	rechnology:
		to solve stories about	Smartboard, Smart Exchange	between sets to	8.1.2.A.3
		comparing groups.	activities, bulletin board sets,	show now many	
			(number) can be matched with	Write o	
			(humber) can be matched with objects from another set	corresponding	
			(number) in order to find how	subtraction	
			(number) in order to find how	sentence	
			narticular set (number)	-Independent	
			Demonstrate how a written	practice	
			number sentence corresponds	-Centers	
			to the model.	-Teacher	
				observation	

				-Teacher created	
				"quick" assessment	
				-Leveled homework	
Fact Families	2 days	Students will write	Demonstrate (using the	-Performance task:	Math: 2.OA.1,
		related addition and	document camera and	Write a set of	2.NBT.5
		subtraction facts.	Smartboard, Smart Exchange	related facts which	Technology:
			activities, bulletin board sets,	corresponds to a	8.1.2.A.5
			etc.) how a part-part- whole	part-part-whole	
			model shows the relationship	model.	
			between addition and	-Independent	
			subtraction. Demonstrate how	practice	
			a group of related number	-Centers	
			sentences correspond to the	-Teacher	
			model.	observation	
				-Teacher created	
				"quick" assessment	
				-Leveled homework	
Choose an	1 day	Students will use key	Display possible key words	-Performance task:	Math: 2.OA.1,
Operation		words to determine	used in story problems. Share	Identify key words,	2.NBT.5
		which operation to	various problems, and identify	complete a part-	Technology:
		perform in order to	key words from each.	part-whole model,	8.1.2.A.5
		solve a problem.	Demonstrate (using the	and write a number	
		Students will fill in a	document camera and	sentence for a story	
		part-part-whole	Smartboard, Smart Exchange	problem.	
		model, and write a	activities, bulletin board sets,	-Independent	
		corresponding	etc.) which sections of the part-	practice	
		number sentence in	part-whole model to fill in first	-Centers	
		order to show how	based on the key words in the	-Teacher	
		they solved the	story. Determine how to	observation	
		problem.	complete the model, then write	-Teacher created	
			a corresponding number	"quick" assessment	
			sentence.	-Leveled homework	

Review and Summative Assessment	5 days	Students will show comprehension of concepts taught throughout the unit.	Review concepts, introduce cumulative project and give guidelines, administer test, and present projects.	Review and Summative Assessment	Math: 2.OA.1, 2.NBT.5 ELA- Literacy.RI.2.1		
Suggested Modifications for Special Education, English Language Learners and Gifted Students:							

Modifications should be consistent with 504s and IEPs. Enrichment/extension activities should be provided for advanced learners: larger amounts, regrouping, written explanations, and projects. Material and instruction should be modified for below level learners and ELL: vocabulary cards, manipulatives, touch points, larger fonts, fewer items in sets, smaller numbers, number lines.

Suggested Technological Innovations/ Use:

Smartboard and document camera, ipads, ChromeBooks, Smart Exchange, Brainpop Jr., etc.

Cross Curricular/ 21st Century Connections:

9.1 21<sup>st</sup> Century Life and Career Skills: All students will demonstrate the creative, critical thinking, collaboration, and problemsolving skills needed to function successfully as both global citizens and workers in diverse ethnic and organizational cultures. The activities included in this unit provide students with the foundation necessary for understanding all other mathematical concepts. The concepts taught in this unit are directly related to real life situations for everyday living as a child and an adult.

## **Unit 2: Addition and Subtraction Strategies**

**Summary of the Unit:** In this unit, students will be taught the skills necessary for a strong mathematical foundation. They will learn that addition and subtraction are related, that addition refers to the whole in terms of its parts, while subtraction talks about a missing part. Part-part-whole models will be used to help visualize this relationship. The unit culminates with a project that includes all of these concepts, as well as writing for math. The approximate scope for this unit is 18 days.

#### **Enduring Understanding:**

- Doubles facts can be associated with memorable real-world situations.
- Basic addition facts that are near doubles can be found using a related doubles fact.
- Addition facts involving 9 can be changed to an equivalent fact with 10. Addition facts involving 8 can be changed to an equivalent fact with 10.
- Two numbers can be added in any order. Three or more whole numbers can be grouped and added in any order.
- Addition and subtraction have an inverse relationship. The inverse relationship between addition and subtraction can be used to find subtraction facts; every subtraction fact has a related addition fact.
- Some subtraction facts can be found by subtracting from the minuend (the larger number) an amount to get to 10 and then subtracting the amount that remains.

## **Essential Questions:**

- Why is understanding the relationship between addition and subtraction useful?
- How can you use strategies to find the answers to basic facts?
- Why is knowing your doubles facts so important for finding sums and differences?

Summative Assessment and/ or Summative Criteria to demonstrate mastery of the Unit. Cumulative Project: "Story Problems Class Book" Students will create, illustrate and solve their own two-question story problems. Students should identify, in writing, which strategies they used to solve their problems. Students work should be collected and bound together in a class book. -Unit test.						
<b>Resources:</b>						
enVision Math						
Literacy:						
The Missing Mittens	by Stuart J. M	urphy				
The Action of Subtra	<i>ction</i> by Brian	P. Cleary				
Animals on Board by	Stuart J. Mur	phy				
Online State resour	ces					
http://www.p21.org/i	ndex.php?opti	on=com_content&task	=view&id=254&Itemid=119			
http://www.iste.org/s	tandards/nets-	tor-students.aspx				
Links:	-4					
www.pearsonsuccessn	let.com					
www.mvm.usu.edu/						
www.coomani4Kius	/					
www.apiusinaui.com	/ 					
www.factmonster.co	m					
www.oswego.org/ocs	sd-web/games/	Mathmagician/cathym	ath.html			
www.primarvgames.	com/fractions/	start.htm				
http://www.harcourts	chool.com/thi	nkmath/index.html				
Topic/ Selection	Suggested Timeline per topic	General Objectives	Instructional Activities	Suggested Benchmarks/ Assessments	New Jersey Student Learning Standards	
Adding 0, 1 and 2	1 day	Students will master addition	Demonstrate on a number line (using the document camera	-Performance task:	Math: 2.OA.1,2	

		facts involving 0, 1,	and Smartboard, Smart	Find the sum of a	2. NBT.5,9
		or 2.	Exchange activities, bulletin	number plus 0, 1, and	Technology:
			board sets, etc.) how adding 0	2.	8.1.2.A.5
			does not change the number,	-Independent practice	
			adding one is the same as one	-Centers	
			more and adding 2 is the same	-Teacher observation	
			as 2 more.	-Teacher created	
				"quick" assessment	
				-Leveled homework	
Doubles	1 day	Students will	Demonstrate (using the	-Performance task:	Math:
		master addition	document camera and	Fill in a part-part-	2.OA.1,2
		facts in which both	Smartboard, Smart Exchange	whole model and	2. NBT.5,9
		addends are the	activities, bulletin board sets,	write corresponding	Technology:
		same.	etc.) using counters on a part-	doubles fact	8.1.2.A.5
			part-whole model to show	sentences.	
			doubles facts. Demonstrate	-Independent practice	
			how a written number	-Centers	
			sentence corresponds to the	-Teacher observation	
			model.	-Teacher created	
				"quick" assessment	
				-Leveled homework	
Near Doubles	1 day	Students will master	Demonstrate (using the document	-Performance task:	Math: 2.OA.1,2
		addition facts where	camera and Smartboard, Smart	Find the sum of near	2. NBT.5,9
		the addends are one	Exchange activities, bulletin	doubles.	Technology:
		apart.	board sets, etc.) when addends	-Independent practice	8.1.2.A.5
			line you can find the sum by	-Centers Teacher observation	
			doubling the lower number and	-Teacher created	
			adding one more.	"quick" assessment	
				-Leveled homework	
Adding in Any Order	1 day	Students will apply	Demonstrate with connecting	-Performance task:	Math: 2.OA.1,
		the commutative	cubes of two different colors	Show the commutative	2. NBT.5,9
			(using the document camera and	property with models,	

		property to find sums.	Smartboard, Smart Exchange activities, bulletin board sets, etc.) how the order of two parts can change, but you will still have the same whole. Demonstrate how in a number sentence, the order of the addends can change, but the sum stays the same.	and write corresponding number sentences. -Independent practice -Centers -Teacher observation -Teacher created "quick" assessment -Leveled homework	Technology: 8.1.2.A.5
Adding 3 Numbers	2 days	Students will find the sum of three addends in any order by applying the commutative property, using a part-part-part- whole model, and writing a corresponding number sentence.	Demonstrate (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) using counters on a part- part-part-whole model to show adding 3 numbers. Demonstrate how a written number sentence corresponds to the model.	<ul> <li>-Performance task:</li> <li>Show adding 3 <ul> <li>numbers with models,</li> <li>and write</li> <li>corresponding number</li> <li>sentences.</li> <li>-Independent practice</li> <li>-Centers</li> <li>-Teacher observation</li> <li>-Teacher created</li> <li>"quick" assessment</li> <li>-Leveled homework</li> </ul></li></ul>	Math: 2.OA.1, 2.NBT.5,9 Technology: 8.1.2.A.5
Making 10 to Add	1 day	Students will calculate sums by making ten when adding.	Demonstrate (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) how when adding two numbers that are less than 10, a ten frame can be used.	<ul> <li>-Performance task:</li> <li>Show completing a ten frame in order to add two numbers.</li> <li>-Independent practice</li> <li>-Centers</li> <li>-Teacher observation</li> <li>-Teacher created</li> <li>"quick" assessment</li> <li>-Leveled homework</li> </ul>	Math: 2.OA.2, 2.NBT.5,9 Technology: 8.1.2.A.5

Subtracting 0,1 and 2	1 day	Students will subtract 0, 1, and 2 from a number by applying the concepts of 0 less than, 1 less than , and 2 less than a number.	Demonstrate on a number line (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) how subtracting 0 does not change the number, subtracting 1 is the same as 1 less and subtracting 2 is the same as 2 less.	<ul> <li>-Performance task:</li> <li>Find the difference of a number and 0, 1, and 2.</li> <li>-Independent practice</li> <li>-Centers</li> <li>-Teacher observation</li> <li>-Teacher created</li> <li>"quick" assessment</li> <li>-Leveled homework</li> </ul>	Math: 2.OA.1,2 2.NBT.5,9 Technology: 8.1.2.A.5
Thinking Addition to Subtract Doubles	1 day	Students will apply addition doubles facts to subtraction.	Demonstrate (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) using counters on a part- part-whole model to show doubles facts. Demonstrate how the model can be used to find the difference of a related subtraction sentence.	<ul> <li>-Performance task:</li> <li>Use a part-part-whole model to show doubles facts and corresponding subtraction sentences.</li> <li>-Independent practice</li> <li>-Centers</li> <li>-Teacher observation</li> <li>-Teacher created</li> <li>"quick" assessment</li> <li>-Leveled homework</li> </ul>	Math: 2.OA.1,2 2.NBT.5,9 Technology: 8.1.2.A.5
Thinking Addition to 18 to Subtract	2 days	Students will calculate differences by applying related addition facts.	Review (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) how a part- part- whole model shows the relationship between addition and subtraction. Review how a group of related number	-Performance task: Write a set of related facts which corresponds to a part- part-whole model. -Independent practice -Centers -Teacher observation	Math: 2.OA.1,2 2.NBT.5,9 Technology: 8.1.2.A.5

			sentences correspond to the model.	-Teacher created "quick" assessment -Leveled homework	
Making 10 to Subtract	1 day	Students will use the "make ten" strategy to subtract.	Demonstrate (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.)with counters and ten frames how when subtracting from a number greater than 10, you can use a ten frame to first subtract the ones to make a ten, then subtract the remaining ones in order to find your difference.	-Performance task: Use the "make ten" strategy on ten frames. -Independent practice -Centers -Teacher observation -Teacher created "quick" assessment -Leveled homework	Math: 2.OA.2,1 2.NBT.5, Technology: 8.1.2.A.5
Two-Question Problems	1 day	Students will solve two-question problems by using the answer to the first question to answer the second question.	Share two-part story problems, (using the document camera and Smartboard, Smart Exchange activities, etc.) reviewing identifying key words to decide the operation. Discuss and demonstrate how solving the first part is necessary for solving the second part.	<ul> <li>-Performance task:</li> <li>Solve two part story problems.</li> <li>-Independent practice</li> <li>-Centers</li> <li>-Teacher observation</li> <li>-Teacher created</li> <li>"quick" assessment</li> <li>-Leveled homework</li> </ul>	Math 2.OA.1 ELA- Literacy.RI.2.1 Technology: 8.1.2.A.5
Review and Summative Assessment	5 days	Students will demonstrate comprehension of concepts taught throughout the unit.	Review concepts, introduce cumulative project and give guidelines, administer test, and present projects.	Review and Summative Assessment	Math: 2.OA.1,2 2.NBT.5,9 ELA- Literacy.RI.2.1
Suggested Modific	ations for Sp	ecial Education, Englis	h Language Learners and Gifte	ed Students:	

Modifications should be consistent with 504s and IEPs. Enrichment/extension activities should be provided for advanced learners: larger amounts, regrouping, written explanations, and projects. Material and instruction should be modified for below level learners and ELL: vocabulary cards, manipulatives, touch points, larger fonts, fewer items in sets, smaller numbers, number lines.

Suggested Technological Innovations/ Use:

Smartboard and document camera, ipads, ChromeBooks, Smart Exchange, Brainpop Jr., etc.

**Cross Curricular/ 21st Century Connections:** 

9.1 21<sup>st</sup> Century Life and Career Skills: All students will demonstrate the creative, critical thinking, collaboration, and problemsolving skills needed to function successfully as both global citizens and workers in diverse ethnic and organizational cultures. The activities included in this unit provide students with the foundation necessary for understanding all other mathematical concepts. The concepts taught in this unit are directly related to real life situations for everyday living as a child and an adult.

## **Unit 3: Working with Equal Groups**

**Summary of the Unit:** In this unit, students will be taught the skills necessary for a strong mathematical foundation of multiplication, as understanding the use of arrays for repeated addition will be used later in developing the traditional algorithm for multiplication involving two factors. The unit culminates with a project that includes all of these concepts, as well as writing for math. The approximate scope of this unit is 9 days.

## **Enduring Understanding:**

- Repeated addition involves joining equal groups.
- An array involves joining equal groups and is one way to think about repeated addition.

## **Essential Questions:**

- How does a drawing help you solve a problem?
- How can you write a story to show equal groups?

## Summative Assessment and/ or Summative Criteria to demonstrate mastery of the Unit.

-Cumulative Project: "The Toymaker"

Students pretend they are toy makers, and write stories about their workshops.

Students identify how many types of toys they make.

Students then identify (using equal groups) how many of each type they make.

Students illustrate their stories with arrays.

Students write corresponding repeated addition sentences to go with their stories and arrays.

## -Unit test.

**Resources:** enVision Math

Literacy:

What Comes in 2s, 3s, and 4s, by Suzanne Aker

## **Online State resources**

http://www.p21.org/index.php?option=com\_content&task=view&id=254&Itemid=119 http://www.iste.org/standards/nets-for-students.aspx Links: www.pearsonsuccessnet.com

www.nlvm.usu.edu/	r						
www.coolmath4kids.com							
www.aplusmath.com/							
www.kidsnumbers.c	com						
www.factmonster.co	om						
www.oswego.org/od	csd-web/games	/Mathmagician/cathyma	th.html				
www.primarygames	.com/fractions	/start.htm					
http://www.harcourt	school.com/thi	nkmath/index.html					
Topic/ Selection	Suggested Timeline per topic	General Objectives	Instructional Activities	Suggested Benchmarks/ Assessments	New Jersey Student Learning Standards		
Repeated Addition	1 day	Students will show repeated addition using a part-part- whole model to write number sentences.	Demonstrate (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) how a part-part-whole model can show equal amounts of two or more addends combining to make a sum. Demonstrate how a written number sentence corresponds to the model.	-Performance task: Fill in a part-part- whole model for repeated addition and write corresponding addition sentences. -Independent practice -Centers -Teacher observation -Teacher created "quick" assessment -Leveled homework	Math: 2.OA.4 Technology: 8.1.2.A.5		
Building Arrays	1 day	Students will build arrays to model repeated addition.	Demonstrate (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) how an array is constructed using rows and	-Performance task: Create an array and write a corresponding repeated addition sentence.	Math: 2.OA.4 Technology: 8.1.2.A.5		

			columns to show equal groups. Demonstrate how a written number sentence corresponds to the model.	-Independent practice -Centers -Teacher observation -Teacher created "quick" assessment -Leveled homework	
Practicing Repeated Addition with Story Problems	2 days	Students will solve repeated addition story problems utilizing part-part- whole models and arrays.	Review (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) how a part- part-whole model and an array can show equal amounts of two or more addends combining to make a sum. Demonstrate how these strategies can be used to solve story problems.	-Performance task: Create arrays and part-part-whole models to solve story problems, and write corresponding repeated addition sentences. -Independent practice -Centers -Teacher observation -Teacher created "quick" assessment -Leveled homework	Math: 2.OA.1,4 ELA- Literacy.RI.2.1 Technology: 8.1.2.A.5
Review and Summative Assessment	5 days	Students will demonstrate comprehension of concepts taught throughout the unit.	Review concepts, introduce cumulative project and give guidelines, administer test, and present projects.	Review and Summative Assessment	Math: 2.OA.1,4 2.NBT.5 ELA- Literacy.RI.2.1

Suggested Modifications for Special Education, English Language Learners and Gifted Students:

Modifications should be consistent with 504s and IEPs. Enrichment/extension activities should be provided for advanced learners: larger amounts, written explanations, and projects. Material and instruction should be modified for below level learners and ELL: vocabulary cards, manipulatives, touch points, larger fonts, fewer items in sets, smaller numbers, number lines.

Suggested Technological Innovations/ Use:

Smartboard and document camera, ipads, ChromeBooks, Smart Exchange, Brainpop Jr., etc.

**Cross Curricular/ 21st Century Connections:** 

9.1 21<sup>st</sup> Century Life and Career Skills: All students will demonstrate the creative, critical thinking, collaboration, and problemsolving skills needed to function successfully as both global citizens and workers in diverse ethnic and organizational cultures. The activities included in this unit provide students with the foundation necessary for understanding multiplication and division. The concepts taught in this unit are directly related to real life situations for everyday living as a child and an adult.

## Unit 4: Place Value to 100

**Summary of the Unit:** In this unit, students will be taught the importance of place value; how the value of each digit in thenumber depends on its positional place in the number. They will be taught that understanding place value is essential when learning how to compare, order and find patterns in numbers. The topic focuses on the meaning for numbers with two digits. Lessons in this unit help children learn about numbers with models of ones, tens, and hundreds, which makes the numbers more real and less abstract for children. The unit culminates with a project that includes all of these concepts, as well as writing for math. The approximate scope of this unit is 13 days.

## **Enduring Understanding:**

- In a two-digit number, the tens digit tells how many groups of ten and the ones digit tells the number of ones.
- Numbers through 20 are each represented by a unique number word. The numbers 21-99 are written by joining two number words that describe the number of tens and ones.
- Our place value number system makes it easy to name the number that is 10 more or 10 less than any other given number by simply adjusting the digit in the tens place.
- Numbers can be used to tell how many and place value can be used to compare and order numbers.
- The position of words before and after can be used to explain number relationships.
- Some numbers can be divided into two equal parts and some cannot.
- Numbers can be used to tell how many.
- Our number system is based on groups of ten. Whenever we get 10 in one place value, we move to the next greater place value.

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## **Essential Questions:**

- How can numbers to 100 be shown and compared?
- How are number patterns helpful in reading and writing numbers to 100?

## Summative Assessment and/ or Summative Criteria to demonstrate mastery of the Unit.

## -Cumulative Project: "Magic Numbers"

Students will draw 2 numbers from a "magic hat," each representing a place value of a 2-digit number.

Students will write their "magic number" on their own "magic hat" in standard form.

Students will then show the expanded form and word name of the number on their project paper.

Students will draw place value models to represent their numbers.

Students will create	number patter	rns, stemming from their	numbers, showing the number	rs that come before and	d after their number,
as well as skip coun	ting patterns b	by 10.			
Students will show	three other nut	mbers to compare to their	r number using $>,<$ , and $=$ .		
-Unit test.					
<b>Resources:</b>					
enVision Math					
Literacy:					
A Fair Bear Share by	Stuart J. Murp	hy			
Even Steven and Odd	Todd by Kathr	yn Cristaldi			
Online State resourc	es				
http://www.p21.org/ind	dex.php?option=	-com_content&task=view&i	d=254&Itemid=119		
http://www.iste.org/st	andards/nets-fc	or-students.aspx			
Links:					
www.pearsonsuccess	net.com				
www.nivm.usu.edu/					
www.coolmatn4kids.					
www.apiusmam.com/	m				
www.factmonster.com	n 111				
www.oswego.org/ocsd	-web/games/Ma	thmagician/cathymath html			
www.primarygames.c	com/fractions/st	art htm			
http://www.harcourts	chool.com/thinl	kmath/index.html			
<b>Topic/ Selection</b>	Suggested	General Objectives	Instructional Activities	Suggested	New Jersey
	Timeline			Benchmarks/	Student
	per topic			Assessments	Learning
					Standards
Models for Tens	1 day	Students will group	Demonstrate (using the	-Performance task:	Math:
and Ones		objects into tens and	document camera and		2.NBT.1.a,1,3

		ones to show two-	Smartboard, Smart	Circle and count	Technology:
		digit numbers.	Exchange activities,	groups of tens.	8.1.2.A.5
		C	bulletin board sets, etc.)	Circle and count	
			how given a set of objects,	ones.	
			groups of ten and ones can	Write the total	
			be identified, and a number	amount in standard	
			can be written based on the	form.	
			amount of each.	-Independent	
				practice	
				-Centers	
				-Teacher	
				observation	
				-Teacher created	
				"quick" assessment	
				-Leveled	
				homework	
Reading and	1 day	Students will read and	Display (using the	-Performance task:	Math: 2.NBT.3,1
Writing Numbers		write number words	document camera and	Write word name	Technology:
		for numbers 0 -99.	Smartboard, Smart	and standard form	8.1.2.A.5
			Exchange activities,	of numbers 0-99.	
			bulletin board sets, etc.)	-Independent	
			number words and	practice	
			corresponding standard	-Centers	
			form of each. Discuss	-Teacher	
			different forms. Given a	observation	
			form of the number,	-Teacher created	
			identify which form is	"quick" assessment	
			shown, and write the other	-Leveled	
			form of the number.	homework	
Using Symbols to	1 day	Students will compare	Review (using the	Performance task:	Math: 2.NBT.4
Compare		two-digit numbers	document camera and	Correctly compare	Technology:
Numbers		using symbols.	Smartboard, Smart	numbers using	8.1.2.A.5
			Exchange activities,	symbols.	

			bulletin board sets, etc.) greater than, less than, and equal signs. Practice identifying the value of the numbers based on digits in each place.	-Independent practice -Centers -Teacher observation -Teacher created "quick" assessment -Leveled homework	
Counting to 100	1 day	Students will identify and write numbers that are one before and one after given numbers. Students will also count on and count back to identify missing numbers to 100.	Demonstrate (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) on a hundred chart how numbers can be located.	-Performance task: Use a hundred chart to locate numbers. -Independent practice -Teacher observation -Teacher created "quick" assessment -Leveled homework	Math: 2.NBT.2 Technology: 8.1.2.A.5
Ten More or Ten Less	1 day	Students will identify and write numbers that are ten more and ten less than given numbers. Students will also count on and count back by tens to identify missing numbers.	Demonstrate (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) on a hundred chart how numbers that are ten more and ten less can be located.	-Performance task: Use a hundred chart to locate numbers. -Independent practice -Centers -Teacher observation -Teacher created "quick" assessment -Leveled homework	Math: 2.NBT.5,6 Technology: 8.1.2.A.5

Even and Odd Numbers	1 day	Students will explore and identify even and odd numbers	Demonstrate (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) how even numbers can be separated into equal groups and end with certain digits	-Performance task: Determine whether a number is odd or even. -Independent practice -Centers -Teacher	Math: 2.OA.3, 2.NBT.9 Technology: 8.1.2.A.5				
			in the ones place, and how odd numbers cannot be separated into equal groups and end with certain digits	observation -Teacher created "quick" assessment -Leveled					
			in the ones place.	homework					
Using Data from a Chart	2 days	Students will use clues and data from a chart to identify a number.	Demonstrate (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) how by using given clues, some numbers from a set can be eliminated in order to isolate one particular number.	-Performance task: Use a chart and clues to find a "secret number." -Independent practice -Centers -Teacher observation -Teacher created "quick" assessment -Leveled homework	Math: 2.NBT.5 2.OA.1 Technology: 8.1.2.A.5				
Review and Summative Assessment	5 days	Students will demonstrate comprehension of concepts taught throughout the unit.	Review concepts, introduce cumulative project and give guidelines, administer test, and present projects.	Review and Summative Assessment	Math: 2.NBT.1,2,3,4,5,6,9 2.OA.3 ELA- Literacy.RI.2.1				
Suggested Modif	Suggested Modifications for Special Education, English Language Learners and Gifted Students:								

Modifications should be consistent with 504s and IEPs. Enrichment/extension activities should be provided for advanced learners: higher place values, written explanations, and projects. Material and instruction should be modified for below level learners and ELL: vocabulary cards, manipulatives, larger fonts, fewer items in sets, smaller numbers, number lines.

Suggested Technological Innovations/ Use:

Smartboard and document camera, ipads, ChromeBooks, Smart Exchange, Brainpop Jr., etc.

Cross Curricular/ 21st Century Connections:

9.1 21<sup>st</sup> Century Life and Career Skills: All students will demonstrate the creative, critical thinking, collaboration, and problem-solving skills needed to function successfully as both global citizens and workers in diverse ethnic and organizational cultures. The activities included in this unit provide students with the foundation necessary for understanding all other mathematical concepts, as well as concepts in the sciences and social studies.

## **Unit 5: Mental Addition and Subtraction**

**Summary of the Unit:** In this unit, students will be taught that mental computation is a key math skill in helping them learn how numbers work. Learning this skill encourages them to make decisions about how to solve problems, and it allows them to come up with their own methods of solving. Students performing mental math learn the structure of a number and its properties. The unit culminates with a project that includes all of these concepts, as well as writing for math. The approximate scope for this unit is 15 days.

## **Enduring Understanding:**

- Adding tens is like adding ones. Subtracting tens is like subtracting ones.
- When adding a number less than ten to a two-digit number using the traditional algorithm, it may be necessary to rename 10 ones as 1 ten.
- Two-digit numbers can be broken apart using tens and ones and added in different ways.
- Patterns on a hundred chart can be used to add or subtract numbers and to develop mental math strategies and number sense.
- Adding groups of tens is similar to adding numbers less than 10.
- To find parts of 100, add on ones to make a ten and count on by tens to reach 100.
- Subtracting groups of tens is similar to subtracting numbers less than 10.

## **Essential Questions:**

- How can sums and differences be found mentally?
- How can mental math make your life easier?

## Summative Assessment and/ or Summative Criteria to demonstrate mastery of the Unit.

## -Cumulative Project: "Hundred Chart Art"

Students design a picture on a hundred chart by coloring in boxes.

Students identify and write addition and subtraction problems which would have the same answers as the numbers in the colored boxes.

\*Alternative Project: Teacher provides number sentences, and students have to solve and color boxes for the answer.

-Unit test.

## **Resources:**

enVision Math

## Literacy:

From One to One Hundred by Teri Sloat Elevator Magic by Stuart J. Murphy							
Online State resources http://www.p21.org/index.php?option=com_content&task=view&id=254&Itemid=119 http://www.iste.org/standards/nets-for-students.aspx Links: www.pearsonsuccessnet.com www.nlvm.usu.edu/ www.coolmath4kids.com www.coolmath4kids.com www.aplusmath.com/ www.kidsnumbers.com www.factmonster.com www.factmonster.com www.oswego.org/ocsd-web/games/Mathmagician/cathymath.html www.primarygames.com/fractions/start.htm http://www.harcourtschool.com/thinkmath/index.html							
Topic/ Selection	Suggested Timeline per topic	General Objectives	Instructional Activities	Suggested Benchmarks/ Assessments	New Jersey Student Learning Standards		
Adding Tens	1 day	Students mentally add multiples of ten to a two- digit number	Review skip counting by tens. Demonstrate (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) how when you add multiples of ten to a number, the ones stay the same, and only the tens change.	-Performance task: Skip count to add tens to a number. -Independent practice -Centers -Teacher observation -Teacher created "quick" assessment -Leveled homework	Math: 2.NBT.5,8,9 Technology: 8.1.2.A.5		

Adding Ones	1 day	Students will mentally add a two-digit number and a one-digit number.	Demonstrate (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) how to use the "make a ten" strategy to get to the "next ten."	<ul> <li>Performance task:</li> <li>Students verbally explain how to use mental math for finding the sum of the addends.</li> <li>Independent practice</li> <li>Centers</li> <li>Teacher</li> <li>observation</li> <li>Teacher created</li> <li>"quick" assessment</li> </ul>	Math: 2.NBT.5,8,9 Technology: 8.1.2.A.
Adding Tens and Ones	2 days	Students will add a two-digit number to a two- digit number using mental math.	Model (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) how first mentally find the sum of the tens , then the sum of the ones, then add both sums together.	-Develed homework -Performance task: Students verbally explain how to use mental math for finding the sum of the addends. -Independent practice -Centers -Teacher observation -Teacher created "quick" assessment -Leveled homework	Math: 2.NBT.5,8,9 Technology: 8.1.2.A.5
Adding on a Hundred Chart	2 days	Students will implement the use a hundred chart to add tens and ones.	Demonstrate (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) how to move on a hundred	-Performance task: Use a hundred chart to add tens and ones.	Math: 2.NBT.5,8,9 2.OA.1 Technology: 8.1.2.A.5

			chart in order to add tens and ones.	-Independent practice -Centers -Teacher observation -Teacher created "quick" assessment -Leveled homework	
Finding a Pattern to Solve Problems	1 day	Students will use number patterns to solve problems.	Demonstrate (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) how finding the difference between two numbers can help you identify a skip-counting pattern. Demonstrate that continuing the pattern can help you find more information.	<ul> <li>-Performance task:</li> <li>Identify a pattern to solve a problem.</li> <li>-Centers</li> <li>-Teacher</li> <li>observation</li> <li>-Teacher created</li> <li>"quick" assessment</li> <li>-Leveled homework</li> </ul>	Math: 2.NBT.2 ELA- Literacy.RI.2.1 Technology: 8.1.2.A.5
Subtracting Tens	1 day	Students mentally subtract a multiple of ten from a two- digit number.	Review skip counting backwards by tens. Demonstrate (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) how when you subtract multiples of ten from a number, the ones stay the same, and only the tens change.	<ul> <li>-Performance task:</li> <li>Skip count backwards to subtract tens from a number.</li> <li>-Independent practice</li> <li>-Centers</li> <li>-Teacher</li> <li>observation</li> <li>-Teacher created</li> <li>"quick" assessment</li> <li>-Leveled homework</li> </ul>	Math: 2.NBT.8,5,9 Technology: 8.1.2.A.5

Subtracting on a Hundred Chart	1 day	Students will use a hundred chart to subtract tens and ones.	Demonstrate (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) how to move on a hundred chart in order to subtract tens and ones.	-Performance task: Use a hundred chart to subtract tens and ones. -Independent practice -Centers -Teacher observation -Teacher created "quick" assessment -Leveled homework	Math: 2.NBT.5,8,9 2.OA.1 Technology: 8.1.2.A.5			
Missing and Extra Information	1 day	Students will determine whether or not they can solve problems with missing or extra information.	Display (using the document camera and Smartboard, Smart Exchange activities, etc.) story problems and have students circle extra information when present, or identify what is needed in order to solve the problem.	-Performance task: Decide and explain when problems can or cannot be solved. -Independent practice -Centers -Teacher observation -Teacher created "quick" assessment -Leveled homework	Math: 2.NBT.5,7 ELA- Literacy.RI.2.1 Technology: 8.1.2.A.5			
Review and Summative Assessment	5 days	Students will demonstrate comprehension of concepts taught throughout the unit.	Review concepts, introduce cumulative project and give guidelines, administer test, and present projects.	Review and Summative Assessment	Math: 2.NBT.2,5,7,8,9 ELA- Literacy.RI.2.1			
Suggested Modifications for Special Education, English Language Learners and Gifted Students:								
larger emounts should	i de consistent	with 504s and IEPs.	Enformment/extension activities show	uld be provided for held	anced learners:			
larger amounts, regrouping, written explanations, and projects. Material and instruction should be modified for below level learners								

and ELL: vocabulary cards, manipulatives, touch points, larger fonts, fewer items in sets, smaller numbers, number lines, hundred chart.

Suggested Technological Innovations/ Use:

Smartboard and document camera, ipads, ChromeBooks, Smart Exchange, Brainpop Jr., etc.

**Cross Curricular/ 21st Century Connections:** 

9.1 21<sup>st</sup> Century Life and Career Skills: All students will demonstrate the creative, critical thinking, collaboration, and problemsolving skills needed to function successfully as both global citizens and workers in diverse ethnic and organizational cultures. The activities included in this unit encourage students to think more broadly on their own about numbers. The concepts taught in this unit are directly related to real life situations for everyday living as a child and an adult.

## Unit 6: Addition and Subtraction of Two-Digit Numbers

**Summary of the Unit:** This unit reinforces the concept that there is more than one way to add and subtract numbers. The traditional algorithms, (as well as the expanded algorithm for addition), part-part-whole models, and place value models, along with mental math are all used to teach the concept. Regrouping will be taught, and the relationship between addition and subtraction will be reinforced. The unit culminates with a project that includes all of these concepts, as well as writing for math. The approximate scope for this unit is 30 days.

## **Enduring Understanding:**

- Ten ones can be regrouped for 1 ten.
- The standard addition algorithm for two-digit and one-digit numbers breaks the calculations into simpler calculations using place value, starting with the ones and then the tens. Answers to the simpler calculations are used to give the final sum.
- The standard algorithm for adding two-digit and two-digit numbers is just an extension of the algorithm for adding two-digit and one-digit numbers. The ones are added first and then the tens.
- All sums and differences can be found using models (cubes). Some calculations are done easily using mental math or paper and pencil. More complex calculations can be done using a calculator.
- Sums can be represented as lengths on a number line diagram of addition.
- One ten can be regrouped for 10 ones.
- The standard subtraction algorithm breaks the calculation into simpler calculations starting with the ones and then the tens.
- The standard algorithm for subtracting two-digit and two-digit numbers is just an extension of the algorithm for subtracting two-digit and one-digit numbers.
- All sums and differences can be found using models (cubes). Some calculations are done easily using mental math or paper and pencil. More complex calculations can be done using a calculator.
- Differences can be represented as lengths in a number line diagram of subtraction.
- The inverse relationship between addition and subtraction can be used to check subtraction.

#### **Essential Questions:**

- How can you use models to add and subtract two-digit numbers?
- Why is it important to know how to add and subtract large numbers for everyday life?
- Why is understanding when and how to regroup necessary for working with numbers?

r	
	Summative Assessment and/ or Summative Criteria to demonstrate mastery of the Unit.
	Cumulative Project: "Big Problems Class Book"
	Students will create, illustrate and solve their own two-question 2-digit addition and subtraction story problems.
	Students should identify, in writing, which strategies they used to solve their problems.
	Students work should be collected and bound together in a class book.
	-Unit test.
	Resources:
	enVision Math
	Literacy:
	17 Kings and 42 Elephants by Margaret Mahy
	Shark Swimathon by Stuart J. Murphy
	Lights Out! By Lucille Recht Penner
	Coyotes All Around by Stuart J. Murphy
	Online State resources
	http://www.p21.org/index.php?option=com_content&task=view&id=254&Itemid=119
	http://www.iste.org/standards/nets-for-students.aspx
	Links:
	www.pearsonsuccessnet.com
	www.nlvm.usu.edu/
	www.coolmath4kids.com
	www.aplusmath.com/
	www.kidsnumbers.com
	www.factmonster.com
	www.oswego.org/ocsd-web/games/Mathmagician/cathymath.html
	www.primarygames.com/fractions/start.htm
	http://www.harcourtschool.com/thinkmath/index.html

Topic/ Selection	Suggested Timeline per topic	General Objectives	Instructional Activities	Suggested Benchmarks/ Assessments	New Jersey Student Learning Standards
Regrouping Ten Ones for One Ten	5 days	Students will add a one- and two-digit numbers to a two- digit number using models.	Demonstrate (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) using place value models and the standard algorithm how ten ones can be regrouped as one ten and a number is moved from one place value to the next.	-Performance task: Regroup ones as tens, and find the sum of the addends. -Independent practice -Centers -Teacher observation -Teacher created "quick" assessment -Leveled homework	Math: 2.NBT.5,6,9 Technology: 8.1.2.A.5
Adding on a Number Line	2 days	Students will model two-digit addition using a number line.	Demonstrate (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) how to show addition on a number line, staring at zero, drawing a line for the first addend, then drawing another line for the second added to reach the sum.	-Performance task: Show addition problems on number lines. -Independent practice -Centers -Teacher observation -Teacher created "quick" assessment -Leveled homework	Math: 2.MD.6 2.NBT.5,6,9 Technology: 8.1.2.A.5

Adding More than Two Numbers	2 days	Students will add three and four two- digit numbers.	Review (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) addition strategies and regrouping. Practice adding three and four two-digit numbers.	-Performance task: Use strategies to add three and four two- digit numbers. -Independent practice -Centers -Teacher observation -Teacher created "quick" assessment -Leveled homework	Math: 2.NBT.6, 5, 9 Technology: 8.1.2.A.5
Draw a Picture and Write a Number Sentence	2 days	Students will solve story problems using a part-part-whole model and write a corresponding number sentence.	Review (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) identifying and using key words n story problems and how a part-part- whole model can help to solve a problem. Review how a number sentence corresponds to the model.	<ul> <li>-Performance task:</li> <li>Show a part-part- whole model and a number sentence to solve a problem.</li> <li>-Independent practice</li> <li>-Centers</li> <li>-Teacher observation</li> <li>-Teacher created</li> <li>"quick" assessment</li> <li>-Leveled homework</li> </ul>	Math: 2.NBT.5, 2.OA.1 ELA- Literacy.RI.2.1 Technology: 8.1.2.A.5
Review and Benchmark Assessment	2 days	Students will demonstrate comprehension of concepts taught throughout the first four topics.	Review concepts, administer test.	Review and Benchmark Assessment	Math: 2.OA.1, 2.NBT.5 ELA- Literacy.RI.2.1
Regrouping One Ten for Ten Ones	5 days	Students will regroup one ten as ten ones when subtracting.	Demonstrate (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets,	-Performance task: Regroup tens as ones, and find the difference of the	Math: 2.NBT.5,9 Technology: 8.1.2.A.5

			etc.) using place value models and the standard algorithm how one ten can be regrouped as ten ones and a number is moved from one place value to the next.	minuend and subtrahend. -Independent practice -Centers -Teacher observation -Teacher created "quick" assessment -Leveled homework	
Subtracting on a Number Line	2 days	Students will model two-digit subtraction using a number line.	Demonstrate (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) how to show subtraction on a number line, staring at zero, drawing a line for the minuend, then drawing another line back for the subtrahend to reach the difference.	-Performance task: Show subtraction problems on number lines. -Independent practice -Centers -Teacher observation -Teacher created "quick" assessment -Leveled homework	Math: 2.MD.6 2.NBT.5,6,9 Technology: 8.1.2.A.5
Using Addition to Check Subtraction	2 days	Students will relate addition to subtraction by using one operation to check the other.	Review (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) fact families and part-part-whole models and demonstrate the process of the strategy.	<ul> <li>-Performance task:</li> <li>Show process of checking by adding.</li> <li>-Independent practice</li> <li>-Centers</li> <li>-Teacher observation</li> <li>-Teacher created</li> <li>"quick" assessment</li> <li>-Leveled homework</li> </ul>	Math: 2.NBT.5,9 Technology: 8.1.2.A.5
Solving Two-Step Story Problems	1 day	Students will solve two-question story problems and select	Share two-part story problems, (using the document camera and Smartboard, Smart	-Performance task: Solve two part story problems.	Math: 2.NBT.5, 2.OA.1

		the operation to	Exchange activities, etc.)	-Independent	ELA-
		solve each question.	reviewing identifying key	practice	Literacy.RI.2.1
			words to decide the operation.	-Centers	Technology:
			Review and demonstrate how	-Teacher observation	8.1.2.A.5
			solving the first part is	-Teacher created	
			necessary for solving the	"quick" assessment	
			second part.	-Leveled homework	
Review and	2 days	Students will	Review concepts, administer	Review and	Math: 2.OA.1
Benchmark		demonstrate	test.	Benchmark	2.NBT.5, 6,9
Assessment		comprehension of		Assessment	2.MD.6
		concepts taught			ELA-
		throughout the			Literacy.RI.2.1
		second four topics.			
Review and	5 days	Students will	Review concepts, introduce	Review and	Math: 2.OA.1,
Summative		demonstrate	cumulative project and give	Summative	2.NBT.5,6,9
Assessment		comprehension of	guidelines, administer test, and	Assessment	2.MD.6
		concepts taught	present projects.		ELA-
		throughout the unit.			Literacy.RI.2.1
Suggested Modifi	cations for S	pecial Education, Eng	glish Language Learners and (	Gifted Students:	

Modifications should be consistent with 504s and IEPs. Enrichment/extension activities should be provided for advanced learners: larger amounts, written explanations, projects. Material and instruction should be modified for below level learners and ELL: vocabulary cards, manipulatives, touch points, larger fonts, fewer items in sets, smaller numbers, number lines.

Suggested Technological Innovations/ Use:

Smartboard and document camera, ipads, ChromeBooks, Smart Exchange, Brainpop Jr., etc.

Cross Curricular/ 21st Century Connections:

9.1 21<sup>st</sup> Century Life and Career Skills: All students will demonstrate the creative, critical thinking, collaboration, and problem-solving skills needed to function successfully as both global citizens and workers in diverse ethnic and organizational cultures. The strategies included in this unit help to provide students with the understanding that there is more than one way to solve problem. One of the goals is that students will learn to be flexible in situations when they are working with others who may have a different approach to solving a problem.

## Unit 7: Place Value to 1,000

**Summary of the Unit:** In this unit, students will be taught the importance of place value; how the value of each digit in thenumber depends on its positional place in the number. They will be taught that understanding place value is essential when learning how to compare, order and find patterns in numbers. The topic focuses on the meaning for numbers with two or three digits. Lessons in this unit help children learn about numbers with models of ones, tens, and hundreds, which makes the numbers more real and less abstract for children. The unit culminates with a project that includes all of these concepts, as well as writing for math. The approximate scope of this unit is 14 days.

## **Enduring Understanding:**

- In a three-digit number, the hundreds digit tells how many groups of one hundred, tens digit tells how many groups of ten and the ones digit tells the number of ones.
- Numbers can be used to tell how many.
- Place value can be used to compare and order numbers.
- Numbers can be used to tell how many.
- Our number system is based on groups of ten. Whenever we get 10 in one place value, we move to the next greater place value.
- Adding or subtracting hundreds or tens is similar to adding or subtracting single-digit numbers.
- Counting and place-value can be seen on a hundreds chart.
- Number lines can help with skip counting.
- Ordering three or more numbers is similar to comparing two numbers because each number must be compared to each of the other numbers.

## **Essential Questions:**

- How can numbers to 100 be shown and compared?
- How are number patterns helpful in reading and writing numbers to 1,000?

## Summative Assessment and/ or Summative Criteria to demonstrate mastery of the Unit.

-Cumulative Project: "Magic Numbers"

Students will draw 3 numbers from a "magic hat," each representing a place value of a 3-digit number.

Students will write their "magic number" on their own "magic hat" in standard form.

Students will then show the expanded form and word name of the number on their project paper.

Students will draw place value mo	dels to represent their n	numbers.				
Students will create number patter	ns, stemming from their	r numbers, showing the numb	pers that come before	and after their number,		
as well as skip counting patterns by	y 10 and 100.					
Students will show three other num	nber to compare to their	r numbers using >,<, and =.				
-Unit test.						
Resources:						
enVision Math						
Literacy:						
A Fair Bear Share by Stuart J. Mu	irphy					
Even Steven and Odd Todd by Kat	thryn Cristaldi					
How Much, How Many, How Far,	How Heavy, How Long	g, How Tall is 1,000 by Helen	n Nolan			
Online State resources						
http://www.p21.org/index.php?opt	tion=com_content&task	x=view&id=254&Itemid=119				
http://www.iste.org/standards/nets	-for-students.aspx					
Links:	•					
www.pearsonsuccessnet.com						
www.nlvm.usu.edu/						
www.coolmath4kids.com						
www.aplusmath.com/						
www.kidsnumbers.com						
www.factmonster.com						
www.oswego.org/ocsd-web/games	s/Mathmagician/cathym	nath.html				
www.primarygames.com/fractions/start.htm						
http://www.harcourtschool.com/th	inkmath/index.html					
Topic/ Selection Suggested	General Objectives	Instructional Activities	Suggested	New Jersev Student		
Timeline			Benchmarks/	Learning Standards		
per topic			Assessments			

Building One Thousand	1 day	Students will count by hundreds to 1.000	Demonstrate (using the document camera and	-Performance task: Circle and count	Math: 2.NBT.1.b,a,2 Technology:
inousund		o j manarous to 1,000.	Smartboard, Smart	groups of one	8.1.2.A.5
			Exchange activities.	hundred.	
			bulletin board sets, etc.)	Write the total	
			how given a set of objects.	amount in standard	
			groups of on hundred can	form.	
			be identified, and a	-Independent	
			number can be written	practice	
			based on the amount of	-Centers	
			groups.	-Teacher	
				observation	
				-Teacher created	
				"quick" assessment	
				-Leveled	
				homework	
Counting	1 day	Students will display	Demonstrate (using the	-Performance task:	Math: 2.NBT.1,b,3
Hundreds, Tens		numbers up to 1,000	document camera and	Fill in a place value	Technology:
and Ones		using place value	Smartboard, Smart	chart and write the	8.1.2.A.5
		models.	Exchange activities,	standard form of a	
			bulletin board sets, etc.)	number up to 999.	
			how place value models	-Independent	
			can be used to count and	practice	
			represent numbers.	-Centers	
				-Teacher	
				observation	
				-Teacher created	
				"quick" assessment	
				-Leveled	
				homework	
Reading and	I day	Students will identify	Display (using the	-Performance task:	Math: 2.NBT.3,1a,b
Writing Numbers		and record 3 digit	document camera and	Write word name,	Technology:
to 1,000		numbers in expanded,	Smartboard, Smart	standard form, and	8.1.2.A.5

Changing Numbers by Hundreds and Tens	1 day	standard and number word form. Students will mentally add and subtract multiples of 10 and 100 to and from a whole number. Students will explore	Exchange activities, bulletin board sets, etc.) number words and corresponding standard form of each. Demonstrate how a number can be written as a simple addition sentence using the values of each digit as the addends. Given a form of the number, identify which form is shown, and write the other forms of the number. Review concepts of mental math (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) and practice adding and subtracting tens and hundreds.	expanded form of numbers 0-999. -Independent practice -Centers -Teacher observation -Teacher created "quick" assessment -Leveled homework -Performance task: Add and subtract multiples of 10 or 100 to and from a given number. -Independent practice -Centers -Teacher observation -Teacher created "quick" assessment -Leveled homework	Math: 2.NBT.8 Technology: 8.1.2.A.5
rumber rutterns	1 duy	numbers in order to	document camera and	r errormanee tusk.	2.NBT.2,8

		find, identify, and apply number patterns.	Smartboard, Smart Exchange activities, bulletin board sets, etc.) on a number chart how numbers can be located using patterns.	Use a number chart to locate numbers. -Independent practice -Centers -Teacher observation	Technology: 8.1.2.A.5
				-Teacher created "quick" assessment -Leveled homework	
Skip Counting by 5s, 10s, and 100s to 1,000.	1 day	Students will skip count by different amounts on a number line and use the patterns to identify the numbers that come next.	Review skip counting. Demonstrate (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) use of a number line to identify patterns, then fill in missing numbers.	-Performance task: Fill in missing numbers on a number line. -Independent practice -Centers -Teacher observation -Teacher created "quick" assessment -Leveled homework	Math: 2.NBT.2 Technology: 8.1.2.A.5
Comparing 3- digit numbers	1 day	Students will compare three-digit numbers using symbols.	Review (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) greater than, less than, and equal signs. Practice identifying the value of the	-Performance task: Correctly compare numbers using symbols. -Independent practice -Centers -Teacher observation	Math: 2.NBT.4 Technology: 8.1.2.A.5

			numbers based on digits in	-Teacher created	
			each place.	"quick" assessment	
			-	-Leveled	
				homework	
Ordering	2 days	Students will order	Demonstrate (using the	-Performance task:	Math:
Numbers and	-	three-digit numbers	document camera and	Correctly order	2.NBT.4,2
Identifying		from least to greatest	Smartboard, Smart	numbers and	Technology:
Patterns		and greatest to least,	Exchange activities,	identify number	8.1.2.A.5
		and solve problems	bulletin board sets, etc.)	patterns.	
		by finding number	how when a given a set of	-Independent	
		patterns.	numbers, they can be	practice	
			placed in order depending	-Centers	
			on their place values.	-Teacher	
			Demonstrate how when a	observation	
			set of 3-digit numbers all	-Teacher created	
			end in the same digit, a	"quick" assessment	
			skip counting pattern of	-Leveled	
			tens or hundreds can be	homework	
			identified.		
Review and	5 days	Students will	Review concepts,	Review and	Math:
Summative		demonstrate	introduce cumulative	Summative	2.NBT.1,2,3,4,5,6,8,9
Assessment		comprehension of	project and give	Assessment	2.OA.1,3
		concepts taught	guidelines, administer test,		
		throughout the unit.	and present projects.		ELA-Literacy.RI.2.1
Suggested Modific	ations for Sp	ecial Education, Englis	h Language Learners and G	ifted Students:	
Modifications shou	ld be consister	nt with 504s and IEPs. En	nrichment/extension activities	s should be provided for	or advanced learners:
higher place values	, written expla	nations, and projects. Ma	aterial and instruction should	be modified for below	v level learners and
ELL: vocabulary ca	ards, manipula	tives, and larger fonts, fe	ewer items in sets, smaller nur	nbers, and number lin	es.
Suggested Techno	logical Innova	ations/ Use:			
Smartboard and d	locument cam	iera, ipads, ChromeBoo	oks, Smart Exchange, Brain	pop Jr., etc.	
<b>Cross Curricular/</b>	21 <sup>st</sup> Century	Connections:			

9.1 21<sup>st</sup> Century Life and Career Skills: All students will demonstrate the creative, critical thinking, collaboration, and problemsolving skills needed to function successfully as both global citizens and workers in diverse ethnic and organizational cultures. The activities included in this unit provide students with the foundation necessary for understanding all other mathematical concepts, as well as concepts in the sciences and social studies.

## **Unit 8: Addition and Subtraction of Three-Digit Numbers**

**Summary of the Unit:** This unit reinforces the concept that there is more than one way to add and subtract numbers. The traditional algorithms, (as well as the expanded algorithm for addition), part-part-whole models, and place value models, along with mental math are all used to teach the concept. Regrouping will be taught, and the relationship between addition and subtraction will be reinforced. The unit culminates with a project that includes all of these concepts, as well as writing for math. The approximate scope for this unit is 17 days.

## **Enduring Understanding:**

- $\square$  There are a variety of ways to add three digit numbers.
- □ There is more than one way to do a mental calculation. Techniques for doing addition or subtraction calculations mentally involve changing the numbers or the expression so the calculation is easy to do mentally.
- □ The standard addition algorithm for three-digit numbers breaks the calculation into simpler calculations using place value starting with the ones, then the tens, and then the hundreds.
- $\square$  There is a variety of ways to subtract three-digit numbers.
- □ The standard subtraction algorithm for three-digit numbers breaks the calculation into simpler calculations using place value starting with the ones, then the tens, and then the hundreds.

## **Essential Questions:**

- □ How does knowing about shapes help you interact with your world?
- □ How can structures be created by combining other shapes?
- $\square$  How can the shapes which form a structure be identified?

## Summative Assessment and/ or Summative Criteria to demonstrate mastery of the Unit.

Cumulative Project: "Big Problems Class Book"

Students will create, illustrate and solve their own two-question 3-digit addition and subtraction story problems.

Students should identify, in writing, which strategies they used to solve their problems.

Students work should be collected and bound together in a class book.

-Unit test.					
<b>Resources:</b>					
enVision Math					
Literacy:					
17 Kings and 42 Elep	phants_by Marga	ret Mahy			
Shark Swimathon_by	Stuart J. Murphy	1			
Lights Out! By Lucil	le Recht Penner				
Coyotes All Around	oy Stuart J. Murp	hy			
Online State resour	ces				
http://www.p21.org/i	index.php?option	=com_content&task=view	&id=254&Itemid=119		
http://www.iste.org/s	standards/nets-for	r-students.aspx			
Links:					
www.pearsonsuccessr	net.com				
www.nlvm.usu.edu/					
www.coolmath4kids	.com				
www.aplusmath.com	n/				
www.kidsnumbers.co	om				
www.factmonster.co	m				
www.oswego.org/oc	sd-web/games/M	lathmagician/cathymath.htm	nl		
www.primarygames.	com/fractions/sta	art.htm			
http://www.harcourts	school.com/think	math/index.html			
<b>Topic/ Selection</b>	Suggested	General Objectives	Instructional	Suggested	New Jersey Student
	Timeline per		Activities	Benchmarks/	Learning Standards
	topic			Assessments	
Adding Multiples	1 day	Students will mentally	Review (using the	-Performance	Math:
of 100 to a Three-		add multiples of 100 to	document camera and	task:	2.NBT.7,8,9
Digit Number		a three-digit number.	Smartboard, Smart	Mentally add	Technology:
			Exchange activities,	hundreds to a 3-	8.1.2.A.5
			bulletin board sets, etc.)	digit number to	
			adding multiples of 100	find the sum.	
			and practice.	-Independent	
				practice	

				-Centers	
				-Teacher	
				observation	
				-Teacher	
				created "quick"	
				assessment	
				-Leveled	
				homework	
Adding Three-Digit	2 days	Students will implement	Demonstrate (using the	-Performance	Math:
Numbers		the use of the expanded	document camera and	task:	2.NBT.7,8,9
		algorithm in order to	Smartboard, Smart	Show addition	Technology:
		add two 3-digit	Exchange activities,	using the	8.1.2.A.5
		numbers.	bulletin board sets, etc.)	expanded	
			how to add two three-	algorithm.	
			digit numbers by	-Independent	
			finding the sum of each	practice	
			place value and adding	-Centers	
			them together for a	-Teacher	
			final sum.	observation	
				-Teacher	
				created "quick"	
				assessment	
				-Leveled	
				homework	
Adding Two Three-	2 days	Students will add two	Review and	-Performance	Math:
Digit Numbers with		three-digit numbers.	demonstrate (using the	task:	2.NBT.7,9
and Without			document camera and	Find the sum of	Technology:
Regrouping			Smartboard, Smart	two three-digit	8.1.2.A.5
			Exchange activities,	numbers.	
			bulletin board sets, etc.)	-Independent	
			strategies for adding	practice	
			three-digit numbers.	-Centers	

				-Teacher	
				observation	
				-Teacher	
				created "quick"	
				assessment	
				-Leveled	
				homework	
Strategies for	4 days	Students will implement	Demonstrate (using the	-Performance	Math:
Subtracting Three-		various strategies to find	document camera and	task:	2.NBT.7,8,9
Digit Numbers		the difference of two	Smartboard, Smart	Find the	Technology:
		three-digit numbers.	Exchange activities,	difference of	8.1.2.A.5
			bulletin board sets, etc.)	two three-digit	
			strategies for	numbers.	
			subtracting two three-	-Independent	
			digit numbers: counting	practice	
			back, part-part-whole,	-Centers	
			standard algorithm.	-Teacher	
				observation	
				-Teacher	
				created "quick"	
				assessment	
				-Leveled	
				homework	
Use Logical	2 days	Students will use clues	Demonstrate (using the	-Performance	Math:
Reasoning to Solve		to identify a specific	document camera and	task:	2.NBT.7
Problems		number from a set.	Smartboard, Smart	Find the	
			Exchange activities,	difference of	Technology:
			bulletin board sets, etc.)	two three-digit	8.1.2.A.5
			how when given a set	numbers.	
			of numbers,	-Independent	
			information can be used	practice	
			to eliminate numbers	-Centers	
			which cannot be added		

			together to find a sum within a given range.	-Teacher observation -Teacher created "quick" assessment -Leveled homework	
Review and Summative Assessment	6 days	Students will demonstrate comprehension of concepts taught throughout the unit.	Review concepts, introduce cumulative project and give guidelines, administer test, and present projects.	Review and Summative Assessment	Math: 2.OA.1, 2.NBT.5,6,7,8,9 ELA-Literacy.RI.2.1

## Suggested Modifications for Special Education, English Language Learners and Gifted Students:

Modifications should be consistent with 504s and IEPs. Enrichment/extension activities should be provided for advanced learners: larger amounts, written explanations, projects. Material and instruction should be modified for below level learners and ELL: vocabulary cards, manipulatives, touch points, larger fonts, fewer items in sets, smaller numbers, number lines.

Suggested Technological Innovations/ Use:

## Smartboard and document camera, ipads, ChromeBooks, Smart Exchange, Brainpop Jr., etc.

**Cross Curricular/ 21st Century Connections:** 

9.1 21<sup>st</sup> Century Life and Career Skills: All students will demonstrate the creative, critical thinking, collaboration, and problemsolving skills needed to function successfully as both global citizens and workers in diverse ethnic and organizational cultures. The strategies included in this unit help to provide students with the understanding that there is more than one way to solve problem. One of the goals is that students will learn to be flexible in situations when they are working with others who may have a different approach to solving a problem.

## Unit 9: Money

**Summary of the Unit:** In this unit, students will learn the essentials of working with money. They will learn to identify each coin and its value, determine the value of mixed coins and dollar bill amounts, and use the dollar and cents signs correctly. They will also understand that money amounts can be represented using different combinations of coins and dollars, and they will solve problems involving money. The unit culminates with a project that includes all of these concepts, as well as writing for math. The approximate scope of this unit is 12 days.

#### **Enduring Understanding:**

- Specific coins or bills each have a unique value. The size of a coin does not indicate its value.
- Money amounts can usually be counted in different ways. When counting money, it is usually easier to start with the coinor bill with the greatest value.
- The amount of money can often be represented using different combinations of coins and bills.
- The process for adding and subtracting money, written using dollar and cent notations, is the same as adding or subtracting **Essential Questions:** 
  - How and why should I order a set of money in order to find the total value?
  - How many different ways can I show a particular amount of money?
  - Why is it important for me to understand these concepts for your everyday life?

Summative Assessment and/ or Summative Criteria to demonstrate mastery of the Unit.

-Cumulative Project: "Bella's Italian Restaurant" (example)

Students choose their favorite ethnic food, and create a menu of items from this region.

Each menu should include a list of beverages, main course meals, and desserts. All items should be priced using correct place value and money symbols. Students create five different customer's bills which show a beverage, a main course meal, and a dessert. All items' prices should be listed on the bill and then totaled to show the full amount of the meal. The bills should then show how much money was used to pay, and the correct amount of change due to each customer. -Unit test

## **Resources:**

enVision Math						
Literacy:						
Alexander Who US	sed To Be Ricl	h Last Sunday by Judi	th Viorst			
Dinosaur Deals by	y Stuart J. Mu	rphy				
<i>The Penny Pot</i> by	Stuart J. Murp	ohy				
<b>Online State reso</b>	urces	-				
http://www.p21.or	g/index.php?c	ption=com_content&	task=view&id=254&Item	id=119		
http://www.iste.or	g/standards/ne	ets-for-students.aspx				
Links:	<u></u>	<u> </u>				
www.pearsonsucce	ssnet.com					
www.nlvm.usu.ed	u/					
www.coolmath4ki	ds.com					
www.aplusmath.c	om/					
www.kidsnumbers	s.com					
www.factmonster.	com					
www.oswego.org/	ocsd-web/gan	nes/Mathmagician/cat	hymath.html			
www.primarygam	es.com/fractio	ns/start.htm				
http://www.harcou	irtschool.com/	thinkmath/index.htm	L			
www.pearsonsucc	essnet.com					
<b>Topic/ Selection</b>	Suggested	General	Instructional	Suggested Benchmarks/	New Jersey	
	Timeline	Objectives	Activities	Assessments	Student	
	per topic				Learning	
					Standards	
Identifying	1 day	Students will	Display and discuss	-Performance task:	Math:	
Coins		identify the value	attributes and values of		2.MD.8	

		of coins, separately and in groups, including half-dollars, quarters, dimes, nickels, and pennies.	each coin (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.).	Identify the name and value of each coin. -Independent practice -Centers -Teacher observation -Teacher created "quick" assessment -Leveled homework	Technology: 8.1.2.A.5
Counting Coins	1 day	Students will be able to order and find the sum of a collection of coins including half- dollars, quarters, dimes, nickels, and pennies	Demonstrate (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) ordering a group of coins from greatest to least value and adding on to find the total.	<ul> <li>-Performance Task:</li> <li>Order coins and add on to find the total value.</li> <li>-Independent practice</li> <li>-Centers</li> <li>-Teacher observation</li> <li>-Teacher created "quick" assessment</li> <li>-Leveled homework</li> </ul>	Math: 2.MD.8 Technology: 8.1.2.A.5
Ways to Show the Same Amount	2 days	Students will group different sets of coins to show the same amount of money.	Display (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) a set of coins and count its value. Demonstrate how a coin can be replaced with others and not change value of the original set. Repeat the activity using different money amounts up to a dollar.	<ul> <li>-Performance Task: Draw different combinations of coins for the same amount of money.</li> <li>-Independent practice</li> <li>-Centers</li> <li>-Teacher observation</li> <li>-Teacher created "quick" assessment</li> <li>-Leveled homework</li> </ul>	Math: 2.MD.8 Technology: 8.1.2.A.5

Counting and Writing Dollars and Cents	1 day	Students will count money amounts greater than one dollar, and write the amount using a dollar sign and decimal point.	Show (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) a group of money using a dollar bill and coins. Model ordering and counting money from greatest to least value. Demonstrate proper use of dollar sign and decimal point rather than the cents symbol.	<ul> <li>-Performance Task:</li> <li>Count money and write the total amount using a dollar sign and decimal point.</li> <li>-Independent practice</li> <li>-Centers</li> <li>-Teacher observation</li> <li>-Teacher created "quick" assessment</li> <li>-Leveled homework</li> </ul>	Math: 2.MD.8
Adding Money Amounts	1 day	Students will calculate the sum of money amounts with dollars and cents using the correct symbols.	Create a classroom store. Using priced items, students select two items for the teacher to buy. The teacher demonstrates how to arrange the money amounts as an addition problem, keeping the place values and money symbols aligned, and writing the sum properly.	<ul> <li>-Performance Task:</li> <li>Choose items to purchase and record items, prices, and totals.</li> <li>-Independent practice</li> <li>-Centers</li> <li>-Teacher observation</li> <li>-Teacher created "quick" assessment</li> <li>-Leveled homework</li> </ul>	Math: 2.MD.8
Subtracting Money Amounts	1 day	Students will subtract money amounts with dollars and cents	Create a classroom store. Using priced items, students select two items for the teacher to buy. The	-Performance Task: Choose an item to purchase and find the correct amount of change from their "allowance." Record items, prices, and differences.	Math: 2.MD.8

		using the correct symbols.	teacher demonstrates how to arrange the money amounts as a subtraction problem, placing the larger amount on top, keeping the place values and money symbols aligned, and writing the difference properly.	-Independent practice -Centers -Teacher observation -Teacher created "quick" assessment -Leveled homework	
Review and Summative Assessment	5 days	Students will demonstrate comprehension of concepts taught throughout the unit	Review concepts, introduce cumulative project and give guidelines, administer test, and present projects	Review and Summative Assessment	Math: 2.MD.8 ELA- Literacy.RI.2.1

Suggested Modifications for Special Education, English Language Learners and Gifted Students:

Modifications should be consistent with 504s and IEPs. Enrichment/extension activities should be provided for advanced learners: larger money amounts, written explanations, projects. Material and instruction should be modified for below level learners and ELL: vocabulary cards, manipulatives, touch points, larger fonts, and fewer items.

## Suggested Technological Innovations/ Use:

Smartboard and document camera, ipads, ChromeBooks, Smart Exchange, Brainpop Jr., etc.

## Cross Curricular/ 21st Century Connections:

9.1 21<sup>st</sup> Century Life and Career Skills: All students will demonstrate the creative, critical thinking, collaboration, and problemsolving skills needed to function successfully as both global citizens and workers in diverse ethnic and organizational cultures. The activities included in this unit expose students to real life situations related to employment, everyday living and cultural diversity.

## Unit 10: Time, Data, and Graphing

**Summary of the Unit:** In this unit, students will learn the essentials of telling time, and collecting, organizing, and analyzing data. They will learn to tell time on digital and analog clocks, as well as the many ways to say the time shown on a clock. They will recognize that data collected can be shown in different ways, but still provide the same information. The unit culminates with a project that includes all of these concepts, as well as writing for math. The approximate scope for this unit is 13 days.

#### **Enduring Understanding:**

- Time can be given to the nearest five minutes. Time can be expressed using different units that are related to each other. A.M. and P.M. are used to designate certain time periods.
- Time can be expressed before or after the hour.
- Data can be organized in different ways.
- The lengths of objects can be organized in different ways. A line plot can be used as a visual representation of the relative lengths of objects.
- Each type of graph is most appropriate for certain kinds of data. Pictographs and bar graphs make it easy to compare data.

## **Essential Questions:**

- When and why do we need to know how to tell the time on digital and analog clocks?
- How would our lives change without using time as a reference?
- Why is knowing how to gather data and record the information on graphs useful?

**Summative Assessment and/ or Summative Criteria to demonstrate mastery of the Unit.** -Cumulative Project: "Our Class's Daily Life"

Collect data about each student's daily schedule. For example, what time they wake up, do homework, have dinner, brush their teeth, and go to bed.

Students record their individual times on a data sheet.

The class shares their schedules with each other, and each child records tally marks on a graph specific to each task, showing how

many students perform each task at a particular time.

Tally charts can then be transformed into either a pictograph, or a bar graph.

Students write a report about their data project.

-Unit test

#### **Resources:**

enVision Math					
Literacy:					
What Time Is It? by	Sheila Keenan				
Super Sand Castle S	<i>aturday</i> by Stu	art J. Murphy			
It's About Time by S	tuart J. Murph	y			
Online State resour	ces				
http://www.p21.org/	index.php?opti	on=com content&tasl	x=view&id=254&Itemid=119		
http://www.iste.org/	standards/nets-	for-students.aspx			
Links:		ior our official offi			
www.pearsonsuccess	net.com				
www.nlvm.usu.edu/					
www.coolmath4kids	com				
www.anlusmath.con	n/				
www.kidsnumbers.com	om				
www.factmonster.co	m				
www.nactinonster.co	nn ad wab/gamas	Mathmagician / asthum	aeth html		
www.oswego.org/oc	su-web/games	/wiatimagician/camyn	laui.iiuiii		
www.printarygames			Instructional Activities	C	N
Topic/ Selection	Suggested	General	Instructional Activities	Suggested	New Jersey
	Timeline	Objectives		Benchmarks/	Student
	per topic			Assessments	Learning
					Standards
Telling Time to	2 days	Students will	Display the numbers on a	-Performance task:	Math: 2.MD.7
Five Minutes		associate numerals	clock as a straight number	Show and write times	
		on an analog clock	line which skip counts by	on a clock.	

		face with increments of five minutes.	fives. The number line should show how the numerals 1-12 on a clock are associated with the numbers 5-60/00. Use a model clock (and individual student clocks) to show different times. Count together to identify the time shown.	-Independent practice -Centers -Teacher observation -Teacher created "quick" assessment -Leveled homework	
Telling Time Before and After the Hour	2 days	Students will read and express time in terms of quarter and half past an hour and before an hour.	Create student clocks. Partition clocks into quarters and halves. Identify numbers and minutes at the end of each part. Discuss and practice use of vocabulary and written expression for times before and after the hour.	<ul> <li>-Performance task:</li> <li>Show and write times before and after an hour on a clock.</li> <li>-Independent practice</li> <li>-Centers</li> <li>-Teacher observation</li> <li>-Teacher created</li> <li>"quick" assessment</li> <li>-Leveled homework</li> </ul>	Math: 2.MD.7 Technology: 8.1.2.A.5
Organizing Data	4 days	Students will represent a set of data in a tally chart, bar graph, pictograph and line plot.	<ul> <li>Day 1: Take a class survey on the Smartboard, allowing students to choose an item from a set to cast their vote.</li> <li>Arrange survey results on a tally chart. Analyze results.</li> <li>Day 2: Use data collected on Day 1 to create a bar graph.</li> <li>Analyze results, and compare graphs.</li> <li>Day 3: Use data collected on Day 1 to create a pictograph</li> </ul>	-Performance task: Display data on various graphs. -Independent practice -Centers -Teacher observation -Teacher created "quick" assessment -Leveled homework	Math: 2.MD.10 Technology: 8.1.2.A.5

		using each symbol to represent one, then two votes. Analyze results and compare graphs. Day 4: Use data collected on Day 1 to create a line plot. Analyze results and compare graphs.	
Review and 5 days	S Students will	Review concepts, introduce	Review and
		cumulative project and give	
Assessment	comprehension of	guidelines, administer test,	Assessment
	concepts taught	and present projects.	
	throughout the unit.		

Suggested Modifications for Special Education, English Language Learners and Gifted Students:

Modifications should be consistent with 504s and IEPs. Enrichment/extension activities should be provided for advanced learners: larger survey results, written explanations, projects. Material and instruction should be modified for below level learners and ELL: vocabulary cards, manipulatives, smaller survey results, larger fonts, and fewer items.

## Suggested Technological Innovations/ Use:

Smartboard and document camera, ipads, ChromeBooks, Smart Exchange, Brainpop Jr., etc.

## Cross Curricular/ 21st Century Connections:

9.1 21<sup>st</sup> Century Life and Career Skills: All students will demonstrate the creative, critical thinking, collaboration, and problemsolving skills needed to function successfully as both global citizens and workers in diverse ethnic and organizational cultures. The activities included in this unit enrich writing in the math classroom, as well as broaden students' understanding of the diversity among their classmates. The activities also help them acquire the research and organizational skills necessary for a successful future.

## Unit 11: Geometry

**Summary of the Unit:** In this unit, students will be taught the study of shapes in space and spatial relationships. Being in their visual level of development, tactile and visual exploration of shapes in this unit will help with the students' understanding of geometry in their environment. This is important because it offers students to opportunities to relate math to the real world, as spatial ability is related to problem solving ability. The unit culminates with a project that includes all of these concepts, as well as writing for math. The approximate scope of this unit is 13 days.

#### **Enduring Understanding:**

- Three-dimensional or solid figures have length, width, and height. Many can be described, classified, and analyzed by their faces or flat surfaces, edges, and vertices. Many everyday objects closely approximate standard geometric solids.
- A shape can be identified by the number of its sides, vertices, angles.
- Some shapes can be combined to make new shapes. Some shapes can be decomposed into other shapes.
- Rectangles can be partitioned into equal squares.
- A region can be divided into equal-sized parts in different ways. Equal-sized parts of a region have the same area but not necessarily the same shape.

#### **Essential Questions:**

- How does knowing about shapes help you interact with your world?
- How can structures be created by combining other shapes?
- How can the shapes which form a structure be identified?

Summative Assessm	ent and/ or S	ummative Criteria to d	emonstrate mastery of the Unit.			
-Cullulative Floject:						
Students will glue the	niougn magaz	nestar and identify the a	happed and their attributes	of both plane and solid i	iguies.	
Unit test	e pictures to a	poster, and identify the s	hapes and then attributes.			
-Omt test.						
Kesources:						
en Vision Math						
Literacy:						
Captain Invincible an	id the Space Si	hapes by Stuart J. Murph	ny			
All About Shapes by	Irene Yates					
Give Me Half by Stua	art J. Murphy					
Online State resour	ces:					
http://www.p21.org/1	ndex.php?opti	on=com_content&task=	view&id=254&Itemid=119			
http://www.iste.org/s	tandards/nets-	for-students.aspx				
Links:						
www.pearsonsuccessn	et.com					
www.nlvm.usu.edu/						
www.coolmath4kids	com					
www.aplusmath.com	/					
www.kidsnumbers.co	om					
www.factmonster.com	m					
www.oswego.org/ocs	sd-web/games/	Mathmagician/cathymat	h.html			
www.primarygames.	com/fractions/	start.htm				
http://www.harcourts	chool.com/thi	nkmath/index.html				
<b>Topic/ Selection</b>	Suggested	General Objectives	Instructional Activities	Suggested	New	
	Timeline			Benchmarks/	Jersey	
	per topic			Assessments	Student	
					Learning	
					Standards	
Faces, Vertices, and	1 day	Students will explore	Define and discuss terms.	-Performance task:	Math: 2.G.1	
Edges		solid figures and	Display (using the document	Identify and count	Technology	
		identify them by the	camera and Smartboard, Smart	faces, vertices and	: 8.1.2.A.5	
		amount of faces,	Exchange activities, bulletin	edges on geometric		
		vertices, and edges.	board sets, solid figures, etc.)	solids.		

Relating Plane Shapes to Solid Figures Polygons and Angles	1 day 1 day	Students will explore and identify the plane shapes that form the flat surfaces of solid figures. Students will explore, identify and draw polygons, and list their attributes.	solid figures and discuss attributes of each. Define and discuss terms. Demonstrate (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) how when you trace around the edges of face on a 3- dimensional figure, a plane shape can be seen. Define and discuss terms. Discuss and display (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) polygons and their attributes.	<ul> <li>-Independent practice</li> <li>-Centers</li> <li>-Teacher observation</li> <li>-Teacher created</li> <li>"quick" assessment</li> <li>-Leveled homework</li> <li>-Performance task:</li> <li>Identify plane shapes</li> <li>that form the faces of</li> <li>geometric solids.</li> <li>-Independent practice</li> <li>-Centers</li> <li>-Teacher observation</li> <li>-Teacher created</li> <li>"quick" assessment</li> <li>-Leveled homework</li> <li>-Performance task:</li> <li>Identify polygons and</li> <li>their attributes.</li> <li>-Independent practice</li> <li>-Centers</li> <li>-Teacher observation</li> <li>-Teacher observation</li> <li>-Teacher created</li> <li>"quick" assessment</li> <li>-Leveled homework</li> </ul>	Math: 2.G.1 Technology : 8.1.2.A.5 Math: 2.G.1 Technology : 8.1.2.A.5
Making New Shapes	1 day	Students will combine shapes together to make new shapes, (trapezoids, parallelograms, and hexagons), and identify the number	Define and discuss terms. Demonstrate (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, pattern blocks, etc.) how some	-Leveled homework -Performance task: Create new shapes and identify their attributes. -Independent practice -Centers Teacher observation	Math: 2.G.1 Technology : 8.1.2.A.5

		of sides and vertices in each shape.	shapes can be put together to create new shapes.	-Teacher created "quick" assessment -Leveled homework	
Cutting Shapes Apart	1 day	Students will separate a shape to create new shapes.	Demonstrate (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, pattern blocks, etc.) how some shapes can be separated to create new shapes.	<ul> <li>-Performance task:</li> <li>Create new shapes and identify their attributes.</li> <li>-Independent practice</li> <li>-Centers</li> <li>-Teacher observation</li> <li>-Teacher created</li> <li>"quick" assessment</li> <li>-Leveled homework</li> </ul>	Math: 2.G.1 Technology : 8.1.2.A.5
Dividing Rectangles into Equal Squares	1 day	Students will divide rectangles into equal squares and count how many squares are needed to completely partition the rectangle.	Demonstrate (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, pattern blocks, etc.) how a rectangle can be can be separated into rows and columns of squares. Write corresponding number sentences for rows and columns.	<ul> <li>-Performance task:</li> <li>Divide rectangles and write number sentences.</li> <li>-Independent practice</li> <li>-Centers</li> <li>-Teacher observation</li> <li>-Teacher created</li> <li>"quick" assessment</li> <li>-Leveled homework</li> </ul>	Math: 2.G.2 Technology : 8.1.2.A. 5
Wholes and Equal Parts	1 day	Students will determine whether a shape has been divided into equal or unequal parts. IF the parts are equal, they will count and name the number of parts.	Define and discuss terms. Demonstrate (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, paper shapes, etc.) how a shape can be partitioned into halves, thirds, and fourths.	<ul> <li>-Performance task:</li> <li>Partition shapes to show equal parts.</li> <li>-Independent practice</li> <li>-Centers</li> <li>-Teacher observation</li> <li>-Teacher created</li> <li>"quick" assessment</li> <li>-Leveled homework</li> </ul>	Math: 2.G.3 Technology : 8.1.2.A.5

Use Reasoning	1 day	Students will use clues to solve riddles about plane shapes and solid figures.	Share clues about attributes of plane and solid figures and have students choose the figure being described in a set.	<ul> <li>-Performance task:</li> <li>Choose a figure</li> <li>based on a</li> <li>description.</li> <li>-Independent practice</li> <li>-Centers</li> <li>-Teacher observation</li> <li>-Teacher created</li> <li>"quick" assessment</li> <li>-Leveled homework</li> </ul>	Math: 2.G.1		
Review and Summative Assessment	5 days	Students will demonstrate comprehension of concepts taught throughout the unit.	Review concepts, introduce cumulative project and give guidelines, administer test, and present projects.	Review and Summative Assessment	Math: 2.G.1,2,3 ELA- Literacy.RI. 2.1		
Suggested Modifications for Special Education, English Language Learners and Gifted Students: Modifications should be consistent with 504s and IEPs. Enrichment/extension activities should be provided for advanced learners:							
www.ttom.ov.nlonotiona	a a star a ti a st	less mature stice of changes	main a more les musicate Material et	ad in stars at an about d ba	medified for		

written explanations, construction/deconstruction of shapes using puzzles, projects. Material and instruction should be modified for below level learners and ELL: vocabulary cards, manipulatives, and larger fonts, fewer items in sets, real life items, and geometric solids.

Suggested Technological Innovations/ Use:

Smartboard and document camera, ipads, ChromeBooks, Smart Exchange, Brainpop Jr., etc.

Cross Curricular/ 21st Century Connections:

9.1 21<sup>st</sup> Century Life and Career Skills: All students will demonstrate the creative, critical thinking, collaboration, and problemsolving skills needed to function successfully as both global citizens and workers in diverse ethnic and organizational cultures. Developing children's geometric concepts and spatial sense is beneficial to them in other areas of math and the real world.

## Unit 12: Measurement

**Summary of the Unit:** In this unit, students will learn the essentials of measurement. They will learn to measure objects using different units. They will recognize that measurements can be taken and shown in different ways, but still provide the same information. The unit culminates with a project that includes all of these concepts, as well as writing for math. The approximate scope of this unit is 14 days.

#### **Enduring Understanding:**

- The length of some objects is measureable.
- The length of any object can be used as a measurement unit for length, but a standard unit, such as an inch or centimeter, is always the same length.
- The length of any object can be used as a measurement unit for length, but a standard unit is always the same length.
- Measurement is a process of comparing a unit to the object being measured. The length of any object can be used as a measurement unit for length.
- Measurements in the same unit like inches can be added or subtracted in the same way as adding and subtracting whole numbers. The measurement unit needs to be written with the sum or difference.
- The length of two objects can be compared by subtracting to find the difference.

## **Essential Questions:**

- If you wanted to build your own playground, how would figure out how much space you had, and how many pieces of equipment would fit in your playground?
- How would you calculate different type of measurements without a ruler?
- Why is it important to know how to convert units of measurement?

Summative Assessment and/ or Summative Criteria to demonstrate mastery of the Unit. -Cumulative Project: "Rooms in My Home" Students will choose three rooms in their home. Students will find the perimeter of each room. Students will convert measurement to different units and discuss which units require more and fewer to measure. Students will compare the sizes of each room, explaining how they know how to order the room from largest to smallest. Students write a report about their measurement projects. -Unit test						
Resources:						
enVision math						
Literacy:						
Measuring Penny by	Loreen Leedy					
Online State resource	ces		11 0540 L 11 110			
http://www.p21.org/i	ndex.php?option	n=com_content&task=view&	tid=254 & Item $tid=119$			
http://www.iste.org/s	tandards/nets-for	r-students.aspx				
Links:						
www.pearsonsuccessn	let.com					
www.nivm.usu.edu/						
www.cooimatn4Kids.						
www.apiusmatn.com	/					
www.kiusnumbers.co						
www.factmonster.col	$\mathbf{II}$	Lathmaniaian (aathymath htm				
www.oswego.org/ocs	su-wed/games/M	authagician/catnymatn.htm	l			
www.primarygames.	com/fractions/sta					
Topic/ Selection	Suggested	General Objectives	Instructional	Suggested	New Jersev	
- Pier Serverion	Timeline ner	Jeen of the state	Activities	Benchmarks/	Student	
	topic			Assessments	Learning	
	··· <b>r</b> ··				Standards	
Exploring Length	1 day	Students will measure the	Demonstrate (using	-Performance Task:	Math: 2.MD.1	
		length of objects using	the document	Measure objects using	Technology:	
		nonstandard units	camera and	nonstandard units, and	8.1.2 A 5	

			Smartboard, Smart Exchange activities, bulletin board sets, etc.) how to measure items using various classroom objects instead of standard units of measure	record objects and lengths. -Independent practice -Centers -Teacher observation -Teacher created "quick" assessment -Leveled homework	
Inches	1 day	Students will estimate and measure items using an inch ruler.	Demonstrate (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) how to measure classroom objects using an inch ruler.	<ul> <li>-Performance Task: Measure objects using an inch ruler, and record objects and lengths.</li> <li>-Independent practice</li> <li>-Centers</li> <li>-Teacher observation</li> <li>-Teacher created "quick" assessment</li> <li>-Leveled homework</li> </ul>	Math: 2.MD.1, 2.MD.3 Technology: 8.1.2.A.5
Centimeters and Meters	2 days	Students will estimate and measure length and height using a centimeter ruler and meter stick.	Demonstrate (using the document camera and Smartboard, Smart Exchange activities, bulletin board sets, etc.) how to measure classroom objects using a centimeter ruler.	<ul> <li>-Performance Task: Measure objects using a centimeter ruler meter stick, and record objects and lengths.</li> <li>-Independent practice</li> <li>-Centers</li> <li>-Teacher observation</li> <li>-Teacher created "quick" assessment</li> <li>-Leveled homework etc.)</li> </ul>	Math: 2.MD.1, 2.MD.3 Technology: 8.1.2.A.5
Inches, Feet and Yards	2 days	Students will estimate and measure items that are	Demonstrate (using the document camera and	Performance Task: Measure classroom objects using a ruler,	Math: 2.MD.3, 2.MD.1

		about an inch, foot, and	Smartboard, Smart	yard stick, and tape	Technology:
		yard.	Exchange activities,	measure and record	8.1.2.A.5
			bulletin board sets,	objects and lengths.	
			etc.) how to	-Independent practice	
			measure classroom	-Centers	
			objects using a	-Teacher observation	
			ruler, yard stick,	-Teacher created "quick"	
			and tape measure	assessment	
				-Leveled homework etc.)	
Comparing, Adding	3 days	Students will measure	Teacher will guide	-Performance Task:	Math: 2.MD.2,
and Subtracting		objects using various	students through	Find the lengths and	2.MD.4,
Units of Measure		units of measure.	measurement of	heights of classroom	2.MD.5
		Students will compare the	classroom objects	objects, and determine	
		measurement of the same	and use of	which units require more	
		objects using different	mathematical	or less to measure them.	
		units.	operations to	Find the perimeter of an	
		Students will add	compare, add, and	object.	
		distances to find	subtract	Measure and find the	
		perimeter.	measurements.	difference in length of	
		Students will subtract		two objects	
		measurements to find the		-Independent practice	
		difference of two objects'		-Centers	
		measurements.		-Teacher observation	
				-Teacher created "quick"	
				assessment	
				-Leveled homework etc.)	
Review and	5 days	Students will demonstrate	Review concepts,	Review and Summative	Math: 2.MD.1-
Summative	-	comprehension of	introduce	Assessment	5
Assessment		concepts taught	cumulative project		ELA-
		throughout the unit.	and give guidelines,		Literacy.RI.2.1
			administer test, and		-
			present projects.		

# Suggested Modifications for Special Education, English Language Learners and Gifted Students: Suggested Modifications for Special Education, English Language Learners and Gifted Students:

Modifications should be consistent with 504s and IEPs. Enrichment/extension activities should be provided for advanced learners: larger objects, conversion to other units of measure, written explanations, and projects. Material and instruction should be modified for below level learners and ELL: vocabulary cards, manipulatives, and smaller objects.

## Suggested Technological Innovations/ Use:

Smartboard and document camera, ipads, ChromeBooks, Smart Exchange, Brainpop Jr., etc.

## Cross Curricular/ 21st Century Connections:

9.1 21<sup>st</sup> Century Life and Career Skills: All students will demonstrate the creative, critical thinking, collaboration, and problemsolving skills needed to function successfully as both global citizens and workers in diverse ethnic and organizational cultures. The activities included in this unit enrich writing in the math classroom, as well as broaden students' understanding of the diversity among their classmates. The activities also help them acquire useful spatial skills and understanding.

## Cross Curricular/ 21st Century Connections:

9.1 21<sup>st</sup> Century Life and Career Skills: All students will demonstrate the creative, critical thinking, collaboration, and problemsolving skills needed to function successfully as both global citizens and workers in diverse ethnic and organizational cultures.