



K, 1st and 2nd GRADE MATH CURRICULUM

Middle Township Public Schools
216 S. Main Street
Cape May Court House, NJ 08210

Born On Date August 2017

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Acknowledgements

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Introduction

This document serves to meet all requirements of curriculum as per the Middle Township Board of Education and the New Jersey Department of Education and will serve as a guide for lesson planning. Units within the curricular framework for mathematics are designed to be taught in the order in which they are presented. Within the units, the teachers have flexibility of what order to present the standards.

Course Description

The unit design was created in line with the areas of focus for kindergarten mathematics as identified by the Common Core State Standards/New Jersey Student Learning Standards. Each unit is comprised of standards that are considered major content along with supporting content. Unit 1 begins counting and cardinality with numbers 1-10 progressing to counting up to 20 in unit 2 and counting to 100 in unit 5. Shapes and measurement is introduced in unit 2 and shape and measurement comparison and analysis will be conducted in unit 6. Composing and decomposing numbers 1-10 begins in unit 3 as a foundation for addition and subtraction in unit 4. We will continue with decomposing and comparing numbers 1-10 as well as decomposing teen numbers as a group of 10 ones and more ones in unit 5.

In Kindergarten, instructional time should focus on two critical areas: (1) representing and comparing whole numbers, initially with sets of objects; (2)

describing shapes and space. More learning time in Kindergarten should be devoted to number than to other topics.

Pacing Guide

Recommended Kindergarten Mathematics Pacing Guide				
First Marking Period	Days 1- 45			
	September 18 days	October 20 Days	November 18 days	
	Unit One- Numbers to 10		Unit Two- Geometry, Measurement, and numbers to 20	
Second Marking Period	Days 46- 90			
	November (Continued) 18 days	December 15 days	January 20 days	
	Unit Two- Continued		Unit Three- 3- Decomposing #'s 1-10 , teen numbers (11-19), comparing numbers and numerals (0-10)	
Third Marking Period	Days 91- 135			
	February 18 days	March 21 days	April 16 days	
	Unit Three- Continued	Unit Four- 4- Addition and Subtraction		Unit Five- Numbers to 100 /Compose and Decomposing teen numbers
Fourth Marking Period	Days 136-180			
	April (Continued) 16 days	May 22 days	June 12 days	
	Unit Five- Continued		Unit Six- Geometry and Measurement	

Pacing Guide

<u>UNIT TITLE</u>	<u>ENDURING UNDERSTANDINGS</u>	<u>NJSLS</u>	<u>TIMEFRAME</u>
1- Numbers to 10	<ul style="list-style-type: none"> Counting to answer “how many” questions Understanding the relationship between numbers and quantities Understand that each successive number name refers to a quantity that is 1 larger Write numbers to 0-10 to represent quantity counted. 	MA.K.K.CC.A MA.K.K.CC.A.1 MA.K.K.CC.A.3 MA.K.K.CC.B MA.K.K.CC.B.4c MA.K.K.CC.B.4 MA.K.K.CC.B.4a MA.K.K.CC.B.4b MA.K.K.CC.B.4c MA.K.K.CC.C.6	30-36 days
2- Geometry, Measurement, and numbers to 20	<ul style="list-style-type: none"> Counting to answer “how many” questions Understand the relationship between numbers and quantities Write numbers to 20 to represent quantity counted Correctly name 2D shapes Use standard and non-standard measurement tools to measure length and height Sort objects by different attributes 	MA.K.K.CC.A.3 MA.K.K.CC.B MA.K.K.MD.A.1 MA.K.K.MD.B MA.K.K.MD.B.3 MA.K.K.G.A.1 MA.K.K.G.A.2	25-35 days
3- Decomposing #'s 1-10 , teen numbers (11-19), comparing numbers and numerals (0-10)	<ul style="list-style-type: none"> Counting to answer “how many” questions Understanding the relationship between numbers and quantities Write numbers to 0-20 to represent quantity counted. Use counting ability to compare sets of objects (0-10). Students are able compare written numerals 0-10. 	MA.K.K.CC.A.3 MA.K.K.CC.B.5 MA.K.K.CC.C.6 MA.K.K.CC.C.7 MA.K.K.OA.A.3 MA.K.K.CC.A.1	26-30 days

4- Addition and Subtraction	<ul style="list-style-type: none"> • Represent addition/subtraction with objects • Add and subtract fluently within 5 	MA.K.K.OA.A.1 MA.K.K.OA.A.2 MA.K.K.OA.A.4 MA.K.K.OA.A.5	32-40 days
5- Numbers to 100 /Compose and Decomposing teen numbers	<ul style="list-style-type: none"> • Patterns of numbers help when counting. • There are different ways to count (ones, tens) • Numbers have patterns. • Written numbers represent an amount. • Teen numbers are composed of a group of 10 ones and more ones. • When breaking apart a set (decomposing) a smaller set of objects exists within the larger set. 	MA.K.K.CC.A.1 MA.K.K.NBT.A.1 MA.K.K.CC.A.2 MA.K.K.CC.B.4a MA.K.K.CC.B.4c	24-30 days
6- Geometry and Measurement	<ul style="list-style-type: none"> • That a shape has the same name regardless of its orientation and size. (An upside down triangle is still a triangle.) • Shapes can be 2 dimensional, flat or 3 dimensional, solid. • Components of one shape can be used to create another shape. 	MA.K.K.G.A.1 MA.K.K.G.A.2 MA.K.K.G.A.3 MA.K.K.G.B.4 MA.K.K.G.B.5 MA.K.K.G.B.6 MA.K.K.MD.A.1. MA.K.K.MD.A.2 MA.K.K.MD.B.3	10-16 days

Content Area:	Math	Grade(s) Kindergarten
Unit Plan Title:	Unit 1 Numbers to 10	
Overview/Rationale		
Solidify meaning of numbers to 10. Represent numbers from 0-10 using fingers, counters, and drawing in order to progress to comparing numbers and representing addition and subtraction.		
Standard(s) Number and Description		
<p>MA.K.K.CC.A - Know number names and the count sequence.</p> <p>MA.K.K.CC.A.1 -- Count to 100 by ones and by tens.</p> <p>MA.K.K.CC.A.3 - Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).</p> <p>MA.K.K.CC.B - Count to tell the number of objects</p> <p>MA.K.K.CC.B.4c - Understand that each successive number name refers to a quantity that is one larger.</p> <p>MA.K.K.CC.B.4 - Understand the relationship between numbers and quantities; connect counting to cardinality.</p> <p>MA.K.K.CC.B.4a - When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.</p> <p>MA.K.K.CC.B.4b - Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.</p> <p>MA.K.K.CC.B.4c - Understand that each successive number name refers to a quantity that is one larger.</p> <p>MA.K.K.CC.C.6 - Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.</p>		
Math Practice Standards Number and Description		
<p>MA.K12.2- Reason abstractly and quantitatively.</p> <p>x MA.K-12.3 - Construct viable arguments and critique the reasoning of others.</p> <p>MA.K-12.4 - Model with mathematics.</p> <p>MA.K-12.5 - Use appropriate tools strategically.</p> <p>MA.K-12.7 - Look for and make use of structure.</p> <p>MA.K-12.8 - Look for and express regularity in repeated reasoning.</p>		
Technology Standard(s) Number and Description		
<p>TECH.8.1.2.A.CS1 - [Content Statement] - Understand and use technology systems.</p> <p>TECH.8.1.2.A.4 - [Cumulative Progress Indicator] - Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).</p>		
Interdisciplinary Standard(s) Number and Description		

LA.K.SL.K.1 - [Progress Indicator] - Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.

LA.K.SL.K.1.A - Follow agreed-upon norms for discussions (e.g., listening to others with care and taking turns speaking about the topics and texts under discussion).

LA.K.SL.K.3 - [Progress Indicator] - Ask and answer questions in order to seek help, get information, or clarify something that is not understood.

Enduring Understandings

The focus of this unit is to provide time to develop and practice recognizing numbers to 10 and counting in the sequence.

- Counting to answer “how many” questions
- Understanding the relationship between numbers and quantities
- Understand that each successive number name refers to a quantity that is 1 larger
- Write numbers to 0-10 to represent quantity counted.

Possible Misconceptions/misunderstandings: Students may have trouble keeping track of objects counted. Students who have not developed cardinality will have trouble making the connection to number counted and the quantity of objects. Students are not developmentally ready to reason abstractly; they may believe they have more objects if pile is rearranged.

Essential Questions :

What are some different strategies we can use to count?

How can you figure out what number comes next?

What are some strategies we can use count objects and match them to a number?

How can I figure out how many objects will there be if I add more to the set?

How can we figure out how many objects we have?

How do you know how many you have?

21st Century Connections:

<div> <div>Check all that apply.</div> <div>21st Century Interdisciplinary Themes</div> </div>		<div> <div>Indicate whether these skills are <i>E</i>-Encouraged, <i>T</i>-Taught, and/or <i>A</i>-Assessed in this unit by marking <i>E</i>, <i>T</i>, <i>A</i> in the box before the appropriate skill.</div> <div>21st Century Skills</div> </div>	
<div> <div>x</div> <div>Global Awareness</div> </div>		<div> <div>E</div> <div>Critical Thinking and Problem Solving</div> </div>	
<div> <div>x</div> <div>Environmental Literacy</div> </div>		<div> <div>E</div> <div>Creativity and Innovation</div> </div>	

	Health Literacy	E, T	Communication and Collaboration
	Civic Literacy	E	Flexibility and Adaptability
x	Financial, Economic , Business and Entrepreneurial Literacy	E, T, A	Initiative and Self-Direction
		E	Social and Cross-Cultural Skills
		E	Productivity and Accountability
		E	Leadership and Responsibility
			Informational Literacy Skills
			Media Literacy Skills
			Information, Communication, and Technology (ICT) Literacy

Career Ready Practices:

Indicate whether these skills are *E*-Encouraged, *T*-Taught, or *A*-Assessed in this unit by marking *E, T, A* on the line before the appropriate skill.

		CRP1. Act as a responsible and contributing citizen and employee
	E, T, A	CRP2. Apply appropriate academic and technical skills
		CRP3. Attend to personal health and financial well-being
	E, T	CRP4. Communicate clearly and effectively with reason
		CRP5. Consider the environmental, social and economic impacts of decisions
	E	CRP6. Demonstrate creativity and innovation
		CRP7. Employ valid and reliable research strategies
	E	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them

		CRP9. Model integrity, ethical leadership, and effective management	

CRP10. Plan education and career paths aligned to personal goals

CRP11. Use technology to enhance productivity

CRP12. Work productively in teams while using cultural global competence

Student Learning Goals/Objectives:

- To recognize number names and the count sequence to 10.
- To write numbers 0-10 to represent a number of counted objects.
- To count to tell the number of objects to 10.
- To understand that each successive number name refers to a quantity that is 1 larger.
- To understand the relationship between counting and quantities.
- To pair the number counted to one name.
- To compare quantities of groups up to 10.

- Student will be able to recognize and name numbers 0-10 in random order and put in correct sequence.
- Students will be able to count a group of objects up to 10 (counters, cubes...) and write the corresponding number.
- Given a number between 0 and 10 students can locate the number and tell what number comes before and after.
- Given a number 0-10 students can count objects (cubes, counters, and drawings).
- Given two groups of objects students will count and identify which group is larger and which group is smaller.

Key Vocabulary and Terms:

Compare numbers Exactly the same, not exactly the same, and the same (ways to analyze objects to match)
Number boards and number grids
Match (group items that are the same)
One more (e.g., 4. 1 more is 5)
One less (e.g., 4. 1 less is 3)
Sequence
Ten Frames

Assessment Evidence:		
Performance Tasks: <ul style="list-style-type: none"> • Sequence numbers 0-10 • Count objects in groups up to 10 and write number to represent count. • Counting beans • Recognizing and locating numbers on number line/number grid. • Counting/matching games: matching numbers to sets • Using white boards to draw pictures to represent numbers. • Compare groups of objects to 10 and circle the larger/smaller group. 		Other Assessment Measurements: Summative <ul style="list-style-type: none"> • Diagnostic assessments Formative <ul style="list-style-type: none"> • White board assessments • Progress monitoring • Classwork/homework • Guided practice
Teaching and Learning Actions: (What learning experiences and instruction will enable students to achieve the desired results?)		
Title	Description with Modifications, number of days, etc.	
1. Oral counting to 10 10 days- ongoing Everyday Math: 1.3, 1.4, 1.5, 1.14, 2.6 http://www.engageny.org/resource/kindergarten-mathematics http://greatminds.org/math/eureka-is-engageny	Students orally count objects *D: Lower level- counting objects to 5. Higher level- counting objects up to 15 Modifications: Lower students may need visual or physical support to count objects Modeling Songs Number grid Repeated practice in learning centers	
2. Matching numbers to sets, writing numbers 10-13 days- on going Everyday Math: 1.5, 1.12, 1.14, 2.4, 2.6, 2.7, 2.9 http://www.engageny.org/resource/kindergarten-mathematics http://greatminds.org/math/eureka-is-engageny	Students count a set of objects and demonstrate that the last said number tells the number of objects in the set. *D: Lower level- counting objects to 5. Higher level counting objects up to 15 and writing numbers to 10. Modifications: Lower level students may need visual or physical support to count objects. Modeling Multisensory counts Counting back to zero Finger counting songs and games Number games Number writing Individual/small group/whole group instruction Repeated practice in learning centers	

3. Comparing numbers

10-12 days

Everyday Math: 1.5, 1.12, 1.14, 2.4, 2.6, 2.7, 3.1

<http://www.engageny.org/resource/kindergarten-mathematics>

<http://greatminds.org/math/eureka-is-engageny>

Students compare two groups of objects and determine which group has more/less.

*D: Lower level students compare numbers 0-5. Higher-level students compare numbers up to 15.

Modifications: Lower level students may need visual or physical support to count objects in each group.

Modeling

Breaking down the task

Use of manipulatives

Individual/small group/whole group instruction

Repeated practice in learning centers.

Resources:

Kindergarten Ever Day Math

<https://www.engageny.org/resource/kindergarten-mathematics>

<https://greatminds.org/math/eureka-is-engageny>

Suggested Time Frame (Days):

30-36 days

*D – Indicates differentiation at the Lesson Level (Identify Modifications for ELL, Gifted and Talented, Basic Skills, Special Education)

Content Area:	Math	Grade(s) Kindergarten
Unit Plan Title:	Unit 2 Geometry, Measurement, and numbers to 20	
Overview/Rationale		
Solidify meaning of numbers to 20. Represent numbers from 0-20 using counters and drawings in order to progress to decomposing numbers into parts (Ex. Show 2 ways to make numbers up to 10, show teen numbers as 10’s and 1’s). Introduce and practice measuring length and height of objects to progress to comparing measurable attributes. Correctly name 2D shapes to progress to comparing measurable attributes of shapes.		
Standard(s) Number and Description		
MA.K.K.CC.A.3 - [Standard] - Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects). MA.K.K.CC.B - Count to tell the number of objects. MA.K.K.MD.A.1 - [Standard] - Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. MA.K.K.MD.B - Classify objects and count the number of objects in each category. MA.K.K.MD.B.3 - [Standard] - Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. MA.K.K.G.A.1 - [Standard] - Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to. MA.K.K.G.A.2 - [Standard] - Correctly name shapes regardless of their orientations or overall size.		
Math Practice Standards Number and Description		
MA.K-12.2 - [Standard] - Reason abstractly and quantitatively. MA.K-12.3 - [Standard] - Construct viable arguments and critique the reasoning of others. MA.K-12.4 - [Standard] - Model with mathematics. MA.K-12.5 - [Standard] - Use appropriate tools strategically. MA.K-12.7 - [Standard] - Look for and make use of structure. MA.K-12.8 - [Standard] - Look for and express regularity in repeated reasoning.		
Technology Standard(s) Number and Description		
TECH.8.1.2.A.CS1 - [Content Statement] - Understand and use technology systems. TECH.8.1.2.A.4 - [Cumulative Progress Indicator] - Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).		
Interdisciplinary Standard(s) Number and Description		
LA.K.L.K.5.C - Identify real-life connections between words and their use (e.g., note places at school that are colorful). LA.K.L.K.5.A - Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent. LA.K.SL.K.4 - [Progress Indicator] - Describe familiar people, places, things, and events and, with prompting and support, provide additional detail. SCI.K-2.5.1.2.A - [Strand] - Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing,		

and interpreting the natural and designed world.

SCI.K-2.5.2.A.1 - [Cumulative Progress Indicator] - Sort and describe objects based on the materials of which they are made and their physical properties

Enduring Understandings:

The focus of this unit is to provide time to develop and practice recognizing numbers to 20 and counting in the sequence, using measurement to describe measurable attributes of objects, and recognize and name 2D shapes.

- Counting to answer “how many” questions
- Understand the relationship between numbers and quantities
- Write numbers to 20 to represent quantity counted
- Correctly name 2D shapes
- Use standard and non-standard measurement tools to measure length and height
- Sort objects by different attributes

Possible misconceptions/misunderstandings: Students may have trouble keeping track of objects counted. Students who have not developed cardinality will have trouble making a connection to number counted and the quantity of objects. Students may not have strategies for counting objects accurately (ex. moving objects while counting). Students may lack the understanding that adding an object is one more than the previous count and will need to recount the objects each time one more is added. Students who have issues with fine motor development may have difficulty forming numbers. Number reversals may occur when writing numerals.

Essential Questions :

How can we identify shapes?

Where can we find shapes?

Can you identify household objects that are square, triangular, circle, rectangular in shape?

What do these objects have in common?

How can we compare heights?

How do we know which object is longer/shorter/about the same length?

21st Century Connections:

Check all that apply.

21st Century Interdisciplinary Themes

E

Global Awareness

Indicate whether these skills are E-Encouraged, T-Taught, and/or A-Assessed in this unit by marking E, T, A in the box before the appropriate skill.

21st Century Skills

E

Critical Thinking and Problem Solving

E	Environmental Literacy	E	Creativity and Innovation
	Health Literacy	E	Communication and Collaboration
	Civic Literacy	E	Flexibility and Adaptability
	Financial, Economic , Business and Entrepreneurial Literacy	E	Initiative and Self-Direction
		E	Social and Cross-Cultural Skills
		E	Productivity and Accountability
		E	Leadership and Responsibility
			Informational Literacy Skills
			Media Literacy Skills
			Information, Communication, and Technology (ICT) Literacy

Career Ready Practices:

Indicate whether these skills are *E*-Encouraged, *T*-Taught, or *A*-Assessed in this unit by marking *E, T, A* on the line before the appropriate skill.

E, T	CRP1. Act as a responsible and contributing citizen and employee
E, T, A	CRP2. Apply appropriate academic and technical skills
	CRP3. Attend to personal health and financial well-being
E, T	CRP4. Communicate clearly and effectively with reason
	CRP5. Consider the environmental, social and economic impacts of decisions
E	CRP6. Demonstrate creativity and innovation
	CRP7. Employ valid and reliable research strategies
E	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them

	E	CRP9. Model integrity, ethical leadership, and effective management	
		CRP10. Plan education and career paths aligned to personal goals	
	E	CRP11. Use technology to enhance productivity	
	E	CRP12. Work productively in teams while using cultural global competence	

Student Learning Goals/Objectives

<p>Students will know...</p> <ul style="list-style-type: none"> • Number names and the count sequence to 20. • Numbers 0-20 to represent a number of counted objects. • How to tell the number of objects to 20. • Names of 2D shapes. • How to use tools to measure and describe length and height of objects. • How to sort objects into categories by attribute. 	<p>Students will be able to (do)...</p> <ul style="list-style-type: none"> • Recognize and name numbers 0-20 in random order and put in correct sequence. • Count a group of objects up to 20 (counters, cubes...) and write the corresponding number. • Correctly name 2D shapes regardless of their size or orientation. • Use standard and non-standard units of measurement to describe length and height of objects. • Sort objects into groups and tell how they sorted the objects (what attributes they were sorted by).
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Key Vocabulary and Terms:

<p>Attributes</p> <p>Corners/vertices</p> <p>Length/width/height</p> <p>Measure</p> <p>Pan balance scale</p> <p>Pattern blocks</p> <p>Pattern block templates</p> <p>Position words</p> <p>Shapes</p> <p>Sort</p> <p>Teen numbers (11-19)</p> <p>Two dimensional shapes</p>

Assessment Evidence:		
Performance Tasks: ·Identify two-dimensional shapes. ·Identify and use pattern blocks. ·Sort shapes by attributes. ·Correctly use positional words. ·Draw shapes using pattern block template. ·Find objects that are shorter/longer/about the same length. ·Compare Heights. ·Measure an objects weight using a pan balance scale. ·Recognize and write teen numbers. ·Understand teen numbers are 10 + a number.		Other Assessment Measures Summative · Diagnostic assessments Formative ·White board assessments ·Progress monitoring ·Classwork/Homework ·Guided Practice
Teaching and Learning Actions: (What learning experiences and instruction will enable students to achieve the desired results?)		
Title	Description with Modifications, number of days, etc.	
1. Shapes 5-8 days Everyday Math: 1.1, 1.2, 2.1, 2.2, 4.3 http://www.engageny.org/resource/kindergarten-mathematics http://greatminds.org/math/eureka-is-engageny	Identify pattern blocks *D: Lower level students identify 4 basic shapes (circle, square, triangle, rectangle) and sort shapes. Higher-level students recognize and name all shapes and number of sides each shape has and sort shapes by different attributes. Modifications: Visual supports. Teacher prompting for sorting shapes. Shapes by feel Shapes Collages Individual/small group/whole group instruction Pattern block template Modeling Sorting by attributes Repeated practice in Learning Centers	
2. Measurement 10-13 days Everyday Math: 1.13, 2.3, 3.4, 3.7	Comparing and matching lengths with partners *D: Lower level: Provide support for measuring objects/people using nonstandard measurement Tools (cubes). Higher level students can use nonstandard tools for measurement (blocks,	

<http://www.engageny.org/resource/kindergarten-mathematics>
<http://greatminds.org/math/eureka-is-engageny>

cubes...) and use standard ruler/measuring tape to measure height and length in inches and centimeters.
 Modifications: Visual supports. Teacher assistance using measuring tools.
 Body/height comparisons
 Obstacle course using positional words
 Modeling
 Explore with Pan balance scale
 Individual/small group/whole group instruction
 Measurement with objects
 Repeated practice in learning centers

3. Teen numbers

10-13 days

Everyday Math: 2.10, 2.11, 2.12, 3.3

<http://www.engageny.org/resource/kindergarten-mathematics>
<http://greatminds.org/math/eureka-is-engageny>

Introduce numbers to 20
 Tricky teens
 *D: Lower level students may need more time with numbers to 10 before continuing with teen numbers. Higher-level students can decompose teen numbers as 10's and 1's.
 Modifications: visual supports. Teacher or partner support with counting accurately.
 Listen and do 10-19
 Modeling
 Individual/Small group/Whole class instruction
 Make a teen number with partner (10 + a number)
 Repeated practice in learning centers

Resources:

Kindergarten Everyday Math

<http://www.engageny.org/resource/kindergarten-mathematics>
<http://greatminds.org/math/eureka-is-engageny>

Suggested Time Frame:

25-35 days

*D – Indicates differentiation at the Lesson Level (Identify Modifications for ELL, Gifted and Talented, Basic Skills, Special Education)

Content Area:	Math	Grade(s) Kindergarten
Unit Plan Title:	Unit 3 Decomposing #'s 1-10 , teen numbers (11-19), comparing numbers and numerals (0-10)	
Overview/Rationale		
Solidify meaning of numbers to 20. Represent numbers as parts of the whole (decomposing) in order to progress to addition and subtraction. Comparing groups of objects (0-10) in order to develop number sense and compare numerals (0-10).		
Standard(s) Number and Description		
MA.K.K.CC.A.3 - [Standard] - Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).		
MA.K.K.CC.B.5 - [Standard] - Count to answer “how many?” questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.		
MA.K.K.CC.C.6 - [Standard] - Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.		
MA.K.K.CC.C.7 - [Standard] - Compare two numbers between 1 and 10 presented as written numerals.		
MA.K.K.OA.A.3 - [Standard] - Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., $5 = 2 + 3$ and $5 = 4 + 1$).		
MA.K.K.CC.A.1 -- Count to 100 by ones and by tens.		
Math Practice Standards Number and Description (MP1 through MP8)		
MA.K-12.1 - Make sense of problems and persevere in solving them.		
MA.K-12.2 - Reason Abstractly and quantitatively.		
MA.K-12.3 - Construct viable arguments and critique the reasoning of others.		
MA.K-12.4 - Model with mathematics.		
MA.K-12.5 - Use appropriate tools strategically.		
MA.K-12.6 - Attend to precision.		
MA.K-12.7 -Look for and make use of structure.		
MA.K-12.8 - Look for and express regularity in repeated reasoning.		
Technology Standard(s) Number and Description		
TECH.8.1.2.A.CS1 - [Content Statement] - Understand and use technology systems.		
TECH.8.1.2.A.4 - [Cumulative Progress Indicator] - Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).		
Interdisciplinary Standard(s) Number and Description		
LA.K.SL.K.1 - [Progress Indicator] - Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.		
LA.K.SL.K.1.A - Follow agreed-upon norms for discussions (e.g., listening to others with care and taking turns speaking about the topics and texts under discussion).		

LA.K.SL.K.3 - [Progress Indicator] - Ask and answer questions in order to seek help, get information, or clarify something that is not understood.

Enduring Understandings:

The focus of this unit is to provide time to develop and practice recognizing numbers to 20 and counting in the sequence and to understand that numbers can be decomposed into smaller parts. Students will understand that numbers (up to 20) represent quantities and that they can compare groups of objects (0-10) as greater than or less than.

- Counting to answer “how many” questions
- Understanding the relationship between numbers and quantities
- Write numbers to 0-20 to represent quantity counted.
- Use counting ability to compare sets of objects (0-10).
- Students are able compare written numerals 0-10.

Possible Misconceptions/misunderstandings: Students may have trouble keeping track of objects counted. Students who have not developed cardinality will have trouble making the connection to number counted and the quantity of objects. Students may recognize and name numbers 0-10 but may not understand the quantity that the numeral represents.

Essential Questions :

What are the different strategies we use to determine if a number is more or less?
How can we use a number line to find numbers and count?
What are the different ways to count by 10?
What are ways we break a number into two groups?
Which tools can we use to decompose numbers?

21st Century Connections:

Check all that apply.			Indicate whether these skills are E -Encouraged, T -Taught, and/or A -Assessed in this unit by marking E , T , A in the box before the appropriate skill.		
21 st Century Interdisciplinary Themes			21 st Century Skills		
	E	Global Awareness		E,T, A	Critical Thinking and Problem Solving
	E	Environmental Literacy		E	Creativity and Innovation
		Health Literacy		E, T	Communication and Collaboration

	Civic Literacy	E	Flexibility and Adaptability
	Financial, Economic , Business and Entrepreneurial Literacy	E	Initiative and Self-Direction
			Social and Cross-Cultural Skills
		E	Productivity and Accountability
		E	Leadership and Responsibility
			Informational Literacy Skills
			Media Literacy Skills
			Information, Communication, and Technology (ICT) Literacy

Career Ready Practices:

Indicate whether these skills are *E*-Encouraged, *T*-Taught, or *A*-Assessed in this unit by marking *E, T, A* on the line before the appropriate skill.

	E	CRP1. Act as a responsible and contributing citizen and employee
	E, T	CRP2. Apply appropriate academic and technical skills
		CRP3. Attend to personal health and financial well-being
	E, T	CRP4. Communicate clearly and effectively with reason
	E	CRP5. Consider the environmental, social and economic impacts of decisions
	E	CRP6. Demonstrate creativity and innovation
		CRP7. Employ valid and reliable research strategies
	E	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them
		CRP9. Model integrity, ethical leadership, and effective management
		CRP10. Plan education and career paths aligned to personal goals

		CRP11. Use technology to enhance productivity	
E		CRP12. Work productively in teams while using cultural global competence	

Student Learning Goals/Objectives:***Students will know....***

- How to use a ten frame.
- How to use a number bond.
- How to use a number line and number grid to compare numbers.

Students will be able to (do)...

- Compare numbers and numerals 0-10.
- Decompose numbers 1-10.
- Use a number line.
- Count by 10's.

Key Vocabulary and Terms:

Compare
Decompose numbers
More/less
Numbers bonds
Ten frames

Assessment Evidence:***Performance Tasks***

- Sequence numbers 0-20
- Count objects in groups up to 20 and write number to represent count.
- Counting beans
- Recognizing and locating numbers on number line/number grid.
- Counting/matching games: matching numbers to sets
- Using white boards to draw pictures to represent numbers.
- Compare groups of objects to 10 and circle the larger/smaller group.
- Given two numbers between 0-10 compare to tell which number is larger and which is smaller.

Other Assessment Measures**Summative**

- Diagnostic assessments

Formative

- White board assessments
- Progress monitoring
- Classwork/homework
- Guided practice

Teaching and Learning Actions: (What learning experiences and instruction will enable students to achieve the desired results?)

Title	Description with Modifications, number of days, etc.
<p>4. <i>Decompose #'s 1-10</i> 12-15 days ongoing Everyday Math: 3.8 http://www.engageny.org/resource/kindergarten-mathematics http://greatminds.org/math/eureka-is-engageny</p>	<p>Students break apart a number into two groups using various tools. *D: Lower level- decomposing numbers up to 5. Higher level- decomposing numbers greater than 10. Modifications: Lower students may need visual and physical support to decompose numbers using tools. Modeling Individual/small group/whole group instruction Number Bonds practice Ten Frame practice Repeated practice in learning centers</p>
<p>5. <i>Compare #'s 11-19</i> 12-15 days ongoing Everyday Math: 3.6, 3.9, 3.13, 3.16, 4.2, 4.1 http://www.engageny.org/resource/kindergarten-mathematics http://greatminds.org/math/eureka-is-engageny</p>	<p>Students compare teen numbers and determine which group has more/less. *D: Lower level- comparing numbers up to 10. Higher level- comparing number greater than 19. Modifications: Lower students may need visual and physical support to compare numbers 11-19 (number Modeling Individual/small group/whole group instruction number games Number line practice Repeated practice in learning centers</p>
<p>6. <i>Count by 10's</i> 2 days ongoing Everyday Math: 3.15, http://www.engageny.org/resource/kindergarten-mathematics http://greatminds.org/math/eureka-is-engageny</p>	<p>Students will use number grid to count by 10's. *D: Lower level- count with pointer on number grid. Higher level- counts by 10 beyond 110. Modifications: Lower students may need visual and physical support to count by 10's. Modeling Number grid Songs Repeated practice during calendar</p>
Resources:	
Kindergarten Everyday Math http://www.engageny.org/resource/kindergarten-mathematics http://greatminds.org/math/eureka-is-engageny	
Suggested Time Frame:	26-30 days

*D – Indicates differentiation at the Lesson Level (Identify Modifications for ELL, Gifted and Talented, Basic Skills, Special Education).

Content Area:	Math	Grade(s) Kindergarten
Unit Plan Title:	Unit 4 Addition and Subtraction	
Overview/Rationale		
Students will begin to understand the concept of addition and subtraction and that addition is adding to or putting together and that subtraction is taking away or taking from. Students need to have a basic understanding of the concept of addition and subtraction before they can progress to solving equations independently.		
Standard(s) Number and Description		
MA.K.K.OA.A.1 - [Standard] - Represent addition and subtraction up to 10 with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.		
MA.K.K.OA.A.2 - [Standard] - Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.		
MA.K.K.OA.A.4 - [Standard] - For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.		
MA.K.K.OA.A.5 - [Standard] - Demonstrate fluency for addition and subtraction within 5.		
Math Practice Standards Number and Description		
MA.K-12.1- Make sense of problems and persevere in solving them.		
MA.K-12.2- Reason Abstractly and quantitatively.		
MA.K-12.3- Construct viable arguments and critique the reasoning of others.		
MA.K-12.4- Model with mathematics.		
MA.K-12.5- Use appropriate tools strategically.		
MA.K-12.6- Attend to precision.		
MA.K-12.7-Look for and make use of structure.		
MA.K-12.8- Look for and express regularity in repeated reasoning.		
Technology Standard(s) Number and Description		
TECH.8.1.2.A.CS1 - [Content Statement] - Understand and use technology systems.		
TECH.8.1.2.A.4 - [Cumulative Progress Indicator] - Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).		
Interdisciplinary Standard(s) Number and Description		
LA.K.SL.K.1 - [Progress Indicator] - Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.		
LA.K.SL.K.1.A - Follow agreed-upon norms for discussions (e.g., listening to others with care and taking turns speaking about the topics and texts under discussion).		
LA.K.SL.K.3 - [Progress Indicator] - Ask and answer questions in order to seek help, get information, or clarify something that is not understood.		

Enduring Understandings:

Students will understand that addition means to add to or to put together. Students will understand that subtraction means to take away or to take from.

- Represent addition/subtraction with objects
- Add and subtract fluently within 5

Misconceptions/misunderstanding: Students may not understand the concept of addition as putting together and subtraction as taking away. Students may not be able to accurately count objects. Students may have difficulty understanding the concept of related symbols (+, -, and =).

Essential Questions :

What are the various means to solve a single digit addition or subtraction problem?
In what ways does a group change if you add more to the group?
In what ways does a group change if you subtract from the group?

21st Century Connections:

Check all that apply.			Indicate whether these skills are E -Encouraged, T -Taught, and/or A -Assessed in this unit by marking E , T , A in the box before the appropriate skill.		
21 st Century Interdisciplinary Themes			21 st Century Skills		
	E	Global Awareness		E, T	Critical Thinking and Problem Solving
		Environmental Literacy		E	Creativity and Innovation
		Health Literacy		E, T	Communication and Collaboration
	E	Civic Literacy		E	Flexibility and Adaptability
		Financial, Economic , Business and Entrepreneurial Literacy		E	Initiative and Self-Direction
				E	Social and Cross-Cultural Skills
				E	Productivity and Accountability
				E	Leadership and Responsibility
					Informational Literacy Skills

Media Literacy Skills

Information, Communication, and Technology
(ICT) Literacy

Career Ready Practices:

Indicate whether these skills are **E**-Encouraged, **T**-Taught, or **A**-Assessed in this unit by marking **E, T, A** on the line before the appropriate skill.

- | | |
|---------|---|
| E | CRP1. Act as a responsible and contributing citizen and employee |
| E, T, A | CRP2. Apply appropriate academic and technical skills |
| | CRP3. Attend to personal health and financial well-being |
| E | CRP4. Communicate clearly and effectively with reason |
| E | CRP5. Consider the environmental, social and economic impacts of decisions |
| E | CRP6. Demonstrate creativity and innovation |
| | CRP7. Employ valid and reliable research strategies |
| | CRP8. Utilize critical thinking to make sense of problems and persevere in solving them |
| | CRP9. Model integrity, ethical leadership, and effective management |
| | CRP10. Plan education and career paths aligned to personal goals |
| | CRP11. Use technology to enhance productivity |
| | CRP12. Work productively in teams while using cultural global competence |

Student Learning Goals/Objectives:

Students will know....

- Addition is putting together/more.
- Subtraction is taking apart/less.
- Various means to solve an addition problem and subtraction problem.

Students will be able to (do)...

- Solve a single digit addition or subtraction problem using various strategies and tools.
- Create verbal addition and subtraction stories

- And understand addition, subtraction, and equals symbols (+, -, =).
- How to use a function machine.

- Read and write number equations.
- Show the missing addend, using manipulatives or drawings, for sums up to 10.

Key Vocabulary and Terms:

Add
Addend
All together
Equal
Function Machine
Greater
Greater than
In all
Less
Less than
More
Minus
Number Equation
Number story
Plus
Subtract
Sum
Take away
Total

Assessment Evidence:

Performance Tasks

- Students will use drawing, counters, or finger to represent addition and subtraction
- Given an equation students will use drawings, counters, or fingers to solve addition and subtraction equations.

Other Assessment Measures

Summative

- Diagnostic assessments

Formative

- White board assessments
- Progress monitoring
- Classwork/homework

- Guided practice

Teaching and Learning Actions: (What learning experiences and instruction will enable students to achieve the desired results?)

Title

Consider how will the design will

Description with Modifications, number of days, etc.

7. Addition

16-20 days ongoing

Everyday Math: 4.4 , 4.8, 4.15, 6.9, 7.2, 7.3, 7.12

<http://www.engageny.org/resource/kindergarten-mathematics>

<http://greatminds.org/math/eureka-is-engageny>

Students will understand addition as putting together and adding to.
 *D: Lower level- adding within 5. Higher level- adding numbers greater than 10, begin mental math.
 Modifications: Lower students may need visual and physical support to add numbers.
 Modeling
 Adding games
 Number stories
 Addition poem
 Individual/small group/whole group instruction
 Repeated practice in learning centers

8. Subtraction

16-20 days ongoing

Everyday Math: 4.11, 6.11, 6.16, 7.6, 8.4, 8.5, 8.10, 8.13

<http://www.engageny.org/resource/kindergarten-mathematics>

<http://greatminds.org/math/eureka-is-engageny>

Students will understand subtraction as taking apart and taking from.
 *D: Lower level- subtracting within 5. Higher level- Subtracting numbers greater than 10, begin mental math.
 Modifications: Lower students may need visual and physical support to subtract.
 Modeling
 Subtraction games
 Linus the minus Poem
 Individual/small group/whole group instruction
 Repeated practice in learning centers

Resources:

Kindergarten Everyday Math

<http://www.engageny.org/resource/kindergarten-mathematics>

<http://greatminds.org/math/eureka-is-engageny>

Suggested Time Frame:

32-40 days

*D – Indicates differentiation at the Lesson Level (Identify Modifications for ELL, Gifted and Talented, Basic Skills, Special Education)

Content Area:	Math	Grade(s) Kindergarten
Unit Plan Title:	Unit 5 Numbers to 100 /Compose and Decomposing teen numbers	
Overview/Rationale		
Students will develop fluency with counting by ones and tens to 100. Working with teen numbers by composing and decomposing as a group of 10 ones and more ones in order to gain foundations for place value in first grade.		
Standard(s) Number and Description		
<p>MA.K.K.CC.A.1 - [Standard] - Count to 100 by ones and by tens.</p> <p>MA.K.K.NBT.A.1 - [Standard] - Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., $18 = 10 + 8$); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.</p> <p>MA.K.K.CC.A.2 - [Standard] - Count forward beginning from a given number within the known sequence (instead of having to begin at 1).</p> <p>MA.K.K.CC.B.4a - When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.</p> <p>MA.K.K.CC.B.4c - Understand that each successive number name refers to a quantity that is one larger.</p>		
Math Practice Standards Number and Description		
<p>MA.K-12.1- Make sense of problems and persevere in solving them.</p> <p>MA.K-12.2- Reason Abstractly and quantitatively.</p> <p>MA.K-12.3- Construct viable arguments and critique the reasoning of others.</p> <p>MA.K-12.4- Model with mathematics.</p> <p>MA.K-12.5- Use appropriate tools strategically.</p> <p>MA.K-12.6- Attend to precision.</p> <p>MA.K-12.7-Look for and make use of structure.</p> <p>MA.K-12.8- Look for and express regularity in repeated reasoning.</p>		
Technology Standard(s) Number and Description		
<p>TECH.8.1.2.A.CS1 - [Content Statement] - Understand and use technology systems.</p> <p>TECH.8.1.2.A.4 - [Cumulative Progress Indicator] - Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).</p>		
Interdisciplinary Standard(s) Number and Description		
<p>LA.K.SL.K.1 - [Progress Indicator] - Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.</p> <p>LA.K.SL.K.1.A - Follow agreed-upon norms for discussions (e.g., listening to others with care and taking turns speaking about the topics and texts under discussion).</p> <p>LA.K.SL.K.3 - [Progress Indicator] - Ask and answer questions in order to seek help, get information, or clarify something that is not understood.</p>		

Enduring Understandings:

The focus of this unit is to provide time to develop and practice recognizing two digit numbers and counting in sequence, composing and decomposing teen numbers.

- Patterns of numbers help when counting.
- There are different ways to count (ones, tens)
- Numbers have patterns.
- Written numbers represent an amount.
- Teen numbers are composed of a group of 10 ones and more ones.
- When breaking apart a set (decomposing) a smaller set of objects exists within the larger set.

Misconceptions/misunderstandings: Students may not understand that 10 ones is the same/ equal to a ten, and is not required until first grade. In kindergarten teen numbers are broken into a group of ten ones and more ones to represent teen numbers as a foundation to begin with place value in first grade. Students may have trouble identifying and noticing patters in numbers.

Essential Questions :

How can composing and decomposing numbers from 11-19 into tens and some help you understand place value?

How are numbers used?

What ways do we use numbers?

What ways can you represent any quantity using only digits 0-9?

21st Century Connections:

Check all that apply.

21st Century Interdisciplinary Themes

E	Global Awareness
	Environmental Literacy
	Health Literacy
	Civic Literacy
E	Financial, Economic ,

Indicate whether these skills are E-Encouraged, T-Taught, and/or A-Assessed in this unit by marking E, T, A in the box before the appropriate skill.

21st Century Skills

E, T	Critical Thinking and Problem Solving
E	Creativity and Innovation
E, T	Communication and Collaboration
E	Flexibility and Adaptability
E	Initiative and Self-Direction

	Business and Entrepreneurial Literacy

E	Social and Cross-Cultural Skills
E	Productivity and Accountability
E	Leadership and Responsibility
	Informational Literacy Skills
	Media Literacy Skills
	Information, Communication, and Technology (ICT) Literacy

Career Ready Practices:

Indicate whether these skills are E-Encouraged, T-Taught, or A-Assessed in this unit by marking E, T, A on the line before the appropriate skill.

	E	CRP1. Act as a responsible and contributing citizen and employee
	E	CRP2. Apply appropriate academic and technical skills
		CRP3. Attend to personal health and financial well-being
	E	CRP4. Communicate clearly and effectively with reason
	E	CRP5. Consider the environmental, social and economic impacts of decisions
		CRP6. Demonstrate creativity and innovation
		CRP7. Employ valid and reliable research strategies
		CRP8. Utilize critical thinking to make sense of problems and persevere in solving them
		CRP9. Model integrity, ethical leadership, and effective management
		CRP10. Plan education and career paths aligned to personal goals
		CRP11. Use technology to enhance productivity
		CRP12. Work productively in teams while using cultural global competence

Student Learning Goals/Objectives:***Students will know....***

- Numbers represent a quantity.
- Number names and how to read a numeral
- Ten ones is equal to one ten.
- The numbers from 11-19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.

Students will be able to (do)...

- Begin a rote forward counting sequence from a number other than 1.
- Use number names and the count sequence.
- Represent a quantity of objects with its corresponding numeral or picture up to 19.
- Compose and decompose numbers into different combinations of a ten and some ones without changing the value by using numerals, objects, drawings or equations.

Key Vocabulary and Terms:

Compose

Decompose

Digit

Numeral

Ones

Part

Place value

Teen numbers

Tens

Whole

Assessment Evidence:

Performance Tasks: <ul style="list-style-type: none"> Counting activities Counting games Use of counters/manipulatives to show teen numbers as a group of 10 ones and more ones. Use of drawings to show teen numbers as a group of 10 ones and more ones. 	Other Assessment Measures: Summative <ul style="list-style-type: none"> Diagnostic assessments Formative <ul style="list-style-type: none"> White board assessments Progress monitoring Classwork/homework Guided practice
<i>Teaching and Learning Actions: (What learning experiences and instruction will enable students to achieve the desired results?)</i>	
<i>Instructional Strategies and Activities (add rows as needed)</i> Title	Consider how will the design will: Description with Modifications, number of days, etc.
9. <i>Counting to 100</i> 12-15 days ongoing Everyday Math: 4.6, 4.12, 5.4, 5.8, 5.9, 5.10, 5.15, 5.16, 7.7 http://www.enagage.org/resource/kindergarten-mathematics http://greatminds.org/math/eureka-is-engageny	Students will understand a numeral represents a specific quantity. The position of digits in numbers determines whether the digit is representing ones or tens. *D: Lower level- continue working on number recognition to 20 until mastered, then begin working with higher 2 digit numbers. Higher level- identifying three digit numbers. Modifications: Lower students may need visual and physical support to identify count and identify Numbers (number grid, manipulatives...) Modeling Counting songs Number games Individual/small group/whole group instruction Repeated practice in learning centers
10. <i>Compose and decompose numbers 11-19</i> 12-15 days ongoing	Students will understand that numbers can be represented in different ways. Decomposed numbers can be combined to represent a quantity *D: Lower level-teacher prompting to count group of 10 first then prompting to

Everyday Math: 7.8, 7.9, 7.13, 7.16, 8.1, 8.6

<http://www.engageny.org/resource/kindergarten-mathematics>

<http://greatminds.org/math/eureka-is-engageny>

count remainder ones. . Higher- level- composing and decomposing any 2 digit number as 10's and 1's.

Modifications: Lower students may need visual and physical support to compose and decompose numbers. Support using manipulatives.

Modeling name collections

Games

Individual/small group/whole group instruction

Repeated practice in learning centers.

Resources:

Kindergarten Everyday Math

<http://engage.ny.org/resource/kindergarten-mathematics>

<http://greatminds.org/math/eureka-is-engageny>

Suggested Time Frame:

24-30 days

**D – Indicates differentiation at the Lesson Level (Identify Modifications for ELL, Gifted and Talented, Basic Skills, Special Education)*

Content Area:	Math	Grade(s) Kindergarten
Unit Plan Title:	Unit 6 : Geometry and Measurement	
Overview/Rationale		
Continue practicing measuring length and height of objects. Progressing with describing measurable attributes and comparing measurable attributes of objects. Solidify knowledge of shapes by defining attributes. Compare shapes by attributes and describe orientation of shapes in the environment using positional words.		
Standard(s) Number and Description		
MA.K.K.G.A.1 - <i>[Standard]</i> - Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to.		
MA.K.K.G.A.2 - <i>[Standard]</i> - Correctly name shapes regardless of their orientations or overall size.		
MA.K.K.G.A.3 - <i>[Standard]</i> - Identify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”).		
MA.K.K.G.B.4 - <i>[Standard]</i> - Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/“corners”) and other attributes (e.g., having sides of equal length)		
MA.K.K.G.B.5 - <i>[Standard]</i> - Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.		
MA.K.K.G.B.6 - <i>[Standard]</i> - Compose simple shapes to form larger shapes.		
MA.K.K.MD.A.1 - <i>[Standard]</i> - Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.		
MA.K.K.MD.A.2 - <i>[Standard]</i> - Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference.		
MA.K.K.MD.B.3 - <i>[Standard]</i> - Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.		
Math Practice Standards Number and Description		
MA.K-12.1 - Make sense of problems and persevere in solving them.		
MA.K-12.2 - Reason Abstractly and quantitatively.		
MA.K-12.3 - Construct viable arguments and critique the reasoning of others.		
MA.K-12.4 - Model with mathematics.		
MA.K-12.5 - Use appropriate tools strategically.		
MA.K-12.6 - Attend to precision.		
MA.K-12.7 -Look for and make use of structure.		
MA.K-12.8 - Look for and express regularity in repeated reasoning.		
Technology Standard(s) Number and Description		
TECH.8.1.2.A.CS1 - [Content Statement] - Understand and use technology systems.		
TECH.8.1.2.A.4 - [Cumulative Progress Indicator] - Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).		
Interdisciplinary Standard(s) Number and Description		

LA.K.SL.K.1 - [Progress Indicator] - Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.

LA.K.SL.K.1.A - Follow agreed-upon norms for discussions (e.g., listening to others with care and taking turns speaking about the topics and texts under discussion).

LA.K.SL.K.3 - [Progress Indicator] - Ask and answer questions in order to seek help, get information, or clarify something that is not understood.

Enduring Understandings:

The focus of this unit is to inform students that geometry is all around us in 2D and 3D shapes and that geometric figures have certain properties and can be transformed, compared, measured, and represented. And we want students to understand when to measure and to know which tool and unit to use.

- That a shape has the same name regardless of its orientation and size. (An upside down triangle is still a triangle.)
- Shapes can be 2 dimensional, flat or 3 dimensional, solid.
- Components of one shape can be used to create another shape.

Misconceptions/misunderstandings: Kindergarten students may have difficulty understanding that there may be more than one describable attribute of an object. When comparing measurable attribute of objects they may focus on only one attribute and may need help explain their reasoning behind their comparison. Students may have a hard time using measurement tools accurately or may not know to line the object up with the measurement tool.

Essential Questions :

Why are geometric shapes and figures important?

How can geometry be used to solve problems about real-world situations, spatial relationships, and logical reasoning?

In what ways does estimation help you find a reasonable measurement?

How do we determine which tools and which unit to help you accurately measure?

21st Century Connections

<div> <div>Check all that apply.</div> <div>21st Century Interdisciplinary Themes</div> </div>			<div> <div>Indicate whether these skills are E-Encouraged, T-Taught, and/or A-Assessed in this unit by marking E, T, A in the box before the appropriate skill.</div> <div>21st Century Skills</div> </div>	
	E	Global Awareness	E, T	Critical Thinking and Problem Solving
	E	Environmental Literacy	E, T	Creativity and Innovation
		Health Literacy	E, T	Communication and Collaboration
		Civic Literacy	E	Flexibility and Adaptability

		Financial, Economic , Business and Entrepreneurial Literacy	E	Initiative and Self-Direction
			E	Social and Cross-Cultural Skills
			E	Productivity and Accountability
			E	Leadership and Responsibility
				Informational Literacy Skills
				Media Literacy Skills
				Information, Communication, and Technology (ICT) Literacy

Career Ready Practices:

Indicate whether these skills are *E*-Encouraged, *T*-Taught, or *A*-Assessed in this unit by marking *E, T, A* on the line before the appropriate skill.

	E	CRP1. Act as a responsible and contributing citizen and employee
	E	CRP2. Apply appropriate academic and technical skills
		CRP3. Attend to personal health and financial well-being
	E, T	CRP4. Communicate clearly and effectively with reason
	E	CRP5. Consider the environmental, social and economic impacts of decisions
	E	CRP6. Demonstrate creativity and innovation
		CRP7. Employ valid and reliable research strategies
	E	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them
		CRP9. Model integrity, ethical leadership, and effective management
		CRP10. Plan education and career paths aligned to personal goals
		CRP11. Use technology to enhance productivity

CRP12. Work productively in teams while using cultural global competence

Student Learning Goals/Objectives:

Students will know....

- Positional words.
- Names and attributes of shapes and solids.
- Length and/or height of two objects can be compared.
- Objects have comparable attributes.

Students will be able to (do)...

- Identify and describe shapes
- Use positional words to describe objects in the environment.
- Identify and define shapes, flats and solids.
- Analyze, compare, create and compose shapes.
- Recall various attributes in order to create a particular shape.
- Manipulate 2 or more shapes to create a new shape.

Key Vocabulary and Terms:

Above, behind, below, beside, circle, compare, cone, cube, cylinder, heavy, height, in front of, length, light, measure, next to, oval, pyramid, shapes, short, sphere square, rectangle, rectangular prism, rhombus, triangle, weight

Assessment Evidence:

Performance Tasks:

- Given an object student students will discuss and describe 2 or more attributes.
- Given 2 objects students will describe which is larger, smaller, shorter, taller, or longer.
- Given a shape students will locate things in the environment (pictures, toys, tools...) that match the shape.
- Students will build a tower using blocks and measure the height and length (using standard and non-standard measurement tools).

Other Assessment Measures

Summative

- Diagnostic assessments

Formative

- White board assessments
- Progress monitoring
- Classwork/homework
- Guided practice

Teaching and Learning Actions: (What learning experiences and instruction will enable students to achieve the desired results?)

Title	Description with Modifications, number of days, etc.
<p>1. Geometry 5-8 days ongoing Everyday Math: 4.10, 4.13, 4.14, 5.3, 5.14, 6.3, 6.6, 7.4, http://www.engageny.org/resource/kindergarten-mathematics http://greatminds.org/math/eureka-is-engageny</p>	<p>Students will identify, compare, compose, and create shapes. *D: Lower level- use of manipulatives with support. Higher level- creating figures using 2D and 3D objects. Modification: Lower students may need visual and physical support to compare, compose and create shapes. Modeling Games Projects Individual/small group/whole group instruction Repeated practice in learning centers</p>
<p>2. Measurement 5-8 days ongoing Everyday Math: 5.6, 5.7, 5.11, 5.12 http://www.engageny.org/resource/kindergarten-mathematics http://greatminds.org/math/eureka-is-engageny</p>	<p>Students will measure objects using correct tools and units. *D: Lower level- use of tools with support. Higher level- measuring objects using multiple tools and units. Modification: Lower students may need physical support to measure correctly. Modeling Individual/small group/whole group instruction Repeated practice in learning centers</p>
Resources:	
<p>Kindergarten Everyday Math http://www.engageny.org/resource/kindergarten-mathematics http://greatminds.org/math/eureka-is-engageny</p>	
Suggested Time Frame:	10-16 days

*D – Indicates differentiation at the Lesson Level (Identify Modifications for ELL, Gifted and Talented, Basic Skills, Special Education.

Curriculum Map- Kindergarten Mathematics

Kindergarten	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5
K.CC - Counting & Cardinality					
A. Know number names and the count sequence.					

K.CC.1	Count to 100 by ones and by tens.	✓		✓	✓	
K.CC.2	Count forward beginning from a given number within the known sequence (instead of having to begin at 1).				✓	
K.CC.3	Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).	✓	✓	✓		
B. Count to tell the number of objects.						
K.CC.4 (a-c)	Understand the relationship between numbers and quantities; connect counting to cardinality. a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object. b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted. c. Understand that each successive number name refers to a quantity that is one larger.	✓	✓		✓	
K.CC.5	Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.			✓		
C. Compare numbers.						
K.CC.6	Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. (Include groups with up to ten objects.)	✓		✓		
K.CC.7	Compare two numbers between 1 and 10 presented as written numerals.			✓		
K.OA - Operations & Algebraic Thinking						
A. Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.						

K.OA.1	Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), and acting out situations, verbal explanations, expressions, or equations.				✓	
K.OA.2	Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.				✓	
K.OA.3	Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., $5 = 2 + 3$ and $5 = 4 + 1$).			✓	✓	
K.OA.4	For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.				✓	
K.OA.5	Fluently add and subtract within 5.				✓	
K. NBT - Number & Operations in Base Ten						
A. Work with numbers 11-19 to gain foundations for place value.						
K.NBT.1	Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (such as $18 = 10 + 8$); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.				✓	
K. MD - Measurement and Data						
A. Describe and compare measurable attributes.						
K.MD.1	Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.		✓			✓
K.MD.2	Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. <i>For example, directly compare the heights of two children and describe one child as taller/shorter.</i>					✓
B. Classify objects and count the number of objects.						
K.MD.3	Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. (Limit category counts to be less than or equal to 10.)		✓			✓

K. G - Geometry						
A. Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres.						
K.G.1	Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as <i>above, below, beside, in front of, behind, and next to</i> .		✓			✓
K.G.2	Correctly name shapes regardless of their orientations or overall size.		✓			✓
K.G.3	Identify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”).					✓
B. Analyze, compare, create, and compose shapes.						
K.G.4	Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).					✓
K.G.5	Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.					✓
K.G.6	Compose simple shapes to form larger shapes. <i>For example, "Can you join these two triangles with full sides touching to make a rectangle?"</i>					✓



1st GRADE MATH CURRICULUM

Middle Township Public Schools
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Acknowledgements

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Introduction

This document serves to meet all requirements of curriculum as per the Middle Township Board of Education and the New Jersey Department of Education and will serve as a guide for lesson planning. Units within the curricular framework for mathematics are designed to be taught in the order in which they are presented. Within the units, the teachers have flexibility of what order to present the standards.

Course Description

First Grade mathematics in Middle Township Public School district is the Everyday Math series. In Grade 1, instructional time should focus on four critical areas: (1) developing understanding of addition, subtraction, and strategies for addition and subtraction within 20; (2) developing understanding of whole number relationships and place value, including grouping in tens and ones; (3) developing understanding of linear measurement and measuring lengths as iterating length units; and (4) reasoning about attributes of, and composing and decomposing geometric shapes.

Principles for School Mathematics

The principles for school mathematics address the overarching themes of equity, curriculum, teaching, learning, assessment and technology. (NCTM, 2000)

Equity: Excellence in mathematics education requires equity – high expectations, worthwhile opportunities, accommodation for differences, resources, and strong support for all students.

Curriculum: A coherent curriculum effectively organizes standards and mathematical ideas, focuses on important mathematics, and is well articulated within and across grades.

Teaching: Effective standards-aligned mathematics instruction is a complex endeavor that requires understanding what students know and need to learn, and then challenging and supporting them to learn it well. Effective teaching requires continually seeking improvement.

Learning: Conceptual understanding is an important component of proficiency. Students must learn mathematics with understanding, actively building new knowledge from experience and prior knowledge. Learning with understanding is essential to enable students to solve the new kinds of problems they will inevitably face in the future.

Assessment: Standards-aligned assessment, a routine part of ongoing classroom activity, should enhance students' learning and inform instructional decisions.

Technology: Technology, not to be used as a replacement for basic understandings and intuitions, is an essential tool in teaching and learning mathematics; it influences the mathematics that is taught, supports visualization, facilitates organizing and analyzing data, and offers efficient computation.

Intent and Spirit of the Mathematics Standards

For more than a decade, research studies of mathematics education in high-performing countries have concluded that mathematics education in the United States must become substantially more focused and coherent in order to improve mathematics achievement in this country. To deliver on this promise, the mathematics standards are designed to address the problem of a curriculum that is "a mile wide and an inch deep."

The math standards provide clarity and specificity rather than broad general statements. The standards draw on the most important international models for mathematical practice, as well as research. They endeavor to follow the design envisioned by William Schmidt and Richard Houang (2002), by not only stressing conceptual understanding of key ideas, but also by continually returning to organizing principles (coherence) such as place value and the laws of arithmetic to structure those ideas.

In addition, the "sequence of topics and performances" that is outlined in a body of math standards must respect what is already known about how students learn. As Confrey (2007) points out, developing "sequenced obstacles and challenges for students...absent the insights about meaning that derive from careful study of learning, would be unfortunate and unwise." Therefore, the development of the standards began with research-based learning progressions detailing what is known today about how students' mathematical knowledge, skill, and understanding develop over time. The knowledge and skills students need to be prepared for mathematics in college, career, and life are woven throughout the mathematics standards.

Pacing Guide

Recommended First Grade Mathematics Pacing Guide			
First Marking Period	<u>Days 1- 45</u>		
	September 18 days	October 20 Days	November 18 days
	Unit One- Number Sense		Unit Two- Operations and Algebraic Thinking
Second Marking Period	<u>Days 46- 90</u>		
	November (Continued) 18 days	December 15 days	January 20 days
	Unit Two- Operations and Algebraic Thinking		
Third Marking Period	<u>Days 91- 135</u>		
	February 18 days	March 21 days	April 16 days
	Unit Two- Continued	Unit Three- Measurement and Data	
Fourth Marking Period	<u>Days 136-180</u>		
	April (Continued) 16 days	May 22 days	June 12 days
	Unit Three- Measurement and Data	Unit Four- Geometry	

Pacing Guide

<u>UNIT TITLE</u>	<u>ENDURING UNDERSTANDINGS</u>	<u>NJSLS</u>	<u>TIMEFRAME</u>
7- Number sense to 120	<ul style="list-style-type: none"> To develop and practice recognizing numbers to 120, counting in sequence, and comparing numbers. Counting to determine quantity Understand that the relationship between a number and its quantity Understand that each successive number refers to a quantity that is one more Write numbers 0 through 120 that represents its quantity 	MA.1.1.NBT.A.1 MA.1.1.NBT.B.2a MA.1.1.NBT.B.2b MA.1.1.NBT.B.2c MA.1.1.OA.C.5 MA.1.1.NBT.B.3	36-40 days
8- Operations and Algebraic thinking	<ul style="list-style-type: none"> To develop understanding of addition, subtraction, and strategies for addition and subtraction. Represent and solve problems involving addition and subtraction Understand and apply properties of operations (commutative and associative) Understand the relationship between addition and subtraction Fluently add and subtract within 20 Work with addition and subtraction equations 	MA.1.1.OA.A.1 MA.1.1.OA.A.2 MA.1.1.OA.B.3 MA.1.1.OA.B.4 MA.1.1.OA.C.5 MA.1.1.OA.C.6 MA.1.1.OA.D.7 MA.1.1.OA.D.8	66-72 days
9- Measurement and Data	<ul style="list-style-type: none"> To develop understanding of linear measurement and measuring lengths as iterating length units , to tell and write time to the half hour, and to represent and interpret data. Tell and write time to the half hour and hour using digital and analog clocks Organize, represent, and interpret data up to three categories Order three objects by length Compare the lengths of two objects indirectly by 	MA.1.1.MD.A.1 MA.1.1.MD.A.2 MA.1.1.MD.B.3 MA.1.1.MD.C.4	28-32 days

	using a third object (transitivity) <ul style="list-style-type: none"> Express the length of an object by using smaller iterating length units 		
10- Geometry	<ul style="list-style-type: none"> To reason with shapes and their attributes. Distinguish between defining and non-defining attributes Build and draw shapes to possess defining attributes Compose two or three dimensional shapes to create a composite shape Compose new shapes from composite shape Partition circles and rectangles into two and four equal shares Understand that decomposing into more equal shares creates smaller shares 	MA.1.1.G.A.1 MA.1.1.G.A.2 MA.1.1.G.A.3	18-22 days

Content Area:	Mathematics	Grade 1
Unit Plan Title:	Unit 1 Number Sense to 120	
Overview/Rationale		
Solidify meaning of numbers to 120. Students compare whole numbers to 120 to develop understanding of and solve problems involving their relative sizes. They think of whole numbers between 10 and 100 in terms of tens and ones (especially recognizing the numbers 11 to 19 as composed of a ten and some ones). Through activities that build number sense, they understand the order of the counting numbers and their relative magnitudes.		
Standard(s) Number and Description		
<i>MA.1.1.NBT.A.1 - [Standard] - Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral</i>		
<i>MA.1.1.NBT.B.2a - 10 can be thought of as a bundle of ten ones — called a “ten.”</i>		
<i>MA.1.1.NBT.B.2b - The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.</i>		
<i>MA.1.1.NBT.B.2c - The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones)</i>		
<i>MA.1.1.OA.C.5 - [Standard] - Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).</i>		
<i>MA.1.1.NBT.B.3 - [Standard] - Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols $>$, $=$, and $<$.</i>		
Math Practice Standards Number and Description		
MP1 Make sense of problems and persevere in solving them. Make sense of your problem. Reflect on your thinking as you solve your problem. Keep trying when your problem is hard. Check whether your answer makes sense. Solve problems in more than one way. Compare the strategies you and others use.		
MP2 Reason abstractly and quantitatively. Create mathematical representations using numbers, words, pictures, symbols, gestures, tables, graphs and concrete objects. Make sense of the representations you and others use. Make connections between representations.		
MP3 Construct viable argument and critique the reasoning of others. Make mathematical conjectures and arguments.		
MP4 Model with mathematics real-world situations using graphs, drawings, tables, symbols, numbers, diagram, and other representations. Use mathematical models to solve problems and answer questions.		
MP5 Use appropriate tools strategically. Choose appropriate tools. Use tools effectively and make sense of your results.		
MP6 Attend to precision. Explain your mathematical thinking clearly and precisely. Use an appropriate level of precision for your problem. Use clear labels, units, and mathematical language. Think about accuracy and efficiency when you count, measure, and calculate.		

MP7 Look for and make use of structure. Look for mathematical structures such as categories, patterns, and properties. Use structures to solve problems and answer questions.

MP8 *Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation $(y - 2)/(x - 1) = 3$. Noticing the regularity in the way terms cancel when expanding $(x - 1)(x + 1)$, $(x - 1)(x^2 + x + 1)$, and $(x - 1)(x^3 + x^2 + x + 1)$ might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.*

Technology Standard(s) Number and Description

TECH.8.1.2.A.CS1 - [Content Statement] - Understand and use technology systems.

TECH.8.1.2.A.1 - [Cumulative Progress Indicator] - Identify the basic features of a digital device and explain its purpose

TECH.8.1.2.A.CS2 - [Content Statement] - Select and use applications effectively and productively.

Interdisciplinary Standard(s) Number and Description

LA.1.SL.1.1 - [Progress Indicator] - Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.

LA.1.SL.1.1.A - Follow agreed-upon norms for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under

LA.1.SL.1.1.B - Build on others' talk in conversations by responding to the comments of others through multiple exchange discussion).

LA.1.SL.1.1.C - Ask questions to clear up any confusion about the topics and texts under discussion.

Enduring Understandings:

The focus of this unit is to develop and practice recognizing numbers to 120, counting in sequence, and comparing numbers.

- Counting to determine quantity
- Understand that the relationship between a number and its quantity
- Understand that each successive number refers to a quantity that is one more
- Write numbers 0 through 120 that represents its quantity

Essential Questions:			
Why are numbers important? Where do we find numbers? How do we count on from a number? How do we compare numbers to determine which is larger/smaller? What are some ways we can make counting a large amount of objects easier?			
21st Century Connections			
<i>Check all that apply.</i>		<i>Indicate whether these skills are E-Encouraged, T-Taught, and/or A-Assessed in this unit by marking E, T, A in the box before the appropriate skill</i>	
21st Century Interdisciplinary Themes		21st Century Skills	
<input checked="" type="checkbox"/>	Global Awareness	<input checked="" type="checkbox"/> E,T	Critical Thinking and Problem Solving
<input checked="" type="checkbox"/>	Environmental Literacy	<input type="checkbox"/> E	Creativity and Innovation
<input type="checkbox"/>	Health Literacy	<input checked="" type="checkbox"/> E,T	Communication and Collaboration
<input type="checkbox"/>	Civic Literacy	<input type="checkbox"/> E	Flexibility and Adaptability
<input checked="" type="checkbox"/>	Financial, Economic , Business and Entrepreneurial Literacy	<input type="checkbox"/> E	Initiative and Self-Direction
<input type="checkbox"/>		<input type="checkbox"/>	Social and Cross-Cultural Skills
<input type="checkbox"/>		<input type="checkbox"/>	Productivity and Accountability
<input type="checkbox"/>		<input type="checkbox"/> E	Leadership and Responsibility
<input type="checkbox"/>		<input type="checkbox"/> E	Informational Literacy Skills
<input type="checkbox"/>		<input type="checkbox"/> E	Media Literacy Skills
<input type="checkbox"/>		<input type="checkbox"/>	Information, Communication, and Technology (ICT) Literacy
Career Ready Practices:			
<i>Indicate whether these skills are E-Encouraged, T-Taught, or A-Assessed in this unit by marking E, T, A on the line before the appropriate skill.</i>			

		CRP1. Act as a responsible and contributing citizen and employee
	E,T	CRP2. Apply appropriate academic and technical skills
		CRP3. Attend to personal health and financial well-being
	E,T,A	CRP4. Communicate clearly and effectively with reason
	E	CRP5. Consider the environmental, social and economic impacts of decisions
	E	CRP6. Demonstrate creativity and innovation
		CRP7. Employ valid and reliable research strategies
	E,T	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them
		CRP9. Model integrity, ethical leadership, and effective management
		CRP10. Plan education and career paths aligned to personal goals
	E	CRP11. Use technology to enhance productivity
	E,T	CRP12. Work productively in teams while using cultural global competence
Student Learning Goals/Objectives:		
<ul style="list-style-type: none"> Recognize number names and the count sequence to 120 Know a bundle represents 10 Know that addition and subtraction are related to counting Know that a digit represents a place in a number Two digit numbers are made of tens and ones 		<p><i>Students will be able to...</i></p> <ul style="list-style-type: none"> Count to 120 from any number Compare numbers Compose numbers from bundles and ones Write the numbers to 120
Key Vocabulary and Terms:		
<i>Digit, comparing, greater/less than, equal to, count, numeral, digit, two-digit number, tens, ones, < symbol, > symbol, =symbol</i>		
Assessment Evidence:		
<p>Performance Tasks:</p> <ul style="list-style-type: none"> Sequence numbers 0 to 120 Count sets up to 120 and write the corresponding number 		<p>Other Assessment Measures:</p> <p>Summative</p>

<ul style="list-style-type: none"> • <i>Finding numbers and patterns on a number line/grid</i> • <i>Write numbers to match tens and one</i> • <i>Build tens and ones to match a number</i> • <i>Given a number identify hundreds, tens, and ones</i> 	<ul style="list-style-type: none"> • Unit assessments • STAR <p>Formative</p> <ul style="list-style-type: none"> • White boards • Teacher observation • Guided practice • Classwork • Homework
<p><i>Teaching and Learning Actions: (What learning experiences and instruction will enable students to achieve the desired results?)</i></p>	
<p><i>Instructional Strategies and Activities (add rows as needed)</i> *D</p>	<p>Consider how will the design will: (WHERE TO – Understanding By Design –Wiggins and McTighe) W = Help the students know Where the unit is going and What is expected? Help the teacher know Where the students are coming from (prior knowledge and interests)? H= Hook all students and Hold their interest? E= Equip students, help the Experience the key ideas and Explore the issue? R=Provide opportunities to Rethink and Revise their understandings and work? E=Allow students to Evaluate their work and its implications? T=be Tailored (personalized to the different needs, interests and abilities of learners)? O=be Organized to maximize initial and sustained engagement as well as effective learning?</p>
<p>Title</p>	<p>Description with Modifications, number of days, etc.</p>
<p>11. Oral counting to 120</p>	<p>Students orally count (ongoing) Rote counting Stop start counting Songs/chants/ poems Use number grid/line Repeated practice through centers, game days, and technology Skip count by 2s, 5s, and 10s</p>
<p>12. Writing numbers to 120</p>	<p>Students write numbers to 120 Scrolls Calendar Centers and technology</p>

13. <i>Place value</i>	<p>Students recognize that 1,2, and 3 digit numbers match the quantity</p> <p>Daily math routines</p> <p>Ten frames</p> <p>Building numbers with base 10 blocks</p> <p>Centers</p> <p>Technology</p> <p>Games (Base 10 Exchange)</p> <p>Digit games</p>
14. <i>Comparing numbers</i>	<p>Students compare numbers through base 10 blocks and use $<$, $>$, $=$ symbols</p> <p>Games</p> <p>Estimation jar</p> <p>Manipulatives/sets</p>
15. <i>Differentiations</i>	<p>Differentiation ELL/SE</p> <p>Word/picture wall</p> <p>Number line</p> <p>Hundreds chart</p> <p>Native language support</p> <p>Place value chart</p> <p>Small group/triads</p> <p>Base ten blocks</p> <p>Differentiation GT</p> <p>Scrolls</p> <p>Enrichment centers</p> <p>Place value to the thousands</p> <p>Games</p> <p>*See Part 3 of Teacher's Manual for readiness, enrichment, and ELL options</p>
Resources:	
Every Day Math book, www.engageny.org , www.greatminds.org/math/eureka , more.starfall.com , www.sheppardsoftware.com , www.arcademicskillbuilders.com , www.emgamesonline.com	
Suggested Time Frame	36-40 days

*D – Indicates differentiation at the Lesson Level (Identify Modifications for ELL, Gifted and Talented, Basic Skills, Special Education)

Content Area:	Mathematics	Grade 1
Unit Plan Title:	Unit 2: Operations and algebraic thinking	
Overview/Rationale		
<p>Students develop strategies for adding and subtracting whole numbers based on their prior work with small numbers. They use a variety of models, including discrete objects and length-based models (e.g., cubes connected to form lengths), to model add-to, take-from, put-together, take-apart, and compare situations to develop meaning for the operations of addition and subtraction, and to develop strategies to solve arithmetic problems with these operations. Students understand connections between counting and addition and subtraction (e.g., adding two is the same as counting on two). They use properties of addition to add whole numbers and to create and use increasingly sophisticated strategies based on these properties (e.g., "making tens") to solve addition and subtraction problems within 20. By comparing a variety of solution strategies, children build their understanding of the relationship between addition and subtraction.</p> <p>Students develop, discuss, and use efficient, accurate, and generalization methods to add within 100 and subtract multiples of 10.</p>		
Standard(s) Number and Description		
<p>MA.1.1.OA.A.1 - [Standard] - Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.</p> <p>MA.1.1.OA.A.2 - [Standard] - Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.</p> <p>MA.1.1.OA.B.3 - [Standard] - Apply properties of operations as strategies to add and subtract.</p> <p>MA.1.1.OA.B.4 - [Standard] - Understand subtraction as an unknown-addend problem.</p> <p>MA.1.1.OA.C.5 - [Standard] - Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).</p> <p>MA.1.1.OA.C.6 - [Standard] - Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).</p> <p>MA.1.1.OA.D.7 - [Standard] - Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false.</p> <p>MA.1.1.OA.D.8 - [Standard] - Determine the unknown whole number in an addition or subtraction equation relating to three whole numbers.</p> <p>MA.1.1.NBT.C.4 - [Standard] - Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models (e.g., base ten blocks) or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.</p> <p>MA.1.1.NBT.C.5 - [Standard] - Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the</p>		

reasoning used.

MA.1.1.NBT.C.6 - [Standard] - Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

Math Practice Standards Number and Description

MP1 Make sense of problems and persevere in solving them. Make sense of your problem. Reflect on your thinking as you solve your problem. Keep trying when your problem is hard. Check whether your answer makes sense. Solve problems in more than one way. Compare the strategies you and others use.

MP2 Reason abstractly and quantitatively. Create mathematical representations using numbers, words, pictures, symbols, gestures, tables, graphs and concrete objects. Make sense of the representations you and others use. Make connections between representations.

MP3 Construct viable argument and critique the reasoning of others. Make mathematical conjectures and arguments.

MP4 Model with mathematics real-world situations using graphs, drawings, tables, symbols, numbers, diagram, and other representations. Use mathematical models to solve problems and answer questions.

MP5 Use appropriate tools strategically. Choose appropriate tools. Use tools effectively and make sense of your results.

MP6 Attend to precision. Explain your mathematical thinking clearly and precisely. Use an appropriate level of precision for your problem. Use clear labels, units, and mathematical language. Think about accuracy and efficiency when you count, measure, and calculate.

MP7 Look for and make use of structure. Look for mathematical structures such as categories, patterns, and properties. Use structures to solve problems and answer questions.

MP8 Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation $(y - 2)/(x - 1) = 3$. Noticing the regularity in the way terms cancel when expanding $(x - 1)(x + 1)$, $(x - 1)(x^2 + x + 1)$, and $(x - 1)(x^3 + x^2 + x + 1)$ might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.

Technology Standard(s) Number and Description
<i>TECH.8.1.2.A.CS1 - [Content Statement] - Understand and use technology systems.</i>
<i>TECH.8.1.2.A.1 - [Cumulative Progress Indicator] - Identify the basic features of a digital device and explain its purpose</i>
<i>TECH.8.1.2.A.CS2 - [Content Statement] - Select and use applications effectively and productively.</i>
<i>TECH.8.1.2.A.4 - [Cumulative Progress Indicator] - Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).</i>
Interdisciplinary Standard(s) Number and Description
<i>LA.1.SL.1.1 - [Progress Indicator] - Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.</i>
<i>LA.1.SL.1.1.A - Follow agreed-upon norms for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under</i>
<i>LA.1.SL.1.1.B - Build on others' talk in conversations by responding to the comments of others through multiple exchange discussion).</i>
<i>LA.1.SL.1.1.C - Ask questions to clear up any confusion about the topics and texts under discussion.</i>
Enduring Understandings:
<p>The focus of this unit is to develop understanding of addition, subtraction, and strategies for addition and subtraction.</p> <ul style="list-style-type: none"> • Represent and solve problems involving addition and subtraction • Understand and apply properties of operations (commutative and associative) • Understand the relationship between addition and subtraction • Fluently add and subtract within 20 • Work with addition and subtraction equations

- Use place value understanding to add and subtract within 100
- Mentally add or subtract 10

Essential Questions :

What strategies do we use to help us add?

What strategies do we use to help us subtract?

How does counting help us add and subtract?

How can we use addition to help subtract?

What are some strategies we can use to find the sum of an equation with 3 addends?

How do we solve 2 digit addition equations?

Why is it important to use unit/labels when solving word problems?

What are ways we increase fact power?

How do we determine if an equation is true or false?

How does knowing the commutative(turn around facts) and associative properties help us solve equations?

How can we use base ten blocks to add and subtract 2 digit numbers?

How does a number grid help us add and subtract 2 digit numbers quickly?

21st Century Connections

Check all that apply.

21st Century Interdisciplinary Themes

X

Global Awareness

X

Environmental Literacy

Health Literacy

Civic Literacy

X

Financial, Economic ,
Business and Entrepreneurial
Literacy

Indicate whether these skills are E-Encouraged, T-Taught, and/or A-Assessed in this unit by marking E, T, A in the box before the appropriate skill.

21st Century Skills

T,A

Critical Thinking and Problem Solving

E

Creativity and Innovation

E, T

Communication and Collaboration

E,T

Flexibility and Adaptability

E

Initiative and Self-Direction

Social and Cross-Cultural Skills

E,T,A

Productivity and Accountability

E,T

Leadership and Responsibility

			Informational Literacy Skills
		E,T	Media Literacy Skills
		E,T	Information, Communication, and Technology (ICT) Literacy
Career Ready Practices:			
Indicate whether these skills are E-Encouraged, T-Taught, or A-Assessed in this unit by marking E, T, A on the line before the appropriate skill.			
		CRP1. Act as a responsible and contributing citizen and employee	
	E,T	CRP2. Apply appropriate academic and technical skills	
	E	CRP3. Attend to personal health and financial well-being	
	E,T	CRP4. Communicate clearly and effectively with reason	
	E	CRP5. Consider the environmental, social and economic impacts of decisions	
	E	CRP6. Demonstrate creativity and innovation	
		CRP7. Employ valid and reliable research strategies	
	E,T,A	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them	
		CRP9. Model integrity, ethical leadership, and effective management	
		CRP10. Plan education and career paths aligned to personal goals	
	E	CRP11. Use technology to enhance productivity	
	E,T	CRP12. Work productively in teams while using cultural global competence	
Student Learning Goals/Objectives:			
<ul style="list-style-type: none">Recognize +, -, and = signsKnow addition is putting together setsKnow subtraction is taking from/apart a setKnow that addition and subtraction are related to each other		Students will be able to... <ul style="list-style-type: none">Use many strategies to add and subtractUse problem solving strategies to determine if an equation is true or	

<ul style="list-style-type: none"> • Know addition is counting on • Know Subtraction is counting back • Know some facts are easier to memorize than others • Know that when adding or subtracting 2 digit numbers, the tens are computed together and the same for the ones. • Know that when adding 2 digit numbers the combined ones can compose a ten. 	<p>false</p> <ul style="list-style-type: none"> • Add 3 whole numbers • Create a fact family • Relate counting to addition and subtraction • Read and solve word problems • Add and subtract to 100 using base ten blocks and/or number grid
Key Vocabulary and Terms:	
<p>Equation, sum, plus, minus, equals, addition, subtraction, addend, unknown number, true, false, ten more, ten less, difference, making ten, turn around facts, fact family, mental math, fact power</p>	
Assessment Evidence:	
<p>Performance Tasks:</p> <ul style="list-style-type: none"> • Add and subtract within 20 • Use base ten blocks to add/subtract 2 digit numbers • Identify ways to make 10 • Quickly add facts to 20 (math minute) • Use various strategies to add/subtract(number line, number grid, manipulatives, counting on, pictures, fingers, tallies) • Solve word problems using appropriate strategies • Create a fact family from a domino • Compare equations to tell if they are true or false • Find the difference • Add within 100 using base ten blocks and/or number grid 	<p>Other Assessment Measures:</p> <p>Summative</p> <ul style="list-style-type: none"> • Unit assessments • STAR <p>Formative</p> <ul style="list-style-type: none"> • White boards • Teacher observation • Guided practice • Classwork • Homework
<p><i>Teaching and Learning Actions: (What learning experiences and instruction will enable students to achieve the desired results?)</i></p>	

<i>Instructional Strategies and Activities (add rows as needed)</i> *D Title	Consider how will the design will: Description with Modifications, number of days, etc.
16. Addition/Subtraction to 20; Addition within 100	Students apply the following strategies to add and subtract: Manipulatives Fingers Pictures Mental math Number grid Number line Tallies Short cuts (+0, +1, doubles, doubles plus one, +10, -10, turnaround facts) Counting on Counting back True/false equations Games Technology
17. 3 Addends	Students will use the following strategies to find the sum of 3 addends: Pictures Number grid Associative property
18. Fact families	Students generate the related addition and subtraction equations for a fact family Dominoes Fact triangles Fact family houses/neighborhoods
19. Word Problems	Students will use various strategies to solve number stories Manipulatives Base ten blocks Number grid Number line

	Fingers Pictures Counting on Counting back
Differentiations	Differentiation ELL/SE Role play Ten frames Math word bank Native language support Connecting cubes Small groups Distance between numbers Games Differentiation EA Enrichment centers Create number story book Challenge equation problems using larger addends *See part 3 of Teacher's Manual for readiness, enrichment, and ELL options
Resources:	
Every Day Math book, www.engageny.org , www.greatminds.org/math/eureka , more.starfall.com , www.sheppardsoftware.com , www.arcademicskillbuilders.com , www.emgamesonline.com	
Suggested Time Frame	66-72 days

*D – Indicates differentiation at the Lesson Level (Identify Modifications for ELL, Gifted and Talented, Basic Skills, Special Education)

Content Area:	Mathematics	Grade 1
Unit Plan Title:	Unit 3 Measurement and Data	
Overview/Rationale		
Students develop an understanding of the meaning and processes of measurement, including underlying concepts such as iterating (the mental activity of building up the length of an object with equal-sized units) and the transitivity principle for indirect measurement students should apply the principle of transitivity of measurement to make indirect comparisons, but they need not use this technical term.		
Standard(s) Number and Description		
<i>MA.1.1.MD.A.1 - [Standard] - Order three objects by length; compare the lengths of two objects indirectly by using a third object.</i>		
<i>MA.1.1.MD.A.2 - [Standard] - Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the</i>		
<i>MA.1.1.MD.B.3 - [Standard] - Tell and write time in hours and half--hours using analog and digital clocks, number of same-size length units that span it with no gaps or overlaps.</i>		
<i>MA.1.1.MD.C.4 - [Standard] - Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.</i>		
Math Practice Standards Number and Description		
MP1 Make sense of problems and persevere in solving them. Make sense of your problem. Reflect on your thinking as you solve your problem. Keep trying when your problem is hard. Check whether your answer makes sense. Solve problems in more than one way. Compare the strategies you and others use.		
MP2 Reason abstractly and quantitatively. Create mathematical representations using numbers, words, pictures, symbols, gestures, tables, graphs and concrete objects. Make sense of the representations you and others use. Make connections between representations.		
MP3 Construct viable argument and critique the reasoning of others. Make mathematical conjectures and arguments.		
MP4 Model with mathematics real-world situations using graphs, drawings, tables, symbols, numbers, diagram, and other representations. Use mathematical models to solve problems and answer questions.		
MP5 Use appropriate tools strategically. Choose appropriate tools. Use tools effectively and make sense of your results.		
MP6 Attend to precision. Explain your mathematical thinking clearly and precisely. Use an appropriate level of precision for your problem. Use clear labels, units, and mathematical language. Think about accuracy and efficiency when you count, measure, and calculate.		

MP7 Look for and make use of structure. Look for mathematical structures such as categories, patterns, and properties. Use structures to solve problems and answer questions.

MP8 Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation $(y - 2)/(x - 1) = 3$. Noticing the regularity in the way terms cancel when expanding $(x - 1)(x + 1)$, $(x - 1)(x^2 + x + 1)$, and $(x - 1)(x^3 + x^2 + x + 1)$ might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details

Technology Standard(s) Number and Description

TECH.8.1.2.A.CS1 - [Content Statement] - Understand and use technology systems.

TECH.8.1.2.A.1 - [Cumulative Progress Indicator] - Identify the basic features of a digital device and explain its purpose

TECH.8.1.2.A.CS2 - [Content Statement] - Select and use applications effectively and productively.

TECH.8.1.2.A.4 - [Cumulative Progress Indicator] - Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).

Interdisciplinary Standard(s) Number and Description

TECH.8.1.2.A.CS1 - [Content Statement] - Understand and use technology systems.

TECH.8.1.2.A.1 - [Cumulative Progress Indicator] - Identify the basic features of a digital device and explain its purpose

TECH.8.1.2.A.CS2 - [Content Statement] - Select and use applications effectively and productively.

TECH.8.1.2.A.4 - [Cumulative Progress Indicator] - Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).

Interdisciplinary Standard(s) Number and Description

LA.1.SL.1.1 - [Progress Indicator] - Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.

LA.1.SL.1.1.A - Follow agreed-upon norms for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under

LA.1.SL.1.1.B - Build on others' talk in conversations by responding to the comments of others through multiple exchange discussion).

LA.1.SL.1.1.C - Ask questions to clear up any confusion about the topics and texts under discussion.

SCI.K-2.5.1.2.A - [Strand] - Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.

Enduring Understandings:

The focus of this unit is to develop understanding of linear measurement and measuring lengths as iterating length units , to tell and write time to the half hour, and to represent and interpret data.

- Tell and write time to the half hour and hour using digital and analog clocks
- Organize, represent, and interpret data up to three categories
- Order three objects by length
- Compare the lengths of two objects indirectly by using a third object (transitivity)
- Express the length of an object by using smaller iterating length units

SCI.K-2.5.1.2.A - [Strand] - Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.

Essential Questions:

How do we tell time to the hour and half hour?

Why is it important to know how to tell time?

How do we gather information and organize it to create a chart/graph?

How do we analyze a chart/graph?

How do we determine the length of an object?

Why is measurement important?

How can we compare lengths of objects?

21 st Century Connections				
Check all that apply.			Indicate whether these skills are E -Encouraged, T -Taught, and/or A -Assessed in this unit by marking E, T, A in the box before the appropriate skill.	
21 st Century Interdisciplinary Themes			21 st Century Skills	
	X	Global Awareness	E, T	Critical Thinking and Problem Solving
	X	Environmental Literacy	E, T	Creativity and Innovation
		Health Literacy	E, T, A	Communication and Collaboration
		Civic Literacy		Flexibility and Adaptability
		Financial, Economic , Business and Entrepreneurial Literacy	E	Initiative and Self-Direction
				Social and Cross-Cultural Skills
			E, T, A	Productivity and Accountability
			E	Leadership and Responsibility
			E	Informational Literacy Skills
			E	Media Literacy Skills
			E, T	Information, Communication, and Technology (ICT) Literacy
Career Ready Practices:				
Indicate whether these skills are E -Encouraged, T -Taught, or A -Assessed in this unit by marking E, T, A on the line before the appropriate skill.				
	E, T	CRP1. Act as a responsible and contributing citizen and employee		
	E, T, A	CRP2. Apply appropriate academic and technical skills		
		CRP3. Attend to personal health and financial well-being		
	E, T, A	CRP4. Communicate clearly and effectively with reason		

		CRP5. Consider the environmental, social and economic impacts of decisions
	E	CRP6. Demonstrate creativity and innovation
		CRP7. Employ valid and reliable research strategies
	E, T	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them
		CRP9. Model integrity, ethical leadership, and effective management
		CRP10. Plan education and career paths aligned to personal goals
	E, T	CRP11. Use technology to enhance productivity
	E, T	CRP12. Work productively in teams while using cultural global competence
Student Learning Goals/Objectives:		
<ul style="list-style-type: none"> Understand how a clock tells time Understand that data can be collected and represented in different ways Know that objects can be measured using length units Understand that the lengths of two objects can be compared indirectly by using a 3rd object 		Students will be able to (do)... <ul style="list-style-type: none"> Tell and write time to the hour and half hour Collect, organize, and interpret data Order three objects by length Compare the lengths of two objects indirectly by using a third object
Key Vocabulary and Terms:		
Digital, analog, hour, half hour, minute, length, units, gaps, overlaps, graph, chart, data, category, measure		
Assessment Evidence:		
Performance Tasks: <ul style="list-style-type: none"> Write digital and analog times to the hour and half hour Use a toolkit clock to make a time to the hour or half hour Measure objects using cubes Arrange groups of objects in length order Use data to create a data chart Use data to create a bar graph 		Other Assessment Measures: <p>Summative</p> <ul style="list-style-type: none"> Unit assessments STAR <p>Formative</p> <ul style="list-style-type: none"> White boards Teacher observation

<ul style="list-style-type: none"> Analyze data from a tally chart or bar graph 	<ul style="list-style-type: none"> Guided practice Classwork Homework
Teaching and Learning Actions: (What learning experiences and instruction will enable students to achieve the desired results?)	
Instructional Strategies and Activities (add rows as needed) *D Title	Consider how will the design will: Description with Modifications, number of days, etc.
20. Time to the hour and half hour	Students make an analog clock Poetry and songs Make times on tool kit clocks Write digital times Games (time match) Technology
21. Measuring lengths	Students will measure various items using a smaller length unit Measure objects using different body parts Locate sets of objects shorter and/or taller than self
22. Represent and interpret data	Students will create class tally chart on various categories(favorite sports, pets, birthday months) Transfer tally chart information to create a bar graph Ask and answer questions related to the results
23. Differentiations	Differentiation ELL/SE Independent practice Small groups Manipulatives Native language support Differentiations GT Centers

	Technology Games Time book Elapsed time Standard units in length Time to the minute *See Part 3 of Teacher’s Manual for readiness, enrichment, and ELL options
Resources:	
Every Day Math book, www.engageny.org , www.greatminds.org/math/eureka , more.starfall.com , www.sheppardsoftware.com , www.arcademicskillbuilders.com , www.emgamesonline.com	
Suggested Time Frame	28-32 days

*D – Indicates differentiation at the Lesson Level (Identify Modifications for ELL, Gifted and Talented, Basic Skills, Special Education)

Content Area:	Mathematics	Grade(s) 1
Unit Plan Title:	Unit 4- Geometry	
Overview/Rationale		
Students compose and decompose plane or solid figures and build understanding of part-whole relationships as well as the properties of the original and composite shapes. As they combine shapes, they recognize them from different perspectives and orientations, describe their geometric attributes, and determine how they are alike and different, to develop the background for measurement and for initial understandings of properties such as congruence and symmetry.		
Standard(s) Number and Description		
<i>MA.1.1.G.A.1 - [Standard] - Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.</i>		
<i>MA.1.1.G.A.2 - [Standard] - Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.</i>		
<i>MA.1.1.G.A.3 - [Standard] - Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths, and quarters, and use the phrases half of, fourth of, and quarter of. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.</i>		
Math Practice Standards Number and Description		
MP1 Make sense of problems and persevere in solving them. Make sense of your problem. Reflect on your thinking as you solve your problem. Keep trying when your problem is hard. Check whether your answer makes sense. Solve problems in more than one way. Compare the strategies you and others use.		
MP2 Reason abstractly and quantitatively. Create mathematical representations using numbers, words, pictures, symbols, gestures, tables, graphs and concrete objects. Make sense of the representations you and others use. Make connections between representations.		
MP3 Construct viable argument and critique the reasoning of others. Make mathematical conjectures and arguments.		
MP4 Model with mathematics real-world situations using graphs, drawings, tables, symbols, numbers, diagram, and other representations. Use mathematical models to solve problems and answer questions.		

MP5 Use appropriate tools strategically. Choose appropriate tools. Use tools effectively and make sense of your results.

MP6 Attend to precision. Explain your mathematical thinking clearly and precisely. Use an appropriate level of precision for your problem. Use clear labels, units, and mathematical language. Think about accuracy and efficiency when you count, measure, and calculate.

MP7 Look for and make use of structure. Look for mathematical structures such as categories, patterns, and properties. Use structures to solve problems and answer questions.

MP8 *Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation $(y - 2)/(x - 1) = 3$. Noticing the regularity in the way terms cancel when expanding $(x - 1)(x + 1)$, $(x - 1)(x^2 + x + 1)$, and $(x - 1)(x^3 + x^2 + x + 1)$ might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.*

Technology Standard(s) Number and Description

TECH.8.1.2.A.CS1 - [Content Statement] - Understand and use technology systems.

TECH.8.1.2.A.CS2 - [Content Statement] - Select and use applications effectively and productively.

Interdisciplinary Standard(s) Number and Description

LA.1.SL.1.1 - [Progress Indicator] - Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.

LA.1.SL.1.1.A - Follow agreed-upon norms for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under

LA.1.SL.1.1.B - Build on others' talk in conversations by responding to the comments of others through multiple exchange discussion).

LA.1.SL.1.1.C - Ask questions to clear up any confusion about the topics and texts under discussion.

SCI.K-2.5.2.2.E.a - [Content Statement] - Objects can move in many different ways (fast and slow, in a straight line, in a circular path, zigzag, and back and forth).

SCI.K-2.5.2.2.E.1 - [Cumulative Progress Indicator] - Investigate and model the various ways that inanimate objects can move.

Enduring Understandings:

The focus of this unit is to reason with shapes and their attributes.

- Distinguish between defining and non-defining attributes
- Build and draw shapes to possess defining attributes
- Compose two or three dimensional shapes to create a composite shape
- Compose new shapes from composite shape
- Partition circles and rectangles into two and four equal shares
- Understand that decomposing into more equal shares creates smaller shares

Essential Questions :

What are attributes?

What distinguishes one shape from another?

How can we use two dimensional shapes to build three dimensional shapes?

How do we make composite shapes?

What are equal shares/parts?

What correlations can we make about the number of shares and the size of each share?

21st Century Connections

Check all that apply.

21st Century Interdisciplinary Themes

X

Global Awareness

X

Environmental Literacy

*Indicate whether these skills are **E**-Encouraged, **T**-Taught, and/or **A**-Assessed in this unit by marking **E, T, A** in the box before the appropriate skill.*

21st Century Skills

E, T, A

Critical Thinking and Problem Solving

E, T

Creativity and Innovation

		Health Literacy	E,T	Communication and Collaboration
		Civic Literacy	E	Flexibility and Adaptability
		Financial, Economic , Business and Entrepreneurial Literacy	E,T	Initiative and Self-Direction
			E	Social and Cross-Cultural Skills
			E,T,A	Productivity and Accountability
			E	Leadership and Responsibility
				Informational Literacy Skills
			E	Media Literacy Skills
			E,T	Information, Communication, and Technology (ICT) Literacy
Career Ready Practices:				
<i>Indicate whether these skills are E-Encouraged, T-Taught, or A-Assessed in this unit by marking E, T, A on the line before the appropriate skill.</i>				
	E, T	CRP1. Act as a responsible and contributing citizen and employee		
	E,T,A	CRP2. Apply appropriate academic and technical skills		
		CRP3. Attend to personal health and financial well-being		
	E,T	CRP4. Communicate clearly and effectively with reason		
		CRP5. Consider the environmental, social and economic impacts of decisions		
	E,T	CRP6. Demonstrate creativity and innovation		
	E	CRP7. Employ valid and reliable research strategies		
	E,T	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them		
		CRP9. Model integrity, ethical leadership, and effective management		

		CRP10. Plan education and career paths aligned to personal goals
	E	CRP11. Use technology to enhance productivity
	E, T	CRP12. Work productively in teams while using cultural global competence
Student Learning Goals/Objectives:		
<ul style="list-style-type: none"> Identify and name two and three dimensional shapes Identify attributes of each shape Identify a composite shape Recognize the difference between a two dimensional and three dimensional shape Identify a shape divided into two or four equal parts and describe the parts (halves, fourths, quarters) Understand that decomposing into more equal shares creates smaller shares 		<i>Students will be able to (do)...</i> <ul style="list-style-type: none"> Construct two/three dimensional shapes Create a composite shape Compose new shapes from composite shapes Partition shapes into two or four equal parts Write the fraction in a divided shape
Key Vocabulary and Terms:		
Attributes, two dimensional/three dimensional shapes, rectangle, square, triangle, trapezoid, cylinder, half-circle, quarter-circle, cube, prism, cone, equal parts/equal shares, halves, fourths, quarters, half of, fourth of, quarter of, smaller shares		
Assessment Evidence:		
<i>Performance Tasks:</i> <ul style="list-style-type: none"> Identify and draw two dimensional shapes Identify three dimensional shapes Sort shapes by attributes Create composite shapes Compose new shapes from composite shapes Divide shapes into two or four equal parts Label the equal parts of a shape 		<i>Other Assessment Measures:</i> <p>Summative</p> <ul style="list-style-type: none"> Unit assessments STAR <p>Formative</p> <ul style="list-style-type: none"> White boards Teacher observation Guided practice Classwork Homework
<i>Teaching and Learning Actions: (What learning experiences and instruction will enable students to achieve the desired results?)</i>		

<p><i>Instructional Strategies and Activities (add rows as needed)</i></p> <p><i>*D</i></p> <p>Title</p>	<p>Consider how will the design will:</p> <p>Description with Modifications, number of days, etc.</p>
<p>24. 2D Shapes</p>	<p>Sort pattern blocks Use shape template to make shapes, designs Books (<i>The Greedy Triangle, King's Commissioners</i>) Attribute block sort Games, centers, technology Shape hunt: Find shapes in everyday life Make new shapes by combining smaller shapes Make composite shapes with pattern blocks/shape template</p>
<p>25. 3D Shapes</p>	<p>Make solid shapes out of clay, or by using marshmallows and toothpicks Blocks Shape hunt: find shapes in everyday life Decompose 3D shapes by tracing the faces Make composite shapes by combining 3D ones</p>
<p>26. Fractions</p>	<p>Share graham crackers, Divide various shapes into equal shares/parts Pattern block fractions Create fraction strips ($\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{8}$) to conclude that the more shares the smaller the amount Games, centers technology</p>
<p>27. Differentiations</p>	<p>Differentiation ELL/SE Picture vocabulary posters Independent practice Small groups/ one on one instruction Manipulatives Native language support</p> <p>Differentiations GT Centers</p>

	Technology Games Compose new shapes using template Find equal shares using arrays of rectangles *See Part 3 of Teacher's Manual for readiness, enrichment, and ELL options
Resources:	
Every Day Math book, www.engageny.org , www.greatminds.org/math/eureka , more.starfall.com , www.sheppardsoftware.com , www.arcademicskillbuilders.com , www.emgamesonline.com	
Suggested Time Frame	18-22 days

*D – Indicates differentiation at the Lesson Level Identify Modifications for ELL, Gifted and Talented, Basic Skills, Special Education.

Curriculum Map

Grade 1		Unit 1	Unit 2	Unit 3	Unit 4
1.OA- Operations and Algebraic Thinking					
	A. Represent and solve problems using addition and subtraction.				
1.OA.A.1	Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.		✓		
1.OA.A.2	Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.		✓		
	B. Understand and apply properties of operations and the relationship between addition and subtraction.				
1.OA.B.3	Apply properties of operations as strategies to add and subtract. ² <i>Examples: If $8 + 3 = 11$ is known, then $3 + 8 = 11$ is also known. (Commutative property of addition.) To add $2 + 6 + 4$, the second two numbers can be added to make a ten, so $2 + 6 + 4 = 2 + 10 = 12$. (Associative property of addition.)</i>		✓		
1.OA.B.4	Understand subtraction as an unknown-addend problem. <i>For example, subtract $10 - 8$ by finding the number that makes 10 when added to 8. Add and subtract within 20.</i>		✓		
	C. Add and subtract within 20				
1.OA.C.5	Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).	✓	✓		
1.OA.C.6	Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent		✓		

	but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).				
	D. Work with addition and subtraction equations.				
1.0A.D.7	Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.		✓		
1.0A.D.8	Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. <i>For example, determine the unknown number that makes the equation true in each of the equations $8 + ? = 11$, $5 = _ - 3$, $6 + 6 = _$.</i>		✓		
1. NBT - Number & Operations in Base Ten					
	A. Extending the sequence				
1.NBT.A.1	Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.	✓			
	B. Understand place value				
1.NBT.B.2 (a-c)	Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: a. 10 can be thought of as a bundle of ten ones — called a "ten." b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones. c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).	✓			
1.NBT.B.3	Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols $>$, $=$, and $<$.	✓			
	C. Use place value understanding and properties of operations to add and subtract.				

1.NBT.C.4	Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.		✓		
1.NBT.C.5	Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.		✓		
1.NBT.C.6	Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.		✓		
1. MD - Measurement and Data					
	A. Measure lengths indirectly and by iterating length units.				
1.MD.A.1	Order three objects by length; compare the lengths of two objects indirectly by using a third object.			✓	
1.MD.A.2	Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. <i>Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.</i>			✓	
	B. Tell and write time				
1.MD.B.3	Tell and write time in hours and half-hours using analog and digital clocks.			✓	
	C. Represent and interpret data.				

1.MD.C.4	Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.			✓	
1. G - Geometry					
	A. Reason with shapes and their attributes.				
1.G.A.1	Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size) ; build and draw shapes to possess defining attributes.				✓
1.G.A.2	Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.				✓
1.G.A.3	Partition circles and rectangles into two and four equal shares, describe the shares using the words <i>halves</i> , <i>fourths</i> , and <i>quarters</i> , and use the phrases <i>half of</i> , <i>fourth of</i> , and <i>quarter of</i> . Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.				✓



2nd GRADE MATH CURRICULUM

Middle Township Public Schools
216 S. Main Street
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Acknowledgements

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Introduction

This document serves to meet all requirements for curriculum as per the Middle Township Board of Education and the New Jersey Department of Education and will serve as a guide for lesson planning. Units within the curricular framework for mathematics are designed to be taught in the order in which they are presented. There is a logical and developmentally appropriate progression of standards, with strong consideration given to Major, Supporting, and Additional content standards presented since most concepts build upon each other. Within Supporting and Additional clusters of mathematics content standards are based on the New Jersey Student Learning Standards. Suggested Mathematical Practice Standards are listed in each unit to be imbedded regularly in daily math instruction.

Course Description

Students extend their understanding of the base-ten system. This includes ideas of counting in fives, tens, and multiples of hundreds, tens, and ones, as well as number relationships involving these units, including comparing. Students understand multi-digit numbers (up to 1000) written in base-ten notation, recognizing that the digits in each place represent amounts of thousands, hundreds, tens, or ones (e.g., 853 is 8 hundreds + 5 tens + 3 ones).

Students use their understanding of addition to develop fluency with addition and subtraction within 100. They solve problems within 1000 by applying their understanding of models for addition and subtraction, and they develop, discuss, and use efficient, accurate, and generalizable methods to compute sums and differences of whole numbers in base-ten notation, using their understanding of place value and the properties of operations. They select and accurately apply methods that are appropriate for the context and the numbers involved to mentally calculate sums and differences for numbers with only tens or only hundreds.

Students recognize the need for standard units of measure (centimeter and inch) and they use rulers and other measurement tools with the understanding that linear measure involves an iteration of units. They recognize that the smaller the unit, the more iterations they need to cover a given length.

Students describe and analyze shapes by examining their sides and angles. Students investigate, describe, and reason about decomposing and combining shapes to make other shapes. Through building, drawing, and analyzing two- and three-dimensional shapes, students develop a foundation for understanding area, volume, congruence, similarity, and symmetry in later grades.

Pacing Guide

Recommended Second Grade Mathematics Pacing Guide 2017-2018				
First Marking Period	Days 1- 45			
	September 18 days		October 20 Days	November 18 days
	Unit One- Add and Subtract within 100 and Understand Place Value to 1000			Unit Two- 2- Use place value and properties of operations to add and subtract
Second Marking Period	Days 46- 90			
	November (Continued) 18 days	December 15 days		January 20 days
	Unit Two- 2- Continued		Unit 3- Equal groups of objects and measures in standard units-foundations of multiplication	
Third Marking Period	Days 91- 135			
	February 18 days	March 21 days	April 16 days	
	Unit 3- Continued	Unit 4- Place value and measurement of lengths indirectly and by iterating length units		
Fourth Marking Period	Days 136-180			
	April (Continued) 16 days	May 22 days		June 12 days
	Unit 5- Represent data and reason with shapes and their attributes			

Pacing Guide

<u>UNIT TITLE</u>	<u>ENDURING UNDERSTANDINGS</u>	<u>NJSLS</u>	<u>TIMEFRAME</u>
11- Add and Subtract within 100- Understand Place Value to 1000	<ul style="list-style-type: none"> As digits progress from right to left, their individual value increases ten times. Place value is based on groups of ten and the value of a number is determined by the place of its digits. A number can be written using its name, standard, or expanded form. Rounding numbers can be used when estimating answers to real-world problems. Place value understanding and properties of operations are necessary to solve multi-digit arithmetic. The standard algorithm for addition and subtraction relies on adding or subtracting like base-ten units. 	MA.2.2.OA.A.1 MA.2.2.NBT.A.1 MA.2.2.NBT.A.1a MA.2.2.NBT.A.1b MA.2.2.NBT.A.2 MA.2.2.NBT.A.3 MA.2.2.NBT.A.4	30-40 days
12- Use place value and properties of operations to add and subtract	<ul style="list-style-type: none"> Determine whether a number is even or odd by looking at the digit in the ones place. When two even numbers are added they result in an even sum. Place value understanding and properties of operations are necessary to solve multi-digit arithmetic. Various strategies can be used for mentally solving addition and subtraction. Recognizing patterns in place value to skip count by 5s, 10s, and 100s. 	MA.2.2.OA.C.3 MA.2.2.OA.B.2 MA.2.2.NBT.A.2 MA.2.2.NBT.B.5 MA.2.2.NBT.B.6	19-27 Days
13- Equal groups of objects and measures in standard units- foundations of multiplication	<ul style="list-style-type: none"> Place value understanding and properties of operations are necessary to solve multi-digit arithmetic. Various strategies can be used for mentally solving addition and subtraction. Recognizing patterns in place value to skip count by 5s, 10s, and 100s. Addition can be used to express the sum of equal addends. Various tools can be used to measure the length of objects. 	MA.2.2.OA.B.2 MA.2.2.NBT.A.2 MA.2.2.NBT.B.5 MA.2.2.OA.C.4 MA.2.2.MD.A.1 MA.2.2.MD.A.2 MA.2.2.MD.A.3 MA.2.2.MD.A.4	22-28 Days

	<ul style="list-style-type: none"> • Various standard units can be used to measure the length of objects. • Estimation can be used to approximate the lengths of objects. 		
14- Place value and measurement of lengths indirectly and by iterating length units	<ul style="list-style-type: none"> • As digits progress from right to left, their individual value increases ten times. • Place value is based on groups of ten and the value of a number is determined by the place of its digits. • Rounding numbers can be used when estimating answers to real-world problems. • Place value understanding and properties of operations are necessary to solve multi-digit arithmetic. • The standard algorithm for addition and subtraction relies on adding or subtracting like base-ten units. • Lengths can be represented as whole numbers on a number line or number grid. • Analog and digital clocks are used to tell time. There is a difference between a.m. and p.m. • There is an appropriate way to represent money (dollar bills, quarters, dimes, nickels, and pennies) with dollars and cents symbols. 	MA.2.2.NBT.B.8 MA.2.2.NBT.B.9 MA.2.2.MD.B.5 MA.2.2.MD.B.6 MA.2.2.MD.C.8 MA.2.2.OA.A.1 MA.2.2.OA.B.2 MA.2.2.NBT.B.5	24-30 Days
15- Represent data and reason with shapes and their attributes	<ul style="list-style-type: none"> • As digits progress from right to left, their individual value increases ten times. • Place value is based on groups of ten and the value of a number is determined by the place of its digits. • Place value understanding and properties of operations are necessary to solve multi-digit arithmetic. • The standard algorithm for addition and subtraction relies on adding or subtracting like base-ten units. • Data can be shown with graphic organizers such as bar graphs, line plots, and picture graphs. • Shapes have attributes, such as angles and faces. • Shapes can be divided into equal parts. 	MA.2.2.NBT.B.7 MA.2.2.MD.D.9 MA.2.2.MD.D.10 MA.2.2.G.A.1 MA.2.2.G.A.2 MA.2.2.G.A.3 MA.2.2.OA.B.2 MA.2.2.NBT.B.5	19-29 Days

Content Area:	Math	Grade(s) 2
Unit Plan Title:	Unit One: Add and subtract within 100-Understand place value to 1000	
Overview/Rationale		
In this unit, students extend their understanding of the base ten systems. They work with multi-digit numbers to practice comparing, ordering, rounding, and writing numbers in expanded form. They begin on fluency with addition and subtraction of multi-digit whole numbers using the standard algorithm.		
Standard(s) Number and Description		
<i>MA.2.2.OA.A.1 Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.</i>		
<i>MA.2.2.NBT.A.1 Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:</i>		
<i>MA.2.2.NBT.A.1a - 100 can be thought of as a bundle of ten tens — called a “hundred.”</i>		
<i>MA.2.2.NBT.A.1b - The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).</i>		
<i>MA.2.2.NBT.A.2 Count within 1000; skip-count by 5s, 10s, and 100s.</i>		
<i>MA.2.2.NBT.A.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form</i>		
<i>MA.2.2.NBT.A.4 Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.</i>		
Math Practice Standards Number and Description		
MP1 Make sense of problems and persevere in solving them. Make sense of your problem. Reflect on your thinking as you solve your problem. Keep trying when your problem is hard. Check whether your answer makes sense. Solve problems in more than one way. Compare the strategies you and others use.		
MP2 Reason abstractly and quantitatively. Create mathematical representations using numbers, words, pictures, symbols, gestures, tables, graphs and concrete objects. Make sense of the representations you and others use. Make connections between representations.		
MP3 Construct viable argument and critique the reasoning of others. Make mathematical conjectures and arguments.		
MP4 Model with mathematics real-world situations using graphs, drawings, tables, symbols, numbers, diagram, and other representations. Use mathematical models to solve problems and answer questions.		
MP5 Use appropriate tools strategically. Choose appropriate tools. Use tools effectively and make sense of your results.		
MP6 Attend to precision. Explain your mathematical thinking clearly and precisely. Use an appropriate level of precision for your problem. Use clear		

labels, units, and mathematical language. Think about accuracy and efficiency when you count, measure, and calculate.

MP7 Look for and make use of structure. Look for mathematical structures such as categories, patterns, and properties. Use structures to solve problems and answer questions.

MP8 Look for and express regularity in repeated reasoning.

Technology Standard(s) Number and Description

TECH.8.1.2.A - [Strand] - Students demonstrate a sound understanding of technology concepts, systems and operations.

TECH.8.1.2.B - [Strand] - Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.

TECH.8.1.2.C - [Strand] - Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.

TECH.8.1.2.D - [Strand] - Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.

TECH.8.1.2.E - [Strand] - Students apply digital tools to gather, evaluate, and use information.

TECH.8.1.2.F - [Strand] - Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

Interdisciplinary Standard(s) Number and Description

LA.2.RI.2.1 - [Progress Indicator] - Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.

LA.2.RI.2.7 - [Progress Indicator] - Explain how specific illustrations and images (e.g., a diagram showing how a machine works) contribute to and clarify a text.

LA.2.RI.2.4 - [Progress Indicator] - Determine the meaning of words and phrases in a text relevant to a grade 2 topic or subject area.

LA.2.RI.2.5 - [Progress Indicator] - Know and use various text features (e.g., captions, bold print, subheadings, glossaries, indexes, electronic menus, icons) to locate key facts or information in a text efficiently.

LA.2.RI.2.6 - [Progress Indicator] - Identify the main purpose of a text, including what the author wants to answer, explain, or describe.

LA.2.RI.2.10 - [Progress Indicator] - Read and comprehend informational texts, including history/social studies, science, and technical texts, at grade level text complexity proficiently with scaffolding as needed.

LA.2.W.2.2 - [Progress Indicator] - Write informative/explanatory texts in which they introduce a topic, use evidence-based facts and definitions to develop points, and provide a conclusion.

LA.2.SL.2.1.A - Follow agreed-upon norms for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).

LA.2.SL.2.1.B - Build on others' talk in conversations by linking their explicit comments to the remarks of others.

LA.2.SL.2.1.C - Ask for clarification and further explanation as needed about the topics and texts under discussion.

Enduring Understandings: The focus of this unit is to provide students time to develop and practice efficient addition and subtraction of multi-digit whole numbers while developing place value concepts.

- As digits progress from right to left, their individual value increases ten times.

- Place value is based on groups of ten and the value of a number is determined by the place of its digits.
- A number can be written using its name, standard, or expanded form.
- Rounding numbers can be used when estimating answers to real-world problems.
- Place value understanding and properties of operations are necessary to solve multi-digit arithmetic.
- The standard algorithm for addition and subtraction relies on adding or subtracting like base-ten units.

Students will understand that...

They can translate place value understanding amongst multi-digit whole numbers.

Apply place value understanding and properties of operations of addition and subtraction to perform multi-digit arithmetic.

Essential Questions :

How does using the concept of place value help us to understand the relationship of multi-digit whole numbers?

How does understanding place value help us solve multi-digit addition and subtraction problems?

How does the value of a digit change within a number?

How can place value understanding help us with comparing, ordering, and rounding whole numbers?

How can we compare two numbers?

In what ways can numbers be composed and decomposed?

How are addition and subtraction related to one another?

What are some ways we can solve multi-digit addition and subtraction problems?

What makes an estimate reasonable?

21st Century Connections

Check all that apply.

21st Century Interdisciplinary Themes

Indicate whether these skills are E-Encouraged, T-Taught, and/or A-Assessed in this unit by marking E, T, A in the box before the appropriate skill

21st Century Skills

X	Global Awareness	E T A	Critical Thinking and Problem Solving
	Environmental Literacy	E T	Creativity and Innovation
	Health Literacy	E T A	Communication and Collaboration
	Civic Literacy	E T	Flexibility and Adaptability
X	Financial, Economic ,	E T	Initiative and Self-Direction

	Business and Entrepreneurial Literacy

E T
E T A
E T
E T A
E
E T

Social and Cross-Cultural Skills

Productivity and Accountability

Leadership and Responsibility

Informational Literacy Skills

Media Literacy Skills

Information, Communication, and Technology (ICT) Literacy

Career Ready Practices:

Indicate whether these skills are E-Encouraged, T-Taught, or A-Assessed in this unit by marking E, T, A on the line before the appropriate skill.

	E T	CRP1. Act as a responsible and contributing citizen and employee
	E T A	CRP2. Apply appropriate academic and technical skills
	E	CRP3. Attend to personal health and financial well-being
	E T A	CRP4. Communicate clearly and effectively with reason
	E	CRP5. Consider the environmental, social and economic impacts of decisions
	E T A	CRP6. Demonstrate creativity and innovation
	E	CRP7. Employ valid and reliable research strategies
	E T A	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them
	E T	CRP9. Model integrity, ethical leadership, and effective management
	E	CRP10. Plan education and career paths aligned to personal goals
	E T	CRP11. Use technology to enhance productivity
	E T	CRP12. Work productively in teams while using cultural global competence

Student Learning Goals/Objectives:

<p><i>Students will know....</i></p> <ol style="list-style-type: none"> 1. How to use addition and subtraction in word problems. 2. That three digits represent amounts of hundreds, tens and ones. 3. Skip-counting patterns in increments of 5, 10 and 100. 4. Numbers to 1,000. 5. The meanings of the place value digits in comparison to other numbers. 	<p><i>Students will be able to (do)...</i></p> <ol style="list-style-type: none"> 1. Add and subtract within 100 by adding, taking from, putting together, taking apart, and comparing with unknowns in all positions. 2. Bundle groups of ten and hundreds and name numbers. 3. Count within 1,000 by 5, 10, 100. 4. Read and write numbers to 1,000 using various forms. 5. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.
<p>Key Vocabulary and Terms:</p>	
<ul style="list-style-type: none"> • $=$, $<$, $>$ (equal to, less than, greater than) • Addend (e.g., in $4 + 5$, the numbers 4 and 5 are the addends) • Algorithm (a step-by-step procedure to solve a particular type of problem) • Difference (answer to a subtraction problem) • Digit (any of the numbers 0 to 9; e.g., What is the value of the digit in the tens place?) • Expanded form (e.g., $100 + 30 + 5 = 135$) • Number line (a line marked with numbers at evenly spaced intervals) • Number sentence (e.g., $4 + 3 = 7$) • Place value (the numerical value that a digit has by virtue of its position in a number) • Rounding (approximating the value of a given number) • Standard form (a number written in the format 135) • Sum (answer to an addition problem) • Word form (e.g., one hundred thirty-five) • Regrouping (making groups of tens when adding or subtracting two digit numbers (or more) and is another name for carrying and borrowing) 	
<p>Assessment Evidence:</p>	
<p><i>Performance Tasks:</i></p>	<p><i>Other Assessment Measures:</i></p>

<p>Number grid puzzles (show correct sequential order of numbers)</p> <p>Place value charts (correctly place digit)</p> <p>Comparing numbers ($<$, $>$, $=$)</p> <p>Number line comparisons</p> <p>Base-ten blocks</p> <p>Estimation strategies (rounding and front end estimation)</p> <p>Solving word problems</p> <p>http://ccssmathactivities.com/performance-tasks-grade-2/</p> <p>http://www.insidemathematics.org/performance-assessment-tasks</p>	<p>Summative</p> <ul style="list-style-type: none"> • Quizzes • Unit Test • Diagnostic Assessments <p>Formative</p> <ul style="list-style-type: none"> • Slate Assessments • Entry/Exit Slips • Progress Monitoring • Classwork/ Homework • Guided Practice • Open Response Assessments
<p><i>Teaching and Learning Actions: (What learning experiences and instruction will enable students to achieve the desired results?)</i></p>	
<p>28. Place Value Flip Book or Chart</p>	<p>Students make a flip book or chart to show place value up to millions place. 6-8 Days</p> <p>*D Teacher models and helps label the place value chart.</p> <ul style="list-style-type: none"> • Breaking down the task • Providing step-by-step prompts • Repeated practice • Individual/Small Group/Whole Class Instruction • Peer Tutoring • Meaningful Real Life Connections • Modeling • Graphic Organizers
<p>29. Addition with Partial Sums Method</p>	<p>Using slates, whiteboards, or grid paper students will solve multi-digit addition problems. 6-8 Days</p> <p>*D On graph paper, draw vertical lines to correctly align the digits to solve problems.</p> <ul style="list-style-type: none"> • Providing step-by-step prompts • Repeated practice • Individual/Small Group/Whole Class Instruction • Peer Tutoring

	<ul style="list-style-type: none"> • Meaningful Real Life Connections • Modeling • Graphic Organizers • Breaking down the task
30. Using the U.S. traditional method for subtraction	<p>Using slates, whiteboards, or grid paper students will solve multi-digit subtraction problems with regrouping. 10-14 Days</p> <p>*D On graph paper, draw vertical lines to correctly align the digits to solve problems. Use base ten blocks to model regrouping.</p> <ul style="list-style-type: none"> • Breaking down the task • Providing step-by-step prompts • Repeated practice • Individual/Small Group/Whole Class Instruction • Peer Tutoring • Meaningful Real Life Connections • Modeling • Graphic Organizers
31. Math games	<p>Using various manipulatives students will develop mental math strategies. 8-10 Days</p> <p>*D Add and subtract using playing cards, fact triangles, number lines, number grids, dominoes, dice, etc. in structured activities.</p> <ul style="list-style-type: none"> • Breaking down the task • Providing step-by-step prompts • Repeated practice • Individual/Small Group/Whole Class Instruction • Peer Tutoring • Meaningful Real Life Connections • Modeling • Graphic Organizers
Resources:	

District approved textbook,

<http://eurekamathhelp.piqua.org/student-math-resources/second-grade-resources>

<https://www.engageny.org/resource/grade-2-mathematics>

<http://www.insidemathematics.org/assets/problems-of-the-month/miles%20of%20tiles.pdf>

http://iarss.org/wp-content/uploads/2015/01/PARCC_K-2_Evidences_3-11-15.pdf

<http://www.insidemathematics.org/common-core-resources/mathematical-content-standards/standards-by-grade/2nd-grade>

Suggested Time Frame

30-40 Days

*D – Indicates differentiation at the Lesson Level (Identify Modifications for ELL, Gifted and Talented, Basic Skills, Special Education)

Content Area:	Math	Grade(s): 2
Unit Plan Title:	Unit 2: Use place value and properties of operations to add and subtract	
Overview/Rationale		
In this unit students will work with equal groups of objects to gain foundations for multiplication. They will use place value understanding and properties of operations to add and subtract within 20. Students will add up to four two-digit numbers, both odd and even, and will write equations to express addition of equal parts.		
Standard(s) Number and Description		
<i>MA.2.2.OA.C.3 - [Standard] - Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends</i>		
<i>MA.2.2.OA.B.2 - [Standard] - Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers</i>		
<i>MA.2.2.NBT.A.2 - [Standard] - Count within 1000; skip-count by 5s, 10s, and 100s</i>		
<i>MA.2.2.NBT.B.5 - [Standard] - Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.</i>		
<i>MA.2.2.NBT.B.6 - [Standard] - Add up to four two-digit numbers using strategies based on place value and properties of operations.</i>		
Math Practice Standards Number and Description		
MP1 Make sense of problems and persevere in solving them. Make sense of your problem. Reflect on your thinking as you solve your problem. Keep trying when your problem is hard. Check whether your answer makes sense. Solve problems in more than one way. Compare the strategies you and others use.		
MP2 Reason abstractly and quantitatively. Create mathematical representations using numbers, words, pictures, symbols, gestures, tables, graphs and concrete objects. Make sense of the representations you and others use. Make connections between representations.		
MP3 Construct viable argument and critique the reasoning of others. Make mathematical conjectures and arguments.		
MP4 Model with mathematics real-world situations using graphs, drawings, tables, symbols, numbers, diagram, and other representations. Use mathematical models to solve problems and answer questions.		
MP5 Use appropriate tools strategically. Choose appropriate tools. Use tools effectively and make sense of your results.		
MP6 Attend to precision. Explain your mathematical thinking clearly and precisely. Use an appropriate level of precision for your problem. Use clear labels, units, and mathematical language. Think about accuracy and efficiency when you count, measure, and calculate.		
MP7 Look for and make use of structure. Look for mathematical structures such as categories, patterns, and properties. Use structures to solve problems and answer questions.		
MP8 Look for and express regularity in repeated reasoning.		
Technology Standard(s) Number and Description		

TECH.8.1.2.A - [Strand] - Students demonstrate a sound understanding of technology concepts, systems and operations.

TECH.8.1.2.B - [Strand] - Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.

TECH.8.1.2.C - [Strand] - Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.

TECH.8.1.2.D - [Strand] - Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.

TECH.8.1.2.E - [Strand] - Students apply digital tools to gather, evaluate, and use information.

TECH.8.1.2.F - [Strand] - Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

Interdisciplinary Standard(s) Number and Description

LA.2.RI.2.1 - [Progress Indicator] - Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.

LA.2.RI.2.7 - [Progress Indicator] - Explain how specific illustrations and images (e.g., a diagram showing how a machine works) contribute to and clarify a text.

LA.2.RI.2.4 - [Progress Indicator] - Determine the meaning of words and phrases in a text relevant to a grade 2 topic or subject area.

LA.2.RI.2.5 - [Progress Indicator] - Know and use various text features (e.g., captions, bold print, subheadings, glossaries, indexes, electronic menus, icons) to locate key facts or information in a text efficiently.

LA.2.RI.2.6 - [Progress Indicator] - Identify the main purpose of a text, including what the author wants to answer, explain, or describe.

LA.2.RI.2.10 - [Progress Indicator] - Read and comprehend informational texts, including history/social studies, science, and technical texts, at grade level text complexity proficiently with scaffolding as needed.

LA.2.W.2.2 - [Progress Indicator] - Write informative/explanatory texts in which they introduce a topic, use evidence-based facts and definitions to develop points, and provide a conclusion.

LA.2.SL.2.1.A - Follow agreed-upon norms for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).

LA.2.SL.2.1.B - Build on others' talk in conversations by linking their explicit comments to the remarks of others.

LA.2.SL.2.1.C - Ask for clarification and further explanation as needed about the topics and texts under discussion.

Enduring Understandings: The focus of this unit is to provide students time to develop a deeper understanding of place value and how it relates to addition and subtraction.

- Determine whether a number is even or odd by looking at the digit in the ones place.
- When two even numbers are added they result in an even sum.
- Place value understanding and properties of operations are necessary to solve multi-digit arithmetic.
- Various strategies can be used for mentally solving addition and subtraction.
- Recognizing patterns in place value to skip count by 5s, 10s, and 100s.

The standard algorithm for addition and subtraction relies on adding or subtracting like base-ten units.

Students will understand that...

They can translate place value understanding amongst multi-digit whole numbers.
 They can apply place value knowledge to fluently add and subtract.
 Skip counting builds a foundation for multiplication.

Essential Questions :

Why is it important to recognize whether a group is odd or even?
 How can we connect understandings of multiplication to real life situations?
 Are there patterns in numbers?
 How do we develop mental strategies to add and subtract?
 Are addition and subtraction related?
 How can a sum be influenced by two same addends? What changes if they are both even or both odd?

21st Century Connections

Check all that apply.			Indicate whether these skills are E -Encouraged, T -Taught, and/or A -Assessed in this unit by marking E , T , A in the box before the appropriate skill		
21 st Century Interdisciplinary Themes			21 st Century Skills		
	X	Global Awareness	ETA	Critical Thinking and Problem Solving	
		Environmental Literacy	ET	Creativity and Innovation	
		Health Literacy	ETA	Communication and Collaboration	
		Civic Literacy	ET	Flexibility and Adaptability	
		Financial, Economic , Business and Entrepreneurial Literacy	ET	Initiative and Self-Direction	
	X		ET	Social and Cross-Cultural Skills	
			ETA	Productivity and Accountability	
			ET	Leadership and Responsibility	

		ET	Informational Literacy Skills
		ET	Media Literacy Skills
		ET	Information, Communication, and Technology (ICT) Literacy
Career Ready Practices:			
Indicate whether these skills are E -Encouraged, T -Taught, or A -Assessed in this unit by marking E, T, A on the line before the appropriate skill.			
	ET	CRP1. Act as a responsible and contributing citizen and employee	
	ET A	CRP2. Apply appropriate academic and technical skills	
	E	CRP3. Attend to personal health and financial well-being	
	ET A	CRP4. Communicate clearly and effectively with reason	
	E	CRP5. Consider the environmental, social and economic impacts of decisions	
	ET A	CRP6. Demonstrate creativity and innovation	
	E	CRP7. Employ valid and reliable research strategies	
	ET A	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them	
	ET	CRP9. Model integrity, ethical leadership, and effective management	
	E	CRP10. Plan education and career paths aligned to personal goals	
	ET	CRP11. Use technology to enhance productivity	
	ET	CRP12. Work productively in teams while using cultural global competence	
Student Learning Goals/Objectives:			
Students will know....		Students will be able to (do)...	
1. Odd or even numbers.		1. Determine whether a number (up to 20) is odd or even.	
2. The relationship between addends and a sum.		2. Write an equation of an even number with two equivalent addends.	
3. The values of the digits in a two-digit number.		3. Add up to four two-digit numbers using various strategies.	

<ul style="list-style-type: none"> 4. Various strategies can be used when adding. 5. Patterns exist when counting. 6. To use mental strategies to add and subtract. 7. A relationship between addition and subtraction exists. 	<ul style="list-style-type: none"> 4. Skip-count by 5s, 10s, and 100s within 1000. 5. Apply mental strategies to add and subtract within 20. 6. Apply various strategies to fluently add and subtract within 100.
Key Vocabulary and Terms: <ul style="list-style-type: none"> • Addend (e.g., in $4 + 5$, the numbers 4 and 5 are the addends) • Equation (a step-by-step procedure to solve a particular type of problem) • Difference (answer to a subtraction problem) • Digit (any of the numbers 0 to 9; e.g., What is the value of the digit in the tens place?) • Number model (e.g., $4 + 3 = 7$) • Place value (the numerical value that a digit has by virtue of its position in a number) • Rounding (approximating the value of a given number) • Sum (answer to an addition problem) • Even (a number that can be paired in equal groups) • Odd (a number that cannot be paired in equal groups) • Mental strategies (ways to perform an operation in your mind) • Patterns (repeated numbers in a sequence) • Regrouping (making groups of tens when adding or subtracting two digit numbers (or more) and is another name for carrying and borrowing) 	
Assessment Evidence:	
Performance Tasks: Number grid puzzles (show correct sequential order of numbers) Place value charts (correctly place digit) Number line comparisons Base-ten blocks Estimation strategies (rounding and front end estimation) Solving word problems Math games (developing mental strategies) http://ccssmathactivities.com/performance-tasks-grade-2/	Other Assessment Measures: Summative <ul style="list-style-type: none"> • Quizzes • Unit Test • Diagnostic Assessments Formative <ul style="list-style-type: none"> • Slate Assessments • Entry/Exit Slips

http://www.insidemathematics.org/performance-assessment-tasks	<ul style="list-style-type: none"> • Progress Monitoring • Classwork/ Homework • Guided Practice • Open Response Assessments
<i>Teaching and Learning Actions: (What learning experiences and instruction will enable students to achieve the desired results?)</i>	
1. <i>Addition with Partial Sums Method</i>	<p>Using slates, whiteboards, or grid paper students will solve multi-digit addition problems. 3-5 Days *D On graph paper, draw vertical lines to correctly align the digits to solve problems.</p> <ul style="list-style-type: none"> • Providing step-by-step prompts • Repeated practice • Individual/Small Group/Whole Class Instruction • Peer Tutoring • Meaningful Real Life Connections • Modeling • Graphic Organizers • Breaking down the task
2. Using the U.S. traditional method for subtraction	<p>Using slates, whiteboards, or grid paper students will solve multi-digit subtraction problems with regrouping. 5-7 Days *D On graph paper, draw vertical lines to correctly align the digits to solve problems. Use base ten blocks to model regrouping.</p> <ul style="list-style-type: none"> • Breaking down the task • Providing step-by-step prompts • Repeated practice • Individual/Small Group/Whole Class Instruction • Peer Tutoring • Meaningful Real Life Connections • Modeling • Graphic Organizers

3. Number grid puzzles	<p>Using number grids students will identify skip-counting patterns. 5-7 Days</p> <p>*D On grid paper, write in numbers in sequence and shade repeated numbers to identify patterns.</p> <ul style="list-style-type: none"> • Breaking down the task • Providing step-by-step prompts • Repeated practice • Individual/Small Group/Whole Class Instruction • Peer Tutoring • Meaningful Real Life Connections • Modeling • Graphic Organizers
4. Math games	<p>Using various manipulatives students will develop mental math strategies. 6-8 Days</p> <p>*D Add and subtract using playing cards, fact triangles, dominoes, dice in structured activities.</p> <ul style="list-style-type: none"> • Breaking down the task • Providing step-by-step prompts • Repeated practice • Individual/Small Group/Whole Class Instruction • Peer Tutoring • Meaningful Real Life Connections • Modeling • Graphic Organizers
Resources:	
<p>District approved textbook, http://eurekamathhelp.piqua.org/student-math-resources/second-grade-resources https://www.engageny.org/resource/grade-2-mathematics http://www.insidemathematics.org/assets/problems-of-the-month/miles%20of%20tiles.pdf http://iarss.org/wp-content/uploads/2015/01/PARCC_K-2_Evidences_3-11-15.pdf http://www.insidemathematics.org/common-core-resources/mathematical-content-standards/standards-by-grade/2nd-grade</p>	
Suggested Time Frame	19-27 Days

*D – Indicates differentiation at the Lesson Level (Identify Modifications for ELL, Gifted and Talented, Basic Skills, Special Education)

Content Area:	Math	Grade(s): 2
Unit Plan Title:	Unit three: Equal groups of objects and measures in standard units-foundations of multiplication	
Overview/Rationale		
In this unit students will measure and estimate lengths in standard units (inches, feet, centimeters, and meters) by choosing the appropriate tool to do so. Students will work with equal groups of objects to gain foundations for multiplication. They will use place value understanding and properties of operations to add and subtract within 20. Students will add up to four two-digit numbers, both odd and even, and will write equations to express addition of equal parts.		
Standard(s) Number and Description		
<i>MA.2.2.OA.B.2 - [Standard] - Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers</i>		
<i>MA.2.2.NBT.A.2 - [Standard] - Count within 1000; skip-count by 5s, 10s, and 100s</i>		
<i>MA.2.2.NBT.B.5 - [Standard] - Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.</i>		
<i>MA.2.2.OA.C.4 - [Standard] - Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.</i>		
<i>MA.2.2.MD.A.1 - [Standard] - Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.</i>		
<i>MA.2.2.MD.A.2 - [Standard] - Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.</i>		
<i>MA.2.2.MD.A.3 - [Standard] - Estimate lengths using units of inches, feet, centimeters, and meters.</i>		
<i>MA.2.2.MD.A.4 - [Standard] - Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.</i>		
Math Practice Standards Number and Description		
MP1 Make sense of problems and persevere in solving them. Make sense of your problem. Reflect on your thinking as you solve your problem. Keep trying when your problem is hard. Check whether your answer makes sense. Solve problems in more than one way. Compare the strategies you and others use.		
MP2 Reason abstractly and quantitatively. Create mathematical representations using numbers, words, pictures, symbols, gestures, tables, graphs and concrete objects. Make sense of the representations you and others use. Make connections between representations.		
MP3 Construct viable argument and critique the reasoning of others. Make mathematical conjectures and arguments.		
MP4 Model with mathematics real-world situations using graphs, drawings, tables, symbols, numbers, diagram, and other representations. Use		

mathematical models to solve problems and answer questions.

MP5 Use appropriate tools strategically. Choose appropriate tools. Use tools effectively and make sense of your results.

MP6 Attend to precision. Explain your mathematical thinking clearly and precisely. Use an appropriate level of precision for your problem. Use clear labels, units, and mathematical language. Think about accuracy and efficiency when you count, measure, and calculate.

MP7 Look for and make use of structure. Look for mathematical structures such as categories, patterns, and properties. Use structures to solve problems and answer questions.

MP8 Look for and express regularity in repeated reasoning.

Technology Standard(s) Number and Description

TECH.8.1.2.A - [Strand] - Students demonstrate a sound understanding of technology concepts, systems and operations.

TECH.8.1.2.B - [Strand] - Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.

TECH.8.1.2.C - [Strand] - Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.

TECH.8.1.2.D - [Strand] - Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.

TECH.8.1.2.E - [Strand] - Students apply digital tools to gather, evaluate, and use information.

TECH.8.1.2.F - [Strand] - Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

Interdisciplinary Standard(s) Number and Description

LA.2.RI.2.1 - [Progress Indicator] - Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.

LA.2.RI.2.7 - [Progress Indicator] - Explain how specific illustrations and images (e.g., a diagram showing how a machine works) contribute to and clarify a text.

LA.2.RI.2.4 - [Progress Indicator] - Determine the meaning of words and phrases in a text relevant to a grade 2 topic or subject area.

LA.2.RI.2.5 - [Progress Indicator] - Know and use various text features (e.g., captions, bold print, subheadings, glossaries, indexes, electronic menus, icons) to locate key facts or information in a text efficiently.

LA.2.RI.2.6 - [Progress Indicator] - Identify the main purpose of a text, including what the author wants to answer, explain, or describe.

LA.2.RI.2.10 - [Progress Indicator] - Read and comprehend informational texts, including history/social studies, science, and technical texts, at grade level text complexity proficiently with scaffolding as needed.

LA.2.W.2.2 - [Progress Indicator] - Write informative/explanatory texts in which they introduce a topic, use evidence-based facts and definitions to develop points, and provide a conclusion.

LA.2.SL.2.1.A - Follow agreed-upon norms for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).

LA.2.SL.2.1.B - Build on others' talk in conversations by linking their explicit comments to the remarks of others.

LA.2.SL.2.1.C - Ask for clarification and further explanation as needed about the topics and texts under discussion.

Enduring Understandings:

- Place value understanding and properties of operations are necessary to solve multi-digit arithmetic.
- Various strategies can be used for mentally solving addition and subtraction.
- Recognizing patterns in place value to skip count by 5s, 10s, and 100s.
- Addition can be used to express the sum of equal addends.
- Various tools can be used to measure the length of objects.
- Various standard units can be used to measure the length of objects.
- Estimation can be used to approximate the lengths of objects.

Students will understand that...

They can apply place value knowledge to fluently add and subtract.

Skip counting builds a foundation for multiplication.

They can measure length with different tools and standard units.

Estimation is useful to justify reasonable measures.

Essential Questions :

How do we develop mental strategies to add and subtract?

Are addition and subtraction related?

Can addition and multiplication be related?

How can we connect understandings of multiplication to real life situations?

Are there patterns in numbers?

Why do various standard units of measurement exist?

Why do we have different tools for measurement?

How can estimation be used in measuring?

How does comparing measurements relate to real-life situations?

What does length mean when we talk about a number?

21st Century Connections

Check all that apply.

*Indicate whether these skills are **E**-Encouraged, **T**-Taught, and/or **A**-Assessed in this unit by marking **E, T, A** in the box before the appropriate skill*

21 st Century Interdisciplinary Themes			21 st Century Skills		
	X	Global Awareness		ETA	Critical Thinking and Problem Solving
		Environmental Literacy		ET	Creativity and Innovation
		Health Literacy		ETA	Communication and Collaboration
		Civic Literacy		ET	Flexibility and Adaptability
	X	Financial, Economic , Business and Entrepreneurial Literacy		ET	Initiative and Self-Direction
				ET	Social and Cross-Cultural Skills
				ETA	Productivity and Accountability
				ET	Leadership and Responsibility
				ETA	Informational Literacy Skills
				E	Media Literacy Skills
				ET	Information, Communication, and Technology (ICT) Literacy
	Career Ready Practices:				
Indicate whether these skills are <i>E</i> -Encouraged, <i>T</i> -Taught, or <i>A</i> -Assessed in this unit by marking <i>E</i> , <i>T</i> , <i>A</i> on the line before the appropriate skill.					
	ET	CRP1. Act as a responsible and contributing citizen and employee			
	ETA	CRP2. Apply appropriate academic and technical skills			
	E	CRP3. Attend to personal health and financial well-being			
	ETA	CRP4. Communicate clearly and effectively with reason			
	E	CRP5. Consider the environmental, social and economic impacts of decisions			
	ETA	CRP6. Demonstrate creativity and innovation			
	E	CRP7. Employ valid and reliable research strategies			

	ETA	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them
	ET	CRP9. Model integrity, ethical leadership, and effective management
	E	CRP10. Plan education and career paths aligned to personal goals
	ET	CRP11. Use technology to enhance productivity
	ET	CRP12. Work productively in teams while using cultural global competence
Student Learning Goals/Objectives:		
<i>Students will know....</i> <ol style="list-style-type: none"> How to use addition in arrays. That addition equations have addends and a sum. That rulers, yardsticks, meter sticks, and measuring tapes are tools for measuring length. That inches, feet, centimeters, and meters are some standard units of measurement for length. Estimation can be used to approximate a length. Various strategies can be used when adding. Patterns exist when counting. To use mental strategies to add and subtract. A relationship between addition and subtraction exists. 		<i>Students will be able to (do)...</i> <ol style="list-style-type: none"> Use repeated addition to find sums in the form of an array. Measure the length of an object by selection an appropriate tool. Compare and describe two different measurements of the same object. Estimate the length of an object by using standard units of measurement. Determine the difference in the lengths of two objects measured with the same standard unit. Add up to four two-digit numbers using various strategies. Skip-count by 5s, 10s, and 100s within 1000. Apply mental strategies to add and subtract within 20. Apply various strategies to fluently add and subtract within 100.
Key Vocabulary and Terms:		
<ul style="list-style-type: none"> Addend (e.g., in $4 + 5$, the numbers 4 and 5 are the addends) Equation (a step-by-step procedure to solve a particular type of problem) Difference (answer to a subtraction problem) Digit (any of the numbers 0 to 9; e.g., What is the value of the digit in the tens place?) Number model (e.g., $4 + 3 = 7$) 		

- Place value (the numerical value that a digit has by virtue of its position in a number)
- Rounding (approximating the value of a given number)
- Sum (answer to an addition problem)
- Even (a number that can be paired in equal groups)
- Mental strategies (ways to perform an operation in your mind)
- Patterns (repeated numbers in a sequence)
- Regrouping (making groups of tens when adding or subtracting two digit numbers (or more) and is another name for carrying and borrowing)
- Multiplication (The mathematical operation of repeated addition)
- Array (a visual aid created by arranging objects in equal rows and columns)
- Ruler, yardsticks, meter sticks, measuring tape (some tools for measuring length)
- Length (how long something is)
- Inches, feet, centimeters, and meters (some standard units of measurement for length)

Assessment Evidence:

Performance Tasks:

Creating arrays (show equal rows and equal columns)
 Measure around the room (find and compare lengths of objects in real life)
 Number grid puzzles (show correct sequential order of numbers)
 Place value charts (correctly place digit)
 Number line comparisons
 Base-ten blocks
 Estimation strategies (rounding and front end estimation)
 Solving word problems
 Math games (developing mental strategies)
<http://ccssmathactivities.com/performance-tasks-grade-2/>
<http://www.insidemathematics.org/performance-assessment-tasks>

Other Assessment Measures:

Summative

- Quizzes
- Unit Test
- Diagnostic Assessments

Formative

- Slate Assessments
- Entry/Exit Slips
- Progress Monitoring
- Classwork/ Homework
- Guided Practice
- Open Response Assessments

Teaching and Learning Actions: (What learning experiences and instruction will enable students to achieve the desired results?)

5. Math games	<p>Using various manipulatives students will develop mental math strategies.6-8 Days</p> <p>*D Add, subtract, and multiply using playing cards, fact triangles, dominoes, dice in structured activities.</p> <ul style="list-style-type: none"> • Breaking down the task • Providing step-by-step prompts • Repeated practice • Individual/Small Group/Whole Class Instruction • Peer Tutoring • Meaningful Real Life Connections • Modeling • Graphic Organizers
6. Arrays	<p>Using and creating arrays to solve multiplication problems with repeated addition. 8-10 Days</p> <p>*D Manipulating objects, drawing and construction arrays to solve real-life multiplication problems.</p> <ul style="list-style-type: none"> • Breaking down the task • Providing step-by-step prompts • Repeated practice • Individual/Small Group/Whole Class Instruction • Peer Tutoring • Meaningful Real Life Connections • Modeling • Graphic Organizers
7. <i>Standard units of measurement and appropriate tools</i>	<p>Selecting appropriate tools and units for measuring lengths of various objects. 8-10 Days</p> <p>*D Using rulers, yard sticks, meter sticks and measuring tapes to measure objects in inches, feet, centimeters and meters.</p> <ul style="list-style-type: none"> • Breaking down the task • Providing step-by-step prompts • Repeated practice • Individual/Small Group/Whole Class Instruction • Peer Tutoring • Meaningful Real Life Connections • Modeling • Graphic Organizers
Resources:	

District approved textbook,

<http://eurekamathhelp.piqua.org/student-math-resources/second-grade-resources>

<https://www.engageny.org/resource/grade-2-mathematics>

<http://www.insidemathematics.org/assets/problems-of-the-month/miles%20of%20tiles.pdf>

http://iarss.org/wp-content/uploads/2015/01/PARCC_K-2_Evidences_3-11-15.pdf

<http://www.insidemathematics.org/common-core-resources/mathematical-content-standards/standards-by-grade/2nd-grade>

Suggested Time Frame

22-28 Days

*D – Indicates differentiation at the Lesson Level (Identify Modifications for ELL, Gifted and Talented, Basic Skills, Special Education)

Content Area:	Math	Grade(s): 2
Unit Plan Title:	Unit Four: Place value and measurement of lengths indirectly and by iterating length units	
Overview/Rationale		
Students will use their understanding of place value to add and subtract both numbers and lengths. They will work with analog and digital clocks to tell and write time. Students will solve word problems involving money. Students will represent and solve multi-step addition and subtraction problems. They will further develop fluency of addition and subtraction within 100 and will strengthen their mental strategies for adding and subtracting within 20.		
Standard(s) Number and Description		
<i>MA.2.2.NBT.B.8 - [Standard] - Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.</i>		
<i>MA.2.2.NBT.B.9 - [Standard] - Explain why addition and subtraction strategies work, using place value and the properties of operations.</i>		
<i>MA.2.2.MD.B.5 - [Standard] - Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.</i>		
<i>MA.2.2.MD.B.6 - [Standard] - Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2,..., and represent whole-number sums and differences within 100 on a number line diagram.</i>		
<i>MA.2.2.MD.C.7 - [Standard] - Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.</i>		
<i>MA.2.2.MD.C.8 - [Standard] - Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately.</i>		
<i>MA.2.2.OA.A.1 - [Standard] - Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.</i>		
<i>MA.2.2.OA.B.2 - [Standard] - Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.</i>		
<i>MA.2.2.NBT.B.5 - [Standard] - Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.</i>		
Math Practice Standards Number and Description		
MP1 Make sense of problems and persevere in solving them. Make sense of your problem. Reflect on your thinking as you solve your problem. Keep trying when your problem is hard. Check whether your answer makes sense. Solve problems in more than one way. Compare the strategies you and others use.		
MP2 Reason abstractly and quantitatively. Create mathematical representations using numbers, words, pictures, symbols, gestures, tables, graphs and concrete objects. Make sense of the representations you and others use. Make connections between representations.		
MP3 Construct viable argument and critique the reasoning of others. Make mathematical conjectures and arguments.		

MP4 Model with mathematics real-world situations using graphs, drawings, tables, symbols, numbers, diagram, and other representations. Use mathematical models to solve problems and answer questions.

MP5 Use appropriate tools strategically. Choose appropriate tools. Use tools effectively and make sense of your results.

MP6 Attend to precision. Explain your mathematical thinking clearly and precisely. Use an appropriate level of precision for your problem. Use clear labels, units, and mathematical language. Think about accuracy and efficiency when you count, measure, and calculate.

MP7 Look for and make use of structure. Look for mathematical structures such as categories, patterns, and properties. Use structures to solve problems and answer questions.

MP8 Look for and express regularity in repeated reasoning.

Technology Standard(s) Number and Description

TECH.8.1.2.A - [Strand] - Students demonstrate a sound understanding of technology concepts, systems and operations.

TECH.8.1.2.B - [Strand] - Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.

TECH.8.1.2.C - [Strand] - Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.

TECH.8.1.2.D - [Strand] - Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.

TECH.8.1.2.E - [Strand] - Students apply digital tools to gather, evaluate, and use information.

TECH.8.1.2.F - [Strand] - Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

Interdisciplinary Standard(s) Number and Description

LA.2.RI.2.1 - [Progress Indicator] - Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.

LA.2.RI.2.7 - [Progress Indicator] - Explain how specific illustrations and images (e.g., a diagram showing how a machine works) contribute to and clarify a text.

LA.2.RI.2.4 - [Progress Indicator] - Determine the meaning of words and phrases in a text relevant to a grade 2 topic or subject area.

LA.2.RI.2.5 - [Progress Indicator] - Know and use various text features (e.g., captions, bold print, subheadings, glossaries, indexes, electronic menus, icons) to locate key facts or information in a text efficiently.

LA.2.RI.2.6 - [Progress Indicator] - Identify the main purpose of a text, including what the author wants to answer, explain, or describe.

LA.2.RI.2.10 - [Progress Indicator] - Read and comprehend informational texts, including history/social studies, science, and technical texts, at grade level text complexity proficiently with scaffolding as needed.

LA.2.W.2.2 - [Progress Indicator] - Write informative/explanatory texts in which they introduce a topic, use evidence-based facts and definitions to develop points, and provide a conclusion.

LA.2.SL.2.1.A - Follow agreed-upon norms for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).

LA.2.SL.2.1.B - Build on others' talk in conversations by linking their explicit comments to the remarks of others.

LA.2.SL.2.1.C - Ask for clarification and further explanation as needed about the topics and texts under discussion.

Enduring Understandings: The focus of this unit is to provide students time to develop and practice efficient addition and subtraction of multi-digit whole numbers while developing place value concepts.

- As digits progress from right to left, their individual value increases ten times.
- Place value is based on groups of ten and the value of a number is determined by the place of its digits.
- Rounding numbers can be used when estimating answers to real-world problems.
- Place value understanding and properties of operations are necessary to solve multi-digit arithmetic.
- The standard algorithm for addition and subtraction relies on adding or subtracting like base-ten units.
- Lengths can be represented as whole numbers on a number line or number grid.
- Analog and digital clocks are used to tell time. There is a difference between a.m. and p.m.
- There is an appropriate way to represent money (dollar bills, quarters, dimes, nickels, and pennies) with dollars and cents symbols.

Students will understand that...

They can translate place value understanding amongst multi-digit whole numbers.

Apply place value understanding and properties of operations of addition and subtraction to perform multi-digit arithmetic.

Whole numbers can represent length on a number line or grid.

Time on a clock may represent a.m. or p.m.

Coins have value that can be combined to find a total amount of money.

Essential Questions :

How does using the concept of place value help us to understand the relationship of multi-digit whole numbers?

How does understanding place value help us solve multi-digit addition and subtraction problems?

How does the value of a digit change within a number?

How can place value understanding help us with comparing, ordering, and rounding whole numbers?

How are addition and subtraction related to one another?

What are some ways we can solve multi-digit addition and subtraction problems?

What does length mean when we talk about a number?

How can we compare numbers on a number line or grid?

What are the different ways that a clock can represent times?

What strategies can we use to count money?

21st Century Connections

Check all that apply.			Indicate whether these skills are E-Encouraged, T-Taught, and/or A-Assessed in this unit by marking E, T, A in the box before the appropriate skill		
21 st Century Interdisciplinary Themes			21 st Century Skills		
	X	Global Awareness		ETA	Critical Thinking and Problem Solving
		Environmental Literacy		ET	Creativity and Innovation
		Health Literacy		ETA	Communication and Collaboration
		Civic Literacy		ET	Flexibility and Adaptability
	X	Financial, Economic , Business and Entrepreneurial Literacy		ET	Initiative and Self-Direction
				ET	Social and Cross-Cultural Skills
				ETA	Productivity and Accountability
				ET	Leadership and Responsibility
				ETA	Informational Literacy Skills
				E	Media Literacy Skills
				ET	Information, Communication, and Technology (ICT) Literacy
Career Ready Practices:					
Indicate whether these skills are E-Encouraged, T-Taught, or A-Assessed in this unit by marking E, T, A on the line before the appropriate skill.					
	ET	CRP1. Act as a responsible and contributing citizen and employee			
	ETA	CRP2. Apply appropriate academic and technical skills			
	E	CRP3. Attend to personal health and financial well-being			
	ETA	CRP4. Communicate clearly and effectively with reason			
	E	CRP5. Consider the environmental, social and economic impacts of decisions			
	ETA	CRP6. Demonstrate creativity and innovation			

	E	CRP7. Employ valid and reliable research strategies
	ETA	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them
	ET	CRP9. Model integrity, ethical leadership, and effective management
	E	CRP10. Plan education and career paths aligned to personal goals
	ET	CRP11. Use technology to enhance productivity
	ET	CRP12. Work productively in teams while using cultural global competence
Student Learning Goals/Objectives:		
<i>Students will know....</i>		<i>Students will be able to (do)...</i>
<ol style="list-style-type: none"> How to use mental math to add and subtract. Why addition and subtraction strategies work. That they can relate addition and subtraction to length. That a clock represents time in hours and minutes. That numbers can be represented on a number line. Money has value. Various strategies can be used when adding. Patterns exist when counting. To use mental strategies to add and subtract. 		<ol style="list-style-type: none"> Add and subtract 10s and 100s numbers mentally. Explain how they use place value to perform addition and subtraction. Use drawings to represent and solve word problems involving length. Represent whole numbers on a number line or diagram. Tell and write time to the nearest 5 minutes. Distinguish times between a.m. and p.m. Use addition and subtraction within 100 to solve one-and two-step word problems. Fluently add and subtract within 100.
Key Vocabulary and Terms:		
<ul style="list-style-type: none"> Addend (e.g., in $4 + 5$, the numbers 4 and 5 are the addends) Equation (a step-by-step procedure to solve a particular type of problem) Difference (answer to a subtraction problem) Digit (any of the numbers 0 to 9; e.g., What is the value of the digit in the tens place?) Number model (e.g., $4 + 3 = 7$) 		

- Place value (the numerical value that a digit has by virtue of its position in a number)
- Rounding (approximating the value of a given number)
- Sum (answer to an addition problem)
- Even (a number that can be paired in equal groups)
- Mental strategies (ways to perform an operation in your mind)
- Patterns (repeated numbers in a sequence)
- Regrouping (making groups of tens when adding or subtracting two digit numbers (or more) and is another name for carrying and borrowing)
- Length (how long a number is on a number line)
- A.m. (the unit used to represent a time between midnight and noon)
- P.m. (the unit used to represent a time between noon and midnight)

Assessment Evidence:

Performance Tasks:

Number grid puzzles (show correct sequential order of numbers)
 Place value charts (correctly place digit)
 Comparing numbers (<, >, =)
 Number line comparisons
 Base-ten blocks
 Estimation strategies (rounding and front end estimation)
 Solving word problems
 Drawing clocks/times
 Counting coins and dollar bills

Other Assessment Measures:

Summative

- Quizzes
- Unit Test
- Diagnostic Assessments

Formative

- Slate Assessments
- Entry/Exit Slips
- Progress Monitoring
- Classwork/ Homework
- Guided Practice
- Open Response Assessments

Teaching and Learning Actions: (What learning experiences and instruction will enable students to achieve the desired results?)

8. Math games

Using various manipulatives students will develop mental math strategies. 8-10 Days
 *D Add and subtract using playing cards, fact triangles, coins, dollar bills, number lines, number grids, dominoes, dice in structured activities.

	<ul style="list-style-type: none"> • Breaking down the task • Providing step-by-step prompts • Repeated practice • Individual/Small Group/Whole Class Instruction • Peer Tutoring • Meaningful Real Life Connections • Modeling • Graphic Organizers
9. <i>Clocks</i>	<p>Using various manipulatives students will develop an understanding of time and clock skills.8-10Days</p> <p>*D Tell and create time using individual clocks and slates.</p> <ul style="list-style-type: none"> • Breaking down the task • Providing step-by-step prompts • Repeated practice • Individual/Small Group/Whole Class Instruction • Peer Tutoring • Meaningful Real Life Connections • Modeling • Graphic Organizers
10. <i>Money</i>	<p>Using various manipulatives students will develop an understanding of money. 8-10Days</p> <p>*D Identifying values of dollar bills and coins to find a total sum using various strategies.</p> <ul style="list-style-type: none"> • Breaking down the task • Providing step-by-step prompts • Repeated practice • Individual/Small Group/Whole Class Instruction • Peer Tutoring • Meaningful Real Life Connections • Modeling • Graphic Organizers
Resources:	
District approved textbook, http://eurekamathhelp.piqua.org/student-math-resources/second-grade-resources https://www.engageny.org/resource/grade-2-mathematics	

<http://www.insidemathematics.org/assets/problems-of-the-month/miles%20of%20tiles.pdf>
http://iarss.org/wp-content/uploads/2015/01/PARCC_K-2_Evidences_3-11-15.pdf
<http://www.insidemathematics.org/common-core-resources/mathematical-content-standards/standards-by-grade/2nd-grade>

Suggested Time Frame

24-30 Days

*D – Indicates differentiation at the Lesson Level (Identify Modifications for ELL, Gifted and Talented, Basic Skills, Special Education)

Content Area:	Math	Grade(s): 2
Unit Plan Title:	Unit Five: Represent data and reason with shapes and their attributes	
Overview/Rationale		
In this unit students will continue with fluency with addition and subtraction of multi-digit whole numbers using the standard algorithm. Students will generate, represent and interpret data with graphic organizers. They will be able to recognize and draw shapes have specified attributes. Students will partition shapes into region fractions.		
Standard(s) Number and Description		
<i>MA.2.2.NBT.B.7 - [Standard] - Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.</i>		
<i>MA.2.2.MD.D.9 - [Standard] - Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.</i>		
<i>MA.2.2.MD.D.10 - [Standard] - Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put together, take-apart, and compare problems using information presented in a bar graph.</i>		
<i>MA.2.2.G.A.1 - [Standard] - Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.</i>		
<i>MA.2.2.G.A.2 - [Standard] - Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.</i>		
<i>MA.2.2.G.A.3 - [Standard] - Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.</i>		
<i>MA.2.2.OA.B.2 - [Standard] - Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.</i>		
<i>MA.2.2.NBT.B.5 - [Standard] - Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.</i>		
Math Practice Standards Number and Description		
MP1 Make sense of problems and persevere in solving them. Make sense of your problem. Reflect on your thinking as you solve your problem. Keep trying when your problem is hard. Check whether your answer makes sense. Solve problems in more than one way. Compare the strategies you and others use.		
MP2 Reason abstractly and quantitatively. Create mathematical representations using numbers, words, pictures, symbols, gestures, tables, graphs and concrete objects. Make sense of the representations you and others use. Make connections between representations.		

MP3 Construct viable argument and critique the reasoning of others. Make mathematical conjectures and arguments.

MP4 Model with mathematics real-world situations using graphs, drawings, tables, symbols, numbers, diagram, and other representations. Use mathematical models to solve problems and answer questions.

MP5 Use appropriate tools strategically. Choose appropriate tools. Use tools effectively and make sense of your results.

MP6 Attend to precision. Explain your mathematical thinking clearly and precisely. Use an appropriate level of precision for your problem. Use clear labels, units, and mathematical language. Think about accuracy and efficiency when you count, measure, and calculate.

MP7 Look for and make use of structure. Look for mathematical structures such as categories, patterns, and properties. Use structures to solve problems and answer questions.

MP8 Look for and express regularity in repeated reasoning.

Technology Standard(s) Number and Description

TECH.8.1.2.A - [Strand] - Students demonstrate a sound understanding of technology concepts, systems and operations.

TECH.8.1.2.B - [Strand] - Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.

TECH.8.1.2.C - [Strand] - Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.

TECH.8.1.2.D - [Strand] - Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.

TECH.8.1.2.E - [Strand] - Students apply digital tools to gather, evaluate, and use information.

TECH.8.1.2.F - [Strand] - Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

Interdisciplinary Standard(s) Number and Description

LA.2.RI.2.1 - [Progress Indicator] - Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.

LA.2.RI.2.7 - [Progress Indicator] - Explain how specific illustrations and images (e.g., a diagram showing how a machine works) contribute to and clarify a text.

LA.2.RI.2.4 - [Progress Indicator] - Determine the meaning of words and phrases in a text relevant to a grade 2 topic or subject area.

LA.2.RI.2.5 - [Progress Indicator] - Know and use various text features (e.g., captions, bold print, subheadings, glossaries, indexes, electronic menus, icons) to locate key facts or information in a text efficiently.

LA.2.RI.2.6 - [Progress Indicator] - Identify the main purpose of a text, including what the author wants to answer, explain, or describe.

LA.2.RI.2.10 - [Progress Indicator] - Read and comprehend informational texts, including history/social studies, science, and technical texts, at grade level text complexity proficiently with scaffolding as needed.

LA.2.W.2.2 - [Progress Indicator] - Write informative/explanatory texts in which they introduce a topic, use evidence-based facts and definitions to develop points, and provide a conclusion.

LA.2.SL.2.1.A - Follow agreed-upon norms for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).

LA.2.SL.2.1.B - Build on others' talk in conversations by linking their explicit comments to the remarks of others.
 LA.2.SL.2.1.C - Ask for clarification and further explanation as needed about the topics and texts under discussion.

Enduring Understandings:

- As digits progress from right to left, their individual value increases ten times.
- Place value is based on groups of ten and the value of a number is determined by the place of its digits.
- Place value understanding and properties of operations are necessary to solve multi-digit arithmetic.
- The standard algorithm for addition and subtraction relies on adding or subtracting like base-ten units.
- Data can be shown with graphic organizers such as bar graphs, line plots, and picture graphs.
- Shapes have attributes, such as angles and faces.
- Shapes can be divided into equal parts.

Students will understand that...

They can apply place value understanding and properties of operations of addition and subtraction to perform multi-digit arithmetic.
 They can translate place value understanding amongst multi-digit whole numbers.
 They can recognize shapes by their specific attributes.
 They can use graphic organizers to represent and interpret data.
 They can divide shapes into equal shares.

Essential Questions :

In what ways can numbers be composed and decomposed?
 How are addition and subtraction related to one another?
 What are some ways we can solve multi-digit addition and subtraction problems?
 Is there a best way to show data?
 What inferences can we make from looking at graphic organizers?
 What are the ways we can describe shapes?
 What are some ways we can divide shapes?

21st Century Connections

Check all that apply.

21st Century Interdisciplinary Themes

Indicate whether these skills are **E**-Encouraged, **T**-Taught, and/or **A**-Assessed in this unit by marking **E, T, A** in the box before the appropriate skill

21st Century Skills

	X	Global Awareness	ETA	Critical Thinking and Problem Solving
		Environmental Literacy	ET	Creativity and Innovation
		Health Literacy	ETA	Communication and Collaboration
		Civic Literacy	ET	Flexibility and Adaptability
	X	Financial, Economic , Business and Entrepreneurial Literacy	ET	Initiative and Self-Direction
			ET	Social and Cross-Cultural Skills
			ETA	Productivity and Accountability
			ET	Leadership and Responsibility
			ETA	Informational Literacy Skills
			E	Media Literacy Skills
			ET	Information, Communication, and Technology (ICT) Literacy
Career Ready Practices:				
<i>Indicate whether these skills are E-Encouraged, T-Taught, or A-Assessed in this unit by marking E, T, A on the line before the appropriate skill.</i>				
	ET	CRP1. Act as a responsible and contributing citizen and employee		
	ETA	CRP2. Apply appropriate academic and technical skills		
	E	CRP3. Attend to personal health and financial well-being		
	ETA	CRP4. Communicate clearly and effectively with reason		
	E	CRP5. Consider the environmental, social and economic impacts of decisions		
	ETA	CRP6. Demonstrate creativity and innovation		
	E	CRP7. Employ valid and reliable research strategies		

	ETA	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them
	ET	CRP9. Model integrity, ethical leadership, and effective management
	E	CRP10. Plan education and career paths aligned to personal goals
	ET	CRP11. Use technology to enhance productivity
	ET	CRP12. Work productively in teams while using cultural global competence
Student Learning Goals/Objectives:		
<i>Students will know....</i> <ol style="list-style-type: none"> 1. That digits in a number represent a place value. 2. How to apply place value knowledge to add and subtract. 3. That data is a collection of numbers or values that relate to a particular subject. 4. That line plots, picture graphs, and bar graphs are graphic organizers used to represent data. 5. That shapes have different names. 6. That shapes can be divided into equal shares. 7. Mental strategies to fluently add and subtract within 20. 		<i>Students will be able to (do)...</i> <ol style="list-style-type: none"> 1. Add and subtract within 1,000 by adding, taking from, putting together, taking apart, and comparing with unknowns in all positions. 2. Collect and generate a data set. 3. Represent and interpret data using graphic organizers. 4. Recognize and draw shapes having specified attributes. 5. Partition a rectangle into equal-sized squares using rows and columns. 6. Partition circles and rectangles into equal shares. 7. Describe shares using words halves, thirds, half of, third of, etc. 8. Fluently add and subtract within 20 using mental strategies.
Key Vocabulary and Terms:		
<ul style="list-style-type: none"> • Addend (e.g., in $4 + 5$, the numbers 4 and 5 are the addends) • Equation (a step-by-step procedure to solve a particular type of problem) • Difference (answer to a subtraction problem) • Digit (any of the numbers 0 to 9; e.g., What is the value of the digit in the tens place?) • Number model (e.g., $4 + 3 = 7$) • Place value (the numerical value that a digit has by virtue of its position in a number) 		

- Rounding (approximating the value of a given number)
- Sum (answer to an addition problem)
- Even (a number that can be paired in equal groups)
- Mental strategies (ways to perform an operation in your mind)
- Patterns (repeated numbers in a sequence)
- Regrouping (making groups of tens when adding or subtracting two digit numbers (or more) and is another name for carrying and borrowing)
- Length (how long a number is on a number line)
- Attribute (a characteristic to describe a shape)
- Partition (dividing a shape with lines)
- Line plot (a graph that shows frequency of data along a number ●✕■ℳ ①)
- Bar graph (graph that uses horizontal or vertical bars to display data in order to compare quantities)
- Picture graph (a pictorial display of data with symbols, icons,
and □✕ℳ◆◆□ℳ◆◆□ □ℳ□□ℳ◆ℳ◆◆ □✕✕✕ℳ□ℳ◆◆ □◆□◆◆◆✕◆◆✕ℳ◆◆
- Data (a collection of numbers or values that relate to a particular subject ①)
- Equal shares (Having the same quantity, measure, or value as another part. ①)
- Fraction (an equal part of a whole)
- Angle (a shape, formed by two lines or rays diverging from a common point (the vertex) ①)
- Face (the flat surface of a geometric solid)
- Quadrilateral (a polygon with four edges and four vertices or corners)
- Triangle (a polygon with three edges and three vertices)
- Pentagon (a polygon with five edges and five vertices)
- Hexagon (a polygon with six edges and six vertices)
- Cube (a symmetrical three-dimensional shape contained by six equal squares)

Assessment Evidence:

Performance Tasks:

Number grid puzzles (show correct sequential order of numbers)
Place value charts (correctly place digit)
Number line comparisons
Math games (developing mental strategies)

Other Assessment Measures: Other Assessment Measures:

Summative

- Quizzes
- Unit Test

<p>Arm spans Long jumps Pyramids Paper fractions http://ccssmathactivities.com/performance-tasks-grade-2/ http://www.insidemathematics.org/performance-assessment-tasks</p>	<ul style="list-style-type: none"> • Diagnostic Assessments <p>Formative</p> <ul style="list-style-type: none"> • Slate Assessments • Entry/Exit Slips • Progress Monitoring • Classwork/ Homework • Guided Practice • Open Response Assessments
<p><i>Teaching and Learning Actions: (What learning experiences and instruction will enable students to achieve the desired results?)</i></p>	
<p>11. Arm-Spans</p>	<p>Students will collect data then generate and interpret graphic organizers. 2-4 Days *D Using measuring tape, students measure their arm spans. They record the class data and use it to generate graphic organizers. They use the graphic organizers to interpret the data.</p> <ul style="list-style-type: none"> • Breaking down the task • Providing step-by-step prompts • Repeated practice • Individual/Small Group/Whole Class Instruction • Peer Tutoring • Meaningful Real Life Connections • Modeling • Graphic Organizers
<p>12. Long Jumps</p>	<p>Students will collect data then generate and interpret graphic organizers. 2-4 Days *D Using measuring tape, students measure the distance of their long jumps. They record the class data and use it to generate graphic organizers. They use the graphic organizers to interpret the data.</p> <ul style="list-style-type: none"> • Breaking down the task • Providing step-by-step prompts • Repeated practice • Individual/Small Group/Whole Class Instruction • Peer Tutoring • Meaningful Real Life Connections • Modeling

	<ul style="list-style-type: none"> • Graphic Organizers
13. Math games	<p>Using various manipulatives students will develop mental math strategies. 8-10 Days</p> <p>*D Add and subtract using playing cards, fact triangles, number lines, number grids, dominoes, dice, etc. in structured activities.</p> <ul style="list-style-type: none"> • Breaking down the task • Providing step-by-step prompts • Repeated practice • Individual/Small Group/Whole Class Instruction • Peer Tutoring • Meaningful Real Life Connections • Modeling • Graphic Organizers
14. Straw Pyramids	<p>Using straws and twist-ties students create pyramids with specific attributes. 3-5 Days</p> <p>*D Working with partners, students use materials to construct pyramids with a given number of angles and faces.</p> <ul style="list-style-type: none"> • Breaking down the task • Providing step-by-step prompts • Repeated practice • Individual/Small Group/Whole Class Instruction • Peer Tutoring • Meaningful Real Life Connections • Modeling • Graphic Organizers
15. Paper Fractions	<p>Using paper shapes students fold to partition into equal shares. 4-6 Days</p> <p>*D Independently and with partners, explore various ways to show equal shares in shapes.</p> <ul style="list-style-type: none"> • Breaking down the task • Providing step-by-step prompts • Repeated practice • Individual/Small Group/Whole Class Instruction • Peer Tutoring • Meaningful Real Life Connections • Modeling

	<ul style="list-style-type: none"> • Graphic Organizers
Resources:	
District approved textbook, http://eurekamathhelp.piqua.org/student-math-resources/second-grade-resources https://www.engageny.org/resource/grade-2-mathematics http://www.insidemathematics.org/assets/problems-of-the-month/miles%20of%20tiles.pdf http://iarss.org/wp-content/uploads/2015/01/PARCC_K-2_Evidences_3-11-15.pdf http://www.insidemathematics.org/common-core-resources/mathematical-content-standards/standards-by-grade/2nd-grade	
Suggested Time Frame	19-29 Days

*D – Indicates differentiation at the Lesson Level (Identify Modifications for ELL, Gifted and Talented, Basic Skills, Special Education)

Curriculum Map- 2nd Grade Mathematics

Grade 2		Unit 1	Unit 2	Unit 3	Unit 4	Unit 5
2. OA – Operations & Algebraic Thinking						
A. Represent and solve problems involving addition and subtraction.						
2.OA.1	Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	✓			✓	
B. Add and subtract within 20.						
2.OA.2	Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.		✓	✓	✓	✓
C. Work with equal groups of objects to gain foundations for multiplication						
2.OA.3	Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.		✓			
2.OA.4	Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.			✓		
NBT – Number & Operations in Base Ten						
A. Understand place value						
2.NBT.1 (a-b)	Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases: a. 100 can be thought of as a bundle of ten tens — called a "hundred."	✓				

	b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).					
2.NBT.2	Count within 1000; skip-count by 5s, 10s, and 100s.	✓	✓	✓		
2.NBT.3	Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.	✓		✓		
2.NBT.4	Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using $>$, $=$, and $<$ symbols to record the results of comparisons.	✓				
B. Use place value understanding and properties of operations to add and subtract						
2.NBT.5	Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.		✓		✓	✓
2.NBT.6	Add up to four two-digit numbers using strategies based on place value and properties of operations.		✓			
2.NBT.7	Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.					✓
2.NBT.8	Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900.				✓	
2.NBT.9	Explain why addition and subtraction strategies work, using place value and the properties of operations.				✓	
2. MD - Measurement and Data						
A. Measure and estimate lengths in standard units.						

2.MD.1	Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.			✓		
2.MD.2	Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.			✓		
2.MD.3	Estimate lengths using units of inches, feet, centimeters, and meters.			✓		
2.MD.4	Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.			✓		
B. Relate addition and subtraction to length.						
2.MD.5	Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.				✓	
2.MD.6	Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.				✓	
C. Work with time and money						
2.MD.7	Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.				✓	
2.MD.8	Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately. Example: If you have 2 dimes and 3 pennies, how many cents do you have?				✓	
D. Represent and interpret data.						
2.MD.9	Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by					✓

	making a line plot, where the horizontal scale is marked off in whole-number units.					
2.MD.10	Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems' using information presented in a bar graph.					✓
2. G – Geometry						
A. Reason with shapes and their attributes						
2.G.1	Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. ¹ Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.					✓
2.G.2	Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.					✓
2.G.3	Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.					✓