2nd Grade
(August, September, October)

Unit 1: Linear Measurement

Desired Outcomes

Standard(s):

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 length difference in terms of standard length unit.

Relate addition and subtraction to length

2.MD.6 Represent whole numbers as lengths from 0 on number line diagram with equally spaced points corresponding to the number 0, 1, 2,… and represent whole-number sums & differences within 100 on a number line diagram.

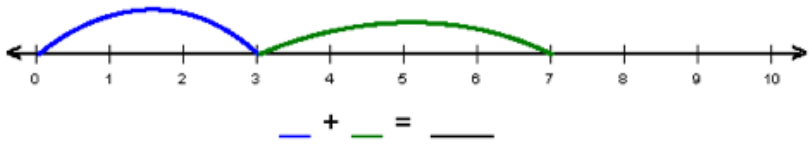
Represent and interpret data.

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.

Transfer:

Students will apply measurement concepts and skills to estimate and measure length appropriately and to represent that measurement in whole numbers. Using those whole-number measurements, students will be able to represent addition and subtraction on a number line diagram.

Ex: Students will also generate measurement data by measuring lengths to create a line plot.



Understandings: *Students will understand that . . .*

- There is a relationship between estimation and measurement.
- A length unit is used to find a measurement.
- A specific process is used to measure attributes of unit length.
- A number line is used to represent measurement attributes such as, distance and quantity.
- There is an inverse relationship between the unit size and number of units. (The smaller the unit, the more needed to measure; the larger the unit, the fewer needed to measure.)
- Measurement data can be organized and analyzed by plotting values on a line plot.

Essential Questions:

- When should you estimate and when do you need an exact answer?
- How do we measure (unit, tool, and process)?
- What is the relationship between the sizes of units to the number of units?
- How can accurate measurements help us to solve problems and make sense of our world?
- How can measurement data be organized?

Highlighted Mathematical Practices: (Practices to be explicitly emphasized are indicated with an *.)

1. **Make sense of problems and persevere in solving them**. Students make sense of measurement quantities and complete a measurement project to determine length using specific units of measurement.
* 2. **Reason abstractly and quantitatively**. Students reason about measurement quantities and relationships while solving tasks. The process of reasoning is applied when determining length and measuring with standard units.
3. **Construct viable arguments and critique the reasoning of others**. After working on a measurement task, students will discuss and critique others' reasoning and strategies.
* 4. **Model with mathematics**. Students will use concrete manipulatives to measure and represent distance and quantity. Real-life addition and subtraction situations will be modeled on a number line.
* 5. **Use appropriate tools strategically**. Students will know when to utilize measurement tools appropriately. These tools may include non-standard objects, rulers, and number lines.
* 6. **Attend to precision.** Students will use the measurement process precisely. For example when using non-standard objects, students will understand units must be of equal size and maintain appropriate length-until iteration. However when using a ruler, students will show correct alignment of the zero-point.
7. **Look for and make use of structure**. Students will reconstruct the patterns within a measurement system by using the structure of the number line.
* 8. **Look for and express regularity in repeated reasoning**. Students will discover strategic methods for estimating length and accurately check for the reasonableness of their estimations.

Prerequisite Skills/Concepts:

Students should already be able to…

- Measure using non-standard units.
- Express lengths as whole numbers within 20.
- Measure with non-standard units accurately with no gaps or overlaps.
- Order objects by length.
- Compare objects indirectly by length using a third object.

Advanced Skills/Concepts:

Some students may be ready to…

- Learn to subdivide length units into fractional units.
- Express length as whole numbers and fractional units.
- Utilize measurement to find perimeter and area.
- Find unknown side lengths in "missing measurement" problems.

Knowledge: *Students will know…*

- The standard tools for linear measurement.
- The location of the beginning point of the appropriate standard measuring tool.
- Length-units.

Skills: *Students will be able to…*

- Measure the length of an object by selecting and using appropriate standard tools. (2.MD.1)
- Measure length of an object twice, using units of different lengths for the two measurements. (2.MD.2)
- Describe how two measurements using different units relates to the size of the unit chosen. (2.MD.2)
- Estimate lengths using units of inches, feet, centimeters and meters. (2.MD.3)
- Check for reasonableness of estimates. (2.MD.3)
- Compare objects visually, side by side, and measure the difference. (2.MD.4)
- Express the difference between lengths in terms of a standard length unit. (2.MD.4)
- Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the number 0, 1, 2. (2.MD.6)
- Represent whole-number sums and differences within 100 on a number line diagram. (2.MD.6)
- Generate measurement data by measuring lengths of several objects to the nearest whole unit or by making repeated measurements of the same object. (2.MD.9)
- Show measurement data by making a line plot, where the horizontal scale is marked off in whole-number units. (2.MD.9)

WIDA Standard (English Language Learners):

English Language Learners communicate information, ideas and concepts necessary for academic success in the content area of Mathematics.

English Language Learners will benefit from:

- An awareness of different measurement vocabulary.
- The use of visual tools such as rulers, number diagrams or number lines, and meter sticks.
- An understanding of the universality of measurement.

Critical Terms:	**Supplemental Terms:**
measure estimate ruler meter stick measuring tapes number diagram number line inch foot centimeter meter customary system metric system unit line plot linear sum difference equal	shorter longer taller wider zero compare

Assessment

Summative Assessments

Measuring Footprints

re-assessments	**Formative Assessments**	**Self-Assessments**
• Compared to Me • Measuring with Units	• Measuring Length and Using Appropriate Tools • Estimating Length and Measuring Objects • Measuring Objects to Compare • Which Tool is Best? • Standard Units • Measuring Objects Twice • Plotting Points on a Number Line • Adding and Subtracting on a Number Line • Plotting on a Line Plot • Measuring in Centimeters • Measuring in Inches • Measuring in Feet	• Unit 1 Self-Assessment Checklist

Unit 2: **2-Digit Addition and Subtraction**

(October, November)

Desired Outcomes

Standard(s):

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.9 Explain why addition and subtraction strategies work, using place value and the properties of operations.

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.

Add and subtraction within 20

2.OA.2 Fluently add and subtract within 20 using mental strategies. By end of 2nd Grade know from memory sums of all two one-digit numbers.

Relate addition and subtraction 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 number line diagram with equally spaced points corresponding to the number 0, 1, 2,… and represent whole-number sums and differences within 100 on a number line diagram.

Represent and interpret data

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.

Transfer:

- Students will apply addition and subtraction concepts and skills to addition to 100.
- Using those whole-number measurements, students will be able to represent addition and subtraction on a number line diagram.
- Students will create and interpret picture and bar graphs to solve simple problems.
  - Result Unknown problem situation example: Five toy cars were on the table. My brother borrowed 3 of them. How many toy cars remain? 5 – 3 = ?
  - Change Unknown problem situation example: 32 students were in the cafeteria. Some left and now there are 27 students in the cafeteria. How many students left the cafeteria? 32 - ? = 27
  - Start Unknown problem situation example: The Marcus family picked some oranges. They gave 16 to their neighbor and kept the rest for themselves. If they kept 26 oranges, how many did they have to start?

Understandings: *Students will understand that . . .*

- Numbers are composed of other numbers.
- There are different problem solving structures which can be used to solve problems in multiple ways.
- Unknown quantities can be represented in different places in an equation/number model.
- Addition and subtraction can be represented on various models such as number lines, picture graphs, and bar graphs.

Essential Questions:

- How does composing and decomposing numbers lead to understanding word problems?
- How can numbers be put together and taken apart to solve problems?
- How does an equation represent an unknown quantity?
- How do visual representations depict addition and subtraction?

Highlighted Mathematical Practices: (Practices to be explicitly emphasized are indicated with an *.)

1. Make sense of problems and persevere in solving them. Students demonstrate their ability to persevere by selecting a modality to begin representing their understanding of addition and subtraction (i.e. tiles, number lines, etc.). They can work collaboratively to represent their quantities as they make sense of the various problem-solving structures of situations.

2. Reason abstractly and quantitatively. Students demonstrate reasoning by explaining and modeling the value of numbers and by applying their knowledge of combinations to compute.

3. Construct viable arguments and critique the reasoning of others. Students will explain why they chose to represent a quantity in a particular way. They need to explain how they represent quantities of addition and subtraction to solve problems. They will also listen to each other and explain what their peers have said.

*

4. Model with mathematics. In this unit, students are asked to transfer between manipulative, number line, drawings and other visual representations, applying these models to real-life situations. They are asked to communicate how their visuals are representing quantities and situations.

5. Use appropriate tools strategically. Students demonstrate their ability to use various tools and models to represent quantities of addition and subtraction, including base-ten manipulatives, Digi-Blocks, number discs, etc.

6. Attend to precision. Students precisely represent and describe the process of transitioning from a word problem to a visual representation (equation, graph, model, number line, etc.) using accurate academic vocabulary.

*

7. Look for and make use of structure. Students will observe and replicate patterns (5s, 10s, and 100s) within our number system. While working in numbers in the base ten domain, students work with the idea that ten 1s equals a 10 and ten 10s equals 100. In addition, they also make use of structure when they work with subtraction as missing addend problems, such as 50 - 33 = __ can be written as 33 +___ = 50. "How much more do I need to add to 33 to get to 50?" These problems will be presented within the various problem-solving structures.

8. Look for and express regularity in repeated reasoning. Students will look for regularity in problem solving structures when solving mathematical tasks. For example, after solving two-digit addition problems by decomposing numbers (33 + 25 = 30 + 20 + 3 + 5), students may begin to generalize and frequently apply that strategy independently on future tasks. Further, students begin to look for strategies to be more efficient in computations, including doubles strategies and making a ten. These problems will be presented within the various problem-solving structures.

Prerequisite Skills/Concepts: *Students should already be able to…* • Represent and solve problems involving addition and subtraction within 20. • Understand and apply properties of operations and the relationship between addition and subtraction. • Add and subtract within 20. • Work with addition and subtraction equations and understand the meaning of the equal sign. • Understand a basic number line diagram. • Answer basic questions about data.	**Advanced Skills/Concepts:** *Some students may be ready to…* • Use place value understanding and properties of multi-digit arithmetic within 1000. • Solve word problems involving time intervals. • Solve one- and two-step problems by using information presented in scaled bar graphs.
Knowledge: *Students will know…* • Basic addition and subtraction computation and problem solving strategies. • The properties of addition (commutative, associative, and identity.)	**Skills**: *Students will be able to…* • Count within 1000 starting from any number. (2.NBT.2) • Solve one-step word problems within 100 involving situations of adding to, taking from, putting together, taking apart, and comparing involving *results unknown* using objects, drawings, and equations with a symbol for the unknown number. (2.OA.1) • Solve one-step word problems within 100 involving situations of adding to, taking from, putting together, taking apart, and comparing involving *change unknown* using objects, drawings, and equations with a symbol for the unknown number. (2.OA.1) • Solve one-step word problems within 100 involving situations of adding to, taking from, putting together, taking apart, and comparing involving *start unknown* using objects, drawings, and equations with a symbol for the unknown number. (2.OA.1) • Solve two-step word problems within 100 involving situations of adding to, taking from, putting together, taking apart, and comparing involving *results unknown* using objects, drawings, and equations with a symbol for the unknown number. (2.OA.1) • Solve two-step word problems within 100 involving situations of adding to, taking from, putting together, taking apart, and comparing involving *change unknown* using objects, drawings, and equations with a symbol for the unknown number. (2.OA.1) • Solve two-step word problems within 100 involving situations of adding to, taking from, putting together, taking apart, and comparing involving *start unknown* using objects, drawings, and equations with a symbol for the unknown number. (2.OA.1) • Fluently add and subtract within 20. (2.OA.2) • Use number sentences or drawings to solve measurement word problems within 100. (2.MD.5) • Write an equation using a symbol for the unknown number to represent the problem. (2.MD.5) • Represent whole numbers as lengths from 0 on a number line diagram. (2.MD.6)

	• Use number line diagrams to represent whole-number sums and differences within 100. (2.MD.6) • Draw a picture graph to represent data with up to 4 categories (including title, scale label, categories, category labels, and data). (2.MD.10) • Draw a bar graph to represent data with up to 4 categories (including title, scale label, categories, category labels, and data). (2.MD.10) • Solve put together, take-apart, and compare problems about information presented in a bar graph. (2.MD.10)

WIDA Standard (English Language Learners):

English Language Learners communicate information, ideas and concepts necessary for academic success in the content area of Mathematics.

English Language Learners will benefit from:

- The use of visual tools such as number diagrams, tape diagrams, number lines, picture graphs, and bar graphs to represent and solve problems.

Academic Vocabulary:

Critical Terms:	**Supplemental Terms:**
Equation	Addition
Quantity	Subtraction
Solve	Remainder
Symbol	Compare
Unknown	Sum
Operation	Difference
Place Value	Unknown
Properties of Addition	Length
Column	Distance
Key	Bar graph
	Picture Graph
	Data
	Title
	Label

Assessment

Summative Assessments

Using Math Tools to Solve 2.NBT.9
Adding and Subtracting on a Number Line
Doubles Assessment
Word Problem Structure Assessment
Solving Measurement Word Problems
Agree/Disagree Gallery Walk
Show 3 Ways Again
2 Digit Ten Frame Flash
Paper Airplane
Class Survey
Bar Graph 1
Bar Graph 2

Pre-Assessments	Formative Assessments	Self-Assessments
• Snap-It Observation Checklist • Adding Fluently Within 10 • Combination of 10 cards • Adding and Subtracting 0, 1, and 2	• Snap-It Observation Checklist • Combination Call-Out Center • Using Strategies to Add and Subtract Observation Checklist • Number Line Dice Roll • Story Problems for Journals • Adding and Subtracting on a Number Line • Agree/Disagree Gallery Walk • Number Line Equation Match • Number Bonds and Number Lines • Show 3 Ways • True or False • Adding Them Up • Adding 4 Two-Digit Numbers • Where's the Unknown 1 • Where's the Unknown • Problem Solving Situations • Picture Graph Assessment	• Using Strategies to Add and Subtract Self-Assessment, • Center Reflection

Grade 2 **Unit 3: Money**
(December, January)

Desired Outcomes

Standard(s):

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 to represent the problem.

Work with time and money.

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?*

Understand place value.

2.NBT.2 Count within 1000; skip-count by 5s, 10s, and 100s.

Use place value understanding and properties of operations to add and subtract.

2.NBT.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.

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.

Represent and interpret data.

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.

Transfer: *Students will apply…*

- Concepts of place value and procedures for skip-counting by 1s, 5s, and 10s, to count money.
- Monetary units to solve real world problems.
- Add to Change Unknown problem situation example: My sister had 9 dimes in her backpack. Mom gave her some more dimes. Now she has 14 dimes. How many did Mom give her? 9 + ? = 14.

Understandings: *Students will understand that….*

- Coins have different values and are counted according to their values.

Essential Questions:

- How do coin values effect how money is counted?

Highlighted Mathematical Practices: (Practices to be explicitly emphasized are indicated with an *.)

* **1. Make sense of problems and persevere in solving them.** Students solve word problems involving dollars using tools, counting strategies and demonstrate their ability to persevere by selecting monetary units to begin representing.

2. Reason abstractly and quantitatively. Students demonstrate reasoning by explaining and modeling the value of monetary units and by applying their knowledge of combinations to compute.

* **3. Construct viable arguments and critique the reasoning of others.** Students will explain why they chose to represent a quantity as a monetary unit. They need to explain how they represent the place value within computation. They will also listen to each other and explain what their peers have said.

* **4. Model with mathematics.** In this unit, students are asked to represent computation by transferring between manipulatives, drawings, and other visual representations, applying these models to real-life situations. They are asked to communicate how their visuals are representing the place value of the

* money and situations.

* **5. Use appropriate tools strategically.** Students demonstrate their ability to use various monetary units to represent place value. They use coins to represent and solve problems.

* **6. Attend to precision**. Students precisely represent and describe the application of place value within the process of computation using accurate academic vocabulary.

7. Look for and make use of structure. Students will observe and replicate patterns (5s, 10s, and 100s) within our monetary system. While working in numbers in base ten domain, students work with the idea that ten 1s equals a 10 and ten 10s equals 100. In addition, they also make use of place value structure when they work with addition and subtraction.

8. Look for express regularity in repeated reasoning. Students will look for regularity in problem solving structures when solving mathematical tasks. For example, students will recognize equivalent monetary units.

Prerequisite Skills/Concepts:	**Advanced Skills/Concepts:**
• Count by 5s and 10s. • Read and write numerals. • Compare two-digit numbers. • Understand and apply properties of operations and the relationship between addition & subtraction. • Add and subtract within 20.	• Perform multi-digit arithmetic. • Use place value understanding to round to the nearest 1000. • When moving to the right among the places in a number, the digits represent smaller amounts. • Round to the unit represented by the placement of a number.
Knowledge: *Students will know…* • Monetary unit representations • Monetary symbols ($ and ¢)	**Skills**: *Students will be able to do…* • Solve word problems involving dollars within 100, and use the $ symbol appropriately. (2.MD.8)

	• Solve word problems involving cents within 100, and use the cents symbol appropriately (2.MD.8) • Fluently add within 100 using strategies based on place value, properties of operations and/or the relationship between addition and subtraction. (2.NBT.5) • Fluently subtract within 100 using strategies based on place value, properties of operations and/or the relationship between addition and subtraction. (2.NBT.5)

WIDA Standard (English Language Learners):

English Language Learners communicate information, ideas and concepts necessary for academic success in the content area of Mathematics.

English Language Learners will benefit from:

- The use of manipulatives, such as play money and base-ten manipulatives.
- Visual representation of symbols on an Anchor chart or visuals.
- Building decade numbers while simultaneously reading numbers aloud to reinforce the meanings of the quantities while visually connecting to specific monetary units and denominations.

Academic Vocabulary:

Critical Terms:	**Supplemental Terms:**
Dollar (bill)	Solve
Cent	Currency
Dollar sign	Coin
Cent sign	Change
Penny	Remainder
Nickel	Place value
Dime	Value
Quarter	
Money	
Unit	
Skip-count	

Assessment		
Summative Assessments Solving Money Problems		
Pre-Assessments	**Formative Assessments**	**Self-Assessments**
• Coin Skip Counting • Coin Recognition and Value • Comparing Values • Money Problems	• Money Assessment Checklist • True or False • Dime Graph • Picture Gallery Walk • Adding and Subtraction Coins • Fair Trades	• Gallery Walk • Centers Reflection

Grade 2
(January, February, March)

Unit 4: Place Value within 1000

Desired Outcomes

Standard(s):

Understand place value.

2.NBT.1 Understand value of digits in a 3 digit number represent amounts of hundreds, tens and 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-10 numerals, names and expanded form.
2.NBT.4 Compare two 3-digit numbers based on the meaning of the hundreds, tens and ones digits, using <, > and = symbols.

Use place value understanding and properties of operations to add and subtract.

2.NBT.7 Add and subtract within 1000 using manipulatives, pictures and words based on place value, properties of operations and/or the relationship between addition and subtraction.
2.NBT.8 Mentally add 10 or 100 to a given number between 100-900 and subtract 10 or 100 from a number 100-900.
2.NBT.9 Explain why addition and subtraction strategies work using place value and the properties of operations.

Measure and estimate lengths in standard units.
2.MD.6 Represent whole numbers as lengths from zero on a number line diagram and whole number sums & differences on the number line diagram – within 100 using manipulatives.

Transfer: *Students will apply…*

Understanding of place value concepts to solve real-world and mathematical addition and subtraction problems involving lengths.

Take from Change unknown problem situation example: My teacher put 19 rulers on the desk. Some students borrowed a ruler and then there 12 remaining. How many students borrowed a ruler? 19 - ? = 12.

Understandings: *Students will understand that …*

- Numbers are composed of other numbers.
- Numbers can represent quantity, position, location and relationships.
- Place value is based on groups of ten.
- Flexible methods of computation involve grouping numbers in strategic ways.

Essential Questions:

- How can numbers be expressed, ordered, and compared?
- How does the position of a digit in a number affect its value?
- In what ways can numbers be composed and decomposed?
- What are efficient methods for finding sums and differences?

Highlighted Mathematical Practices: (Practices to be explicitly emphasized are indicated with an *.)

1. Make sense of problems and persevere in solving them. Students demonstrate their ability to persevere by selecting a modality to begin representing their understanding of place value (i.e. number cards, Digi-blocks, Arrow cards, etc.). They can work collaboratively to represent their quantities.

*

2. Reason abstractly and quantitatively. Students demonstrate reasoning by explaining and modeling the value of numbers and by applying their knowledge of combinations to compute.

* **3. Construct viable arguments and critique the reasoning of others.** Students will explain why they chose to represent place value of a number in a particular ways. They need to explain how they connect representations to symbols. They also will listen to each other and will explain what their peers have said.

* **4. Model with mathematics.** In this unit, students are asked to represent computation by tranferring between manipulative, number line, drawings, and
* other visual representations, to apply these models to real-life situations involving length. They are asked to communicate how their visuals are representing place value of the quantities and situations.

*

5. Use appropriate tools strategically. Students demonstrate their ability to use various models to represent place value.

* **6. Attend to precision**. Students precisely represent and describe the application of place value within the process of computation using accurate academic vocabulary.

7. Look for and make use of structure. Students will observe and replicate patterns (5s, 10s, and 100s) within our number system. While working in numbers in base-ten domain, students work with the idea that ten 1s equals 10 and ten 10s equals 100. In addition, they also make use of place value structure when they work with addition and subtraction.

8. Look for express regularity in repeated reasoning. Students will look for regularity in base-10 patterns when solving mathematical tasks. For example, students will apply single-digit facts to two-digit computation. They will use the structure of tens and hundreds to represent and solve addition and subtraction.

Prerequisite Skills/Concepts:	**Advanced Skills/Concepts:**
• Count to 120. • Read and write numerals. • Compare two-digit numbers. • Use <, >, and = symbols • Understand a basic number line diagram. • Understand and apply properties of operations and the relationship between addition & subtraction. • Add and subtract within 20.	• Use place value understanding and properties of multi-digit arithmetic within 1,000. • Round to the nearest ten or hundred. • Compare multi-digit numbers. • Explore advanced calculation patterns.
Knowledge: *Students will know…* • The value of digits. • Place value names. • Basic addition and subtraction computation and problem solving strategies. • The properties of addition (commutative, associative, and identity.) • Quantity representations on a number line.	**Skills:** *Students will be able to do…* • Represent three digit numbers as amounts of hundreds, tens, and ones using manipulatives, pictures and words. (2.NBT.1) • Represent 100 as a bundle of ten tens using manipulatives, pictures and words. (2.NBT.1) • Represent 200, 300, 400, 500, 600, 700, 800, and 900 as the appropriate number of hundreds using manipulatives, pictures and words. (2.NBT.1) • Count within 1000 starting from any number. (2.NBT.2) • Skip-count by 5s, 10s and 100s. (2.NBT.2) • Read numbers to 1000. (2.NBT.3) • Write numbers to 1000 in standard form and expanded form. (2.NBT.3) • Write number names to 1000. (2.NBT.3) • Compare two three-digit numbers based on placed value of each digit. (2.NBT.4) • Use these symbols correctly <, =, > in comparison. (2.NBT.4) • Fluently add within 100 using strategies based on place value, properties of operations and/or the relationship between addition and subtraction. (2.NBT.5) • Add up to four 2-digit numbers using strategies based on place value and properties of operations. (2.NBT.6) • Add and subtract within 1000 using models, drawings, operation properties and/or the relationship between addition and subtraction using base 10 strategies. (2.NBT.7) • Relate the chosen strategy and explain the reasoning used. (2.NBT.7) • Mentally add 10 or 100 to a number between 100-900. (2.NBT.8) • Mentally subtract 10 or 100 to a number between 100-900. (2.NBT.8) • Explain why addition and subtraction strategies work by applying knowledge of place value and the properties of operations using concrete objects, pictures and words (both oral and written). (2.NBT.9) • Use the same units of measure to compare the lengths of 2 different objects.(2.MD.4)

	• Find the difference between two measurements.(2.MD.4) • Represent whole numbers as lengths from 0 on a number line diagram. (2.MD.6) • Use number line diagrams to represent whole-number sums and differences within 100. (2.MD.6)

WIDA Standard (English Language Learner):

English Language Learners communicate information, ideas and concepts necessary for academic success in the content area of Mathematics.

English Language Learners will benefit from:

- The use of visual tools such as number diagrams, number lines, base-ten manipulatives, etc.
- Visual representation of symbols on an Anchor chart.
- Build decade numbers while simultaneously reading numbers aloud will reinforce the meanings of the quantities.

Academic Vocabulary:

Critical Terms:	**Supplemental Terms:**
Digit Quantity Solve Symbol Operation Place Value Properties of Addition Commutative Associative Identity Base ten Ones Tens Hundreds	Addition Subtraction Remainder Compare Sum Difference Represent Mental math

<table>
<tr><th colspan="3">Assessment</th></tr>
<tr><td colspan="3">Summative Assessments
Top Number
Thumbs Up, Thumbs Down
3-Digit War
3-Digit “Betweener’s” War
Add and Subtract Within1000
Tic Tac Toe
Addition and Subtraction Using Expanded Notation
Analyzing Addition
Analyzing Subtraction
Place Value Addition/Subtraction
True or False Comparison
Mental Math with 10 and 100 used with Centers
Adding And Subtracting Decades and Centuries</td></tr>
<tr><th>Pre-Assessments</th><th>Formative Assessments</th><th>Self-Assessments</th></tr>
<tr>
<td>• 2-Digit Place Value
• Comparing Values Pre-Assessment
• Models for 3-Digit Numbers Addition and Subtraction Checklist</td>
<td>• 3 Digit Number Journal Building
• 3-Digit Numbers
• Number of the Day
• Oral Counting/Number Line
• Read, Write and Compare
• Counting Checklist True or False Comparisons
• 3-Digit War
• 3-Digit “Betweener’s” War
• War with Myself
• Expanded Form True and False
• Models for 3-Digit Addition and Subtraction Checklist
• Thumbs Up, Thumbs Down
• Center Reflection Slips
• Top Number
• Thumbs Up, Thumbs Down
• Tic Tac Toe
• Three Digit Number Journal
• Building 3-Digit Numbers</td>
<td>• Center Reflection Slips</td>
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Grade 2
(March)

Unit 5: Multiplication Readiness

Desired Outcomes

Standard(s):

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 total number of objects in rectangular arrays & write addition equation with equal addends.

Reason with shapes and their attributes.

2.G.2 Partition a rectangle into rows and columns and count to find the total.

Transfer: *Students will apply…*

- Modeling of equal groups and create arrays (divide rectangles into equal-sized squares) as a precursor to multiplication.
- Written equations to show an even number as a sum of two equal addends.
- Even and odd numbers to real-world situations.

Understandings: *Students will understand that …*

- Flexible methods of computation involve grouping numbers in strategic ways. (Equations for even numbers with equal-sized addends.)
- Even numbered objects can be modeled using pairs or rectangular arrays.
- Rectangles can be composed or decomposed from/into equal-sided squares to model repeated addition.

Essential Questions:

- What are efficient methods for finding sums and differences using even and odd properties of numbers?
- How can repeated addition be represented?
- What are some characteristics of whole numbers?

Highlighted Mathematical Practices: (Practices to be explicitly emphasized are indicated with an *.)

1. Make sense of problems and persevere in solving them. Students demonstrate their ability to persevere and represent their understanding of number properties (even/odd).

2. Reason abstractly and quantitatively. Students demonstrate reasoning by creating equations of equal addends to model an even number and apply this to problem solving situations.

3. Construct viable arguments and critique the reasoning of others. Students will explain why they chose to represent an even or odd quantity of objects in a particular way (visually, in words, in an equation, or with manipulatives). They will also listen to each other and explain what their peers have said.

* **4. Model with mathematics.** In this unit, students are asked to transfer between the various modalities and model equal groups with tiles or drawings. They are asked to communicate how their visuals are representing even and odd quantities and situations. They also represent arrays with objects and addition equations.

5. Use appropriate tools strategically. Students will use rectangular arrays to simulate repeated addition.

* **6. Attend to precision**. Students precisely represent and describe the process of transitioning from an equation to a visual representation (area model) using accurate academic vocabulary.

7. Look for and make use of structure. Students will observe and connect arrays of objects to repeated addition and ultimately multiplication. They will examine the structures of both even and odd numbers to discover distinguishing features of each.

8. Look for express regularity in repeated reasoning. Students will examine the predictability of the characteristics of even and odd numbers. They will utilize equations for even numbers to replicate repeated addition.

Prerequisite Skills/Concepts:

Students should already be able to…

- Skip count to 120.
- Write equations to model a number situation.
- Match objects using 1-to-1 correspondence.

Advanced Skills/Concepts:

Some students may be ready to…

- Solve problems involving multiplication and division.
- Identify and explain patterns in arithmetic and multiplication.
- Multiply one-digit whole numbers by multiples of 10 in the range 10-90 using strategies based on place value.

Knowledge: *Students will know…*	**Skills**: *Students will be able to do…* • Determine if a group of objects, up to 20, is odd or even. (2.OA.3) • Justify your answer (odd or even). (2.OA.3) • Write an equation to represent an even number as the sum of 2 equal addends. (2.OA.3) • Find the total number of objects arranged in rectangular arrays (up to 5 by 5) by using repeated addition. (2.OA.4) • Write the equation to represent the repeated addition. (2.OA.4) • Section a rectangle into same size squares creating rows and columns. (2.G.2) • Count the number of tiles in a rectangle to determine the total number of squares in the rectangle. (2.G.2)

WIDA Standard (English Language Learners):

English Language Learners communicate information, ideas and concepts necessary for academic success in the content area of Mathematics.

English Language Learners will benefit from:

- Concrete models of rectangular arrays to model even and odd quantities.

Academic Vocabulary:

Critical Terms:	**Supplemental Terms:**
odd even remainder equal groups pair equal addend row column doubles	equation

Assessment		
Summative Assessments Even and Odd Using an Array Post Counting an Array Post		
Pre-Assessments	**Formative Assessments**	**Self-Assessments**
Doubles Pre-Assessment Even and Odd Self Pre-Assessment	A Handful of Cubes L1 Socks on a popsicle stick L1 Number Line Word Problems L2 Even Odd Dice Roll L1s4 Problem Solving Journals Even and Odd Picture Sort Break It- Roam the Room Even or Odd on a Number Line Flipping the Sums Even Eden and Odd Rod Odd and Even Equation Composing Rectangles Composing Rectangles with Color Tiles Partitioning Rectangles Even or Odd Rectangle Sort Doubling Using An Array Composing Arrays Decomposing Arrays Even or Odd Arrays	Even and Odd Self Pre-Assessment

Grade 2
(April, May)

Unit 6: Geometry and Time

Desired Outcomes

Standard(s):

Reason with shapes and their attributes.
2.G.1 Recognize & draw shapes with given number of angles and sides. Identify triangles, quadrilaterals, pentagons, hexagons and cubes.
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.

Understand place value.
2.NBT 2. Count within 1000; skip-count by 5s, 10s, and 100s.

Reason with shapes and their attributes.
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**.**

Transfer: *Students will apply…*

- Knowledge of shapes to recognize, identify, and draw various shapes based upon attributes.
- Understanding of a.m. and p.m. to real world problem solving situations.
- Telling time to five minutes using analog and digital clocks.
- Using whole-number measurements, students will be able to represent time on a number line diagram, i.e. analog clock.

Understandings: *Students will understand that …*

- Objects can be described and compared using their geometric attributes.
- Time can be measured.
- Standard units provide common language for communicating time.
- Equivalent periods of units are used to measure time.

Essential Questions:

- How can plane and solid shapes be described?
- How do units within a system relate to each another?
- How are various representations of time related?

Highlighted Mathematical Practices: (Practices to be explicitly emphasized are indicated with an *.)

1. **Make sense of problems and persevere in solving them.** Students demonstrate their ability to persevere and identify shapes based upon attributes.
2. **Reason abstractly and quantitatively.** Students demonstrate reasoning by justifying and explaining attributes of shapes in words and drawings.
3. **Construct viable arguments and critique the reasoning of others.** Students will explain why specific attributes cause a shape to "be" a shape. They will also listen to each other and explain what their peers have said.

* 4. **Model with mathematics.** In this unit, students are asked to use various modalities and model shapes with manipulatives or drawings. They are asked to communicate how their visuals represent these shapes. They will relate telling time to the five minutes on an analog clock to a number line.

* 5. **Use appropriate tools strategically.** Students will use concrete models to represent shapes. They will use analog clocks to tell time to the five minutes.

* 6. **Attend to precision**. Students represent and describe the attributes of a shape using precise geometric vocabulary. They will reason what events happen in the a.m. and what events occur in the p.m. They will pay careful attention to the hands on the analog clock.

7. **Look for and make use of structure.** Students will observe, identify, and categorize shapes based upon attributes. They will recognize the patterning of counting by 5's around the clock.
8. **Look for express regularity in repeated reasoning.** Students will notice commonalities in attributes. They will see the patterning of counting by 5's around the clock.

Prerequisite Skills/Concepts:

Students should already be able to…

- Distinguish between defining and non-defining attributes of shapes.
- Build and draw shapes based upon specific attributes.
- Compose flat and solid shapes.
- Build composite shapes from prior shapes.
- Tell and write time in hours and half hours using analog and digital clocks.
- Use a number line.

Advanced Skills/Concepts:

Some students may be ready to…

- Understand that shapes in different categories may share attributes and belong to a larger category.
- Recognize and draw examples of more complex quadrilaterals.
- Tell and write time to the nearest minute.
- Measure time intervals in minutes, e.g., by representing the problem on a number line diagram.
- Solve word problems involving addition and subtraction of time intervals in minutes.
- Express time as fractional units, e.g., half hour, quarter hour.

Knowledge: *Students will know…*	**Skills:** *Students will be able to do…*
• Properties of polygons. • Names of shapes. • Geometric vocabulary (see below.) • The standard tools for time measurement. • Hours and minutes.	• Identify shapes that have specified attributes. (2.G.1) • Draw shapes that have specified attributes. (2.G.1) • Identify triangles, quadrilaterals, pentagons, hexagons and cubes. (2.G.1) • Tell time using analog and digital clocks to the nearest 5 minutes (2.MD.7) • Write time using analog clocks and digital clocks(2.MD.7) • Identify and label when a.m. and p.m. occur (2.MD.7) • Count within 1000 (2.NBT.2) • Skip-count by 5s, 10s, and 100s. (2.NBT,2) • Section circles and rectangles into 2, 3, or 4 equal parts. (2.G.3) • Describe the parts of the shape as halves, thirds, and fourths. (2.G.3) Identify the combinations of the whole (2 halves = 1 whole, etc...). (2.G.3) • Use manipulatives, pictures and words to show that equal sized sections of the same whole need not have the same shape. (2.G.3)

WIDA Standard (English Language Learners):

English Language Learners communicate information, ideas and concepts necessary for academic success in the content area of Mathematics.

English Language Learners will benefit from:

- Concrete models for various shapes.
- Repetitive practice of vocabulary using varied, hands-on activities that involve labeled concrete manipulatives.
    - An awareness of different time measurement vocabulary.
    - The use of visual tools such as number diagrams/analog clocks and digital clocks.
    - Time interval number labels.

  An understanding of the universality of measurement.

Academic Vocabulary:

Critical Terms:

attribute
triangle
quadrilateral
pentagons
hexagon
cubes
side
angle
straight
flat
solid
corner
edge
unit
hour
half hour
minute
measure
whole
a.m.
p.m.

Supplemental Terms:

2-dimensional
3-dimensional
polygon
circle
square
rectangle
rhombus
trapezoid
septagon
octagon
Vertex
plane
clock
digital
analog
number line
interval
half
third
fourth
skip-count

Assessment

Summative Assessments

Time True or False

Pre-Assessments	Formative Assessments	Self-Assessments
• Geometry Pre-Assessment Defining Attributes • Geometry Pre-Assessment • Power Hour and Half Hour Pre-Assessment • Hour and Half Hour Pre-Assessment	• Geometry Pre-Assessment • Right or Wrong Sort • Which Shape Is This • Shape Sort Tasks • Sorting A.M. and P.M. • I Have Who Has Clock Quarter Hour • Reading Clocks and Showing Time • Quarter Hour Memory	