Guidance Document - *GO Math!* Grade 2

Part Four: Chapter-Level Guidance for *GO Math!* (Grade 2)

Grade 2 / Chapter 1: Number Concepts			
Lesson	**Action**	**Details for the Action**	**Rationale**
1.1 Even and Odd Numbers	Delete	Move to Chapter 3.	There is a natural connection between 2.OA.C.3 and the work of Chapter 3. Work with even and odds can support students developing fluency with doubles and doubles plus one facts.
1.2 Represent Even Numbers	Delete	Move to Chapter 3.	
1.3 Understand Place Value	Delete		Aligns to 1.NBT.B.2 which requires understanding that the two digits of a two-digit number represent amounts of tens and ones
1.4 Expanded Form	Delete		
1.5 Different Ways to Write Numbers	Delete		
1.6 Different Names for Numbers	Delete		
1.7 Tens and Ones	Delete		
1.8 Counting Patterns Within 100	Delete		
1.9 Counting Patterns Within 1,000	Delete	Move to Chapter 2.	Exploration of counting patterns within 1,000 ties with place value work in Chapter 2.
Chapter 1 Test	Delete		

☝ Chapter 1 Rule of Thumb	Rationale
There are no chapter-specific Rules of Thumb. Be sure to still apply grade- and program-level Rules of Thumb from Part Two and Part Three of this document.	

Grade 2 / Chapter 3: Basic Facts and Relationships

Lesson	Action	Details for the Action	Rationale
Move Chapter 3 to the beginning of the year - see note in Part Three: Grade-Level Rules of Thumb			
3.0.1	Add	Use Lesson 1.1 Eliminate use of ten-frame throughout lesson.	Addresses 2.OA.C.3 which requires students to 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), as well as to write an equation to express an even number as a sum of two equal addends. MP.7 requires for students to learn to see a number as composed of its base-ten units. Use of the ten-frame doesn't allow students to make use of structure in the way 2.OA.C.3 requires.
3.0.2	Add	Use Lesson 1.2	Addresses 2.OA.C.3 which requires students to 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.
3.1 Use Doubles Facts	As is		
3.2 Practice Addition Facts	As is		
3.3 Make a Ten to Add	As is		
3.4 Add 3 Addends	As is		
3.5 Relate Addition and Subtraction	As is		
3.6 Practice Subtraction Facts	As is		
3.7 Use Ten to Subtract	As is		

3.8 Use Drawings to Represent Problems	As is		
3.9 Use Equations to Represent Problems	As is		
3.10 Equal Groups	Delete		2.OA.C.4 only requires students to work with arrays. Equal groups are not required until Grade 3.
3.11 Repeated Addition	As is		
3.11.1	Add	Lesson about exploring objects in rectangular arrays: EngageNY, Module 6, Lesson 6	Students need additional opportunities to find a total number of objects in arrays and write equations using repeated addition to meet the full depth of 2.OA.C.4.

👍 Chapter 3 Rules of Thumb	Rationale
Emphasize Rule of Thumb about Vocabulary: use the word *equation* often to provide a more mathematically precise alternative to some of the textbook language including number sentence, math sentence, addition sentence, and subtraction sentence. Introduce and use *equation* alongside *number/addition sentence.*	MP.6 requires students to "attend to precision," including the use of precise mathematical language. Students should understand that these terms can be used interchangeably; *equation* is consistently used in the Standards; *number sentence* is not.
Encourage the use and discussion of counting on (Level 2) and converting to an easier equivalent problem (Level 3) strategies for adding and subtracting within 20. See Appendix for additional information on these strategies (CC/OA Progression, pp. 36-39).	2.OA.B.2 requires students to fluently add and subtract within 20 using mental strategies. "The deep extended experiences students have with addition and subtraction in Kindergarten and Grade 1 culminate in Grade 2 with students becoming fluent in single-digit additions and the related subtractions using the mental Level 2 and 3 strategies as needed" (CC/OA Progression, p. 18).

Grade 2 / Chapter 2: Numbers to 1,000

Lesson	Action	Details for the Action	Rationale
Since Chapter 3 was moved to the beginning of the year, Chapter 2 now follows it.			
2.1 Group Tens as Hundreds	As is		
2.2 Explore 3-Digit Numbers	As is		
2.3 Model 3-Digit Numbers	As is		
2.4 Hundreds, Tens, and Ones	As is		
2.5 Place Value to 1,000	As is		
2.6 Number Names	As is		
2.6.1	Add	Lesson about naming numbers in various ways: Illustrative Mathematics, Looking at Numbers Every Which Way _[Note: Lessons on writing numbers in word form were recommended to be deleted in the K and 1 guidance documents because they were not aligned to the Standards.]_	2.NBT.A.3 requires students to represent numbers in different ways. This lesson allows students to apply place value understanding to represent numbers in various ways.
2.7 Different Forms of Numbers	As is		
2.8 Different Ways to Show Numbers	As is		
2.8.1	Add	Use Lesson 1.9	2.NBT.A.2 requires students to count within 1000, and skip-count by 5s, 10s, and 100s. Connects to place value work of this chapter.
2.9 Count On and Count Back by 10 and 100	As is		

2.10 Number Patterns	As is		
2.11 Compare Numbers	As is		
2.12 Compare Numbers	As is		

✍ Chapter 2 Rule of Thumb	Rationale
Provide opportunities for students to use concrete and pictorial models that illustrate and support students' understanding of hundreds, tens, and ones.	2.NBT.A requires students to understand place value concepts. "Representations such as manipulative materials, math drawings and layered three-digit place value cards afford connections between written three-digit numbers and hundreds, tens, and ones" (NBT Progression, p. 8).

Grade 2 / Chapter 4: 2-Digit Addition

Lesson	Action	Details for the Action	Rationale
4.1 Break Apart Ones to Add	As is		
4.2 Use Compensation	As is		
4.3 Break Apart Addends as Tens and Ones	As is		
4.4 Model Regrouping for Addition	As is		
4.5 Model and Record 2-Digit Addition	As is		
4.6 2-Digit Addition	As is		
4.7 Practice 2-Digit Addition	As is		
4.8 Rewrite 2-Digit Addition	Delete		2.NBT.B.5 requires students to fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. This lesson does not make any of these connections.
4.9 Addition	As is		
4.10 Write Equations to Represent Addition	As is		
4.11 Find Sums for 3 Addends	As is		
4.12 Find Sums for 4 Addends	As is		

☝ Chapter 4 Rules of Thumb	Rationale
Encourage students to develop and share their own methods of recording initially; as students' understanding develops, model and support use of generalized written methods for addition within 100/1000 in order to build to the standard algorithm. See pp. 8-11 in Number and Operations in Base Ten Progression document for additional information on alternate written methods.	2.NBT.B requires students to use methods based on place value understanding and properties of operations to add and subtract. "These methods require keeping track of what parts of the decomposed addend have been added, and skills of mentally counting or adding hundreds, tens, and ones correctly" (NBT Progression, p. 9).
Provide opportunities for students to use and explain concrete and then pictorial models that represent and support students' understanding of addition within 100, remembering that the goal is to build toward fluency.	2.NBT.B requires students to use methods based on place value understanding and properties of operations to add and subtract. "Drawings can support students in explaining these… methods." "Steps of adding like units and composing new units shown in [a] drawing can be connected with corresponding steps in other written methods. This also facilitates discussing how different written methods may show steps in different locations or different orders"(NBT Progression, p. 9).

Grade 2 / Chapter 5: 2-Digit Subtraction

Lesson	Action	Details for the Action	Rationale
5.1 Break Apart Ones to Subtract	As is		
5.2 Break Apart Numbers to Subtract	As is		
5.3 Model Regrouping for Subtraction	As is		
5.3.1	Add	Lesson about 2-digit subtraction, relating concrete models to a written vertical method: EngageNY, Module 4, Lesson 11 Printable file: Place Value Disks	2.NBT.B.5 requires to students to fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. The use of models connected to a written method supports this understanding.
5.3.2	Add	Lesson about 2-digit subtraction, relating concrete models to a written vertical method: EngageNY, Module 4, Lesson 12	
5.3.3	Add	Lesson about 2-digit subtraction, relating pictorial models to a written vertical method: EngageNY, Module 4, Lesson 13	
5.4 Model and Record 2-Digit Subtraction	As is		
5.5 2-Digit Subtraction	As is		

5.6 Practice 2-Digit Subtraction	Modify	Continue use of models and strategies from previous lessons, as needed.	
5.7 Rewrite 2-Digit Subtraction	Delete		This lesson does not make the connections required in 2.NBT.B.5. (See above.)
5.8 Add to Find Differences	As is		
5.9 Subtraction	As is		
5.10 Write Equations to Represent Subtraction	As is		
5.11 Solve Multistep problems	As is		

👍 Chapter 5 Rules of Thumb	Rationale
Encourage students to develop and share their own methods of recording initially; as students' understanding develops, model and support use of generalized written methods for addition within 100/1000 in order to build to the standard algorithm. See pp. 8-11 in Number and Operations in Base Ten Progression document for additional information on alternate written methods.	2.NBT.B requires students to use methods based on place value understanding and properties of operations to add and subtract. "These methods require keeping track of what parts of the decomposed addend have been added, and skills of mentally counting or adding hundreds, tens, and ones correctly" (NBT Progression, p. 9).
Provide opportunities for students to use and explain concrete and then pictorial models that represent and support students' understanding of subtraction within 100, remembering that the goal is to minimize scaffolds and build toward fluency.	2.NBT.B requires students to use methods based on place value understanding and properties of operations to add and subtract. "Drawings can support students in explaining these… methods." "Steps of adding like units and composing new units shown in [a] drawing can be connected with corresponding steps in other written methods. This also facilitates discussing how different written methods may show steps in different locations or different orders" (NBT Progression, p. 9).
Emphasize Rule of Thumb on Math Talk: Use Math Talk opportunities/prompts to discuss the relationship between addition and subtraction.	2.NBT.B.9 requires students to explain why addition and subtraction strategies work, using place value and the properties of operations.

Grade 2 / Chapter 6: 3-Digit Addition & Subtraction

Lesson	Action	Details for the Action	Rationale
6.1 Draw to Represent 3-Digit Addition	As is		
6.2 Break Apart 3-Digit Addends	As is		
6.3 3-Digit Addition: Regroup Ones	Delete		2.NBT.B.7 requires the use of concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction to add and subtract within 1000, and to connect the work to a written method. Lessons require use of the standard algorithm without connecting to models or drawings.
6.4 3-Digit Addition: Regroup Tens	Delete		
6.4.1	Add	Lesson about 3-digit addition with regrouping, relating models to written algorithm: EngageNY, Module 5, Lesson 9 Alternate 3-digit addition lessons for 6.4.1 - 6.4.3: ● LearnZillion, Unit 11, Lesson 4 ● LearnZillion, Unit 11, Lesson 5 ● LearnZillion, Unit 11, Lesson 6	
6.4.2	Add	Lesson about 3-digit addition with regrouping, relating models to written algorithm: EngageNY, Module 5, Lesson 10	
6.4.3	Add	Lesson about 3-digit addition with regrouping, relating models to written algorithm: EngageNY, Module 5, Lesson 12	

			2.NBT.B.7 requires the use of concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction to add and subtract within 1000, and to connect the work to a written method. Lessons require use of the standard algorithm without connecting to models or drawings.
6.5 Addition: Regroup Ones and Tens	Modify	Allow students to continue use of models and strategies from previous lessons, as needed.	
6.6 3-Digit Subtraction	Delete		
6.7 3-Digit Subtraction: Regroup Tens	Delete		
6.8 3-Digit Subtraction: Regroup Hundreds	Delete		
6.9 Subtraction: Regroup Hundreds and Tens	Delete		
6.8.1	Add	Lesson about 3-digit subtraction, relating models to written algorithm: EngageNY, Module 5, Lesson 13 Alternate 3-digit subtraction lessons for 6.8.1 - 6.8.3: ● LearnZillion, Unit 11, Lesson 7 ● LearnZillion, Unit 11, Lesson 9 ● LearnZillion, Unit 11, Lesson 10	
6.8.2	Add	Lesson about 3-digit subtraction, relating models to written algorithm: EngageNY, Module 5, Lesson 14	
6.8.3	Add	Lesson about 3-digit subtraction, relating models to written algorithm: EngageNY, Module 5, Lesson 15	
6.10 Regrouping with Zeros	Delete		

6.10.1	Add	Lesson about subtracting three-digit numbers with zeros, relating models to written algorithm: [EngageNY, Module 5, Lesson 16](#)	2.NBT.B.7 requires the use of concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction to add and subtract within 1000, and to connect the work to a written method. Lessons require use of the standard algorithm without connecting to models or drawings .
6.10.2	Add	Lesson about subtracting three-digit numbers with zeros, relating models to written algorithm: [EngageNY, Module 5, Lesson 18](#)	Students will benefit from additional practice to meet the requirements of 2.NBT.B.7.

👍 **Chapter 6 Rules of Thumb**	**Rationale**
Encourage students to develop and share their own methods of recording initially; as students' understanding develops, model and support use of generalized written methods for addition within 100/1000 in order to build to the standard algorithm. See pp. 8-11 in [Number and Operations in Base Ten](#) Progression document for additional information on alternate written methods.	2.NBT.B requires students to use place value understanding and properties of operations to add and subtract."... the major focus for addition within 1000 needs to be on methods… that are simpler for students and lead toward fluency (e.g., recording new units in separate rows shown) or are sufficient for fluency (e.g., recording new units in one row)"([NBT Progression, p. 10](#)).
Provide opportunities for students to use and explain concrete and pictorial models that represent and support students' understanding of addition and subtraction within 1000.	2.NBT.B.7 requires concrete models or drawings based on place value understanding and properties of operations to add and subtract. "Drawings can support students in explaining these… methods." "Steps of adding like units and composing new units shown in [a] drawing can be connected with corresponding steps in other written methods. This also facilitates discussing how different written methods may show steps in different locations or different orders" ([NBT Progression, p. 9](#)).
Emphasize Rule of Thumb on Math Talk: Use math talk opportunities/prompts to discuss the relationship between addition and subtraction.	2.NBT.B.9 requires students to explain why addition and subtraction strategies work, using place value and the properties of operations.

Grade 2 / Chapter 7: Money and Time

Lesson	Action	Details for the Action	Rationale
7.1 Dimes, Nickels, and Pennies	As is		
7.2 Quarters	As is		
7.3 Count Collections	As is		
7.4 Show Amounts in Two Ways	As is		
7.5 One Dollar	As is		
7.6 Amounts Greater Than $1	Delete		2.MD.C.8 requires students to solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately. Does not require decimal notation when working with money.
7.7 Money	As is		
7.8 Time to the Hour and Half Hour	Delete		Aligns to 1.MD.B.3 which requires students to tell and write time in hours and half-hours using analog and digital clocks.
7.9 Time to 5 Minutes	As is		
7.10 Practice Telling Time	As is		
7.11 A.M. and P.M.	As is		

	Chapter 7 Rules of Thumb	Rationale

Connect work with dimes and pennies to place value understanding where applicable (i.e., dimes are tens, pennies are ones). Connect time and money to skip-counting by fives and tens where applicable.	2.MD.C.8 supports the Major Work of 2.NBT.A.
Avoid spending instructional time on decimal notation with money.	2.MD.C.8 does not require decimal notation when working with money.

Grade 2 / Chapter 8: Length in Customary Units

Lesson	Action	Details for the Action	Rationale
8.1 Measure with Inch Models	As is		
8.2 Make and Use a Ruler	As is		
8.3 Estimate Lengths in Inches	As is		
8.4 Measure with an Inch Ruler	As is		
8.4.1	Add	Lesson that makes an explicit connection between the number line & measurement: LearnZillion, Unit 3, Lesson 1	2.MD.B.6 requires students to 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.
8.5 Add and Subtract in Inches	As is		
8.6 Measure in Inches and Feet	As is		
8.7 Estimate Lengths in Feet	As is		
8.8 Choose a Tool	As is		
8.9 Display Measurement Data	As is		

☝ Chapter 8 Rules of Thumb	Rationale
Throughout the chapter, be sure that discussions and opportunities to measure allow students to be precise in their measurement. This includes using tools that are precisely the units named in the MD standard (cm and in), as well as discussing the importance of being precise in measuring practices.	MP.6 requires mathematically proficient students try to communicate precisely to others.
Emphasize Rule of Thumb about Problem Solving ◆ Application: Pay attention to the "Go Deeper" sections in this chapter as they are the only place that 2.MD.A.2 is expressed fully. Emphasize the inverse relationship between the size of a unit of length and the number of units needed to measure a specific length or distance whenever possible.	2.MD.A.2 requires measuring length with two different units, and describing the measurements relative to the size of the unit."[Grade 2] is the time that measuring and reflecting on measuring the same object with different units, both standard and nonstandard, is likely to be most productive. Results of measuring with different nonstandard length-units can be explicitly compared" ([MD Progression, p. 13](#)).
Build in opportunities for students to discuss strategies for estimating and how the estimates relate to the actual measurement.	2.MD.A.3 requires estimating lengths using different units. "Although "guess and check" experiences can be useful, research suggests explicit teaching of estimation strategies (such as iteration of a mental image of the unit or comparison with a known measurement) and prompting students to learn reference or benchmark lengths (e.g., an inch-long piece of gum, a 6-inch dollar bill), order points along a continuum, and build up mental rulers" ([MD Progression, p. 15](#)).

Grade 2 / Chapter 9: Length in Metric Units

Lesson	Action	Details for the Action	Rationale
9.1 Measure with a Centimeter Model	As is		
9.2 Estimate Lengths in Centimeters	As is		
9.3 Measure with a Centimeter Ruler	As is		
9.3.1	Add	Lesson making an explicit connection between the number line and metric measurement: EngageNY, Module 2, Lesson 8	2.MD.B.6 requires students to connect quantity to lengths on a number line
9.4 Add and Subtract Lengths	As is		
9.5 Centimeters and Meters	As is		
9.6 Estimate Lengths in Meters	As is		
9.7 Measure and Compare Lengths	As is		

👍 **Chapter 9 Rules of Thumb**	Rationale
Throughout the chapter, be sure that discussions and opportunities to measure allow students to be precise in their measurement. This includes using tools that are precisely the units named in the MD standard (cm and in), as well as discussing the importance of being precise in measuring practices.	MP.6 requires mathematically proficient students try to communicate precisely to others.
Emphasize Rule of Thumb about Problem Solving ◆ Application: Pay attention to the "Go Deeper" sections in this chapter as they are the only place that 2.MD.A.2 is expressed fully. Emphasize the inverse relationship between the size of a unit of length and the number of units needed to measure a specific length or distance whenever possible.	2.MD.A.2 requires students to measure length with two different units, and describe the measurements relative to the size of the unit."[Grade 2] is the time that measuring and reflecting on measuring the same object with different units, both standard and nonstandard, is likely to be most productive. Results of measuring with different nonstandard length-units can be explicitly compared" (MD Progression, p. 13).
Build in opportunities for students to discuss strategies for estimating and how the estimates relate to the actual measurement.	2.MD.A.3 requires estimating lengths using different units. "Although "guess and check" experiences can be useful, research suggests explicit teaching of estimation strategies (such as iteration of a mental image of the unit or comparison with a known measurement) and prompting students to learn reference or benchmark lengths (e.g., an inch-long piece of gum, a 6-inch dollar bill), order points along a continuum, and build up mental rulers" (MD Progression, p. 15).

Grade 2 / Chapter 10: Data

Lesson	Action	Details for the Action	Rationale
10.1 Collect Data	As is		
10.2 Read Picture Graphs	As is		
10.3 Make Picture Graphs	As is		
10.4 Read Bar Graphs	As is		
10.5 Make Bar Graphs	As is		
10.6 Display Data	As is		

👍 Chapter 10 Rules of Thumb	Rationale
There are no chapter-specific Rules of Thumb. Be sure to still apply grade- and program-level Rules of Thumb from Part Two and Part Three of this document.	

Grade 2 / Chapter 11: Geometry*

Lesson	Action	Details for the Action	Rationale
11.1 Three-Dimensional Shapes	Delete		Aligns to K.G.A.2 which requires students to correctly name shapes regardless of their orientations or overall size
11.2 Attributes of Three-Dimensional Shapes	As is		
11.3 Build Three-Dimensional Shapes	Delete		Aligns to 5.MD.C
11.4 Two-Dimensional Shapes	As is		
11.5 Angles in Two-Dimensional Shapes	As is		
11.6 Sort Two-Dimensional Shapes	As is		
11.7 Partition Rectangles	As is		
11.7.1	Add	Practice with partitioning a rectangle into same-size squares: Illustrative Mathematics, Partitioning a Rectangle into Unit Squares *[Note: The tick marks on the rectangle provided are not evenly spaced. If using this task, create a rectangle template with evenly spaced tick marks.]*	2.G.A.2 requires students to partition a rectangle into rows and columns of same-size squares and count to find the total number of them. In the previous lesson, students tiled a rectangle with unit squares; an additional lesson is required to meet the depth of this standard.
11.8 Equal Parts	As is		

11.9 Show Equal Parts of a Whole	As is		
11.10 Describe Equal Parts	As is		
11.11 Equal Shares	As is		

*Some editions of *GO Math!* Grade 2, like the Florida-specific version, have a slightly different sequence for Chapter 11. Please use the lesson titles to help determine the adaptations that need to be made.

👍 Chapter 11 Rule of Thumb	Rationale
Focus instructional time and discussions on shapes specifically mentioned in the standard.	2.G.A.1 requires identification of triangles, quadrilaterals, pentagons, hexagons, and cubes. 2.G.A.3 requires partitioning of circles and rectangles (including squares) only.