**Guidance Document - *GO Math!* Grade 2**

This document provides guidance on how teachers can adjust their implementation of *GO Math!* to better meet the requirements of the Common Core State Standards or other College- and Career-Ready (CCR) standards. Guidance is provided at both the program and chapter levels and was developed through a collaboration between districts currently using *GO Math!* and Student Achievement Partners. Student Achievement Partners worked with districts across the country that appreciate the promise and potential of the *GO Math!*(K-5) comprehensive mathematics program from Houghton Mifflin Harcourt and that sought to align *GO Math!* more closely to the expectations of rigorous college- and career-ready standards. Student Achievement Partners worked with Houghton Mifflin Harcourt and teams of teachers from these districts to create guidance documents that leverage the program's strongest elements and, when used alongside *GO Math!*, provide teachers the resources to deliver aligned instruction in order to drive student outcomes.

*Part 1: About Go Math!*

Provides a summary of the program and an overall assessment of its strengths as well as areas that require attention to improve alignment.

*Part 2: Program-Level Rules of Thumb*

Program-level Rules of Thumb (RoT) provide alternate ways to use features that appear across the Go Math! program K-5. Some districts may want to begin by just sharing Part 2 with teachers and supporting them in making the RoT a part of their daily instructional practice.

*Part 3: Grade-Level Rules of Thumb*

Grade-level RoT provide grade-specific alternate ways to use features in each grade-level of GO Math!. It also includes a reference to the Fluency documents which provide supplemental resources to help students meet the fluency expectations at each grade level. Teachers may want to consult these at the beginning of the school year as they are mapping out their year.

*Part 4: Chapter-Level Guidance*

Chapter-level guidance includes recommendations for each lesson in all chapters for each grade-level K-5. Lessons can be deleted, modified or left as is. Sometimes, additional lessons are needed to fully reach the expectations of the standards; in these cases a link to a free resource is provided. Keep in mind that these lessons are often pulled from comprehensive programs and teachers will need to make decisions about which parts of the lessons to use. Rationale is provided for why each change has been suggested. By studying this rationale teachers can gain a better understanding of the standards and how to use the suggested resources. Teachers may want to consult each chapter-level guidance as part of a PLC before starting to teach the chapter.

Part One: About *GO Math!* (K-5)

*A description of the strengths in alignment and implementation recommendations*

*GO Math!* *K-5*, written to the Common Core State Standards, was first published by Houghton Mifflin Harcourt in 2012. Since its initial publication, a number of updates have been made in addition to the creation of some state-specific versions. For the most part, however, all of these editions and versions have very similar content and the same instructional approaches.

*GO Math!* has created a sequence of chapters and lessons in each grade that allows for the large majority of time to be on the Major Work of the grade. Generally, the content is aligned to the progression that is outlined in College and Career Ready (CCR) standards with little off-grade-level content and little material that unduly interferes with grade-level learning. Students using *GO Math!* will generally get the right content for the grade level, as outlined by the Standards.

Many lessons that focus on operations provide a mix of strategies and models to help students make sense of the work; however, these strategies and models are rarely connected to each other or used to advance student understanding towards later work they will be doing. For instance, work with addition and subtraction in 1st and 2nd grades includes a variety of representations and strategies that students must learn but does not highlight those strategies which are place-value based and will further students’ understanding of the meaning and properties of the operations.

*GO Math!* provides opportunities for students to experience each aspect of Rigor (Conceptual Understanding, Procedural Skill and Fluency, and Application) required in instruction for students to be college- and career-ready[[1]](#footnote-1). Two components of *GO Math!* that attempt to target Conceptual Understanding are “Math Talk” and “Unlock the Problem.” “Math Talk” generally provides quality conceptual discussion question for students. “Unlock the Problem,” however, is often overly scaffolded which means that students are not having authentic opportunities to make sense of problems and engage with mathematical ideas within lessons that address standards calling for Conceptual Understanding. Overall, the lessons attend to Fluency with addition/subtraction and multiplication/division facts as the focus of chapters and there is a “Fluency Builder” activity that shows up several times a week. However, the Fluency Builder activities do not always correlate to the fluency expectations of the grade level. More work is needed throughout the program to ensure that students meet the required fluencies of each grade. Application problems are provided in each lesson in the Problem Solving ◆ Applicationsection. Many of these problems provide opportunities for students to apply mathematical ideas to real-world or mathematical problems. In addition, the “Problem of the Day” provides other opportunities for Application.

Part Two: Program-Level Rules of Thumb for *GO Math!* (K-5)

*How should teachers use the features of the book to make instruction more aligned?*

The Rules of Thumb below provide general guidance for how to leverage certain features of *GO Math!* to align the program to CCR standards with an emphasis on the Standards for Mathematical Practice (SMPs).  Because the practice of teaching is about so much more than what is provided in instructional materials, the Rules of Thumb serve as general guidance. They are not meant to replace teacher judgement about exactly how to use the materials in every case. There may be times when the Rules of Thumb suggest omitting a certain feature but a teacher still chooses to use that feature sparingly based on the specific content or learning goal for a particular lesson. Note: Some of these features may be slightly different in the Kindergarten materials, as the program is structured a bit differently.

The Rules of Thumb are intended to help users make decisions about how to use the program in a way that is true to the intent of the SMPs. The current references to the SMPs in the program are sometimes inconsistent or inaccurate.  By incorporating the recommendations below, it is much more likely that classroom instruction will allow opportunities for students to engage in the SMPs.

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| **Rule of Thumb** | **Rationale** |
| **1) Daily Routines:**  **Fluency Builder**: Use only activities that are related to grade-level fluency expectations. See specific guidance on how to supplement in each grade-level document.    **Vocabulary Builder**: Rather than doing this as a separate activity, incorporate vocabulary, where appropriate in daily lessons. | Fluency builder does not consistently match grade-level expectations for fluency. More consistent practice is needed to ensure students meet the fluency expectations of each grade level.  MP.6: Vocabulary should be embedded in the lesson as students use and understand precise mathematical vocabulary. |
| **2) Unlock the Problem/Listen and Draw:** Present the problem to students without the scaffolding provided on the student-facing worksheet (e.g., project the problem on the board and have students solve in a math notebook.) Use the scaffolding to drive questions for students as they work and use strategies presented, including those in “Another Way” section as a frame for driving class discussion about student work. It may be also necessary to remove the scaffolding and prompts from the Share and Show that follow these features. | MP.1 requires students to make sense of and solve problems. MP.4 requires students to have opportunities to use mathematics to model problems. |
| **3) Math Talk:** These bubbles should be used for class discussion or writing prompts for students, especially when lessons align to standards that require Conceptual Understanding. | Students need opportunities to respond to conceptual discussion questions to meet the Standards’ expectations for Conceptual Understanding. |
| **4) Problem Solving ◆ Application (Real World):** Make sure to allow time for students to do these problems, particularly when addressing standards that require Application. **Go Deeper/Think Smarter** generally provide problems that make a good basis for conceptual discussions. Use these for discussion, particularly when addressing standards that require Conceptual Understanding. | MP.3 requires that students have opportunities to construct arguments and critique the reasoning of others which can happen during discussions about these problems. |
| **5) Approach to Strategies and Models for Operations:**Provide more opportunities than are currently offered for students to choose which strategies, representations, and models they use to solve problems. In some cases, this may mean presenting problems that require specific strategies, representations, and models without suggesting or providing those supports outright. [See Chapter Rules of Thumb for more specific guidance at each grade level.]    **Note:** This Rule is not saying that strategies, representations, and models should be excluded from instruction. Consistent with the Standards, all are helpful in building students’ understanding of the mathematics. The Rule is intended to incorporate the language of MP.5 and ensure that students ultimately are expected to make choices about which tools to use to solve problems instead of too often being given specific tools within the problems. | Many standards offer examples or choices for models or representations to use to perform operations or solve problems (e.g., 2.NBT.B.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). As articulated in MP.5, students should “make sound decisions about when...tools might be helpful.” |
| **6) General Approach to Vocabulary:** Do not use the **Developing Math Language** section in the front matter of each chapter. While the listed vocabulary words may be useful in some cases, definitions can be inaccurate or go above grade-level expectations. **Vocabulary Strategy** sections distract from the work of the grade. Vocabulary instruction should be integrated into the work of the lesson.  Skip **Vocabulary Builders/Games/Write Way** at the beginning of each chapter. This distracts from the work of the grade. | MP.6 requires attending to precision. The program tends to treat vocabulary as a topic to be taught separately rather than as part of the work of the content standards and MPs. Integrating vocabulary work into the lessons will allow students to communicate precisely and accurately about their mathematical ideas. |
| **7) Assessment:**   * Eliminate any questions aligned to lessons/content that has been deleted. * Add in vetted questions that are aligned to lessons that have been added. * Remove any directions in questions that require a specific strategy or model. | Alignment to content standards |

Part Three: Grade-Level Rules of Thumb for *GO Math!* (Grade 2)

*What should teachers think about throughout the course of the year specifically for Grade 2 to make instruction more aligned?*

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| **Rule of Thumb** | | **Rationale** |
| Move and rearrange the following content:   * Move Lessons 1.1 and 1.2 to Chapter 3. * Move Lesson 1.9 to Chapter 2. * Delete Chapter 1: Number Concepts. * Move Chapter 3 to teach as the first chapter of the year. | Majority of lessons in Chapter 1 align to 1.NBT.B.2  2.OA.B.2 requires students to be fluent with all addition and subtraction within 20; starting with Chapter 3 will most likely give all students the ability to meet the end of the year benchmark. |
| Use the **Grade 2:** **Resources for Developing Grade-Level Fluencies** list to provide distributed practice on addition and subtraction fact fluency within 20. | 2.OA.B.2 requires students to fluently add and subtract within 20 using mental strategies and, by end of Grade 2, know from memory all sums of two one-digit numbers. |
| Use the **Grade 2:** **Resources for Developing Grade-Level Fluencies** list to provide distributed practice on adding and subtracting within 100. | 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. |
| For corresponding edits to the chapter tests, please see the [Chapter Test Alignment](http://www.achievethecore.org/file/3515). | |

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

*How can teachers implement each chapter of Grade 2 to make instruction more aligned by making minor modifications and supplementing Open Educational Resources (OER)?*

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| **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 |  |  |

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| **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. |  |

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| **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](https://www.unbounded.org/math/grade-2/module-6/topic-b/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. |

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| **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](https://commoncoretools.files.wordpress.com/2011/05/ccss_progression_cc_oa_k5_2011_05_302.pdf), 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](https://commoncoretools.files.wordpress.com/2011/05/ccss_progression_cc_oa_k5_2011_05_302.pdf)). |

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| **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](https://www.illustrativemathematics.org/content-standards/tasks/1236)  *[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 |  |  |

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| **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](http://commoncoretools.me/wp-content/uploads/2015/03/ccss_progression_nbp_k5_2015_03_16.pdf)). |

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| **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 |  |  |

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| **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](http://commoncoretools.me/wp-content/uploads/2015/03/ccss_progression_nbp_k5_2015_03_16.pdf) 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](http://commoncoretools.me/wp-content/uploads/2015/03/ccss_progression_nbp_k5_2015_03_16.pdf)). |
| 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](http://commoncoretools.me/wp-content/uploads/2015/03/ccss_progression_nbp_k5_2015_03_16.pdf)). |

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| **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](https://www.unbounded.org/math/grade-2/module-4/topic-c/lesson-11)  Printable file:  [Place Value Disks](https://drive.google.com/file/d/0B46O5NXhqcO0dDkzN00tTExXNmd5UDFmUXRmQ2JsdGZBNUNn/view) | 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](https://www.unbounded.org/math/grade-2/module-4/topic-c/lesson-12) |
| 5.3.3 | Add | Lesson about 2-digit subtraction, relating pictorial models to a written vertical method: [EngageNY, Module 4, Lesson 13](https://www.unbounded.org/math/grade-2/module-4/topic-c/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 |  |  |

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| **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](http://commoncoretools.me/wp-content/uploads/2015/03/ccss_progression_nbp_k5_2015_03_16.pdf) 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](http://commoncoretools.me/wp-content/uploads/2015/03/ccss_progression_nbp_k5_2015_03_16.pdf)). |
| 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](http://commoncoretools.me/wp-content/uploads/2015/03/ccss_progression_nbp_k5_2015_03_16.pdf)). |
| 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. |

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| **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.  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.  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](https://www.unbounded.org/math/grade-2/module-5/topic-b/lesson-9)  Alternate 3-digit addition lessons for 6.4.1 - 6.4.3:   * [LearnZillion, Unit 11, Lesson 4](https://learnzillion.com/lesson_plans/2768-4-three-digit-addition-with-regrouping-c) * [LearnZillion, Unit 11, Lesson 5](https://learnzillion.com/lesson_plans/2776-5-three-digit-addition-with-regrouping-fp) * [LearnZillion, Unit 11, Lesson 6](https://learnzillion.com/lesson_plans/2779-6-three-digit-addition-with-regrouping-a) |
| 6.4.2 | Add | Lesson about 3-digit addition with regrouping, relating models to written algorithm: [EngageNY, Module 5, Lesson 10](https://www.unbounded.org/math/grade-2/module-5/topic-b/lesson-10) |
| 6.4.3 | Add | Lesson about 3-digit addition with regrouping, relating models to written algorithm: [EngageNY, Module 5, Lesson 12](https://www.unbounded.org/math/grade-2/module-5/topic-b/lesson-12) |
| 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](https://www.unbounded.org/math/grade-2/module-5/topic-c/lesson-13)  Alternate 3-digit subtraction lessons for 6.8.1 - 6.8.3:   * [LearnZillion, Unit 11, Lesson 7](https://learnzillion.com/lesson_plans/2769-7-three-digit-subtraction-with-regrouping-c) * [LearnZillion, Unit 11, Lesson 9](https://learnzillion.com/lesson_plans/2777-9-three-digit-subtraction-with-regrouping-fp) * [LearnZillion, Unit 11, Lesson 10](https://learnzillion.com/lesson_plans/2780-10-three-digit-subtraction-with-regrouping-a) |
| 6.8.2 | Add | Lesson about 3-digit subtraction, relating models to written algorithm: [EngageNY, Module 5, Lesson 14](https://www.unbounded.org/math/grade-2/module-5/topic-c/lesson-14) |
| 6.8.3 | Add | Lesson about 3-digit subtraction, relating models to written algorithm: [EngageNY, Module 5, Lesson 15](https://www.unbounded.org/math/grade-2/module-5/topic-c/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](https://www.unbounded.org/math/grade-2/module-5/topic-c/lesson-16) |
| 6.10.2 | Add | Lesson about subtracting three-digit numbers with zeros, relating models to written algorithm: [EngageNY, Module 5, Lesson 18](https://www.unbounded.org/math/grade-2/module-5/topic-c/lesson-18) | Students will benefit from additional practice to meet the requirements of 2.NBT.B.7. |

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| **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](http://commoncoretools.me/wp-content/uploads/2015/03/ccss_progression_nbp_k5_2015_03_16.pdf) 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](http://commoncoretools.me/wp-content/uploads/2015/03/ccss_progression_nbp_k5_2015_03_16.pdf)). |
| 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](http://commoncoretools.me/wp-content/uploads/2015/03/ccss_progression_nbp_k5_2015_03_16.pdf)). |
| 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. |

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| **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 |  |  |

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| **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. |

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| **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](https://learnzillion.com/lesson_plans/3770-1-understand-that-whole-numbers-can-be-shown-as-lengths-on-the-number-line-c) | 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 |  |  |

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| **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](https://commoncoretools.files.wordpress.com/2012/07/ccss_progression_gm_k5_2012_07_21.pdf)). |
| 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](https://commoncoretools.files.wordpress.com/2012/07/ccss_progression_gm_k5_2012_07_21.pdf)). |

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| **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](https://www.unbounded.org/math/grade-2/module-2/topic-d/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 |  |  |

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| **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](https://commoncoretools.files.wordpress.com/2012/07/ccss_progression_gm_k5_2012_07_21.pdf)). |
| 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](https://commoncoretools.files.wordpress.com/2012/07/ccss_progression_gm_k5_2012_07_21.pdf)). |

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| **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 |  |  |

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| **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. |  |

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| **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](https://www.illustrativemathematics.org/content-standards/2/G/A/2/tasks/2063)  *[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.

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| **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. |

1. Student Achievement Partners, The Common Core State Standards Shifts in Mathematics

   http://achievethecore.org/page/900/the-common-core-state-standards-shifts-in-mathematics [↑](#footnote-ref-1)