November 2020

Houghton Mifflin Go Math! K-2 Program Summary

Section 1. Texas Essential Knowledge and Skills (TEKS) and English Language Proficiency Standards (ELPS) Alignment

Grade	TEKS Student %	TEKS Teacher %	ELPS Student %	ELPS Teacher %
Kindergarten	100%	100%	N/A	100%
Grade 1	100%	100%	N/A	100%
Grade 2	100%	100%	N/A	100%

Section 2. Concept Development and Rigor

- Materials concentrate on the development of the primary focal areas outlined in the TEKS.
- Concepts sequence from concrete to representational to abstract (CRA), and materials provide some support to teachers in understanding and developing students' progression along the CRA continuum.
- Materials support coherence and connections between and within content at the grade-level and across grade levels; resources build vertical content knowledge by accessing prior knowledge and understanding of concept progression.
- Tasks are of high-quality and engage students in the appropriate level of rigor and complexity as identified in the TEKS.
- Students have opportunities to apply mathematical knowledge and skills to solve problems in new contexts, including those arising in everyday life and society.

Section 3. Integration of Process Skills

- Materials develop students' abilities to use and apply a problem-solving model that is transferable across problem types and grounded in the TEKS.
- Students have opportunities to develop their self efficacy and mathematical identity by sharing strategies and approaches to tasks and selecting appropriate tools for the work, concept development, and grade (e.g., calculator, graphing program, virtual tools).
- Materials prompt students to effectively communicate and justify mathematical ideas, reasoning, and their implications in multiple representations.

Section 4. Progress Monitoring

- Materials include developmentally appropriate diagnostic tools and guidance for teachers and students to monitor progress.
- Guidance is provided for teachers and administrators to analyze and respond to data, however, administrators are not provided with the guidance or tools needed to support teachers.
- Materials include frequent, integrated formative assessment opportunities and routine progress monitoring opportunities.

Section 5. Supports for All Learners

- Materials include guidance, scaffolds, supports, and extensions that maximize student learning potential; targeted instruction and activities are provided for students who struggle with content mastery.
- Instructional methods appeal to a variety of learning interests and needs.
- Materials include supports for English Learners (ELs) with sequenced and scaffolded linguistic accommodations commensurate with various levels of English language proficiency.

Section 6. Implementation

- Materials include a cohesive, year-long plan with practice and review opportunities that support instruction.
- Materials are designed in a way that allows Local Education Agenciesthe ability to incorporate the curriculum into the district, campus, and teacher design and considerations. However, there is no specific guidance for implementation that ensures the sequence of content is taught in an order that is consistent with the developmental progression of mathematical concepts and skills.
- The visual design of student and teacher materials is neither distracting nor chaotic.

Section 7. Additional Information

- The publisher submits the technology, cost, and professional learning support worksheets.

November 2020

Houghton Mifflin Go Math! Grade 2

2.1 Materials concentrate on the development of the primary focal area(s) for the grade-level.

- Materials spend the majority of concept development of the primary focal areas for the grade-level as outlined in the TEKS.
- Materials strategically and systematically develop students' content knowledge as appropriate for the concept and grade-level as outlined in the TEKS.
- Materials provide practice opportunities for students to master the content.

Meets 4/4

The provided materials concentrate on the development of the primary focal areas for the grade level. The materials spend the majority of concept development on the focal areas as outlined in the Texas Essential Knowledge and Skills for Mathematics Correlations (TEKS), and they strategically and systematically develop students' content knowledge. There are practice opportunities for students to master the content.

Evidence includes but is not limited to:

Throughout all modules, the materials contain planning documents such as unit plans and the TEKS for Mathematics Correlations that clearly state the focal areas of the unit; those focal areas align with the grade-level TEKS. The materials clearly and consistently showcase focal areas of the curriculum that are aligned to the grade-level TEKS; the Process Standards are combined with the content strands in the majority of the modules. For example, in the Teacher Edition, at the beginning of each unit, there is an outline that shows teachers a broad scope and sequence as well as all of the modules that fall under that focal area. The "Engage, Explore, Explain, Elaborate, Evaluate" (5E) lesson plan design in the materials informs the teaching and learning of math concepts.

The progression of the lessons begins with activating prior knowledge and progresses to higher-order critical thinking and problem solving throughout the units, ensuring students master the full concept. The materials include inserts that outline the primary focal areas for instructional

emphasis with a narrative and a graphic depicting vertical alignment. The lesson design permits instruction in each grade to focus on skills in greater depth while simultaneously building a foundation for the next grade, establishing an effective learning progression. In addition, the materials provide various practice opportunities through the use of additional resources such as "RtI Tiered Lessons," "Enrich" lessons, STEM activities, and the "Grab-and-Go" activities found in the digital resources. The materials explain that students will be able to apply mathematical skills in a variety of ways in order to be mathematicians. The introduction explains that through using manipulatives, models, and rigorous questions, students are able to move beyond a basic level of learning to develop deep conceptual understanding, and then practice, apply, and discuss what they know.

Across all modules, for fourteen of the twenty modules, three focus on place value; seven focus on addition and subtraction with multi-digit whole numbers; two focus on measuring length; and two focus on applying two-dimensional shape and three-dimensional solid understanding. Place value (base-ten up to 1,200) is covered in Modules 1–3. Addition and subtraction with multi-digit whole numbers are covered in Unit 1, Modules 5–7; Unit 2, Modules 8–10; and Module 13. Measuring length is covered in Unit 4, Modules 16–17. Applying two-dimensional shape and three-dimensional solid understanding is covered in Unit 4, Modules 14–15. Mathematical skills build upon one another. Module 1 begins with student exploration and hands-on models for place value. By Module 6, students add double-digit numbers and problem solve using double-digit numbers. Modules following adhere to the same pattern of beginning with concrete before moving to abstract.

In Module 1, through Unit 13, students compare, add, subtract, compose, decompose, and problem-solve as the lessons increase in rigor and complexity. For example, in Module 5, "Basic Facts," students use strategies to recall basic facts by drawing pictures or using connecting cubes. Students then progress to two-digit addition in Module 6, using base-ten blocks in breaking apart ones to add; then, they find sums for up to four addends in Module 7. In Module 8, students break apart ones to subtract; they move on to using models in Module 9 to solve multi-step double-digit addition and subtraction problems. In Module 10, the regrouping of hundreds is added to the regrouping of tens and ones with base-ten blocks. The final two lessons within Module 13 entail problem solving for both addition and subtraction situations using models.

November 2020

Houghton Mifflin Go Math! Grade 2

2.2 Materials sequence concepts from concrete to representational to abstract (CRA) as is appropriate for the grade-level and content.

- Materials include a variety of types of concrete models and manipulatives, pictorial representations, and abstract representations, as appropriate for the content and grade level.
- Materials support teachers in understanding and appropriately developing students' progression along the CRA continuum.

Partially Meets 2/4

The provided materials include concepts sequenced from concrete to representational to abstract (CRA), as is grade-level appropriate. Materials include a variety of appropriate content and grade-level types of concrete models and manipulatives, pictorial representations, and abstract representations. However, materials do not clearly support teachers in understanding and developing students' progression along the CRA continuum.

Evidence includes but is not limited to:

Throughout all modules, there are various types of concrete models and manipulatives to help students understand the main focal points. For example, in order to understand place value, base-ten up to 1,200, Modules 1, 2, and 3 include base-ten blocks, MathBoards, index cards with the words *hundreds*, *tens*, and *ones*, and crayons. There is less variety for concrete models and manipulatives in second grade, but there is plenty of opportunity for paper-and-pencil practice. In order to understand addition and subtraction with multi-digit whole numbers, some concrete models and manipulatives, including MathBoards, base-ten blocks, and index cards, can be found in Modules 6, 7, 8, 9, and 10. In many lessons, there are step-by-step instructions for students on how to use the manipulatives. Many concrete models and manipulatives repeat themselves over the course of the entire curriculum; therefore, students gain experience with the concrete models and manipulatives. There are paper-and-pencil opportunities in each lesson.

Across the modules, the materials provide cues and recommendations to support students' progression through the lessons with the use of "Quick Checks" and guidance questions. However, the materials do not directly provide guidance for teachers to help students move through the phases of the continuum; they do not explicitly provide guidance about what tools should be available to students at different points in their development; and they do not guide teachers on how to push students to use increasingly sophisticated tools as appropriate. The Teacher Editions do give suggestions throughout each module that tools should be available to students as they deepen their understanding of the concepts and move through the continuum, but materials give teachers no direct feedback on evaluating or determining when a child is ready to move to more abstract materials. For example, the materials include a manipulative kit for every student; throughout the modules on addition and subtraction, as the lessons move to the abstract, students are still encouraged to use their MathBoards and base-ten blocks as needed.

In Modules 1–12, the materials introduce place value with base-ten blocks, beginning with an exploration review so that students have opportunities to manipulate the material prior to application. Students then transition into utilizing number lines in Module 1; they continue to use the base-ten blocks to determine place value when comparing numbers throughout Modules 1 through 3. Materials introduce representations with concrete support as early as Module 1, via direct teaching. Students begin paper-pencil type activities in Module 1, but manipulative accessibility continues to be embedded within the lessons. This lesson implementation continues throughout the modules, progressively adding more manipulatives, such as inch rulers in Module 16 and centimeter rulers in Module 17. Additionally, students have access to pictorial representations as part of each lesson, within each module, as depicted in the practice workbook, work mats, "Daily Assessment Tasks," and "Homework and Practice" pages. Throughout Modules 1–3, students use counters and base-ten blocks to practice place value concepts. In Module 10, students transition to using the base-ten blocks to begin three-digit addition and subtraction with regrouping. Since students have already had practice with base-ten blocks as early as in Module 1, students have prior knowledge of this format when they transition to three-digit numbers with regrouping in Module 10. When students begin Module 12, "Multiplication and Division Concepts," they have already manipulated counters and base-ten blocks; they transition to adding the multiplication and division symbols. The materials utilize manipulatives for application after students have had opportunities to familiarize themselves with the models.

In Modules 6–10, students work with two-digit or three-digit addition and subtraction. There are twenty-six lessons. Seven of those lessons show students picture representations of base-ten blocks to solve the standard algorithm, which is written vertically. Seven lessons show the abstract only, written vertically with little to no room for students to work out the problem or draw their own representations to help them solve it. Two of the lessons show a number line to help students solve multi-digit subtraction problems; two of the lessons show students how to break apart hundreds, tens, and ones to add multi-digit numbers. These are abstract modules, using only visuals and no pictorial or concrete models or examples. The remaining addition and

subtraction lessons focus on problem-solving; they allow students to represent and solve problems using their own strategy. Materials provide a strip diagram representation in some of the problem-solving lessons, but they do not provide any explicit instruction on how to use it.

In Module 1, during a lesson's "Enrich" section, students roll number cubes and arrange them in any order to show a three-digit number. One student says the number out loud, and their partner uses base-ten blocks to model the number.

In Module 5, students must suggest their own models to use to solve problems; they can use counters, a number line, or other models. After students suggest the model, they explain how it could be used. This activity is more rigorous and abstract than simply being told which manipulatives to use to answer a question. At the end of every lesson, in the "Homework and Practice" section, students explore pictorial representations and apply what they have learned on their own. For example, for practice or homework, students use a ten to subtract in the first section, problem-solve with real-world examples, and then finish by choosing one of three answers to four word problems.

In Module 6, the lessons recommend students utilize base-ten blocks to model the problem. The Teacher Edition provides prompting questions and strategies to guide students through the process of using concrete materials. As they move to the model and draw, the lesson switches from concrete materials to pictorial models. The rigor increases; materials continue to provide support with pictorial models as well as recommending students draw pictorial models. If students need additional support, or if they are not ready to move to pictorial models, there are "Quick Checks" in each lesson. The lessons also recommend the use of a hundreds chart if students need additional support. Students who have mastered the concept using pictorial models have additional resources to move to abstract number representations in the "Extend" activities and "Enrich" practices.

In Module 7, during the "Explore" section of a lesson, students use a place value MathBoard depicting tens and ones to add two double-digit numbers from a story problem. Materials encourage students to draw quick pictures to model the problem, using "Math Talk," as outlined in the "Texas Mathematical Processes." Direct teaching continues within the "Explain" and "Elaborate" portions of the lesson, as students continue to solve double-digit addition problems with pictorial models as added support. The "Evaluate" portion entails independent practice with finding sums of double-digit numbers in an abstract manner. The "Differentiated Instruction" component gives students opportunities to revisit concepts taught previously and provides the teacher with explicit instructions and tasks to implement reteach during this lesson; however, there are no suggestions for ways to assess whether a student needs to move to more concrete models to assist in the support.

Module 12 teaches multiplication and division strategies. The first lesson recommends students use skip counting and drawing to solve multiplication problems. In this lesson, the materials do

not suggest having students utilize concrete manipulatives. Instead, the lessons use pictorial models and abstract strategies to solve two-digit addition. The differentiation lesson recommends using a hundreds chart. The lessons do not mention or refer to using concrete models for students who are not ready to move on to pictorial models. They also do not contain a variety of opportunities through additional resources and practices for students who are ready to move on to the abstract. The practices and lessons begin on a knowledge level and slowly build rigor as the lesson progresses; the focal areas are spiraled in the lessons.

November 2020

Houghton Mifflin Go Math! Grade 2

2.3 Materials support coherence and connections between and within content at the grade-level and across grade levels.

- Materials include supports for students to build their vertical content knowledge by accessing prior knowledge and understanding of concept progression.
- Materials include tasks and problems that intentionally connect two or more concepts as appropriate for the grade-level.
- Materials provide opportunities for students to explore relationships and patterns within and across concepts.
- Materials support teachers in understanding the horizontal and vertical alignment guiding the development of concepts.

Meets 4/4

The provided materials support coherence and connections between and within content at the grade level and across grade levels. The resources include supports for students to build vertical content knowledge by accessing prior knowledge and understanding of concept progression. The included tasks connect two or more concepts; materials provide opportunities for students to explore relationships and patterns within and across concepts. To some extent, the materials support teachers in understanding horizontal and vertical alignment; however, there are not enough explicit details or directions to indicate why the materials build, especially for teachers less familiar with the TEKS for the grade level or grades above or below.

Evidence includes but is not limited to:

Throughout all modules, materials contain tasks that direct teachers to build on students' prior knowledge before presenting a new concept or problem aligned to a grade-level focal area. Each lesson in each module begins with an "Essential Question" and a "Making Connections" piece, which links the new skill or concept to previously learned material or student prior knowledge. All lessons within the curriculum have an "Are You Ready?" section that guides teachers to assess children's understanding of the prerequisite skills for each lesson; it is

located in the “Assessment Guide,” which instructs the teachers where to go in the guide. Each lesson contains a “Go Digital” resources section, where a “Digital Management Center,” specifically designed for the teacher’s use, organizes program resources by TEKS, Tier 1 intervention lessons (provided in the “RtI Guide”), and “Soar to Success Math” online lessons that teachers can use to help build those skills. At the beginning of each unit, there is a “Vocabulary Reader.” At the very bottom of every page in the Teacher Edition, the “Vocabulary Builder” section explains to teachers the prior knowledge students should be coming in with. Materials in second grade build students’ vertical content knowledge through task familiarity; materials utilize common manipulatives and models from previous units, which continue as students progress into subsequent grade levels. The materials are organized so that skills and concepts build in rigor throughout the year and over consecutive years. The materials follow the same format in all grade levels and utilize the same models; for example, they use five-frames for representing numbers, counting, adding, subtracting in kindergarten, and then in first grade. The same is true of learning place value; in first grade, students start using base-ten blocks and place value charts to develop place value knowledge; in second grade, students move on to using the same place value chart to add thousands. The materials teach the same or similar strategies to scaffold in higher grade levels, such as using number lines, counting on, modeling, and acting out to solve problems. The problem-solving model is the same through all grade levels; the content changes, but the format remains the same. While the second grade materials build upon concepts and materials introduced in kindergarten, there is little evidence that shows a direct connection to what students will learn in higher grades. Also, the materials don’t explicitly state how to apply concepts outside of the mathematical classroom; materials provide real-world examples and problems to explore and solve throughout each module. The only indication that shows students will use these skills in the future is found in the “Math on the Spot” video tutor section, which provides students with help in solving the HOTS (higher-order thinking skills) question included in each lesson. This section, included in every lesson across grade levels, states: “With these videos and the HOTS problems, children will build skills needed in the TEXAS assessment.” Materials give no further guidance or direction.

In Module 1, students receive a pile of 32 objects. Materials instruct students to put the objects into groups to make them easier to count. The teacher asks, “Why would someone choose to put these objects in groups of 10?” This draws on previous knowledge of skip counting by tens and place value with tens and ones.

In Module 1, students use the place value chart and base-ten blocks to model three-digit numbers; in Module 4, students model four-digit numbers using the place value chart and base-ten blocks. This builds upon prior knowledge from 1st grade, Module 1, where a lesson introduces using a place value chart and base-ten blocks to model numbers as tens and ones.

In Module 4, students learn about fractional parts of a whole. They connect their knowledge of fractions later in Module 11 when they find ways to make a dollar (four quarters = fourths). Towards the end of the year, in Module 18, students read an analog clock to the half-hour and quarter-hour, connecting once more to fractional concepts.

In Module 4, when discussing equal parts, the “Lesson Opener” asks students to think about cutting or folding paper into equal parts. Students became familiar with the concept of “equal” in kindergarten; in kindergarten, students compared numbers; in first grade, materials emphasized the concept of “equal parts,” such as in a lesson in Module 13, where students wrote expressions of equal value; in second grade, materials connect the concept of “equal” in Module 2, in the “Compare Numbers with Three Digits” lesson. The concept of “equal parts” or “equal” is essential when students move into using multiplication and division in Module 12. The use of “equal parts” throughout the “Fractional” Module 4 in second grade helps the students visualize the meaning of “equal” in relation to the skills of adding equal groups (the premise of multiplication) and separating into equal groups (division).

In Modules 6–9, which involve solving problems with addition and subtraction, students learn to use models and representations that they will see and use in third grade, such as strip diagrams (called *models*) in Module 9, and place value blocks in Modules 6–9. However, the Teacher Edition does not explicitly state that these representations and/or skills will be built upon or used again in third grade.

In Module 8, in the “Try Another Problem” section, students use a model to organize parts and a whole for a word problem. Materials guide students to figure out the answer but encourage them to use various methods to reach the same answer. Answers can use subtraction, a part-part-whole model, standard algorithms, abstract thinking, or even concrete modeling. This word problem alone ties in many concepts, so students can make connections among mathematical ideas.

In Module 11, “Money,” an additional resource is literature. In the book *Time to Go Shopping,* students read about counting coins to buy all the items on a shopping list. Students can make connections to real-life problems or opportunities to spend money outside of school. This connection uses real-life problems that require students to recognize and apply mathematics in contexts outside of mathematics.

In Modules 16 and 17, materials use the skill of measurement to support other content areas, such as art, physical education, and writing. Students have opportunities to make art using rolling, sliding, and spinning; demonstrate push-and-pull as part of physical education; or write a poem about forces in connection with the skill.

November 2020

Houghton Mifflin Go Math! Grade 2

2.4 Materials are built around quality tasks that address content at the appropriate level of rigor and complexity.

- Tasks are designed to engage students in the appropriate level of rigor (conceptual understanding, procedural fluency, or application) as identified in the TEKS and as appropriate for the development of the content and skill.
- Materials clearly outline for the teacher the mathematical concepts and goals behind each task.
- Materials integrate contextualized problems throughout, providing students the opportunity to apply math knowledge and skills to new and varied situations.
- Materials provide teacher guidance on anticipating student responses and strategies.
- Materials provide teacher guidance on preparing for and facilitating strong student discourse grounded in the quality tasks and concepts.

Meets 4/4

The provided materials are built around quality tasks that address content at the appropriate level of rigor and complexity. Tasks are designed to engage students in the appropriate level of rigor as identified in the Texas Essential Knowledge and Skills, as appropriate for the development of the content and skills. Materials clearly outline for the teacher the mathematical concepts and goals behind each task. Materials integrate contextualized problems throughout, providing students chances to apply knowledge and skills in varied situations. The resources provide teachers guidance on anticipating student responses and strategies; however, the materials do not support teacher guidance on ways to revise content to be relevant to their specific students, their backgrounds, and their interests. In addition, there are embedded opportunities for discourse, but there are no rubrics for teachers to evaluate the quality of the discussions.

Evidence includes but is not limited to:

Throughout all modules, the materials begin with concrete models, allowing students to use tools and manipulatives to represent numbers. The materials guide students through CRA (concrete to representational to abstract) tools, models, and understandings, with increasing depth and complexity; materials provide increasing rigor throughout a given unit and across units over the course of the year. Each unit (which includes multiple modules) includes an introduction called "Introduce the Unit;" it describes and explains the overall concepts and the goals of the unit. This is exemplified in the "TEKS for Mathematics" section in the Teacher Edition (TE) as well as in the teacher professional development videos; the student edition lists the TEKS for each lesson in the top right-hand corner of the first page. Materials note multiple goals behind a task, emphasizing that the process is just as important for student learning as the product; they guide teachers to facilitate discussion on how differences in strategy relate to efficiency and how well strategies work for the problem type. The unit page explains each component of the lesson; unit pages also include "Essential Questions" that teachers should be focusing on throughout each unit. Lessons follow a "5E" format ("Engage, Explore, Explain, Elaborate, and Evaluate"). Each lesson starts out with accessing prior knowledge and a "Making Connections" section; in the Explore section, the lesson dives into the on-level material. During the Explain portion, materials encourage moving students to Elaborate only if they master the previous teaching. There are enrichment questions in the higher-order thinking (HOT) problems, "Go Deeper," and in independent practice, labeled "Homework and Practice." The unit page also informs teachers that the "Diagnostic Interview Task" may be used for intervention on prerequisite skills. For each grade level, several sections throughout the TE unit pages direct teachers to students' prerequisite skills, such as "Show What You Know," "Quick Checks," and the "Vocabulary Builder." Each lesson includes TEKS and learning objectives to address; the "Common Errors" section lists possible misconceptions for each lesson in the TE.

In Module 3, one discussion problem asks, "What is a number that Tasha could model with three different digits?" After children complete the page, the teacher asks a volunteer to tell which number the student chose to be Tasha's number and to explain how the quick picture the student drew connects to each digit in the number. Through this reasoning, students can discuss the various ways they each solved the problem since there will be a variety of answers. At the top of each lesson, the Essential Question helps guide teachers to facilitate learning goals. Further in this module, in "Model Four-Digit Numbers," the Essential Question is, "How can you show and write four-digit numbers?"

In Module 4, students learn about fractional parts of a whole. They connect to this knowledge of fractions later in Module 11, when they find ways to make a dollar (four quarters = fourths). Towards the end of the year, in Module 18, students can connect reading an analog clock to the half-hour and quarter-hour to fractional concepts as well.

In Module 9, in the lesson "Write Problem Situations," an embedded question asks, "Zach has a book with 79 pages in it. He reads 24 pages on Monday. How many more pages are there in the book for Zach to read?" Materials instruct students to write a number sentence; students show how they found the answer by answering the following questions: "Did you use addition or

subtraction in your number sentence? Explain." "Describe how you solved for the unknown number in your number sentence." The teacher assesses the student by using "Math Talk," focusing on understanding how to use mathematical operations to represent actions in a word problem. In the "Go Deeper," the TE guides the teacher on how to proceed should a student exhibit mastery; "Differentiated Instruction" guides the teacher on how to proceed should a student experience difficulty. Also in this module, in the "Springboard for Learning" section, the materials remind teachers that children should look back at the number sentence, list some verbs that could be used for situations involving addition or subtraction (depending on what the number sentence is), and brainstorm story problems that use one of those verbs. In the Elaborate portion of the lesson, students describe how the open number lines were used to solve for the unknown amount and use reasoning to draw an open number line. Materials thus have students compose story problems with strong verbs and use reasoning in drawing as a problem-solving strategy, reinforcing and supporting further application in problem-solving.

In Module 18, in a lesson on time, under the section "Problem Solving — HOT Problem," the materials state: "These problems require children to use higher-order thinking skills and/or multiple steps to solve the problem. In Exercise 7, children need to use the a.m. and the p.m. labels to determine the correct order of the times. In Exercise 8, children use a timeline as a representation of some times in the day, identifying times and activities of different places on the timeline."

In Module 20, in a lesson about "Producers, Consumers, and Costs," students apply financial literacy concepts in determining the producers and the consumers, the facets involved, and the relationship between the two. In the Unit 6 assessment, students explain what it means to save and spend money, make deposits and withdrawals, borrow or lend money, and how producers and consumers differ. Students also explain how saving and spending decisions affect the amount of money that one has, list things to consider when making decisions about borrowing or lending money, and explain what producers and consumers do.

November 2020

Houghton Mifflin Go Math! Grade 2

2.5 Materials include cohesive, year-long plan for students to develop fluency in an integrated way.

- Materials include teacher guidance and support for conducting fluency practice as appropriate for the concept development and grade.
- Materials include a year-long plan for building fluency as appropriate for the concept development and grade.
- Materials integrate fluency at appropriate times and with purpose as students progress in conceptual understanding.
- Materials include scaffolds and supports for teachers to differentiate fluency development for all learners.

Partially Meets 2/4

The provided materials develop fluency in an integrated way. There is guidance and support for conducting fluency practice and integrating fluency at appropriate times as students progress in their conceptual understanding. There is not a cohesive year-long plan that is explicitly laid out for fluency practice, and there is little scaffolding or support for teachers to differentiate fluency development for all learners.

Evidence includes but is not limited to:

Throughout all modules, the materials include some guidance for teachers on the structure and design of fluency practice; this guidance is found in the "Strategies and Practice for Skills and Facts Fluency – Primary, GK-3," in the "Digital Resources." This resource lists the lessons in kindergarten, 1st grade, 2nd grade, and 3rd grade, and how they match "Basic Facts" workshops and "Basic Facts Practice" worksheets. The workshops and worksheets are connected to concept development and expectations for the grade level. This is evidenced through the lessons listed in the "Math Expressions Correlation" section, which also provides opportunities to choose appropriate strategies for grade-level tasks. Students have opportunities to efficiently and accurately solve grade-level tasks by applying their conceptual

understanding of number relationships and strategies; students do this in the scaffolded workshops from “Introduce It!” “Develop It!” and “Make it!” Materials provide support for conducting fluency practice with students; in the introduction, materials explain that basic facts workshops use number patterns, visual models, and prior knowledge to introduce and to develop the strategy for learning a specific group of facts. Materials provide further directions for children on how to create manipulatives to practice those basic facts independently or with a partner.

Throughout the year, the materials direct teachers to use the “Strategies and Practice for Skills and Facts Fluency” resource for additional practice to promote automaticity. While this resource makes connections to the development of conceptual understanding within the overview, materials do not explicitly embed these connections within the units or modules. Other than the correlation sheet, materials give no clear direction on how and when to conduct these fluency activities. The materials do not provide a year-long overview or scope and sequence for building fluency connected to the concept development and grade-level expectations that increase in complexity; however, the materials do contain elements that provide routines, complexity skill progression, and tracking of fluency progress. The materials provide some guidance for determining if students need differentiated supports for fluency activities. Teachers receive fluency support for English Learners. Fluency expectations for the grade level are not stated, and there is no explicit link or instruction in the Teacher Edition (TE) for fact fluency support. The “Practice for Skills and Fact Fluency – Primary, GK-3” resource has leveled lessons to support fluency, but the TE does not refer to this resource, and it is not correlated with specific lessons within modules. The workshop instructions are broken into three steps: “Introduce It!” “Develop It!” and “Make It!” The idea is for teachers to scaffold the lesson as the students develop the concept; however, the materials lack guidance for the teacher on how or when to move on and what to do for students who are struggling, even with the included “Tips.” The workshops are the same for all grade levels; they are not specifically assigned to each grade level. So, a first-grade and second-grade teacher could duplicate the teaching. Fact fluency practice is not scaffolded; the only modules that include practice are the addition and subtraction modules.

In Modules 1–13, materials cover Level 2 and the first three workshops of Level 3 of “Basic Facts Workshops.” The materials contain worksheets to help reinforce the fact fluency practice. As depicted in this resource, the levels and worksheets are connected to specific lessons within the TE. Within the overview of the resource “Strategies and Practice for Skills and Facts Fluency – GK-3,” the materials make connections to the development of conceptual understanding; however, materials do not explicitly embed these connections within the units or modules.

In the Level 2 Basic Facts Workshop 9, the teacher reviews the addition strategy “Make a 10” utilizing counters and a double ten-frame. After practicing, reviewing, and modeling the strategy, the teacher moves to the next step of “Develop It!” Students visualize moving the piece, allowing them to use mental math. The teacher shows nine counters on the top ten-

frame and adds four counters on the bottom ten-frame. The teacher asks the students to visualize moving one counter to make ten in the top ten-frame, asking, “How many counters are there in all?” (13). The teacher asks, “How do you know?” (10 + 3 = 13.) This teacher repeats this procedure several times before moving on to “Make It!” where students create flashcards with “Make a 10” facts.

In Module 5, during a lesson on addition strategies, teachers review the terms *doubles plus one* and *doubles minus one*. Materials provide the following questions and possible answers: “Why might you think of 10 + 1 to find the sum for 5 + 6?” (Since 6 is one more than 5, 5 + 6 is the same as 5 + 5 + 1, which is also 10 + 1.) “Why might you think of 10 - 1 to find the sum for 5 + 4?” (Since 4 is one less than 5, 5 + 4 is the same as 5 + 5 – 1, which is also 10 – 1.) “Suppose you want to prove to someone that changing the order of addends does not change the sum. How would you prove this?” (I could use blocks to show the addition. When you have two sets of blocks, it doesn’t matter which set you start with: When you count all the blocks, you will have the same total.) The “Math Talk” section of that same module guides students to explain why 3 + 3 = 6 is called a doubles fact.

In Module 5, the skill of “making 10” helps find differences when subtracting or using known or prior-learned information and strategies about determining ways to make 10. Teachers ask questions such as “What numbers added together make 10?” “How do we use making a 10 when adding?” “Would it also be helpful to use making a 10 in subtraction? In what way?” The teacher directs students to think about how addition and subtraction are related, asking questions such as “How many rocks does Jessie need to collect?” “How many rocks has he already collected?” “What operation can we use to find the number of rocks he still needs to collect?” “Counting up is one way to solve the problem, but what is another way?” Materials thus support conceptual understanding of how addition and subtraction are related so that students can apply this understanding when adding and subtracting for fact fluency. Additionally, students have opportunities to participate in “Mega Math” “Numberopolis” interactive activities that facilitate fact fluency development as part of the “Resources.”

November 2020

Houghton Mifflin Go Math! Grade 2

2.6 Materials support students in the development and use of mathematical language.

- Materials include embedded opportunities to develop and strengthen mathematical vocabulary.
- Materials include guidance for teachers on how to scaffold and support students' development and use of academic mathematical vocabulary in context.

Partially Meets 2/4

The provided materials support students in the development and use of mathematical language. The materials include embedded opportunities to develop and strengthen mathematical vocabulary and allow students to use vocabulary in context. However, there is little evidence that includes guidance for teachers to scaffold and support students' vocabulary development and use. The supports are noted to be utilized for English Learners (ELs), and there are many opportunities for teachers to extend or scaffold; however, these are not explicitly stated in the Teacher's Edition (TE).

Evidence includes but is not limited to:

Throughout all modules, the unit overviews highlight the mathematical vocabulary developed within the unit and the vocabulary revisited from prior modules and prior grades. Every page includes a "Vocabulary Builder" and "Vocabulary Reader" section. Vocabulary Builder includes review words on a yellow stick-on note and "preview words" in the margin of the TE; in the student edition, the vocabulary words are highlighted. Each module within the unit also includes a vocabulary section, which can be accessed through the multimedia "eGlossary" in the "Go Digit" resources. There is also a "Learning Task" section in the TE that guides teachers in facilitating discussions about mathematical vocabulary students will be using in the lesson. Every module begins with a "Lesson Opener," which is a short video introducing students to the concept and the "Essential Question" of the lesson. The Opener provides students the

opportunity to listen to math vocabulary in context. The materials include or encourage classroom routines to support language development and the use of academic vocabulary. The "Texas Math ELL Activity Guide TE Grade K-2," although designed particularly for ELs, contains guidance and activities to implement for vocabulary development. The resource activities are designed to help children acquire math vocabulary and the language and writing skills necessary to communicate and understand math concepts. The instructional strategies include drawing, describing, identifying relationships, exploring content, defining, rephrasing, and language modeling. Within the guide, the "Vocabulary Chart" is designed to help students understand math terms related to number and operations. The terms are organized by grade level, so teachers can find vocabulary that applies to their children. Materials instruct teachers to use kindergarten vocabulary for first grade and kindergarten and first grade vocabulary for second grade. The guide also provides teacher tips; for example, in the kindergarten section, materials remind teachers that the terms *tens* and *ones* as place value can be confusing and that children can also confuse *one* and *won* when these words are spoken.

Throughout all modules, within the lessons, there is no evidence of classroom routines to support language development and use of academic vocabulary; however, the materials do build from student informal language to formal language by making explicit connections. The section "Supporting Mathematical Processes Through Questioning" included in the "Mathematical Process Standards" component of the TE has sample sentence frames and questions that directly correlate with the process standards of the TEKS. Every module includes a "Literacy and Mathematics" section that encourages students to write about math concepts; however, it does not explicitly direct students to include academic vocabulary. The materials provide some repeated opportunities for students to listen, speak, read, and write using mathematical vocabulary within and across lessons. These opportunities are mainly found in the unit introductions; they also can be found in the "ELL Differentiated Instruction" through the modules and lessons. However, there is no specific scaffolding for all learners.

In Module 4, in the "Equal Parts" lesson, the vocabulary is *whole*, *halves*, *fourths*, *eighths*. Materials strategically match the vocabulary to the lessons in order to develop students' mathematical vocabulary. The learning goals within the materials address the development of the mathematical vocabulary. For example, the learning goal and "Essential Question" in Module 4 is "What are halves, fourths, and eighths of a whole?" The listed vocabulary directly corresponds to the learning goal.

In Module 13, which is the complete Unit 3, in the "Unit Overview," students complete vocabulary activities on the page by working alone or with partners. During "Visualize It," also in the overview, teachers make sure students understand that they should use the words *less* and *more* in their sentences; students complete a graphic organizer with their sentences. In the "Understand Vocabulary" section, teachers remind students that digits are the numbers 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9. In "Vocabulary Preview," teachers preview with children *even* and *odd*, which will be used in this unit; they write the words on the board and ask children to describe

what they know about each word. The lessons provide a variety of EL strategies that help students increase their vocabulary.

In Module 12, materials introduce the vocabulary word *multiply*. The student edition describes the word as "When you multiply, you join equal groups." The "Math Talk" suggestions, found in each unit, guide teachers to incorporate math discourse using the concepts and vocabulary: "Use Math Talk to focus on children's understanding of adding equal groups."

In Module 13, the "English Language Support" section provides the teacher with the following support/scaffolds: Children can understand language by making connections between new words and prior knowledge. Have children look at their shoes. Explain that shoes are a pair when they match. Two shoes make a pair. Two is an even number. Ask children to name other things that are pairs. Accept all reasonable answers.

Early in Module 16, materials introduce the vocabulary words *inches* and *foot*. The term is revisited in subsequent lessons as part of the "Engage" portion in the Lesson Opener and in "Making Connections." Students make a list of things that are about a foot long, tell something they would measure in feet, tell something they would measure in inches, and explain why. Questions include "Are there other units you have heard of that people use for measuring how long something is or for measuring distance?" "Do you think a foot is a bigger unit than an inch or a smaller unit than an inch?" "How could you use a ruler to measure the doorway?" Students then proceed to measure objects using inches and feet to help solidify understanding.

November 2020

Houghton Mifflin Go Math! Grade 2

2.7 Materials provide opportunities for students to apply mathematical knowledge and skills to solve problems in new and varied contexts, including problems arising in everyday life, society, and the workplace.

- Materials include opportunities for students to integrate knowledge and skills together to successfully problem solve and use mathematics efficiently in real-world problems.
- Materials provide students opportunities to analyze data through real-world contexts.

Meets 4/4

The materials provide opportunities for students to apply mathematical knowledge and skills to solve problems in new and varied contexts, including those arising in everyday life and society. Resources include options for students to integrate knowledge and skills together to problem solve and use mathematics efficiently in real-world problems. Students have opportunities to analyze data through real-world contexts.

Evidence includes but is not limited to:

Throughout all modules, the materials provide opportunities for students to solve real-world problems in a variety of contexts. Students also have opportunities to apply their knowledge and skills from multiple units and previous grade levels in problem-solving tasks. The materials provide performance tasks that require students to integrate knowledge and skills from multiple focal areas of mathematics to successfully find a solution. The “Explore” section, which begins each student edition lesson, is usually a real-world word problem; the teacher introduces it, and the students listen and act on the information. The materials provide opportunities for students to analyze data using real-world contexts; there are lessons focusing on comparing and contrasting as well as on graphing data.

In Module 4, students learn fractional parts of a whole using food examples such as apples. They connect their knowledge of fractions later in Module 11 when they find ways to make a dollar (four quarters = fourths) as they draw and count the coins needed to purchase items from a store. Towards the end of the year, in Module 18, students use their knowledge of fractional concepts when reading an analog clock to the half-hour and quarter-hour to determine the time of the day at which they do certain activities.

In Module 10, students break apart three-digit addends. In order to do this, they must be able to do basic addition, as well as add two-digit addends. Students are first exposed to addition in Modules 5, 6, and 7; this focal point of addition is then expanded upon when students learn how to break apart three-digit addends in Module 10.

In Module 11, students analyze the following word problem: “Natasha has 3 quarters and 4 nickels. How much more money does she need to buy the notebook?” In this problem, students have to look at the data and determine how much more money Natasha will need in order to purchase the notebook.

In Module 19, there are data analysis lessons and activities. Students read and make pictographs and bar graphs, use data to write problems, create scales of two or more, and use data analysis to make predictions and draw conclusions. In one lesson, students use graphs with scales of two or more to answer questions, create graphs depicting different scales, use data from a bar graph with intervals of five to make a pictograph to show the same data, and analyze the data in the pictograph to check for accuracy.

In Module 20, students discuss what they know about buying goods, which is relevant and applicable to daily living. This activity helps build the foundation for the concept of “finance” and the need to count, save, and spend money within a budget as part of financial literacy. Students also discuss what they know about bank jobs and how banks operate. Students access play money, make deposits and withdrawals, and determine necessary monetary amounts. Throughout Module 20, lessons progress to include borrowing and lending money as well as identifying producers and consumers, helping students understand the concept of economics.

In a STEM activity called “Over the Moon; Moon Phases,” students observe, record, and describe the patterns in the phases of the moon. In this lesson, students write a descriptive paragraph about one of the phases of the moon and include sensory details. Students connect this science lesson to deepen their math understanding; they use a table, picture, model, or another method to figure out how many days it takes for the moon to complete two orbits and three orbits. For an additional challenge, students can complete a table to show the number of days for up to ten orbits. Students analyze the patterns of the moon phases.

November 2020

Houghton Mifflin Go Math! Grade 2

2.8 Materials are supported by research on how students develop mathematical understandings.

- Materials include cited research throughout the curriculum that supports the design of teacher and student resources.
- Materials provide research-based guidance for instruction that enriches educator understanding of mathematical concepts and the validity of the recommended approach.
- Cited research is current, academic, relevant to skill development in mathematics, and applicable to Texas-specific context and demographics.
- A bibliography is present.

Partially Meets 2/4

The materials are supported by research on how students develop mathematical understanding. Materials include cited research throughout the curriculum that supports the design of teacher and student resources; however, materials do not provide research-based guidance for instruction that enriches educators' understanding of mathematical concepts and the validity of the recommended approach. The research is not cited throughout the materials; it only appears in the introduction or "Professional Development" section of the Teacher Edition (TE). Best practices, as articulated in the research, are implemented within lessons through the lesson design, questions, inclusion of process standards, etc. Cited research is current, academic, and relevant to skill development in mathematics. Cited research is not specific to Texas context or demographics. A list of resources is referenced on the TEKS correlation pages, but there is not a formal bibliography.

Evidence includes but is not limited to:

Throughout the year, every module follows the 5E lesson plan model ("Engage, Explore, Explain, Elaborate, Evaluate"); however, cited research does not mention this lesson plan model or the effectiveness of its use. Cited research does mention other components of the materials, specifically those focusing on the problem-solving standards: "Students engage in these problem-solving activities when they use a structured plan such as the 'Problem-Solving MathBoard' to solve problems. This offers a consistent approach to unlocking problems that builds success. This is important because understanding is a result of solving problems and reflecting on the thinking done to solve the problems" (Lambdin, 2003). The "Math Talk" and "Go Deeper" features provide opportunities for students to communicate their mathematical ideas. Research indicates: "Teachers should promote discourse among students and have students make conjectures and explain their work" (Kline 2008). The materials reference seven research studies; this research is only referenced on two pages of the TE (in the front): the "Texas Essential Knowledge and Skills for Mathematics" page and the "Mathematical Process Standards" page. Additionally, the materials do not provide research-based guidance for instruction that enriches an educator's understanding of the concepts. The materials provide some research-based guidance for instruction that enriches educator understanding of the validity of the publisher's recommended approach with sufficient references. The Professional Development component of the TE includes research to support the approach to the integration of mathematical process standards. There is a lack of guidance throughout the materials to enrich teacher understanding of the "why," and the vertical alignment piece is missing.

In Module 9, students extend thinking by explaining their reasoning by describing the strategies they used to solve for the unknown addends with peers. The authors emphasize, "Teachers should also promote discourse among students and have students make conjectures and explain their work;" this is supported by research by Kline (2008), who observed that the most productive discussions around mathematical ideas seem to happen in classrooms where students question each other about their work. When students explain and justify their conjectures and ideas, they apply TEKS Process Skills.

In Module 14, the higher-order thinking skills (HOTS) question is, "Alberto cut this shape to make three rectangles. His three rectangles are different sizes. Draw lines to show rectangles Alberto could make." The TE explains that students will be guided through an interactive solution of this type of HOTS problem in the "Math on the Spot" video tutor; the TE also states that, with these videos and the HOTS problems, children will build skills needed in the Texas assessment. The Mathematical Process Standards page also references the "Math on the Spot" videos, which develop and reinforce problem-solving skills and techniques by demonstrating the solution to a HOTS problem for each lesson.

In Module 16, materials guide teachers to use "Math Talk" to focus on children's understanding of using models to measure the length of an object. Research by the National Council of Teachers of Mathematics (2000), in "Principles and Standards for School Mathematics," states the importance of teachers promoting mathematical discourse to promote a deeper understanding of content.

November 2020

Houghton Mifflin Go Math! Grade 2

3.A.1 Materials develop student ability to use and apply a problem-solving model.

- Materials guide students in developing and practicing the use of a problem-solving model that is transferable across problem types and grounded in the TEKS.
- Materials prompt students to apply a transferrable problem-solving model.
- Materials provide guidance to prompt students to reflect on their approach to problem-solving.
- Materials provide guidance for teachers to support student reflection of approach to problem-solving.

Meets 4/4

The provided materials develop students' ability to use and apply a problem-solving model. Materials guide students in developing and practicing the use of a model that is transferable across problem types and grounded in the TEKS. The materials prompt students to apply the model and provide guidance to prompt students to reflect on their approach to problem-solving. The materials guide teachers to support students in their reflection of the approach to problem-solving.

Evidence includes but is not limited to:

Throughout all modules, "Math on the Spot" videos found for each lesson support the development and practice of a consistent problem-solving model across topics and problem-types. Each video models think-aloud processes for problem-solving in every lesson. Early in the year, materials introduce problem-solving models that are used throughout every module and with various concepts in second grade, such as number and operations, algebraic reasoning,

geometry and measurement, data analysis, and financial literacy. Students make connections; use a chart to draw a quick picture given known information (analyze given information); model and draw another problem (formulate a plan or strategy); "share and show" (determine and justify a solution); and are finally evaluated on the problem to determine reasonableness. Problem-solving lessons in second grade follow this process in Modules 1, 2, 3, 5, 6, 7, 9, 12, 14, 15, 16, 18, 19, and 20. Lessons in Modules 4, 8, 10, 11, 13, and 17 follow the same problem-solving process as used throughout kindergarten and first grade: Make Connections, Unlock the Problem, Try Another Problem, Share and Show, and Evaluation. The materials include a problem-solving model grounded in the mathematical process standards of the TEKS. The materials use a graphic organizer that provides prompts and sentence stems for students to apply the problem-solving model taught. The problem-solving model includes a "Read" section, where students analyze given information; a "Plan" section, where students formulate a plan or strategy; and a "Solve" section, where students determine a solution; justifying the solution comes from teacher prompting. The materials help students engage with the TEKS; they begin with context-based situations and build to more abstract problems. Students use models, manipulatives, quick pictures, and symbols to build mathematical understanding. The materials provide prompts within the Teacher Edition (TE) to support student reflection on their approach to problem-solving. The "Math Talk" section in the TE recommends asking the students, "Is your answer for the first problem reasonable? Explain." This encourages math discourse and reflection.

In Module 1, students brainstorm ways to make counting large numbers easier and ways to show large numbers. The teacher models the digital lesson to the whole group; the lesson demonstrates how the hundreds, tens, and ones blocks are different from each other in number representation. Materials direct students back to the "Learning Task," where they guide them through the task of writing a number shown with a model. Students must explain how they determined the numeric representation; the teacher asks questions such as "How does using models help you to understand the value of the number?" Students try another problem using a place value chart and draw a quick picture to show how to solve it. Students model, draw, and write three-digit numbers using place value charts and base-ten blocks, and then share their process with peers. Materials encourage the teacher to use "Math Talk" to focus on children's understanding of place value in three-digit numbers. Students are evaluated in the problem-solving process and answer the "Essential Question," which is "How do you write the three-digit number that is shown by a set of blocks?"

In Module 8, materials direct the teacher: "After reading and discussing the problem with children, work through the 'Problem Solving Graphic Organizer' together. Children should be familiar with this model from previous modules. Have children use the model to write a number sentence." The graphic organizer incorporates prompts and sentence stems to help students remember to use the problem-solving model for all problem types. The organizer prompts students to analyze the problem by reading it and noting what information the problem provides. Students create a plan or strategy to solve the problem and receive guidance to solve the problem using their plan.

In Module 9, in a video on two-digit subtraction, the video characters walk through a word problem with a part-part-whole model, where the teacher fills in the blanks. Because videos are consistently present in each lesson, students have the opportunity to build their problem-solving proficiency and confidence. At the end of each lesson in the interactive student edition, students also have problem-solving opportunities with the "Personal Math Trainer;" they can solve these problems as a class and independently. If students get stuck, there is a button to press that allows them to see a step-by-step process for solving the problem. In Module 1, on modeling three-digit numbers, the button walks students through entering the hundreds, tens, and ones for the number 233, and then provides a chart where students can enter that information.

In Module 10, materials present the following problem: "There were 436 people at the art show. 219 people left the art show early. How many people stayed at the art show?" After they read the problem, students fill in sentence stems: "... people were at the art show. Then ... people left the show." The "Plan" section sentence stem is "I can ... to solve the problem." Materials direct students to make a model using base-ten blocks, draw a quick picture of their model, and solve in the "Solve" section of the graphic organizer. Teachers ask, "How can you use blocks to help you solve the problem?" "How do you know what action to do to solve this problem?" "How can you show how to take away 219 from your model of 436?"

In Module 13, students tell how they will find the missing part. The TE guides teachers to offer possible solutions so that students can think critically and reflect on how to solve the problem. The specific question asked in this lesson is, "Can you find the sum of 35 + 49 to solve the problem? Why or why not?" The model and graphic organizer found in the materials do not provide a section for reflection or explanation.

November 2020

Houghton Mifflin Go Math! Grade 2

3.A.2 Materials provide opportunities for students to select appropriate tools for the task, concept development, and grade.

- Materials provide opportunities for students to select and use real objects, manipulatives, representations, and algorithms as appropriate for the stage of concept development, grade, and task.
- Materials provide opportunities for students to select and use technology (e.g., calculator, graphing program, virtual tools) as appropriate for the concept development and grade.
- Materials provide teacher guidance on tools that are appropriate and efficient for the task.

Meets 4/4

The materials provide opportunities for students to select appropriate tools for the task, concept development, and grade. They provide opportunities for students to select real objects, manipulatives, representations, and algorithms as appropriate for the state of concept development, grade, and task. Students have the opportunity to select and use grade-appropriate technology; teachers receive guidance on tools that are appropriate and efficient for designated tasks. However, the materials do not provide a "tutorial" or "how-to" in teaching students how to use the iTools.

Evidence includes but is not limited to:

Throughout the materials, materials introduce students to a variety of tools and strategies that are age-appropriate; children have opportunities to choose and explore these tools. In second grade, students may have experience with manipulatives in a learning environment; therefore,

many of the lessons expand the scope of the uses of the manipulatives. At the beginning of every unit, a "Materials" section informs teachers about the tool students will use in each lesson. The "Professional Development" portion of the Teacher Edition (TE) states that students need to use tools to be effective problem solvers, as addressed by the third Process Standard (C), which states that students must "select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems." The program also encourages drawing throughout. The materials state that teachers should be sure tools are available during problem-solving activities. Students need to participate in discussions about the tools they use and how they use them (Jacobs & Kusiak, 2006). This should include talking to each other about how the tools are similar and different; when students engage in these discussions, they learn to select tools that lead to more efficient problem-solving. On the resource page, materials provide "Live Links," which make connections between TEKS and correlating lesson examples within the modules. The "Interactive Student Edition" (ISE) guides students through number concepts and skills that directly correlate with the lessons in each module. In these interactive lessons, students manipulate iTools through a guided video scenario. The videos, called "Math on the Spot," help solve more difficult problems online for every lesson. The iTools do have a quick tutorial in the "Help" section for each virtual manipulative. Math on the Spot and ISE videos are easy to follow, but students will require teacher or parent guidance and assistance to use them.

Throughout the modules, second grade lessons are focused on transitioning along the "Concrete, Pictorial, Abstract" (CPA) continuum; as the modules progress, students transition from concrete manipulatives to abstract representations and algorithms. Students use base-ten blocks while learning three-digit and four-digit place value as well as for three-digit addition and subtraction. Students transition to drawing the place value chart and the base-ten blocks. In the first few lessons of Module 1, the materials reintroduce (from first grade) a "MathBoard" and base-ten blocks. As students explore and compare greater quantities, and as they begin to break apart numbers to add and subtract, they continue to use base-ten blocks and the MathBoard, but they also may use other manipulatives, such as two-color counters and various problem-solving models. Then, as they progress through the lessons, students transition to making their own models and writing their own plan/strategy to solve problems. Additionally, students have opportunities to use iTools, such as "math mountains" and "secret code cards," to help them understand the concept of addends and number decomposition. In second grade, students use place-value blocks to build and represent numbers in the modules on place value, Modules 1–3, and in the modules involving addition and subtraction, Modules 6–10, for a majority of the lessons. Students have had prior experience using these manipulatives in first grade. Students do not have the opportunity to select grade-appropriate tools for solving the task, as a majority of the modules direct them on what tool to use or direct them to "Draw a quick picture for the number."

In Module 2, materials direct the teacher: "You can use the digital lesson opener as a whole-class activity. You can pause at any point to have a discussion. How do children use cubes to

model the numbers shown in the problem? Discuss the models with the children. How do they compare? Children will have the opportunity to return to the opening scenario and answer the question in the Daily Assessment Task."

In Module 5, a lesson prompts students to solve a subtraction problem. The teacher walks the students through a series of questions on how to tackle the problem. The last question asks, "How will you find the other part?" The TE states: "Answers may vary. Some children may use the standard algorithm, while others may use alternative methods." Students have the flexibility to use any tools they need to solve the problem.

In Module 6, the students begin solving multi-digit problems using base-ten blocks; they then move to drawing base-ten blocks to represent the problems. They are eventually able to solve multi-digit problems using the standard algorithm or other strategies.

In Module 7, students use base-ten blocks to practice two-digit addition. The questions and teacher guidance embedded within this lesson portray why the base-ten blocks are effective for the task. The question "How did you solve this problem?" helps emphasize the purpose of this tool, as the base-ten blocks are key in visualizing the steps to attaining the answers. The "Math Talk" component of this lesson has students focus on understanding the strategies they can use to solve addition problems; base-ten blocks are a primary component in this process. The "Explain" portion continues to use base-ten blocks to regroup when adding two-digit numbers. The lesson provides the teacher detailed explanations on when and how to use the tool. Materials suggest which tool is appropriate and efficient for a task, but they do not necessarily explain why it is appropriate.

In Module 9, the TE states: "Tell children that they can use one of the ways they have learned or they can invent a different way to solve the problem. It may be helpful to review some of the methods that they used in previous lessons, such as breaking apart the number that is being subtracted and using a number line. Encourage children to try to find a 'new way' to do subtraction to check the depth of their understanding. Have them justify their new methods in a class discussion." Students do not have the opportunity to select tools appropriate for solving a task. However, in this module, students have opportunities to use base-ten blocks along with place-value models to subtract two-digit numbers with and without regrouping. This shows how materials implement tool progression and "move" students from concrete to abstract. In another lesson in this module, students choose how to solve problems with money. Students choose to use manipulatives, coins, modeling by drawing, or skip counting. In the "Math Talk" section, materials also encourage students to recognize how the values of coins relate to each other.

November 2020

Houghton Mifflin Go Math! Grade 2

3.A.3 Materials provide opportunities for students to select appropriate strategies for the work, concept development, and grade.

- Materials prompt students to select a technique (mental math, estimation, number sense, generalization, or abstraction) as appropriate for the grade-level and the given task.
- Materials support teachers in understanding the appropriate strategies that could be applied and how to guide students to more efficient strategies.
- Materials provide opportunities for students to solve problems using multiple appropriate strategies.

Meets 4/4

The provided materials include opportunities for students to select appropriate strategies for the work, concept development, and grade. Materials prompt students to select a technique and provide opportunities for them to solve problems using multiple strategies. The resources support teachers in understanding the strategies that could be applied and guide students to utilize more efficient choices.

Evidence includes but is not limited to:

Throughout all modules, the materials include prompts that require students to select a technique for solving a task; a majority of the strategies taught in second grade are the use of manipulatives, acting out, and drawing. “Share and Show” in the “Explain” portion of lessons also gives students opportunities to select their method of problem-solving with teacher guidance and support appropriate to the grade level. The prerequisite skills that students need to know before learning each particular lesson are available in each unit’s “Vocabulary Ready” section. By understanding these prerequisite skills, teachers can understand which strategies are appropriate for solving a task. In the Teacher Edition (TE), many prompts throughout the lessons guide teachers to distribute information. These prompts also help explain to teachers

why a strategy might be more useful than another. Each lesson within each second grade module has sample "acceptable" student responses to questions and directions embedded throughout the lesson cycle; these help the teacher understand appropriate strategies. Although the materials provide scripted lessons and suggested activities, the materials do not provide detailed or specific explanations to help teachers guide students to use more efficient strategies.

On the "Mathematical Process Standards" page, at the front of the TE, there are teacher prompts to guide students to reflect on their strategies. Some prompts are, "What can you do if you don't know how to solve a problem? Have you solved a problem similar to this one? How do you know your answer makes sense? Why did you decide to use…? How do you know your answer is reasonable? Will that method always work? How do you know? What do you think will happen if…?" These types of questions are also included further in the TE; for example, in Module 2, teachers ask, "How can you use a model to help you solve the problem?" In Module 11, teachers ask, "How can acting the problem out with coins help you solve this problem?"

In Module 3, students must suggest two other ways to generate a number less than 1,138 and then determine a number that follows that rule; teachers ask volunteers to explain how they chose a number to write.

In Module 4, materials guide teachers to explain why a certain strategy could be used when comparing numbers: "Work through the model with children. Explain that they will be making one of the addends in each problem a tens number, a number that has a zero in the ones place. Why were two ones moved from 25 to 48? Two ones were moved from 25 to 48 so that the second addend, 48, would become a tens number, 50. Ask the children to write the two new addends. Guide them to then determine and write the sum. Discuss with children that they could add 5 tens to 2 tens and 3 ones to get a total of 7 tens and 3 ones, or they could start at 23 and count on 5 tens. When you add 23 + 50, is the sum the same as 25 + 48? (Yes). Explain. Possible explanation: The blocks for the two models were moved around, but the total number of blocks did not change. So, the sum is the same." In this example, students must use number sense to understand how many ones are needed to make a ten to adjust 48 to 50. They must understand that when you have 8 ones, you need 2 more ones to create a ten; they must understand the abstract concept of making a ten, learned in first grade; and they also must use number sense to identify which number is which in the pictures of the base-ten blocks.

In Modules 5–10, the addition and subtraction modules, students learn multiple strategies for solving multi-digit addition and subtraction problems. These strategies include modeling and representing with base-ten blocks; drawing quick pictures of base-ten blocks on their "MathBoards" to solve; using a number line; decomposing and composing hundreds, tens, and ones to subtract and add; compensation; and bar models. In Module 10, materials again provide students with opportunities to solve problems using multiple appropriate strategies. Materials direct teachers to have children use base-ten blocks to solve the problems, then have

them draw quick pictures to show how they modeled and solved the problem. After, volunteers share their solutions and ask each other questions about how they solved the problem.

In Module 6, a “Think” bubble in the Student Edition prompts students, “Adding can be easier when one of the addends is a tens number.” This is to aid them in their mental math, number sense, and abstraction as they learn how to add two-digit numbers through the “making a ten” strategy. As they solve the problems in the lesson, students are shown base-ten blocks in their Student Edition and must be able to identify which numbers belong to which picture. Students also need to be able to understand how to “move” ones from one number to another, abstractly, not physically, to create a number with a zero in the ones place to make two-digit addition easier.

In Module 8, teacher guidance for the Higher-Order Thinking (HOT) Question explains that students may choose more than one way to solve a problem: “For Exercise 5, children may choose to solve the problem using two subtraction steps or first add 28 + 16 and then subtract the sum from 90.” In a Module 10 lesson, when students work with word problems that may be more difficult to understand, especially when choosing the correct operation, materials guide: “Have children draw a picture that shows the problem and brainstorm the steps that need to be taken to solve the problem.”

In Module 10, students use base-ten blocks and/or MathBoards to solve problems involving subtraction up to three digits with and without regrouping. Students have had experiences with these manipulatives, models, and techniques (quick draw, building numbers) in previous lessons. The teacher explains how the base-ten blocks or the “Problem Solving Graphic Organizer” can be used to solve the problem. Students may draw quick pictures of the models they made to show how they solved the problem. The teacher uses “Math Talk” to focus on children’s understanding of how to use base-ten blocks and quick pictures to solve a subtraction problem; students share their solutions and ask each other questions about how they solved the problem. Teachers ask, “How can making a model help when solving subtraction problems?” Student answers may vary since students had choices in their materials and techniques.

In Module 12, during a “Go Deeper” portion of the lesson, students make the connection between multiplication and division by choosing one drawing from an exercise about combining equal groups and writing a multiplication story for the drawing. Students then write a division story for a drawing about dividing into equal groups. In this task, students may choose their technique and supports (making a strategy, quick pic, model, two-color counters). Students reflect on the process by answering questions such as “How can you find the number of equal groups or the number in each group?” Again, student answers may vary since students had choices in their materials and techniques.

In Module 13, students are given the following word problem: “Kendra had 35 crayons. Her dad gave her some more crayons. Then she had 49 crayons. How many crayons did Kendra’s dad give her?” Students use the “Problem-Solving Graphic Organizer.” The second section in the organizer is “PLAN.” Students plan which strategy or technique they will use to solve this problem. They are prompted to use a strategy of their own choice, such as modeling the problem, mental math, etc.

November 2020	Houghton Mifflin Go Math! Grade 2

3.A.4 Materials develop students’ self efficacy and mathematical identity by providing opportunities to share strategies and approach to tasks.

- Materials support students to see themselves as mathematical thinkers who can learn from solving problems, make sense of mathematics, and productively struggle.
- Materials support students in understanding that there can be multiple ways to solve problems and complete tasks.
- Materials support and guide teachers in facilitating the sharing of students’ approaches to problem solving.

Meets 4/4

The provided materials develop students’ self-efficacy and mathematical identity by providing opportunities to share strategies and approaches to tasks. Materials support students to see themselves and mathematical thinkers who can learn from solving problems, making sense of mathematics, and productively struggling; the resources support students in understanding that there can be multiple ways to solve problems and complete tasks. The materials support and guide teachers in facilitating the sharing of students’ approaches to problem-solving.

Evidence includes but is not limited to:

Throughout all modules, the materials present mathematics as a field of study focused on developing efficient and generalizable ways for solving problems, not as a set of procedures to memorize; students are at the center of problem-solving. The “Professional Development” portion of the Teacher Edition (TE) maintains that to engage in problem-solving, students must be provided with problems for which a pathway toward a solution is not immediately evident. When students need to find a pathway, they may refer back to the context of the problem to

make sense of how to solve it. Through the lesson structure in each lesson, teachers are able to guide students through higher-order thinking processes. When students get questions wrong, the TE prompts the teacher to ask additional questions or provide additional support in a different way to help students engage and grow by making sense of mathematics. The "Essential Questions" posed in each lesson foster a community of thinkers and support the engagement of mathematical thinking as many of the questions are open-ended. The materials scaffold learning from simple- to higher-rigor problems as the lesson progresses, allowing students to feel success as they develop their critical thinking skills. The materials provide supports for all learners to participate and engage as mathematical thinkers; there are supports for English Learners in each module and in the "ELL Activity Guide;" supports for below-level learners in the "RTI Tier 1, 2, and 3 Guides;" and supports for above-level learners in the "Enrich" section of each module as well as in the "Enrich Guide." There is also a "Common Errors" section in every lesson, which helps the teacher guide students who may be struggling, get them back on track, and help them solve problems. Materials provide tasks that allow for multiple pathways to a solution. Students are able to see these pathways through whole group and small group discussion as prompted in the TE.

In Module 1, teachers ask students to think about how to put different groups together and still make the same number: "Use base-ten blocks and ask children to share ideas about how to show one hundred in different ways. Is there more than one way? (Yes). Explain. Answers will vary.)" Then in "Using the Digital Lesson," materials prompt: "Use base-ten blocks to model the acorns in the opener. Draw a quick picture for the number, and then write it using addition." Then, in the "Learning Task Guide," teachers ask students to think through the task of grouping numbers: "Would showing 125 only with ones make counting harder? Explain. (Yes, because there are so many blocks.) Why is it useful to use hundreds and tens? (Hundreds and tens are larger groups. It is easier to count the larger groups.) When might you want to use a different way to show the same number? (Possible answer: If there are not enough of one kind of block to show the number.)" Through this sequence of questioning, discussion guidance, and teacher facilitation, students are able to talk about different ways to solve a problem and different solutions to a given problem with teacher support.

In Modules 1 and 2, the "Math on the Spot " videos show characters of both genders who are successful in mathematics. In Module 1, Prof. Berger teaches Jeannie to use different ways to represent a number. In Module 2, Mrs. Sandoval teaches Jeannie how to compare numbers.

In Module 3, during a lesson on place value, students first solve four simple word problems and then tackle a multi-step problem. They must go deeper into understanding the word problem in order to solve it.

In Module 7, a possible misconception is "Children may forget to add the regrouped 10." Materials direct teachers to "Springboard to Learning" by asking students to model the problem using quick pictures. To reinforce the learning, teachers emphasize that when the 10 ones are

regrouped as 1 ten, the one should be written above the other tens in the tens column so that it is not forgotten.

In Module 13, students use connecting cubes and ten-frames in determining even and odd numbers. Student explanations should include an understanding of how some numbers are shown with pairs of cubes with no singles left, but other numbers are shown with pairs and have one single left. Students then work in small groups to decide on a rule for classifying large two-digit numbers (e.g., 85 and 92) as even or odd without the use of cubes or pictures and share their work with the class.

STEM activities and extensions help show the connections between mathematical skills and the real world. Students can “see” themselves as “doers” and “thinkers” when solving problems and completing related activities included in the STEM resources. For example, a second grade STEM lesson connects math skills to the concept of “Water Consumption” through leveled activities entailing graphing, shelter research (Social Studies), song lyric/writing about basic water needs (Music), and a collage depicting basic needs (Art).

November 2020

Houghton Mifflin Go Math! Grade 2

3.B.1 Materials prompt students to effectively communicate mathematical ideas, reasoning, and their implications using multiple representations.

- Materials provide students opportunity to communicate mathematical ideas and solve problems using multiple representations, as appropriate for the task.
- Materials guide teachers in prompting students to communicate mathematical ideas and reasoning in multiple representations, including writing and the use of mathematical vocabulary, as appropriate for the task.

Meets 4/4

The materials include prompts for students to effectively communicate mathematical ideas, reasoning, and their implications using multiple representations. The opportunities are task appropriate for students. Materials guide teachers in prompting students to communicate in multiple modalities, including writing and using mathematical vocabulary.

Evidence includes but is not limited to:

The "Professional Development" component of the Teacher Edition (TE) states that, throughout all modules, students need to engage in productive discussions about representations of problems and to present problems and their solutions. In the TE, the "Supporting Mathematical Processes Through Questioning" section provides question stems that directly correlate with Process Standards: "What operation did you use to represent the situation? Why does that operation represent the situation? What properties did you use to find the answer? How do you know your answer is reasonable?" These embedded questions cue the teacher to help students communicate mathematical ideas. Throughout lessons, prompts and guidance help teachers facilitate discourse in age-appropriate ways. Teachers model and reinforce mathematical language within the lessons; materials also encourage language modeling at home and through the homework assignments. Students can demonstrate their understanding

in multiple ways, such as through visual, physical, contextual, verbal, and symbolic representations and within the "5E" lesson model. The unit overviews highlight the mathematical vocabulary developed within the unit and which vocabulary is revisited from prior units and prior grades. Every unit page includes a "Vocabulary Builder" section and a "Vocabulary Reader" section. Vocabulary Builder includes review words on a yellow sticky note and "preview words" in the margin of the TE.

In Module 4, in a lesson on fractions, students use pattern blocks, "MathBoards," paper manipulation (folding to demonstrate fractions), and illustrations; write numbers and vocabulary words; and use various virtual "Go Digital Resources" to answer the Essential Question, "What are halves, fourths, and eighths of a whole?" Students thus use a variety of mathematical representations to show how they found their answer. The lesson also utilizes mental math strategies, which is another way students can communicate mathematical ideas. At the beginning of the lesson, students use pattern blocks to create shapes and understand fractions. The homework listed at the end of this lesson does not instruct students to use pattern blocks, assuming that students have mastered the idea of fractions and have been released to do independent work on their own without the use of external manipulatives. In the homework listed at the end of each lesson, students use pencil to paper to show that they understand what they have learned.

In Modules 5–10, students learn multiple strategies for solving multi-digit addition and subtraction problems. These include modeling and representing with base-ten blocks; drawing quick pics of base-ten blocks on their MathBoards to solve; using a number line; decomposing and composing hundreds, tens, and ones to subtract and add; compensation; and bar models. In Module 10, there are further opportunities for students to solve problems using a variety of mathematical representations. Materials direct the teacher to have students use base-ten blocks to solve the problems, and then have them draw quick pictures to show how they modeled and solved the problem. Volunteers share their solutions and ask each other questions about how they solved the problem.

In Module 9, students use a variety of tools and strategies to solve problems. To solve for an unknown number, students write a problem situation by acting it out; concretely manipulate cubes (joining, separating); draw pictures; and use mental math. Students share and show what they know in determining the answers by using varied approaches. The "Explore" portion of this lesson asks students, "Did you use addition or subtraction in your number sentence? Explain. Describe how you solved for the unknown number in your number sentence." "Math Talk" focuses on students' understanding of using mathematical operations to represent actions in a word problem. The Essential Question for this lesson is "How can a number sentence show a real-life problem?" Suggested answers are as follows: In a real-life problem, if the action is taking away or comparing, a subtraction sentence could show that problem. If the action is joining, combining, or adding to, an addition sentence could show that problem. This open-ended question causes students to communicate their mathematical process and thinking.

In Module 13, materials provide teachers with the following support/scaffolds: Children can understand language by making connections between new words and prior knowledge. Have children look at their shoes. Explain that shoes are a pair when they match. Two shoes make a pair. Two is an even number. Ask children to name other things that are pairs. Accept all reasonable answers.

In Module 19, a “Take Home Activity” states: “Ask your child to explain how he or she solved one of the problems in this lesson.” These types of activity suggestions for the family are provided at the end of every lesson in the “Daily Assessment Task” and encourage parents to have mathematical discussions with their children. In the same lesson, the TE provides small group English Learner (EL) support under the “Differentiated Instruction” section. The materials guide teachers to teach students the vocabulary and how to read bar graphs using the EL strategy “Define,” which has students learn the meaning of words by using them in context. Materials state: “Discuss the meaning of the word ‘conclusion.’ Since the bars in the bar graph get longer from week to week, I can make a conclusion that the height of the sunflower is increasing. Have children repeat.”

November 2020

Houghton Mifflin Go Math! Grade 2

3.B.2 Materials provide opportunities to discuss mathematical ideas to develop and strengthen content knowledge and skills.

- Materials provide opportunities for students to engage in mathematical discourse in a variety of settings (e.g., whole group, small group, peer-to-peer).
- Materials integrate discussion throughout to support students' development of content knowledge and skills as appropriate for the concept and grade-level.
- Materials guide teachers in structuring and facilitating discussions as appropriate for the concept and grade-level.

Meets 4/4

The materials provide opportunities to discuss mathematical ideas to develop and strengthen content knowledge and skills. Students have opportunities to engage in mathematical discourse in a variety of settings; the materials integrate discussions throughout to support students' development as appropriate for concept and grade level. The resources guide teachers in structuring and facilitating discussions as appropriate for the concept and grade level.

Evidence includes but is not limited to:

Throughout all modules, some lessons encourage mathematical discussions within the whole group, small group, partners, and individual instructional settings. This is fostered throughout the "5E" lesson format as well as in center activities, STEM activities, vocabulary activities, English Learner (EL) activities, and "Enrich" activities. The groupings vary in the lessons depending upon the nature of the skill, concept, and activity. The materials offer little to no guidance for teachers on how to structure discussion that is appropriate for the grade level, but the lessons are scripted and contain questions with answers and/or possible student responses. "Lesson Openers" and the "Share and Show" sections embed small group discussions that can be used for remediation and challenge to help struggling students clarify misconceptions and also to deepen and extend thinking for students who are ready to extend the skills and

concepts. Every lesson provides “Differentiated Instruction” in a small group setting, allowing for small group discourse. Every lesson provides “Grab-and-Go” activities for partners or small groups.

The “ELL Activity Guide” for all grade levels provides the following guidance for teachers in working with EL students: “Teachers can provide comprehensible input through the use of gestures, appropriate speech rate, dramatization, visuals, realia, and hands-on activities using manipulatives, charts, repetition, and rephrasing.” Teachers are also guided to encourage student interaction because of the social nature of language learning. Materials state that students need continual opportunities for interaction, both child-to-child and teacher-to-child. Materials instruct teachers to provide ELs with frequent opportunities to interact with native English speakers.

The EL “Language Support” section guides teachers to use a small group strategy: “Children understand language by making connections between new information and prior knowledge. Write 348 and 215 on the board. Have children compare the digits in the hundreds place. Write the sentence frame on the board: hundreds are greater than hundreds, so >. 3; 2; 348; 215. Repeat for 448 and 442. Compare the digits in the hundreds place. If the digits are the same, compare the digits in the tens place. If the digits are the same, compare the digits in the one’s place. Write the sentence frame on the board: are greater than, so > . 8 ones; 2 ones; 448; 442.”

In Module 2, “Making Connections,” materials prompt a whole group discussion: “What kind of trees have you seen? What do the leaves look like? (Answers will vary.) Have you ever tried counting the leaves on a tree? (Answers will vary.) How many leaves do you think are on a tree? (Answers will vary.)” Students write numbers to make a comparison. Teachers ask, “What are words that show comparisons? (possible answers: more, less, fewer, greater) What is the meaning of greater than, less than, and equal? (A greater number is the larger number. Less than is used to talk about a smaller number. Equal is used to talk about numbers that have the same value or quantity.) Review other words that have similar meanings.” Students thus discuss vocabulary words and have quality mathematical discussions.

A Module 9 Lesson Opener guides teachers to activate students’ prior knowledge: “Ask children what they know about problems that have more than one step.” The “Learning Task” is “Have children follow the chronology of the story to create a plan for solving the problem. What happened first in the story? What happened next in the story? How did that change the number of acorns Jessie had? What happened last in the story? How did that change the number of acorns Jessie had?” This type of thinking guides students to use what they know about the beginning, middle, and end from story structures to help solve multi-step word problems. Later in the same lesson, students use a problem-solving model to solve the problem in sections. They begin with the first action in the story (the beginning). Once they solve this part, students use the second section to solve the next step (middle) of the story. The teacher

asks, “What should you do to solve this problem? Explain.” This facilitates class discourse while supporting students’ development of the content knowledge and skills in this lesson.

In Module 12, a Learning Task in the Lesson Opener prompts teachers: “What is the problem the children are trying to solve? Connect the story to the problem. Ask the following questions. What are the objects that need to be counted? How many groups of flowers do you see? Do the groups have the same number of flowers or different numbers of flowers?” In the same lesson, “Math Talk” states: Use Math Talk to focus on children’s understanding of adding equal groups.” This guides teachers to have students discuss their reasoning while adding equal groups. “Differentiated Instruction” guides teachers: “Review the lesson concept with children: When you multiply, you add equal groups together. Ask children to work in pairs to draw or model multiplication as adding equal groups. Then ask them to explain their models in their own words and write to show the addition. If children have difficulty explaining, give them a sentence frame to help: There are … equal groups. I put … counters in each group.”

In Module 13, a lesson suggests that the teacher should place students needing language support in a small group to provide scaffolding in understanding language by making connections between new words and prior knowledge. The teacher has children look at their shoes and explains that shoes are a pair when they match, that two shoes make a pair, and that two is an even number. Children name other things that are pairs. The lesson also challenges students ready to apply and extend their learning: Partners can predict whether a sum will be even or odd if they know whether each addend is even or odd. Students write several basic facts in which both addends are odd and discuss that the sum is always even. The lesson scripts the questions to ask throughout each lesson portion. Questions such as “How does the one’s digit help you tell whether 12 and 15 are odd or even?” and “How are even numbers and odd numbers different?” guide the teacher and help structure the discussion.

November 2020

Houghton Mifflin Go Math! Grade 2

3.B.3 Materials provide opportunities for students to justify mathematical ideas using multiple representations and precise mathematical language.

- Materials provide opportunities for students to construct and present arguments that justify mathematical ideas using multiple representations.
- Materials assist teachers in facilitating students to construct arguments using grade-level appropriate mathematical ideas.

Meets 4/4

The provided materials provide opportunities for students to justify mathematical ideas using mathematical representations and precise language. Students are able to construct and present arguments that justify mathematical ideas using multiple representations. Teachers assist in facilitating the construction of arguments using grade-level-appropriate ideas and mathematical language. Second grade materials provide formal “Math Talks” that aid students in justifying their work and answers.

Evidence includes but is not limited to:

Throughout all modules, there is a write-in Student Edition (SE) for every grade. Students record, represent, solve, and explain as they discover and build new understandings. The Teacher Edition (TE) includes routines and structures that teachers can use to facilitate students’ construction of arguments. The “Mathematical Process Standards” at the front of every grade-level TE provide the following question prompts for teachers: “Will that method always work? How do you know? What do you think about what she said? What do you think will happen if …? When would that not be true? Why do you agree/disagree with what he said? What do you want to ask her about that method? Why did you decide to use …?”

In Module 5, students use fraction strips and a problem-solving model with sentence stems to help justify their problem-solving process and the reasonableness of their answers as they count with equal parts. Teachers ask, “How can you apply the strategy used in the first problem to help you answer the second exercise?” Students use fraction strips to model the two wholes and then count the equal parts used, which enables them to justify mathematical representation in a concrete, visual way. Students may also think of how many of those equal parts will make a whole and how many extra equal parts there are after making a whole. The TE instructs: “Encourage children to use fraction strips to model the problem. Reinforce that a whole is part of the answer by having children outline the whole in a different color and then write the word ‘whole’ on it.”

In Modules 5–10, the addition and subtraction modules, students learn and use multiple strategies for solving multi-digit addition and subtraction problems. These strategies include modeling and representing with base-ten blocks; drawing quick pics of base-ten blocks on their “MathBoards” to solve; using a number line; decomposing and composing hundreds, tens, and ones to subtract and add; compensation; and bar models. In Module 10, materials provide more opportunities for students to justify their mathematical ideas using a variety of mathematical representations: “Have children use base-ten blocks to solve the problems, then have them draw quick pictures to show how they modeled and solved the problem. Then have volunteers share their solutions and ask each other questions about how they solved the problem.”

In Module 7, students review some of the strategies they have used to solve addition problems (using compensation, modeling with base-ten blocks, drawing quick pictures, and breaking apart addends). Students then choose a tool and a strategy to solve a problem. After students solve the problem, they discuss what they did, answering questions such as “How did you solve this problem?” Answers will vary, and students need to explain and justify why they regrouped or did not regroup within each place value. This helps solidify their understanding of place value. Later in this lesson, students draw quick pictures to show their solutions and explain what they did. The TE prompts the teacher to have children think about how many tens are needed to make 100. Students’ explanations should demonstrate an understanding of place value. The TE then has the teacher ask children to think about situations where they may not need to know the exact answer: “Could they be able to estimate the sums in those situations. You can also estimate to check the reasonableness of an answer. Would it be reasonable to have a sum of 614?” Students evaluate this through collaborative communication.

In Module 10, the “Learning Task” in the introduction states: “If you are adding two numbers, how can you use counting on to help you add? (Start with the larger number and count on by the smaller number.) If you are adding 10 and 25, how would you find the sum? (Answers will vary; start at 25 and count on 10; start at 25 and find the number that is one 10 more; start at 10 and count on by 2 tens and then a 5.)” The TE prompts: “Connect the story to the problem by modeling actions with quick pictures. How can you model 875? (I can draw a quick picture that has 8 boxes, 7 tens, and 5 ones.)” Students can answer this question and justify their reasoning by making pictorial representations in the SE. In the “Literacy and Mathematics”

section, students use a story they create as well as base-ten blocks to justify mathematical ideas: “Invite children to write a story that happens during autumn. Encourage them to use three-digit numbers and subtraction. Have children use base-ten blocks to solve problems in the lesson. Then have children give step-by-step explanations of what they are doing with the blocks.” In the “Share and Show” section of this lesson, materials guide teachers: “Have volunteers share their solutions and ask each other questions about how they solved the problem.” Students therefore use another type of representation: verbal representation.

In Module 17, as students are analyzing and drawing conclusions about graphs, teachers discuss what it means to predict something (“to use information [or data] to say what you think might happen in the future”). They ask questions such as “What kind of conclusion can we make about the plant?” “How tall do you think the plant will be in Week 5? Explain how you made your prediction.” The TE directs teachers to accept reasonable predictions and explanations; reasonable student answers are not provided. However, for the “Essential Question” in this module, “How can you use data from a graph to draw conclusions and make predictions?” materials provide the following possible answer: “When you look at data in a graph, sometimes you can see a pattern in how the data changes and then you can predict what might happen next.”

November 2020

Houghton Mifflin Go Math! Grade 2

4.1 Materials include developmentally appropriate diagnostic tools (e.g., formative and summative progress monitoring) and guidance for teachers and students to monitor progress.

- Materials include a variety of diagnostic tools that are developmentally appropriate (e.g., observational, anecdotal, formal).
- Materials provide guidance to ensure consistent and accurate administration of diagnostic tools.
- Materials include tools for students to track their own progress and growth.
- Materials include diagnostic tools to measure all content and process skills for the grade level, as outlined in the TEKS and Mathematical Process Standards.

Meets 2/2

The materials include developmentally appropriate diagnostic tools and guidance for teachers and students to monitor progress. Materials include various tools such as anecdotal and formal tools and provide teachers with guidance to ensure consistent and accurate administration of the tools. However, there is little evidence of students monitoring their own progress and growth. Diagnostic tools measure all content and process skills as outlined in the TEKS and Mathematical Process Standards.

Evidence includes but is not limited to:

Materials state: “The Prerequisite Skills Inventory in the Assessment Guide should be given at the beginning of the school year or when a new child arrives. The multiple-choice test assesses children’s understanding of prerequisite skills. Test results provide information about the review or intervention that children may need in order to be successful in learning the mathematics related to the TEKS for the grade level. The IRF for the Prerequisite Skills Inventory provides suggestions for intervention based on the child's performance.” Every module across grade levels begins with an “Are You Ready?” pre-assessment that can be found in the

“Assessment Guide” for each grade level. The Assessment Guide also includes a “Prerequisite Skills Inventory,” a “Beginning-of-Year Test,” a “Middle-of-Year Test,” an “End-of-Year Test,” and Module and Unit Tests. These Module and Unit Tests are also found in the Teacher Edition (TE) and Student Edition (SE) across grade levels. The materials include an “Online Assessment System,” which offers flexibility to individualize assessment for each child. Teachers can assign entire tests from the Assessment Guide or build customized tests from a bank of items. For customized tests, teachers can select specific TEKS to test. Multiple-choice and fill-in-the-blank items are automatically scored by the Online Assessment System; this provides immediate feedback. Tests may also be printed and administered as paper-and-pencil tests. The same intervention resources are available in the Online Assessment System as in the Assessment Guide for each grade level.

In all modules, assessments and activities allow students to demonstrate understanding in a variety of ways and settings. Every module and unit assessment across grade levels indicates the TEKS that each question assesses. The materials provide suggestions for tracking progress in the Assessment Guide, which includes “Individual Record Forms” (IRF) for all tests. The IRF for each test also provides correlations to the TEKS. The Prerequisite Skills Inventory includes correlations to the TEKS from prior grade levels to assist teachers in developing plans for additional support. There are routine and systematic progress monitoring opportunities through the “RtI Quick Check,” “Problem Solving,” “HOT” problems, and “Daily Assessment Task” sections found in the TE of every lesson. The materials include recommendations for assessing students with formal progress monitoring measures at least three times during the school year: at the beginning of the year, in the middle of the year, and at the end of the year. This frequency allows teachers to identify who is and is not demonstrating progress.

In each unit (which covers multiple modules), a “Diagnostic Interview Task” evaluates student understanding of each “Show What You Know” skill. The diagnostic chart may be used for intervention on prerequisite skills. The materials list the student materials needed and provide scripted activities for students to perform. This is designed to determine if students need intervention for the unit’s prerequisite skills. There is a flow chart for the teacher to use that outlines the tier, the skill to practice, where to go to obtain the practice lesson/activity, and how to differentiate. Based upon assessment performance, the materials list that the student will either need “On-Level Intervention” (for children who are generally at grade level but need early intervention with the lesson concepts); “Strategic Intervention” (for children who need small group instruction to review concepts and skills needed for the unit); “Intensive Intervention” (for children who need one-on-one instruction to build foundational skills for the unit); or “Enrichment” (for children who successfully complete lessons). The materials correlate the scripted lesson activities with the intervention level and indicate where to go within the resources to provide these for students.

In the “Fact Fluency Student Tracker,” students can track their growth. The introduction of this section states: “Basic Facts Workshops: Workshops cover basic facts for addition, subtraction, and multiplication. These workshops use number patterns, visual models, and prior knowledge

to introduce and to develop the strategy for learning a specific group of facts. Children create manipulatives such as flashcards and spinners to practice basic facts independently or with a partner. Once children create and build a personal collection of flashcards for each group of facts, they can then use their own set of cards to cumulatively review and practice facts at school and at home." "Practice Minutes Records" facilitate the at-home practice of basic facts and promote family involvement in documenting student progress. However, this is the only unit with evidence of students tracking or having an awareness of their progress.

In Modules 1–7, on addition and subtraction, "Alternative Interview Tasks" evaluate a student's understanding of the concepts to be taught in the modules for Unit 1. The Diagnostic Interview Task for this unit states it helps to "evaluate children's understanding of each 'Show What You Know' skill" and that the "diagnostic chart may be used for intervention on prerequisite skills." One activity suggested is "Place 3 tens blocks in front of the child and ask the child to tell how many tens there are and to say the number." If students struggle with the "Explore Tens" section, they are a Tier 2, and the teacher should intervene with the "RtI Tier 2 Skill S7" or the "Soar to Success Warm-up 1.16." If they are successful, they may use the "Grab-and-Go" activities or the "Enrich" activities for that lesson.

In Module 4, during a lesson on fractions, materials suggest teachers use Are You Ready? to access prior knowledge and the prerequisite skills for this lesson. The RtI Quick Check states: "If a child misses the checked exercise(s), then Differentiate Instruction with RtI Tier 1 Lesson 19." "Common Errors" guides teachers on possible misconceptions students may have while attempting to master the lesson's concept; for example, "Children may think that the more equal parts there are, the larger the equal parts are. Springboard to Learning: Draw three same-size circles with halves, fourths, and eighths. Above the circles, write the fewest parts over the halves and most parts over the eighths. Below the circles, write the largest parts under the halves and the smallest parts under the eighths. Discuss with children." The "Daily Assessment Task" states: "Can children describe equal parts of same-size wholes when there are different numbers of parts?" If no, teachers use the Soar to Success 'Warm-up 5.04.' If yes, teachers use "Enrich 15, Homework and Practice Lesson 4.3." The Test Prep Coach in the TE also helps teachers identify possible common errors that students can make and provides guidance.

In Module 6, students begin solving multi-digit problems using base-ten blocks; they then draw base-ten blocks to represent the problems; eventually, they solve multi-digit problems using the standard algorithm or other strategies. Teachers assess students throughout the lesson via their representations and their verbal responses to questions such as "How can you use base-ten blocks to solve problems?" Such activities are included throughout each module across grade levels and allow students to demonstrate understanding in a variety of ways and settings.

In Module 7, the RtI Quick Check states, "If a child misses the checked exercise(s), then Differentiate Instruction with RtI Tier 1 Lesson 34. If a student got the assigned questions correct, they can move on to higher-level thinking problems, called HOT problems in the student edition (SE)." The Problem Solving section following the RtI Quick Check states: "If

children answer the checked exercise(s) correctly, assign the exercises on this page. You may wish to review different strategies for adding. Point out to children that they can also start from the top of the one's column and continue adding the digits until they have added all the digits. Then they can do the same for the digits in the tens column." The Quick Check and Problem-Solving sections after "Share and Show" are strategically placed to allow students the opportunity to understand the lesson whole group and practice whole group, usually with manipulatives and always with pencil and paper, in the SE. Lessons also include a Daily Assessment Task section and the Test Prep Coach section. Common Errors sections serve as an informal assessment. In this lesson, Common Errors states: "When adding the ones digits, children may forget to add one of the digits. Springboard to Learning: Children can circle each digit as they add them. Before they write the sum, they can make sure they have circled each digit."

November 2020

Houghton Mifflin Go Math! Grade 2

4.2 Materials include guidance for teachers and administrators to analyze and respond to data from diagnostic tools.

- Materials support teachers with guidance and direction to respond to individual students' needs in all areas of mathematics, based on measures of student progress appropriate to the developmental level.
- Diagnostic tools yield meaningful information for teachers to use when planning instruction and differentiation.
- Materials provide a variety of resources and teacher guidance on how to leverage different activities to respond to student data.
- Materials provide guidance for administrators to support teachers in analyzing and responding to data.

Partially Meets 1/2

The provided materials include guidance for teachers and administrators to analyze and respond to data from diagnostic tools. There are supports, guidance, and directions for teachers to respond to individual students' needs in all areas of mathematics based on the measures. Tools yield meaningful information for teachers to use for planning instruction and differentiation, and materials guide teachers on how to leverage different activities to respond to the data. However, there is no guidance for administrators to support teachers in analyzing or responding to data.

Evidence includes but is not limited to:

Throughout the curriculum, every module across grade levels includes one or two problems for teachers to use as a "Quick Check" to monitor and assess students' needs. If a student misses the Quick Check problems, teachers provide them with differentiated instruction using lessons from the "RtI Guide." There is also a "Data-Driven Decision Making" section in every grade level's Teacher Edition (TE); module and unit assessments guide teachers on next steps for individual and whole class instruction. The lessons within the modules include various

opportunities for differentiating instruction in the “RtI Quick Check,” “Problem Solving,” “HOT” problems, and “Daily Assessment Task” sections. An “Assessment Guide” resource outlines the purpose of the diagnostic assessments, thus supporting understanding. The Assessment Guide includes “Individual Record Forms” (IRF) for all tests. On these forms, each test item is correlated to the TEKS it assesses; there are intervention resources correlated to each item. “Common Errors” explain why a child may have missed the item. These forms can be used to follow progress throughout the year, identify strengths and weaknesses, and make assignments based on the intervention options provided. Although administrators can use the data included in the materials to identify specific areas of need for program improvement or to provide support for teachers to improve instruction, this is not explicitly stated or evidenced in the materials.

In Module 2, in the Teacher Edition (TE), the “RtI Quick Check” formative assessment states: “If a child misses the checked exercises, then Differentiate Instruction with RtI Tier 1 Lesson 5.” At the end of the same lesson, students complete a “Daily Assessment Task,” which includes a “Texas Test Prep” question. In the TE, the “Texas Test Prep Coach” guides teachers on how to respond to students who miss this question. The lesson states: “Identify common errors that children can make. If children selected 800 + 4 + 5, they did not write the tens place value correctly. If children selected 80 + 40 +5, they did not write the hundreds place value correctly.” The “Formative Assessment” for this module has a “Data-Driven Decision Making” section in the TE. This section guides teachers on resources that may be used individually or whole class to help strengthen and master the content. For example, if a student misses or struggles with item 2 (Lesson 2.2; TEKS 2.2D), the section suggests intervention using “RtI” Tier 1 Lesson 12 and “Soar to Success Math” 7.23 and 7.25; a “Common Error” is “May confuse the greater than and less than symbol.”

In Unit 2 (which covers multiple modules), the “Summative Assessment” in the TE provides a Data-Driven Decision-Making section, which, similarly to the module assessments, provides guidance and suggested responses to those needing additional practice in order to master the concept(s). It states that if children struggle with #4 (Lesson 12.2; TEKS 2.6A), a Common Error is that students may not describe the picture accurately; it recommends using RtI Lesson 58 and Soar to Success Math 12.19.

In Unit 5 (which covers multiple modules), “Assessing Prior Knowledge” has students complete “Show What You Know” on their own. Tested items are the prerequisite skills of this unit. The “Diagnostic Interview Task” evaluates understanding of each Show What You Know skill. A diagnostic chart is used for intervention on prerequisite skills. The teacher directs the student’s attention to the tally chart on the Show What You Know page. The teacher asks the student how he or she can tell how many children chose blue. The teacher then gives the child five blue cubes and four red cubes and asks the child to find the sum 5 + 4. (9) Next, the teacher gives the child ten connecting cubes and asks the student to take away three cubes and then tell the difference 10 - 3. (7) The teacher refers to a chart to determine the next course of action. The chart directs the teacher on supports (tiered activities) to provide if students were unsuccessful

in the task; it also directs the teacher on independent activities for students to perform if they were successful in the task.

In Module 7, a Common Error is “Children may forget to add the regrouped 10.” Teachers can “Springboard to Learning” by asking children to model the problem using quick pictures. To reinforce the learning, teachers are guided to emphasize that when ten ones are regrouped as one ten, the one should be written above the other tens in the tens column so that it is not forgotten. Also in Module 7, the RtI Quick Check states: “If a child misses the checked exercise(s), then Differentiate Instruction with RtI Tier 1 Lesson 34.” If a student got the assigned questions correct, they can move on to higher-order thinking (HOT) problems: “If children answer the checked exercise(s) correctly, assign the exercises on this page. You may wish to review different strategies for adding. Point out to children that they can also start from the top of the ones column and continue adding the digits until they have added all the digits. Then they can do the same for the digits in the tens column.” In Exercise 13, children use reasoning to find the missing number. In Exercise 14, students need to find the sum of the three given numbers and then solve for the missing addend, which will result in a sum of 100. “Go Deeper” challenges students to describe the strategy they used to solve Exercise 7. Teachers guide a discussion about how the students’ strategies compare.

In Module 10, teachers perform an RtI Quick Check with an “If …, then…” course of action. If a student misses a checked item within the Share and Show activity, the teacher differentiates instruction with RtI Lesson 47. A Common Error is for students to add instead of subtract to solve a problem. A solution is to have them draw a picture to represent the problem situation and then describe the information that they know and what they need to find. The teacher asks, “If we know how many there are altogether, and we want to find a part, should we add or subtract?” Students who master the assigned tasks complete the HOT problems and the Go Deeper and “Enrich” activities. These are scripted and correlate to respective lesson objectives. The “Evaluate” portion of lessons contains the Daily Assessment Task, which also provides recommendations in responding to student needs. In a lesson, students make a model to solve three-digit subtraction problems. If students are unsuccessful, they complete the Soar to Success Math Warm-up 11.28. If the students are successful, they complete Enrich 44 and the “Homework and Practice” Lesson 10.4, which provide more practice on the concepts and skills of this lesson. Additionally, the Texas Test Prep Coach provides recommendations for scaffolding instruction. Some listed Common Errors are: If children selected 223, they subtracted the lesser digit from the greater digit regardless of which number it is in. If they selected 483, they added instead of subtracted.

In Module 13, if students can use a model to represent and solve problems on the Daily Assessment Task, teachers give them Exercise 56 from the “Enrich Guide.” If students were not successful on the task, they complete the Soar to Success Math Warm-up 70.02.

November 2020

Houghton Mifflin Go Math! Grade 2

4.3 Materials include frequent, integrated formative assessment opportunities.

- Materials include routine and systematic progress monitoring opportunities that accurately measure and track student progress.
- Frequency of progress monitoring is appropriate for the age and content skill.

Meets 2/2

The materials include frequent, integrated formative assessment opportunities. There are routine and systematic progress monitoring opportunities that measure and track progress. The frequency of progress monitoring is appropriate for age and content skills.

Evidence includes but is not limited to:

Throughout all modules, there are routine and systematic progress monitoring opportunities through the "RtI Quick Check," "Problem Solving," "HOT problems," "Common Errors" sections, and "Daily Assessment Task" sections found in the Teacher Edition (TE) of every lesson. These sections consistently and accurately measure and track student progress. A "Prerequisite Skills Inventory" in the "Assessment Guide" is given at the beginning of the school year or when a new child arrives. This multiple-choice test assesses children's understanding of prerequisite skills. The "Assessment Guide" for each grade level also includes "Individual Record Forms" (IRF) for all tests. On these forms, each test item is correlated to the TEKS it assesses. There are intervention resources correlated to each item as well. At the end of every lesson, the last "E" of the "5E" model is "Evaluate."

Module tests evaluate if students have mastered the content of that module; unit tests check if students have mastered all of the modules in the unit; the "Beginning of the Year Test" sets the baseline; the "Middle of the Year Tests" allows teachers and administrators to see if and how much students have grown; the "End of the Year Test" monitors if they have mastered the content for the year and show a year's worth of growth. Modules also provide options on how students demonstrate the skill for progress monitoring. Every unit begins with a "Show What

You Know" assessment that assesses students' prerequisite skills for the unit. A "Diagnostic Assessment" graphic/chart is included on each unit page for teachers to use to determine if children need intervention for the unit's prerequisite skills. This graphic includes sections with Tier 2 and Tier 3 skills, number of questions missed, intervention, online intervention, and independent activities. If students are unsuccessful with Show What You Know, teachers intervene with the lessons listed on the chart from the RtI Tier 2 or 3 Guide or the online "Soar to Success" math lessons. Every second grade module ends with a "Texas Test Prep" question to help teachers assess students' readiness for state assessments as well as identify any common errors they may be making.

In Module 3, students show and write four-digit numbers. Students use blocks to write the digit for the thousands place, write a comma, and so forth for the remaining digits. Otherwise, students use a graphic organizer to write the number that shows the place value.

In Module 5, students solve the following problem: Andy scored 13 points in the first game and 7 points in the second game. How many more points did he score in the first game than in the second game? In the margins of the TE, the "Texas Test Prep Coach" section informs teachers that if students choose 4, they chose the number that is subtracted from 10; if they chose 20, they used addition instead of subtraction to solve the problem. Every module and unit ends with a "Module Assessment" and/or a "Unit Assessment." All of these assessments include a variety of question formats, such as multiple choice, short and expanded answers, and open-ended questions. In another Module 5 lesson, using equations to represent problems, teachers use Are You Ready? 5.5 in the Assessment Guide to assess children's understanding of the prerequisite skills for the lesson. In the same lesson, the RtI Quick Check states: "If a child misses the checked exercises, then Differentiate Instruction with RtI Tier 1 Lesson 26." Every lesson incorporates a "Daily Assessment Task," which assesses students on whether they can write number sentences to represent word problems.

In Module 7, the RtI Quick Check states: "If a child misses the checked exercise(s), then Differentiate Instruction with RtI Tier 1 Lesson. If a student got the assigned questions correct, they can move on to higher-level thinking problems." The Problem Solving section following the RtI Quick Check states: "If children answer the checked exercise(s) correctly, assign the exercises on this page. You may wish to review different strategies for adding. Point out to children that they can also start from the top of the one's column and continue adding the digits until they have added all the digits. Then they can do the same for the digits in the tens column. In Exercise 13, children must use reasoning to find the missing number. In Exercise 14, children need to find the sum of the three given numbers and then solve for the missing addend, which will result in a sum of 100. Use 'Go Deeper' to extend children's thinking, challenge children to describe the strategy they used to solve Exercise 7." The Common Errors section states: "When adding the ones digits, children may forget to add one of the digits." "Springboard to Learning" suggests children can circle each digit as they add them. Before they write the sum, they can make sure they have circled each digit. The Daily Assessment Task section asks, "Can children use a problem-solving strategy to solve a problem?" If no, teachers

use a Soar to Success Warm-up. The Test Prep Coach helps teachers identify common errors that children can make: “If children selected 63, they forgot to add 16. If they selected 69, they did not include the regrouped ten.”

In Module 13, in a lesson on using a model for help when solving subtraction problems, Are You Ready? assesses students’ prior knowledge and understanding of prerequisite skills. The lesson contains differentiation/leveled activities for English Learners. An RtI Quick Check directs the teacher on supports to use should a student experience difficulty. Students who are mastering the skill/concept complete HOT problems and “Go Deeper” activities. Should students experience challenges with the Go Deeper task, a “Math on the Spot” video tutor mediation piece guides students through subtraction strategies for solving problems. The RtI Daily Assessment Task for this lesson has students use a model to represent and solve subtraction problems. If successful, students move on to the “Enrich” and “Homework and Practice” portions. If students need more support, the materials direct teachers to specific Soar to Success activities. In the Evaluate portion of this lesson, students individually solve subtraction problems using varied strategies (models, mental math, writing/drawing) as part of a culminating independent assessment.

November 2020

Houghton Mifflin Go Math! Grade 2

5.1 Materials include guidance, scaffolds, supports, and extensions that maximize student learning potential.

- Materials provide recommended targeted instruction and activities for students who struggle to master content.
- Materials provide recommended targeted instruction and activities for students who have mastered content.
- Materials provide additional enrichment activities for all levels of learners.

Meets 2/2

The provided materials include guidance, scaffolds, supports, and extensions that maximize student learning potential. The materials provide recommended targeted instruction and activities for students who struggle to master the content; they provide enrichment activities for all levels of learners.

Evidence includes but is not limited to:

In all modules, the Teacher Edition (TE) provides an outline of how and where to find activities to provide targeted instruction for students who may require additional support; the TE also provides prompts for differentiation in each module. Assessment guides titled “Are You Ready?” assess children’s understanding of the prerequisite skills for the lessons within the module. There are suggested scripts and activities for each content area as well as enrichment activities; these are embedded in the module and in resources such as the “Response to Intervention” (RtI) Tiers 1–3 support and the assessment guides. Further scaffolds are given in the “Math on the Spot” video tutor and in the online resources. Each lesson includes graphic organizers, visual aids, and opportunities to use hands-on manipulatives. In each lesson, there is a differentiation component that equips the teacher with a strategy to assist English Learners (ELs) — content language support within a small group setting. Every lesson includes leveled activities for each TELPAS level: Beginning, Intermediate, Advanced, and Advanced High. Enrichment activities are available, which include visual and kinesthetic activities in individual, partner, and small group settings. Seven out of the 20 modules contain hands-on lessons; all

modules include hands-on center activities. Module lessons also include two higher-order thinking skills (HOTS) questions that require students to use HOTS and, typically, multiple steps to solve. Throughout all modules during the year, materials use the 5E lesson model: “Engage, Explore, Explain, Elaborate, and Evaluate” to build students’ mathematical learning and understanding.

In Module 6, the “Essential Question” is “How can you make an addend a ten to help solve an addition problem?” Students must share their prior knowledge and use compensation, giving the teacher insight as to which guided questions to ask next. The lesson cycle follows the 5E model while incorporating various flexible groupings throughout the lesson cycle: student pairs, whole group, station groups of two to four students, and small groups of three to six with the teacher.

In Module 8, the “Lesson Opener” helps students make connections to prior knowledge, asking, “What is one way that we can make subtraction easier?” In addition, the TE provides the “Are You Ready?” pre-assessment to check for previous knowledge and to help scaffold the lesson.

In all modules, the Elaborate part of each lesson gives further guidance for students who are ready to move on to the next steps and HOTS questions. Materials only guide the teacher to this part in the lesson once students complete the first few assignments correctly. The teacher can then guide students to these problems, which require using HOT skills or multiple steps to solve. If a student needs additional help with these problems, they can use Math on the Spot, the video tutor. To extend thinking, teachers can then guide students to the “Go Deeper” sections. Materials provide teacher guidance for walking through each lesson, covering Lesson Openers, “Making Connections,” how to use the digital lesson, and what specifically to discuss with each lesson.

In Module 15, students work in pairs and explain to each other, using the attributes (faces, edges, vertices), how to draw a rectangular prism on dot paper.

In Module 16, to extend and enrich lessons, teachers utilize the “Enrich Small Group Activities;” students work with partners to estimate length using index cards. This activity allows students to apply their understanding in a new context and discuss their observations and experiences with a peer.

In Module 18, teachers ask guiding questions in the Lesson Opener, such as “During a day, do you think you see more digital clocks or analog clocks?” “Which kind of clock makes it easier to read the exact time?” “Which kind of clock makes it easier to know which hour it is closer to?” There are guiding questions throughout each module as well as in each component of the 5E lesson model. In the Elaborate part of the lesson, teachers ask students to Go Deeper only once they have successfully solved the two HOTS questions included in each lesson. Materials include possible responses and suggestions.

In Module 3, in the “Grab-and-Go” activities, students play “Four in a Row” and practice naming numbers in different ways. In *The Number Machine,* students read about the value of each number Cindy spins. The book *Out to Dry* has students complete orange “Activity Card 18;” students must use place value to model and order three-digit numbers.

In Module 7, the “Enrich” activity is a story problem. Materials direct the teacher: “Have children work with a partner to choose a strategy to solve the problem. After partners solve the problem, have them write their own problems similar to the one provided. As time allows, have partners switch problems with other partners and solve.”

In Module 10, the Enrich activity is suggested for logical and mathematical thinkers; it can be used for individuals or partners. Students need a spinner (4-section spinner), which can be located in the “eTeacher Resource” if the teacher does not have physical ones present. First, the teacher labels a 4-section spinner with the numbers 6, 7, 8, and 9. One partner spins the pointer three times and makes a three-digit number with the results. This number will be the sum. That partner then writes two three-digit numbers, which, when added together, will have this sum. The other partner breaks apart the addends into hundreds, tens, and ones and adds the numbers to check the problem. Partners change roles and repeat. This activity enriches the main activity, “Breaking Apart three-digit Addends,” because students have to think “backwards” to get the addends for the sum. The Enrich section also prompts teachers to go to **thinkcentral.com** for additional enrichment activities (in the “Enrich Activity Guide”).

November 2020

Houghton Mifflin Go Math! Grade 2

5.2 Materials provide a variety of instructional methods that appeal to a variety of learning interests and needs.

- Materials include a variety of instructional approaches to engage students in mastery of the content.
- Materials support developmentally appropriate instructional strategies.
- Materials support flexible grouping (e.g., whole, small, individual).
- Materials support multiple types of practices (e.g., guided, independent, collaborative) and provide guidance and structures to achieve effective implementation.

Meets 2/2

The provided materials include a variety of instructional methods that appeal to a variety of learning interests and needs. Materials include a variety of instructional approaches to engage students in the mastery of the content. They support developmentally appropriate strategies, flexible grouping, and multiple types of practice. Materials provide guidance and structures to achieve effective implementation.

Evidence includes but is not limited to:

Throughout all modules, students cycle through the systematic “Engage, Explore, Explain, Elaborate, and Evaluate” (5E) format. Materials include hands-on, concrete practice with manipulatives and work with visual representations in both the digital and workbook (paper-and-pencil) format. Hands-on, concrete practice with manipulatives appears in the Engage, Explore, and Elaborate portions of lessons as well as in the “Grab-and-Go” differentiated centers. Each lesson provides opportunities for various instruction techniques; these include, but are not limited to, learning types, such as visual or kinesthetic learners; and instructional settings, such as individual, partners, or small groups. Materials provide scripts for large and small group instruction throughout each lesson. Each lesson suggests pre-assessment tools in the “Are You Ready?” resource. Whole group instruction contains directed “Lesson Openers.” The 5E lesson format begins with an interactive video and an “Essential Question” that helps

students make a relevant connection. The implementation of manipulatives and models is consistent throughout the modules. Manipulatives are also available in the "Problem Solving" portion of each module; manipulatives, visual representations, and symbolic abstractions are also recommended in the "Differentiated Instruction" portion. The materials state that Tier 3 intervention support is included "for children who need one-on-one instruction to build foundational skills for the unit." Later activities, such as in the "ELL" (English Learner [EL]) and "Enrich" sections, suggest individual, partner, or small group instruction. However, there is no direction for whole group transitions to working with other peers if students do not fall in the EL or Enrich categories, and there is no guidance for teachers to support small groups that are on-level.

In Module 2, in the Enrich section, student pairs play the "Secret Code Card" game; this helps students extend and reinforce number comparison with *greater than*, *less than*, and *equal to* symbols. The Grab-and-Go center activities entail two to four students working collaboratively on previously taught skills and concepts.

In Module 4, in the Explore portion of a lesson, students use pattern blocks in determining equal parts, as learned in previous lessons. In the Elaborate portion, students use pattern blocks to demonstrate fewer equal parts within a shape and more equal parts within the same shape, and then record results within a model.

Within Modules 6–10, 26 lessons involve two-digit or three-digit addition and subtraction. In seven out of those 26 lessons, students use picture representations and base-ten blocks to solve the standard algorithm, which is written vertically. Seven other lessons show the abstract only, written vertically with little to no room for students to work out the problem or draw their own representations to help them solve. Two lessons show a number line to help students solve multi-digit subtraction problems. Two lessons show students how to break apart hundreds, tens, and ones to add multi-digit numbers, visual only, with no provided pictorial, concrete models, or examples. The remaining addition and subtraction lessons focus on problem-solving, which allows students to represent and solve problems using their own strategy. Some of the problem-solving lessons provide a strip diagram representation, but there are no explicit instructions on how to use it.

In Module 8, materials provide teacher guidance on "Lesson Opener" introductions for teaching the concept of "subtraction in problem-solving." In the next section, teachers read and discuss a word problem with the students; then, teachers and students work through the "Problem Solving" graphic organizer together. Students use a model to write a number sentence; while students work, teachers ask, "What information are you given?" The lesson continues in this way; materials provide teacher prompts, and possible answers students will give after questions. The teacher checks for understanding by seeing if the students' responses match the possible answer in the scripted lesson. If they do, and students are able to master the correlating assignments in the student edition, the teacher moves them to a higher level of mastery of the concept.

In Module 12, students learn multiplication and division strategies. The first lesson recommends using skip counting and drawing to solve multiplication problems. In this lesson, the materials do not suggest having students utilize concrete manipulatives. Instead, the lessons use pictorial models and abstract strategies to solve two-digit addition. The recommendation and differentiation recommend using a hundred chart; however, materials do not mention or refer to using concrete models for students who are not ready to move on to pictorial models. Materials do not provide suggestions for a variety of opportunities through additional resources and practices for those students who are ready to move on to abstract.

November 2020

Houghton Mifflin Go Math! Grade 2

5.3 Materials include supports for English Learners (EL) to meet grade-level learning expectations.

- Materials must include accommodations for linguistics (communicated, sequenced, and scaffolded) commensurate with various levels of English language proficiency.
- Materials provide scaffolds for English Learners.
- Materials encourage strategic use of students' first language as a means to develop linguistic, affective, cognitive, and academic skills in English (e.g., to enhance vocabulary development).

Meets 2/2

The materials include supports for English Learners (ELs) to meet grade-level expectations. The materials include communicated, sequenced, and scaffolded linguistic accommodations commensurate with various levels of English language proficiency. However, there is not much evidence of students using their first language as a means to develop skills in English.

Evidence includes but is not limited to:

Throughout all modules, every lesson contains leveled activities for each type of EL (Beginning, Intermediate, Advanced, and Advanced High); they correspond with the appropriate English Language Proficiency Standards (ELPS). The materials are structured to provide a variety of effective strategies for teachers to support students at different English language proficiency levels. The modules include an "English Language Learners" box in the margin of the Teacher Edition (TE); it provides teachers with leveled activities in the "ELL Activity Guide" for students at each proficiency level across grades K–2. The guide encompasses effective instructional strategies such as drawing, describing, identifying relationships, exploring content, defining, rephrasing, and modeling language. Each module also includes an "ELL Language Support" section for teachers to use to support ELs. Each module focuses on a different ELP strategy; strategies are referenced on the unit planning page at the beginning of every unit (units include multiple modules). The materials provide opportunities for repetition in a fun and engaging

way, such as in the “Grab-and-Go” sections found at the end of every lesson, the “Interactive Math Videos,” and the “Soar to Success” activities.

The “Bilingual MathBoards” resource has graphic organizers in Spanish to support Spanish-speaking ELs when problem-solving; however, this does not benefit ELs whose primary language is not Spanish. The materials also provide “Vocabulary Cards” in English and Spanish, which have pictures to represent the math term; these cards do not fully benefit ELs whose primary language is not Spanish. The materials do not include a list of resources for teachers to access to learn more about ELs. They also do not contain examples of how to use students’ first language as the foundation for developing skills in English; the short overview in the ELL Activity Guide does indicate that doing so is important.

For all modules, the ELL Guide, included for grades K–2, provides scaffolds and language development strategies. It includes a list of effective instructional strategies and a list of mathematical vocabulary words and their definitions for every grade level (K–2). The guide also provides teachers with tips to help students develop and use academic vocabulary. One tip is, “Many numbers and number concepts are best demonstrated with physical objects or visualized with drawings. Provide drawings and demonstrations whenever possible to help children gain an understanding of the definitions.” Another tip is, “The use of the terms tens and ones as place value can be confusing. Children may also confuse one and won when these words are spoken.”

In Module 2, a “Grab-and-Go” lesson consists of games: In “Climb the Steps,” children practice making and comparing three-digit numbers; literature: In *Time to Take a Trip*, students read about two family trips and compare the number of miles between landmarks; and Activities: children complete the activity card by comparing and ordering three-digit numbers. In another Module 2 lesson on ordering numbers, the ELL Language Support section suggests teachers use the “Creative Grouping” strategy to help students acquire new vocabulary. During a small group activity in which students order numbers from least to greatest, teachers group fluent English speakers with Beginning and Intermediate ELs.

In Module 9, teachers remind students that when we put things together, we use addition; when we take away, we use subtraction. The teacher writes the following problem on the board and reads it aloud, having students repeat each sentence: “Mr. Jones bought 35 apples for his students. Then he bought 42 apples for a party at his house. How many apples did he buy in all?” The class discusses how the number sentence 35 + 42 = ... is a shorter way of writing 35 apples + 42 apples = ... apples. Students find the sum and answer the question.

In Module 10, ELs use the strategy of describing. Materials state: “Children show their comprehension by describing how to subtract using base-ten blocks.” Materials direct teachers to help children read the problem: “There are 258 children in the second grade. 126 of those

children are girls. How many boys are in second grade?" Students use blocks to model 258. Teachers ask students to describe the steps they take to find the answer (132 boys).

In Module 11, teachers develop students' linguistic and academic skills in English as they help students demonstrate their understanding of money by rephrasing what they have heard or read. Teachers show students a group of coins, explain how to find the total value of the coins, and have students rephrase how to find the total value of the coins in their own words. Students take turns asking each other to find the total value for other groups of coins.

In Module 12, Beginning ELs work with a partner to complete a copy of the "Semantic Map Blackline Master." The teacher provides students with a topic and 6–10 vocabulary words. Student partners take turns selecting words that fit in the semantic map. Beginning ELs can copy the written words or place cards on the semantic map to show which words are related to the topic. Intermediate ELs work with partners to think of vocabulary words that relate to the given topic. If students have difficulty thinking of some words, the teacher provides words they are studying. Students explore how these new words are like the ones they thought of on their own. Intermediate ELs participate in a Venn diagram activity to recognize similarities and differences between and among math terms and objects. Should students not understand the meaning of a word, the teacher provides them with a definition and examples. The materials encourage partners to try to explain to each other before asking the teacher for assistance. Advanced ELs sort math vocabulary terms into three categories in columns. After students sort the words, they summarize the activity by saying or writing a sentence for each sorting category. Advanced High ELs write vocabulary words on index cards, with one word per card. One student looks up and dictates the definition; the other writes the definition on the back of the card. Materials provide some examples for the teacher to use. The materials suggest teachers should tailor the activity to use words children are currently studying or have difficulty reading or defining.

In Module 14, there are leveled activities to support learning shapes. Beginning ELs complete Activity 18; Intermediate ELs complete Activity 22; Advanced ELs complete Activity 41; and Advanced High ELs complete Activity 16. Activity 18, "Which Picture Doesn't Belong?" uses the strategy of identifying relationships; it is geared toward a partner setting and should last for 10 minutes. There is a "Speaking Objective" for the activity: "Make connections among pictured vocabulary words to identify relationships." It prompts teachers: "Provide children with four to six pictures that illustrate grade-level vocabulary. All of the pictures should be related in some way except for one. Children choose a picture that doesn't belong. Encourage children to discuss how the other pictures are related to reinforce their decision. If they don't know the name for one of the pictures, name it for them and have them repeat the word." Activity 18 also has a leveling option for Intermediate ELs: Teachers "select pictures that are more closely related; for example, a nickel, a dime, a penny, and a dollar; or three clocks that show time to the hour and one that shows time to the half-hour. Have children complete the following sentence frames to help them discuss their choice: '... does not belong. The other pictures are ….'"

November 2020

Houghton Mifflin Go Math! Grade 2

6.1 Materials include year-long plans with practice and review opportunities that support instruction.

- Materials include a cohesive, year-long plan to build students' mathematical concept development and consider how to vertically align instruction that builds year to year.
- Materials provide review and practice of mathematical knowledge and skills throughout the span of the curriculum.

Meets 2/2

The materials include a year-long plan with practice and review opportunities that support instruction. They include a cohesive plan to build students' mathematical literacy skills; however, there is little evidence to consider how to vertically align instruction that builds year to year to future grades. These materials provide review and practice of foundational skills throughout the curriculum.

Evidence includes but is not limited to:

Throughout all modules, the content plan is cohesively designed to build upon students' current level of understanding with clear connections within and between lessons. There is a year-long plan of content delivery, as seen in the "Unit at a Glance" and "Module at a Glance" found in the introduction of each unit as well as in the Table of Contents, with the expectation that the concepts are taught in this order. The Teacher Edition (TE) for every grade level includes a unit page for each set of modules that allows the teacher to visually see how concepts are spiraled throughout the year. The materials connect learning to previously learned concepts, knowledge, and skills in a variety of ways; there are reviews and practice throughout the curriculum, as seen in the "Grab-and-Go" activities and "Differentiation Lessons" found in each lesson. The units are designed so that skills and concepts move from concrete or context-based situations and then build to the abstract as students encounter more opportunities to practice and apply the objective of study. Along the way, students use models, manipulatives, quick pictures, and symbols to build mathematical understanding.

However, the materials do not include a specific vertical alignment chart that shows how activities align, both directly and indirectly, to concepts and skills outlined for students in subsequent grades. Although the materials do not use preceding and subsequent grades' TEKS, the skills used in kindergarten are built upon in first grade and then further built upon in second grade. For example, students learn basic numbers and basic addition in kindergarten, which correlates with the kindergarten TEKS. In first grade, students continue to use addition and subtraction and identify many strategies to perform those tasks. In second grade, they are finally introduced to adding and subtracting with two-digit numbers, using the same strategies learned in first grade. At the end of each module across grade levels, spiral review problems allow students to practice major skills and vocabulary learned throughout the modules. There is also a unit assessment at the end of every unit, across grade levels, that provides students an opportunity to practice and review major skills learned throughout the unit.

In Modules 1–7, the Unit 1 introduction states: "Prior Knowledge in Grade 1. Children: count by tens, read and write two-digit numbers, use sets of tens and ones to describe numbers, use sets of tens and ones to compare and order numbers, and compare and order numbers using place value. This selection reviews some of these prerequisite skills." However, the materials do not explain how the current concept will align with future grade-level concepts, such as those in third grade.

In Module 1, on place value, Lesson 1 covers "Different Ways to Represent Numbers;" Lesson 2 covers "Using Number Lines;" Lesson 3 covers "Explore three-digit Numbers;" Lesson 4 is a hands-on lesson, "Model three-digit Numbers;" Lesson 5 is a problem-solving lesson on "Hundreds, Tens, and Ones;" Lesson 6 covers "Word Form for Numbers;" Lesson 7 is a hands-on lesson covering "Different Ways to Show Numbers." The sequence of these lessons makes sense because students must understand the basics of three-digit numbers and number lines in order to know which number is greater or lesser using place value. They can begin to understand word form by breaking down the number, for which they must understand place value.

In Module 4, a "Lesson Opener" in an "Engage" section asks students to think about cutting or folding paper into equal parts. Students became familiar with the concept of "equal" as early as in kindergarten, Unit 1, where they compared numbers. The concept of "equal parts" was emphasized in first grade; in a lesson in Module 13, students wrote expressions of equal value. In second grade, students connect the concept of "equal" in a Module 2 lesson, "Compare Numbers with Three Digits." The concept of "equal parts" or "equal" is essential when students move into using multiplication and division in Module 12. The use of "equal parts" in this module helps the students visualize the meaning of "equal" in relation to the skills of adding equal groups (the premise of multiplication) and separating into equal groups (division).

In Modules 5–10, students build and represent addition and subtraction problems using base-ten blocks, similarly to how they used them in first grade to model adding tens and ones. In

second grade, the lessons increase in rigor, as students use base-ten blocks to model and represent three-digit addition and subtraction problems.

In Module 7, “Practice Two-Digit Addition,” the “Essential Question” is “How do you record the steps when adding two-digit numbers?” Students have already added two-digit numbers in previous lessons and practiced the steps in the two-digit addition process in a consistent manner. In the “Engage” part of the lesson, the teacher reviews strategies students have used to solve addition problems in previous units, such as using compensation, modeling with base-ten blocks, drawing quick pictures, and breaking apart addends. In the “Explain” and “Evaluate” parts of this lesson, students abstractly add double-digit numbers, justifying when to regroup; they have already done so concretely, using base-ten blocks, in prior lessons, beginning in Module 6. Students continue using base-ten blocks as they transition into third grade to support double-digit multiplication, as shown in grade 3, Module 9.

In Modules 6–10 and 13, students use various strategies for adding and subtracting with two-digit and three-digit numbers. The final lesson in the modules is a practice lesson, in which students write and solve problems learned in that unit.

In Modules 10–14, the Unit 4 assessment asks the following Essential Questions: “How can you use various units to describe measurements, such as time and lengths? and “How can you describe two-dimensional shapes and three-dimensional solids?”

November 2020

Houghton Mifflin Go Math! Grade 2

6.2 Materials include implementation support for teachers and administrators.

- Materials are accompanied by a TEKS-aligned scope and sequence outlining the essential knowledge and skills that are taught in the program, the order in which they are presented, and how knowledge and skills build and connect across grade levels.
- Materials include supports to help teachers implement the materials as intended.
- Materials include resources and guidance to help administrators support teachers in implementing the materials as intended.
- Materials include a school years' worth of math instruction, including realistic pacing guidance and routines.

Partially Meets 1/2

The materials include some implementation support for teachers and administrators. Materials are accompanied by a TEKS-aligned scope and sequence outlining the essential knowledge and skills that are taught in the program, and there is a year's worth of instruction, including pacing guidance and routines. The program does not provide much guidance to build across grade levels. Materials include support to help teachers implement materials; however, there are neither resources nor guidance to help administrators support teachers.

Evidence includes but is not limited to:

In the curriculum, the materials do not include a formal scope and sequence; however, the lessons within the modules are aligned to the TEKS; these standards are listed at the beginning of each lesson script. The Teacher Edition (TE) introduction states: "The content knowledge and skills in grades K–5 are organized into five mathematical strands: Number and Operations, Algebraic Reasoning, Geometry and Measurement, Data Analysis, and Personal Financial Literacy. In addition, in each grade K–5, TEKS outlines primary focal areas for instructional emphasis. This design permits instruction in each grade to focus on fewer concepts and skills in greater depth, while simultaneously building a foundation for the next grade, establishing an effective learning progression." "Unit Overviews" list the TEKS and Mathematical Processes taught in each lesson within each module. "Mathematics Correlations" provides a list of

learning opportunities for each standard; there are also live links connecting the lessons to each of the TEKS. A teacher may search for a specified TEKS, and the resource generates all the lessons associated with that TEKS. The scope and sequence do not describe how the TEKS build and connect across grade levels, but the lessons do begin with context-based situations and then build to more abstract problems in accordance with the state standards. There are no clear explanations of how the TEKS connect within the materials other than personal internalization. The only guidance the administrators have is the same as is provided to teachers in the introduction of the TE.

The materials include lessons and activities for a full year of instruction in the classroom. Materials are organized in a way that makes sense for ease of implementation, including accessing and storing of materials. All of the TEs come in a cardboard storage box, which includes a booklet for all modules; these TEs can be found and accessed through online resources. The lessons are designed to be implemented within one (or sometimes two) math blocks on an instructional day. Materials do not mention specific time or date parameters, but the units can be reasonably implemented within the timeframe of a school year, with ample time for pre-teaching, re-teaching, intervention, and extensions, as recommended within the lessons. The consistent "5E" format of the lessons helps maintain pacing. The assessment data from formative and summative assessments, as well as information gathered from "RtI Quick Checks" and "Daily Assessment Tasks," help the teacher to effectively group students and provide the needed instructional support. For example, if a student is unsuccessful on a Daily Assessment Task, materials provide guidance on necessary support items. The same is true if a student is successful in the Daily Assessment Tasks. The materials include embedded realistic pacing guidance at the unit and lesson level. Each unit has an overview that helps the teacher review the TEKS and focal areas, identify needed materials, and determine appropriate resources. Students have opportunities to spend sustained time developing content and skills in grade-appropriate areas. The materials spend more time on some focal areas compared to others; three out of the 20 modules focus on place value; six out of the 20 modules focus on addition and subtraction with multi-digit whole numbers; one module focuses on applying an understanding of two-dimensional shapes and three-dimensional solids; and two modules focus on measuring length.

In Module 2, the top-right corner of a lesson's first page notes TEKS 2.2 B: "Use stands, word and expanded forms to represent numbers up to 1,200." Without going back to the Unit Overview, looking in the "TEKS Correlation Guide," or relying on memory, the teacher does not know if this is the first time this standard is presented or if this is a TEKS for review or practice.

In Module 3, the top-right corner of Lesson 1 lists TEKS: Number and Operations — 2.2.A, "Use concrete and pictorial models to compose and decompose numbers up to 1,200 in more than one way as a sum of so many thousands, hundreds, tens, and ones." Mathematical Processes — 2.1.D, "Communicate mathematical ideas and reasoning;" 2.1.E, "Create and use representations;" 2.1.G, "Display, explain, and justify mathematical ideas and arguments." In

the bottom right-hand corner, the “Go Digital Resources” section reminds teachers to access the “Digital Management Center,” which organizes program resources by TEKS.

In Module 4, students are learning about fractional parts of a whole. They connect their knowledge of fractions later in Module 11 when they find ways to make a dollar (four quarters = fourths). In Module 18, students connect and build upon fractional concepts as they read a clock to the half-hour and quarter-hour, including on analog clocks.

In Modules 5–10, the addition and subtraction unit, students begin building and representing addition and subtraction problems using base-ten blocks; in first grade, they used them to model adding tens and ones. Students use their understanding of place value to help them add ones, tens, and hundreds. In Module 10, during a lesson on adding three-digit numbers with regrouping, teachers remind and show students that ten ones = one ten. These types of lessons provide opportunities for students to build upon previously taught content. In second grade, lessons increase in rigor, as students use base-ten blocks to model and represent addition and subtraction problems with three-digit numbers.

In Module 6, TE includes preparation and guidance for the Essential Question “How do you record two-digit addition?” it also lists the TEKS 2.4.B; the Mathematical Processes 2.1.D, 2.1.E, 2.1.F, 2.1.G; the materials (MathBoard, base-ten blocks); mathematical vocabulary (*regroup, ones place, tens place, sum*); print resources (Student Edition with “Homework and Practice,” “RtI” Tier 1 Lesson, “Enrich,” “Grab-and-Go Centers Kit”); an English Learner strategy (“Restate”); and digital resources (eStudent Edition 64 eTeacher Edition; “Math on the Spot Video,” “Soar to Success Math Digital Management Center,” “iTools,” and “Mega Math”). The combination of paper and digital resources helps to support ease of use for the teacher and limits the need for additional technology equipment.

In Module 8, the “Lesson at a Glance” provides a detailed breakdown of each lesson within the module; it includes the “Essential Question,” TEKS, Process Skills, vocabulary, materials, print resources, and available “GO Digital” resources. Each lesson is scripted and contains guidance; “Are You Ready?” sections help access prior knowledge; “Lesson Openers” contain guidance on making connections, using the digital lesson, and incorporating literacy. Lessons have scripted questions and possible answers; there are differentiated lessons for English Learners, struggling learners, and those needing enrichment. RtI Quick Checks help teachers guide the lesson; “Common Errors” explain how to help students that misunderstand the concept; the Daily Assessment Task at the end of the lesson provides guidance on the next steps. For example, “If the student can break apart a number to subtract, then have them work on the Enrich 32 activity or Homework and Practice. If no, then have the student work on Soar to Success Math Warm-up 11.19.”

In Modules 14–20, the page for geometry and measurement informs teachers that, in first grade, students “identify and describe two-dimensional shapes, identify and describe three-

dimensional solids, classify and sort geometric figures." The second grade geometry modules build upon these prerequisite skills.

November 2020	Houghton Mifflin Go Math! Grade 2

6.3 Materials provide implementation guidance to meet variability in programmatic design and scheduling considerations.

- Materials provide guidance for strategic implementation without disrupting the sequence of content that must be taught in a specific order following a developmental progression.
- Materials are designed in a way that allow LEAs the ability to incorporate the curriculum into district, campus, and teacher programmatic design and scheduling considerations.
- Materials support development of strong relationships between teachers and families.
- Materials specify activities for use at home to support students' learning and development.

Partially Meets 1/2

The provided resources partially meet the criteria for implementation guidance to meet variability in programmatic design and scheduling considerations. There is embedded guidance, but there is no specific guidance for implementation that ensures the sequence of content is taught in an order that is consistent with the developmental progression of mathematical concepts and skills. The materials are designed in a way that allows LEAs the ability to incorporate the curriculum into district, campus, and teacher design and considerations. However, the materials do not include guidance that supports teaching focal areas aligned to a classroom context without disrupting the sequence in which the content should be taught.

Evidence includes but is not limited to:

Throughout the curriculum, units, and modules, each unit across grade levels includes a unit overview that lists the TEKS, skills, and objectives in each lesson. The introduction in the Teacher Edition (TE) explains how the TEKS need to be implemented within a coherent and balanced curriculum that treats mathematical knowledge and skills in a manner that will enable students to develop a deep understanding of the content by integrating process standards with the mathematics content. The materials also provide a suggested sequence of units that considers the interconnections between the development of conceptual understanding and

procedural fluency. The sequence in these lessons makes sense since the lessons build on each other in order for students to build their base knowledge. This sequence of content is taught in an order consistent with the developmental progression of mathematics; as stated in the Introduction under "Texas from the Ground Up," the instruction is grouped around each Texas focal area; within each unit, each module is designed around a concept.

The materials do not provide specific support for LEAs to consider how to incorporate the materials into a variety of school designs; however, the units and modules are built as "stand-alone" so that districts, campuses, and teachers can rearrange the materials in a way that adapts to their needs. The materials do not include specific timelines for teaching each TEKS, which allows districts flexibility in scheduling considerations. The "Program Overview" in the introduction of every grade level's TE states: "'Texas GO Math!' helps you with the big jobs of teaching. Our 'Teacher Digital Management Center' helps you create lesson plans that support your curriculum, can be sequenced to align with district requirements, and are completely focused on TEKS." The materials do have online components such as iTools, "Math On the Spot Videos," and an "Interactive Student Edition," which correlates with each lesson within each module. Even though there is no direct guidance regarding online schools or blended model schools, the online components do make these school options feasible.

In all modules, all components of the "5E" lesson plan model can be taught in a whole group setting: Engage ("Lesson opener"); Explore (working through a problem together); Explain ("Model and Draw" and "Share and Show"); Elaborate ("Problem Solving"); and Evaluate ("Daily Assessment Task"). The activities designed to be taught in a small group setting are the "ELL Language Support" section, "Enrich" section, "Grab-and-Go" center activities, and "RtI Interventions."

In Modules 1–7, Unit 1, lessons are grouped around the focal area "Make comparisons within the base-ten place value system; Addition and Subtraction within 1,000." Module 1 teaches the basics of place value to tie in the prior knowledge with new concepts such as problem-solving for three-digit numbers. Module 2 builds on Module 1 by exploring different forms of numbers, comparing and ordering numbers, and locating numbers on a number line. Module 3 adds a fourth digit to place value-adding the thousands place. Module 4 teaches fraction concepts, including equal parts and describing and identifying parts of a whole. Module 6 and 7 build on prior addition strategies and scaffold new strategies, including compensation and adding using place value of tens and ones.

In Module 1, "Place Value," Lesson 1, students use different ways to represent numbers. Lesson 2 uses number lines. Lesson 3 covers exploring three-digit numbers. Lesson 4 is a hands-on lesson that models three-digit numbers. Lesson 5 is a problem-solving lesson about hundreds, tens, and ones. Lesson 6 utilizes students' understanding of word form for numbers. Lesson 7 is another hands-on lesson covering different ways to show numbers. The sequence in these lessons makes sense because students must understand the basics of three-digit numbers (number lines in order to know which number is greater or lesser using place value), and they

can begin to understand word form through breaking down the number by understanding place value.

In Module 4, students are learning about fractional parts of a whole. They connect their knowledge of fractions later in Module 11 when they find ways to make a dollar (four quarters = fourths). Towards the end of the year, in Module 18, students connect and build upon fractional concepts again as they read a clock to the half-hour and quarter-hour, including on analog clocks.

In Module 13, students use their foundational number pattern skills developed over the modules in Units 1 and 2 to help them use number sentences to represent word problems. The materials maintain that the curriculum represents a comprehensive system of mathematics instruction that provides teachers the tools and resources needed to support students' successful mastery of the TEKS.

November 2020

Houghton Mifflin Go Math! Grade 2

6.4 Materials provide guidance on fostering connections between home and school.

- Materials support development of strong relationships between teachers and families.
- Materials specify activities for use at home to support students' learning and development.

Partially Meets 1/2

The provided materials partially meet the criteria for guidance and fostering connections between home and school. The materials do not support the development of strong relationships between teachers and families enough, but there are specific activities for use at home to support students' learning and development.

Evidence includes but is not limited to:

The curriculum does encourage some building of relationships between teachers and families through the suggested family "Home Activity" in each lesson; there is little to no guidance provided to teachers on how to facilitate and foster these connections. Although these activities do allow the family to take part in the process, they do not necessarily provide opportunities to build a strong relationship between home and school. There is an "At-Home Learning Support Section" online that includes lessons, "Vocabulary Builder" sections, "Vocabulary Reader" sections, "Write About Math" sections, as well as lessons and homework. "At-Home Learning" is a digital copy of the Student Edition book for both volumes. This resource begins with a letter addressed to students and families, explaining that the resource contains hands-on activities to do and real-world problems to solve. At the beginning of each unit, there is a page with a "Home Note" for families; it states that this will help families gauge where their child is and maybe areas they should improve. There is no evidence of other language support, but At-Home Learning Support could be easily used by families who speak English. The introduction in the "Digital Resources" section states, "Interactive Student Edition: Includes all Student Edition (SE) pages for student access at school or home." The materials provide tips for parents to practice new skills at home in meaningful, authentic ways. The ideas suggested involve items that are typically available in the home and do not require parents to buy anything or have special training. While most of the "Take Home Activities" in the second-grade modules provide appropriate suggestions and/or resources for home activities that

support the curriculum and can be used easily by families, there are several other modules, including Module 2, 3, and 9 that tell parents, “Have your child explain how he or she solved one of the exercises in this lesson.”

Each unit includes a “Take-Home Vocabulary Reader.” This take-home book allows students to review some prerequisite skills as well as learn new mathematical vocabulary needed for the unit. It also lets parents know which skills and TEKS will be reviewed in the book. The materials provide digital resources for the student and parent to access, such as the “eStudent Edition,” “Math on the Spot Videos,” “Math Concept Readers,” “Mega Math,” “Interactive Student Edition,” and “Math iTools.” These materials are available through the student’s login. The eStudent Edition is the digital version of the student math books. Math on the Spot Videos are short tutorials for each lesson. Math Concept Readers are short math books available in three levels (Below Level, On Level, Above Level). Mega Math interactive math games are sorted by the concepts being learned, allowing for students to have additional practice. The Interactive Student Edition is another tutorial video designed for the beginning of a lesson or a review for those struggling with the concept. Math iTools are digital manipulatives students may use or practice using, such as counters, base-ten blocks, and connecting cubes.

In Module 5, a Take-Home Activity directs parents: “Ask your child to name pairs of numbers that have a difference of 10. Then have him or her write the number sentences.” Mathematical skills and concepts are reinforced and connected to home with the “Homework and Practice” pages, which are also included at the end of every lesson.

In Module 7, a Take-Home Activity states, “Tell your child two two-digit numbers. Have him or her write the numbers and find the sum.”

In Modules 8–12, Unit 2, the Home Reader reinforces the application of basic subtraction facts by modeling subtraction situations, using concrete models to decompose numbers, using concrete models to compare numbers, and modeling addition and subtraction situations in writing corresponding number sentences. The story emphasizes the vocabulary terms *tens*, *subtract*, and *take away*.

In Module 11, the Take Home Activity directs parents, “Have your child draw and label coins with a total value of $0.75.”

In Module 12, a Take-Home Activity states: “Ask your child to show how he or she solved an exercise in the lesson.” This activity builds relationships between the teacher and family by communicating ideas on how the family can participate in the daily lessons at home, allowing the parents to be part of the learning process. Although this activity does allow the family to part of the process, it does not necessarily provide opportunities to build strong relationships.

In Module 18, the Take Home Activity is “Have your child draw a large clock face and use two pencils as clock hands to show some different times.

November 2020	Houghton Mifflin Go Math! Grade 2

6.5 The visual design of student and teacher materials (whether in print or digital) is neither distracting nor chaotic.

- Materials include appropriate use of white space and design that supports and does not distract from student learning.
- Pictures and graphics are supportive of student learning and engagement without being visually distracting.

Meets 2/2

The visual design of student and teacher materials (whether in print or digital) is neither distracting nor chaotic. Materials include appropriate use of white space and design that does not distract from student learning; pictures and graphics are supportive of learning without being distracting.

Evidence includes but is not limited to:

Throughout all modules, the Teacher Edition (TE) is designed with a few blank spaces within each lesson as well as blank pages at the end of each module to be used for notes. The TEs are designed with clear, designated places for important information. The TEs are designed in a way that teachers can locate important information for lesson planning and implementation. For example, the unit overview pages list vocabulary; tools needed; and ancillary materials that can be used to support differentiated learning, the TEKS, skills, and objectives in each lesson. The introduction pages cite online tools and blackline masters that are used to support implementation. Within the module lessons, subheadings are color-coded, and important features are depicted in varied fonts to help teachers cue into the information. Parts of the “5E” lesson cycle include vignettes for teachers that provide sample questions and student responses to support instruction and discussion, as well as some supportive scripts for teachers to utilize. The materials include vocabulary cards with clear and authentic pictures and drawings to define and support the new words students are learning. There is an interconnection and sequential progression of math concepts across units that also builds on prior knowledge and toward the following grade’s continuation of the concept.

The materials provide easy-to-recognize pictures and graphics that support student learning; as seen in the picture glossary for vocabulary, the images are clear and match the vocabulary term. Each lesson in the Student Edition (SE) has a large white space where children can work. The subsequent pages in a lesson are mostly white with little distraction. Most text is in black, which creates a stark contrast to help students focus in on the content. The question numbers are in blue, which also differentiates from the black text to keep students on track. There are little images throughout the SE that may connect with the content displayed. Clear and authentic pictures and drawings support the word problems that the students encounter. The materials include graphics that are easily identifiable to students and support their learning, as seen in the "Math on the Spot Videos" and "Interactive Student Edition" tutorials. Tutorials utilize the same characters and routines for all lessons, making it easy for students to follow. The materials include pictures and graphics that are engaging, as seen in the "Vocabulary Readers" found at the beginning of each unit and the "Math Concept Readers" found in the digital resources. The pictures and graphics for student use adhere to "User Interface Design" guidelines; print, graphics, charts, models, pictures, and components are easily visible, clear, and appropriate for the learning tasks. Users can understand the representations and guidance pieces.

In Module 12, the pictures and graphics are colorful, with ample space for students to manipulate the counters or draw pictures in helping to solve multiplication problems. The area in which students are to write the number sentence is developmentally appropriate, as second grade students have typically gained adequate fine motor control and often do not need a large space to write. There are lines and blanks to help guide the placement of the numbers and symbols on the page. The numbers that students are instructed to read are in dark print and thus clear and easily seen.

In Module 14, there are food item graphics (apples in bowls, cookies on plates, potatoes in bags, and oranges in boxes) depicted in an authentic manner for students to practice adding equal groups as part of the multiplication process. There are other colorful graphics of objects in this lesson (postcards with stamps, bananas) that help support the concept of multiplication. In the Unit 2 Vocabulary Reader, the materials include real photographs of a student and her caregiver using origami objects created to write number sentences on a whiteboard in helping to support the skills of addition, subtraction, and using models to compare and decompose numbers.

November 2020

Houghton Mifflin Go Math! Grade 2

6.6 If present, technology or online components included are appropriate for grade level students and provide support for learning.

- Technology, if present, aligns to the curriculum's scope and approach to mathematics skill progression.
- Technology, if present, supports and enhances student learning as appropriate, as opposed to distracting from it, and includes appropriate teacher guidance.

Not Scored

The provided technology and online components are appropriate for grade-level students and provide support for learning. These components align with the curriculum's scope and sequence and enhance student learning. There could be more guidance for the teachers in relation to assisting students within the components.

Evidence includes but is not limited to:

Throughout the curriculum, all of the Teacher Editions (TEs), as well as other digital resources, are available to help support teachers in implementing the materials: the "eTeacher Edition," "Teacher Digital Management Center," "Teacher Resource Book for Assessment," "Online Assessment System," "Assessment Guide," "Student Edition," "Teacher Edition For Intervention," "Response to Intervention" (RtI) Tier 1, 2, and 3, "Soar to Success Math For Instruction and Differentiation," "ELL Activity Guide," "ELL Activity Guide," "Math Concept Readers," "Enrich" activities, "Mega Math," and "iTools."

The introduction in the "Digital Resources" section states: "Interactive Student Edition: Includes all Student Edition pages for student access at school or home. Provides audio reinforcement for each lesson. Features point-of-use links to animated math models." It also states, "Students are engaged and learn with point-of-use animated math models." "Math on the Spot Videos" are also introduced in this section: "Actively introduces lesson concepts. Helps students solve the HOT problems in the Interactive Student Edition. Builds the skills needed in the TEXAS assessment." The Interactive Student Edition has large color-coded navigation buttons to help

students use the technology appropriately and efficiently. For example, students click on a large orange button with an arrow inside to go to the next section. To go back a section, the arrow in a box points the opposite way; it is smaller, which makes the larger button more intuitive, so students don't get confused about how to go to the next section. There are other student-friendly buttons, like a speaker for sound, a home button to go home, a book with "A Z" on it for the glossary, and a wrench for "tools." The TE is set up in the exact same way, except there is an additional button that features an apple for teacher resources. Mega Math provides additional lesson practice with engaging activities, which include audio and animation.

The materials provide opportunities for students to select grade-appropriate technology tools for solving tasks. iTools enable students to solve problems with interactive digital manipulatives and model and explore lesson math concepts. Grade K–2 iTools include counters, math mountains, base-ten blocks, number lines, number charts, bar models, number tiles, secret code cards, graphs, fractions, geometry, measurement, probability, algebra, and place value drawings. These tools include a help button that explains to students how to use them. However, this feature does not read the directions to them.

The technology components align with the scope and sequence and "flow" of the materials as they are organized by units, modules, and lessons. During the "Lesson Opener" in every lesson, there is a "Using the Digital Lesson" section with guidance on how the teacher can apply the Interactive Student Edition at the start of the daily lesson. In addition, each lesson refers to the "Math on the Spot" video tutor for guidance and support for the lesson's HOT (higher-order thinking) problems. With these videos and the HOT problems, children will build skills needed in the Texas state assessment. The materials guide teachers to have students use the Soar to Success Math Warm-ups if they do not show mastery within the "Daily Assessment Task." The TE refers teachers to resources they can provide for students in centers, as seen in the "Grab-and-Go" sections in every lesson.

There is an "At-Home Learning Support Section" online that includes lessons, "Vocabulary Builder" sections, "Vocabulary Reader" sections, "Write About Math" sections, as well as lessons and homework. At the beginning of each unit, there is a page with a "Home Note." For example, in Unit 1, it states: "This page checks your child's understanding of important skills needed for success in Unit 1." This will help families gauge where their child is and maybe areas they should improve.