Mathematics Curriculum Review:

Curriculum 2.0 – Elementary School

Montgomery County Public Schools, Maryland

Prepared by:

Student Achievement Partners

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Introduction and Methodology

To ensure that all students in Montgomery County Public Schools (MCPS) are able to meet the expectations of the Maryland College and Career Ready Standards (MCCRS), MCPS educators need access to high-quality standards-aligned instructional and assessment materials. This report presents the results of an alignment review of MCPS's Mathematics elementary school instructional materials, *Curriculum 2.0*. Because the Maryland College and Career Ready Standards incorporate the Common Core State Standards for Mathematics (CCSS-M), the review is based on the Instructional Materials Evaluation Tool (IMET), an authoritative rubric for aligning instructional materials with the requirements of the CCSS. In total, there are four IMET rubrics, each one specific to a subject area and grade band: ELA/Literacy grades K–2, ELA/Literacy grades 3–12, Mathematics grades K–8, and Mathematics high school. For the Mathematics elementary school review, the Mathematics K–8 IMET served as the foundation for determining alignment. All references to standards in this report will be to the Maryland College and Career Ready Standards, which will be referred to throughout as "MCCRS" or simply "the standards".

Description of the IMET:
The Mathematics IMET draws directly from the CCSS-M and the Publishers' Criteria for Common Core State Standards in Mathematics. Because of this, the Mathematics IMET is aligned with MCPS's emphasis on the Standards for Mathematical Practice as the critical processes and proficiencies of the curriculum. For example, Alignment Criterion 2 states, "Materials must authentically connect content standards and practice standards," and guides evaluators to assess whether tasks and assessments of student learning are designed to provide evidence of students' development toward meeting the Standards for Mathematical Practice. In addition, because standards are for all students, evaluating instructional materials requires careful attention be paid to ensure that special populations, including English Language Learners and those with different learning needs, have access to high-quality aligned materials. The IMET, therefore, includes specific guidance ensuring that evaluators assess the availability, alignment, and quality of embedded supports within the instructional materials for English Language Learners and other special populations.

The Mathematics K–8 IMET includes Non-Negotiable Alignment Criteria and Alignment Criteria. Together, the criteria cover critical features of aligned materials including: focus (and avoiding obstacles to focus); coherent progressions of topics; rigor and balance; the Standards for Mathematical Practice; and support for all learners. The *Grade-Level Evidence and Ratings* table (Appendix), which was used to capture detailed evidence of *Curriculum 2.0*, is based on the IMET and is organized as follows:

- Section 1: Focus and Coherence
- Section 2: Rigor and Balance
- Section 3: Standards for Mathematical Practice
- Section 4: Supporting All Students

Review Team:
This review was conducted by mathematics specialists at Student Achievement Partners (SAP). Student Achievement Partners is a nonprofit organization dedicated to helping teachers and school leaders implement high-quality, college- and career-ready standards, with a focus on instructional materials, instructional practice, and assessment. Student Achievement Partners developed the IMET, working in concert with organizations and experts who likewise had originally participated in the development of the standards. The mathematics specialists who reviewed *Curriculum 2.0* are well versed in the Common

Core State Standards, from the individual standards statements to the overall structure of the standards. SAP's content specialists are experienced in the design and use of the IMET and have extensive experience applying the criteria to evaluate instructional materials and training other organizations, state education agencies, and local education agencies to use the tool.

Process and Methodology:
The methods for this review consisted of a close reading of existing MCPS curricular documents found on myMCPS' Instructional Center and an evaluation of the materials based on specific evidence gathered to assess the criteria in the Mathematics K–8 IMET. This process was carried out in the following stages:

Project Set-Up and Planning: Once access to *Curriculum 2.0* was provided, the review team met with MCPS staff in the Office of Curriculum and Instructional Programs to understand the scope and background of *Curriculum 2.0* and to become familiar with the online platform. SAP collaborated with MCPS to create and refine a sampling plan that specified which documents from the curriculum the SAP team would review.

Phase 1: The phase 1 review of the written curriculum consisted of a detailed analysis of the elementary school curriculum framing documents: the "Administrator's Guide — Elementary Math C2.0", "Indicators by Marking Period and Weeks", "Marking Period at a Glance", as well as the list of SLTs for each week for all of the elementary grades. These materials were analyzed at a high-level to get a broad sense of the content across grade levels. They were analyzed for their implementation of the Mathematics Instructional Shifts: Focus, Coherence, and Rigor. This review was used to identify specific topics or weeks to look at more closely in Phase 2, and it also yielded information about how much time is spent on the Major Work of each grade.

Phase 2: The phase 2 review consisted of a detailed examination of instructional materials from grades 1, 2, and 4. These grades were selected in conjunction with MCPS. Reviewing grade 2 gives an opportunity to understand the progression of place value and addition and subtraction word problems, by looking at the end of the K–2 progressions with this work. Grade 4 is a critical year for students to apply and extend previous understandings of whole number operations to fraction operations. The MCPS team requested that grade 1 be added to the review because plans are in place to revise the current materials. The sampling plan focused on specific weeks in grades 1, 2, and 4 that included standards aligned to Major Work of the grade and in multiple domains in order to gather sufficient evidence of alignment. The results that follow are based on the analysis of the selected weeks of Grades 1, 2, and 4. The evidence gathered was used to determine the degree to which each individual metric was met. All Sample Learning Tasks (SLTs) in these weeks, including any linked resources, were reviewed, along with the formative assessments for each Marking Period in all three grades.

To conduct the phase 2 review, the instructional materials were examined and evidence was collected corresponding to the criteria; see the *Grade-Level Evidence and Ratings* table (Appendix).

Format of Results:
The determination of alignment of the Mathematics elementary school instructional materials, *Curriculum 2.0,* to the Shifts and high-level features of the Maryland College and Career Ready Standards is based on the number of points obtained for both Non-Negotiables and Alignment Criteria. Because the grades reviewed fall into two separate grade bands (1st and 2nd grades: K–2 grade band; 4th grade: 3–5 grade band), there are two separate statements of alignment, which are supported by two separate *Grade-Level Evidence and Ratings* tables within the Appendix. Specifically, the following thresholds were used to determine overall alignment for all grades reviewed (1, 2, and 4):

		Conditions	
Alignment Determination	**Component**	**Required Non-Negotiable Alignment Criteria to Be Met**	**Minimum Required Points on Alignment Criteria**
ALIGNED to the Shifts and high-level features of the Maryland College and Career Ready Standards when it meets all of the following conditions:	1. Focus and Coherence	NN 1A, NN 2A, NN 2B, NN 2C, NN 2D	---
	2. Rigor and Balance	---	5 out of 6
	3. Standards for Mathematical Practice	---	5 out of 6
	4. Supporting All Students	---	4 out of 6
APPROACHING ALIGNMENT to the Shifts and high-level features of the Maryland College and Career Ready Standards when it doesn't meet all of the conditions stated above for ALIGNED but meets all of the following conditions:	1. Focus and Coherence	NN 2A, NN 2B, NN 2C	
	2. Rigor and Balance	---	4 out of 6
	3. Standards for Mathematical Practice	---	4 out of 6
	4. Supporting All Students	---	3 out of 6
FAR FROM ALIGNED to the Shifts and high-level features of the Maryland College and Career Ready Standards when it does not meet the conditions for "Aligned" or "Approaching Alignment," as stated above.			

Summary of Findings and Recommendations: Mathematics (Elementary School)

The MCPS Elementary School Mathematics curriculum includes grade-level material for K–5 as well as compacted 4/5 and 5/6 courses. This review is based solely on instructional materials for K–5 grade-level Mathematics posted on the myMCPS Instructional Center as of this review, which includes "Administrator's Guide to Elementary Mathematics Curriculum 2.0", "Math Instructional Focus Documents", "Indicators by Marking Period and Weeks", "Sample Learning Tasks" and "Formative Assessments", and any ancillary materials linked to from the SLTs.

Based on the materials reviewed, the curriculum in Grades K–2 is far from aligned to the Shifts and high-level features of the Maryland College and Career Ready Standards: The Non-Negotiables required for alignment or approaching alignment were not met, and none of the thresholds for alignment or approaching alignment in the Alignment Criteria were met. (A score breakdown is found in the Appendix.)

Based on the materials reviewed, the curriculum in Grades 3–5 is far from aligned to the Shifts and high-level features of the Maryland College and Career Ready Standards: The Non-Negotiables required for alignment or approaching alignment were not met, and none of the thresholds for alignment or approaching alignment in the Alignment Criteria were met. (A score breakdown is found in the Appendix)**.**

Although both K-2 and 3-5 were found to be far from aligned, materials in grade 4 were closer to alignment than materials in grades 1 and 2.

It seems that *Curriculum 2.0* was developed with the goal of aligning with the content expectations of the Maryland College and Career Ready Standards. For the most part, the framing documents, including professional development resources, and formative assessments constitute a plan that aligns with the expectations of the MCCRS. However, the resources provided for teachers to use on a daily basis, (the SLTs), do not constitute a curriculum that aligns with the expectations of the MCCRS.

Among the **strengths:**

- There is significant time devoted to the content that matters most to students' future success in college and career (the Major Work) of each grade, which often times includes prioritizing Major Work content toward the beginning of the year.
- There are extensive opportunities throughout each grade-level for students to engage in application, as required by the MCCRS.

In several important ways, the materials examined fall short of meeting the criteria. These **weaknesses** include:

- The development of mathematical content does not align to the progressions outlined in the standards.
- The Sample Learning Tasks (SLTs) do not provide sufficient development of conceptual understanding, as required by the standards.
- The SLTs do not provide for adequate development of procedural skill and the required fluencies expected by the standards.

- The SLTs do not provide enough detail to teachers in order to:
    - Engage students in the Standards for Mathematical Practices
    - Support a wide variety of learners in meeting the expectations of the standards

Note: Although the 4/5 and 5/6 compacted courses meet the threshold for time on Major Work, there are standards and clusters that do not appear to have enough time given the depth of the standard. For example, in the compacted course, there are only two weeks (MP 3, Weeks 6 and 7) spent on 2.5.A.3[1], 2.5.A.4 and 2.5.A.5. There is only a single lesson on 2.4.A.4. In the 5/6 compacted course, only four weeks are spent on each of the Ratio and Proportional Reasoning and Number System domains. This likely does not provide enough time for these new domains and rich content in Grade 6.

The following **recommendations** are offered (and elaborated upon in the Detailed Findings below) as steps to bring the curricular materials into alignment with the Shifts and high-level features of the Maryland College and Career Ready Standards:

1. **Review and revise progression of SLTs across K–5.** Using the Progression documents, examine the grade-by-grade progression and development of content. Review the learning goal in each SLT in order to ensure they follow the progression of the standard from Kindergarten to Grade 5. Revise the sequence of SLTs to ensure coherence within and across grades, with particular attention to the addition and subtraction progression in grades 1 and 2. This also may require revising the tasks and problems within the SLTs to align with the progressions.
2. **In each SLT**, provide more detail in order to:
    - Fully develop students' conceptual understanding, where required by the standards, by adding conceptual problems and discussions that focus on mathematical ideas. Provide support to teachers about the types and sequence of mathematical representations that should be used, as well as the connections between them.
    - Provide specific guidance about the trajectory from conceptual understanding to procedural skill and fluency, including noting which calculation strategies are based on place value and will lead to generalizable methods in later grades.
    - Provide opportunities for teachers to develop students' ability to engage in the Standards for Mathematical Practice. Teacher-facing materials should identify tasks and problems that lend themselves to specific SMPs and indicate the SMP to teachers. SLTs should include instructional practices that help students develop and engage in the SMPs.
    - Include recommendations for working with a variety of learners that are content-specific and embedded in the materials. This means providing targeted support for struggling students and English Language Learners as is currently available for above-grade-level students.

The recommendations listed above are an exceptionally heavy lift and will take months if not years of sustained work to accomplish. Therefore, it is recommended that MCPS adopt high-quality instructional materials that already reflect the full demands of college- and career-readiness in Mathematics. Such a standards-aligned, high-quality curriculum should be completely articulated, previously vetted by authoritative sources, and highly aligned to the Shifts and high-level features of the Maryland College and Career Ready Standards. As a critical part of this adoption process, MCPS educators could use the IMET to evaluate curricular programs that are highly rated by external expert panels (e.g., EdReports)

[1] Throughout the report, where individual standards are noted, MCCRS coding is used. Where clusters or domains are noted, CCSS coding is used.

and determine which one(s) best reflects the needs of local students and schools. If the decision is made to phase in high-quality instructional materials over time, it is recommended that grades K-2 be prioritized.

A final recommendation concerns the compactification of the curriculum into accelerated pathways in grade 4. This arrangement puts access to the depth of understanding required by the standards at risk for students moving through that pathway. To ensure that MCPS is offering all students the same high-quality curriculum, it is recommended that MCPS continue or strengthen its data collection along the following dimensions: (1) Compare students of different poverty levels and different races/ethnicities who have the same level of mathematics performance in grades 3/4. How does their eventual level of math attainment compare by the end of grade 8? (2) Do the more effective teachers tend to be assigned to classrooms with higher average prior achievement, or do all MCPS students have equal access to the best teaching?

Detailed Findings and Recommendations

On the pages that follow, please find a narrative discussion of the findings and recommendations based on the review of the provided MCPS curricular materials for grades 1, 2, and 4. When there are differences in results between grade bands, it will be noted. The discussion is organized according to each of the sections of the review tool. Each section header appears in a box, followed by a summary of findings and corresponding recommendations. More detailed information is included in the *Grade-Level Evidence and Ratings* (Appendix).

Section 1: Focus and Coherence

High-Level Summary: Focus and Coherence

The materials generally align to the expectations for Focus emphasized in the design of the standards. The majority of time is expected to be spent on the content that matters most to students' future success in college and career over the course of the elementary program. However, the content of grades 1, 2, and 4 does not follow the progressions outlined in the standards.

Findings:

- *Strength*: Using the materials as designed, students and teachers will spend the majority of time on Major Work of the grade.
- *Strength*: Supporting Work is connected to and used to enhance Major Work topics.
- *Area for Improvement*: The progression of content is inconsistent with the progression of topics in the standards. SLTs do not build upon one another; lessons lack continuity throughout the week and from week to week. In grades 1 and 2, off-grade-level topics interfere with the expected work of the grade.
- *Area for Improvement:* In grades 1 and 2, some SLTs are entirely devoted to previous-grade-level content, and this is not indicated to teachers.

Recommendations:

1. ***Develop a coherent sequence of SLTs from Kindergarten through 5th grade.*** Using the Progression documents, examine the grade-by-grade progression and development of content. Review the learning goal in each SLT in order to ensure the SLTs follow the progression of the standards from Kindergarten to Grade 5. Analyze when topics are first introduced, where prior knowledge and connections are made, and where extensions continue across grades. (The Coherence Map, available at achievethecore.org can be used to identify connections between standards.) Look for consistency in use of strategies, representations, and language. Revise the sequence of SLTs to ensure coherence within and across grades. This sequence of SLTs should be shared with teachers so they can understand the overall scope and sequence of the complete elementary curriculum as well as each individual grade. Once this is done, this may require revising the tasks and problems within each SLT to align to the progressions.
2. ***Clearly indicate in teacher-facing materials any SLTs that align to previous-grade-level expectations.*** Providing guidance to teachers allows opportunity for them to make explicit connections between prior learning and grade-level content clear to students. Furthermore, this also allows for unique instructional decisions about how much time to devote to previous-grade-level expectations based on the needs of a particular group of students.

Section 2: Rigor and Balance

High-Level Summary: Rigor and Balance

Curriculum 2.0 insufficiently attends to the need to balance conceptual understanding, procedural skill and fluency, and application. Application is well-developed throughout the year. However, the work on conceptual understanding and procedural and skill and fluency does not meet the expectations of the MCCRS.

Findings:

- *Strength:* Application is well attended to where it is required by the standards; students encounter a variety of situation types throughout the year and engage in mixed practice of those situation types.
- *Area for Improvement:* Procedural skill and fluency are not sufficiently attended to. For example, conceptual understanding is not strategically interwoven with procedural skill in the SLTs to develop fluency (grades 1 and 2.)
- *Area for Improvement:* Materials do not get to the full depth of conceptual understanding required by the MCCRS. For example, many discussion questions are centered on discussing the process for doing math rather than the underlying mathematical idea.

Recommendations:

1. ***Ensure problems and discussion questions in the SLTs focus on conceptual understanding.*** More support is needed for teachers to be able to give problems and ask questions that target conceptual understanding. A first step would be to modify the questions that generally come at the end of each SLT to focus on mathematical ideas. Currently, most of these discussion questions ask students to talk about processes and strategies, rather than mathematical ideas. Additionally, there is a need for more tasks, activities, and problems in SLTs that align to standards that target conceptual understanding. For example, students need more opportunities to work with fractions out of context in order to develop their understanding of fractions as numbers.
2. ***Embed fluency development into SLTs (grades K–2).*** Teachers are provided with robust background information for helping students develop fluency with addition and subtraction facts in the "Diagnostic Tools". However, this information is not reflected in individual lessons in a way that allows teachers to implement the suggestions on a daily basis. Addressing this may require activities by Marking Period or more specific instructional guidance on how to support students in developing strategies that lead to fluency.
3. ***Revise SLTs to reflect a clear progression from conceptual understanding to procedural skill that concentrates on place value for multi-digit calculation.*** As students develop fluency with addition and subtraction during grades K–4, they need a progression of increasingly efficient models and strategies that lead them to the capstone fluency expectation 1.4.C.4 in grade 4. For example, number lines and open number lines are unsuited for teaching or performing place-value-based calculation, because they do not show several orders of magnitude, do not show recursive bundling/unbundling of place value units, and portray 10 as just another point on a continuum. Usage of number lines and open number lines should be scaled back to allow students to connect place value understanding to their addition and subtraction work. Other manipulatives or aids such as the hundreds chart should be phased out in an intentional way so that students' conceptual understanding translates to symbolic fluency at the expected pace.

Section 3: Standards for Mathematical Practice

High-Level Summary: Standards for Mathematical Practice

The design of *Curriculum 2.0* provides some problems and tasks that may allow students to engage with the Standards for Mathematical Practice (SMPs) in a way that enhances their understanding of the content. There is little guidance for teachers about when these opportunities occur or instructional strategies that will allow students to develop the SMPs, including reasoning about mathematics.

Findings:

- *Strength:* Problems and activities throughout the materials provide some opportunities for students to engage in the Standards for Mathematical Practice (SMPs) and could provide evidence to teachers about students' proficiency with the SMPs.
- *Area of Improvement:* Problems that lend themselves to engagement with particular SMPs are not identified in the teacher-facing materials. Lack of clear direction to teachers in the materials could cause over- or under-emphasis of the SMP by teachers and/or students.
- *Area of Improvement:* The lack of questions and mathematical representations in teacher materials doesn't provide enough support for teachers to help students develop their ability to engage in the SMPs.

Recommendation:

1. ***The teacher-facing materials should fully reflect the intent of the Standards for Mathematical Practice.*** Directions to the teachers should be clearer in how specific problems and activities will allow students to engage in the Standards for Mathematical Practice. Problems and activities that have opportunities for engagement with the SMPs should include little scaffolding and/or explicit direction of how instruction can support student development of specific SMPs. The teacher-facing materials should also include pacing within the lesson to indicate how much time students should be given to engage in tasks and discussions.

Section 4: Supporting All Students

High-Level Summary: Supporting All Students

Curriculum 2.0 has limited instructional strategies and supports built into the lessons that address the needs of a broad range of learners in reaching the expectations of the standards. The materials are lacking consistent and content-specific supports for all students, particularly struggling students and English Language Learners.

Findings:

- *Strength:* Enrichment opportunities are provided for students who are above grade-level.
- *Area for Improvement:* There are not enough details in SLTs to support teachers in meeting the needs of all students. This includes content-specific supports for English Language Learners and students who are below grade-level.
- *Area for Improvement:* There is no clearly articulated system, protocol, or supports provided specifically for English Language Learners. There is general guidance in the "ESOL Connections"

document, but there was only one "Example ESOL Sample Learning Tasks" for each Marking Period in grade 1 and 2 and none in grade 4.

- *Area for Improvement:* There is no clearly articulated system, protocol, or supports provided specifically for students who are below grade-level.

Recommendations:

1. ***Integrate a systematic structure to provide the resources, time, and supports for students below grade-level and English Language Learners. This structure should provide teachers and students with content- and lesson-specific opportunities for strategic and appropriate support.*** In addition to providing general guidance on how to support ELLs and below-grade-level students, specific recommendations should describe instructional practices, visual models, and language supports that will ensure all students meet grade-level expectations of the standards.
2. ***Include information about student misconceptions, representations, and language demands in each SLT.*** SLTs should identify the specific misconceptions that students may have about the mathematical content along with ways to address those misconceptions. Similarly, teachers need direction about how to support ELLs with both the content and the language of mathematics. More specific guidance for teachers will allow them to better support the learning of the diverse range of learners in their classroom.

Appendix: Grade-Level Evidence and Ratings

Grade-Level Evidence and Ratings (Grades 1 & 2)

Section	# of Non-Negotiables Met	Does This Section Meet All Non-Negotiables?	Alignment Criteria Points
1. Focus and Coherence	3/5	☐ YES ☒ NO	
2. Rigor and Balance			4/6
3. Standards for Mathematical Practice			3/6
4. Supporting All Students			1/6

1. Focus and Coherence		
IMET Metric	**Evidence**	**Score**
NN 1A: Materials reflect the basic architecture of the Standards by not assessing the topics listed below before the grade level indicated. · Probability, including chance, likely outcomes, probability models. · Statistical distributions, including center, variation, clumping, outliers, mean, median, mode, range, quartiles; and statistical association or trends, including two-way tables, bivariate measurement data, scatter plots, trend line, line of best fit, correlation. · Coordinate transformations or formal definition of congruence or similarity. · Symmetry of shapes, including line/reflection symmetry, rotational symmetry.	The assessments in grades 1 and 2 do not assess any listed topics before they are required by the MCCRS. Grade 1 and 2 Math Formative Assessments for Marking Periods 1–4 were reviewed for this metric.	☒ Meets ☐ Does Not Meet
NN 2A: Students and teachers using the materials as designed devote the large majority of time to the Major Work of the grade.	The materials are designed so that a large majority of time is spent on the Major Work of the grade in both grades 1 and 2. In grade 1: - 28/36 weeks of instruction solely address Major Work clusters - 2/36 weeks of instruction address Major and Supporting Work together, with a stronger emphasis on Supporting Work (MP 1, Weeks 8–9) - 6/36 weeks of instruction focus solely on Supporting or Additional Work (MP 4, weeks 4–9) This equates to approximately 75–80% of instructional time spent on Major Work of the grade. In grade 2: - 23/36 weeks of instruction solely address Major Work Clusters	☒ Meets ☐ Does Not Meet

1. Focus and Coherence		
IMET Metric	**Evidence**	**Score**
	- 4/36 weeks of instruction address Major and Supporting Work together: (MP 1, Week 8, MP 2, Weeks 1 and 8 and MP 3, Week 3) - 9/36 weeks of instruction focus solely on Supporting or Additional Work (MP 1, Week 7, MP 2, Week 9, MP 3, Weeks 6–9 MP 4, Weeks 7–9) This equates to approximately 75% of instructional time spent on Major Work of the grade. Note: These classifications were determined looking at the learning goals for each SLT in the curriculum. The numbers above represent the work being done across the grade but do not always align to the standards identified in the Indicators by Marking Period and Weeks document.	
NN 2B: Supporting Work enhances focus and coherence simultaneously by also engaging students in the Major Work of the grade.	There are connections made between Supporting and Major Work in both grade 1 and 2. The connections between standards are leveraged more strongly in the grade 2 materials. In grade 1: - MP 1, Weeks 8–9: 1.1.C.3 is identified as a Major Work standard to connect to the data collection and display SLTs. There are several questions in the SLTs that ask students to compare quantities from graphs and a few questions that ask students to solve word problems aligned to 1.1.A.1. However, the teacher-facing materials do not emphasize the connection between data work and 1.1.A.1 In grade 2: - MP 1, Week 8: Explicit connections are made between the work of the OA domain and the graphing work. SLT titles include “Solve put together, take apart, or compare problems using information displayed in bar graphs and pictographs” and “Display data in a bar graph and solve put together, take apart, and compare problems using information from the graph.” - MP 2, Week 1: Work with the supporting cluster 1.2.B.4 is used to support the fluency expectations of 1.2.B.2 as even and odd numbers are connected to doubles and doubles-plus-one facts. - MP 2, Week 8-9: Work with major work 1.2.C.2 is used to support 2.2.A.7 as students use skip counting to count money. However, there is no connection to word problems (1.2.B.1), which are named in 2.2.A.7.	☒ Meets ☐ Does Not Meet

1. Focus and Coherence		
IMET Metric	**Evidence**	**Score**

NN 2C: Materials follow the grade-by-grade progressions in the Standards. Content from previous or future grades does not unduly interfere with on-grade-level content.	The materials deviate from the grade-by-grade progressions in the MCCRS. There is a lack of coherence within grades. In addition, there is a significant deviation from the addition and subtraction progression in grades 1 and 2.
	- The organization of SLTs often does not align to a clear progression of content, as outlined in the standards. For example, in Grade 1, MP 1, Weeks 1 and 2 the progression of SLTs is:
	  - Group sets if 10s and 1s to count within 120 using Digi-Blocks
	  - Count collections of objects within 120 and share counting strategies
	  - Count forward and backward from different target numbers
	  - Identify a number one more or one less than a given number and represent numerical information
	  - Identify and number one/two less or one/two more than a given number
	  - Group sets of 10s and 1s to count a quantity within 120
	  - Represent, name and record numbers through 19
	  - Count forward or backward from a given number and record numerals up to 120
	  - Count collections of objects by 10s and 1s using Digi-Blocks
	  - Count pictorial representations by 10s and 1s
	  - Count a collection of objects by 10s and 1s
	  - Identify one more or one less than a given number
	  - Count on by 10s from different numbers
	These SLTs do not present a clear progression from Kindergarten work (counting to 100 and conceptual work with numbers 11–19) to grade 1 expectations. The SLTs do not present a coherent sequence of learning goals for the grade 1 standards being addressed. The lack of coherence in SLTs was noted across grades 1 and 2.
	In grade 1, *Curriculum 2.0* does not reach the full intent of the first grade standard 1.1.NBT.4; instead it is reached in grade 2. The language of the standard "Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10" calls out some specific examples, but requires students to be able to add any numbers with a sum of 100 or less. By contrast, in *Curriculum 2.0*, grade 1 students are asked only to add two-digit and
		☐ Meets
		☒ Does Not Meet

1. Focus and Coherence		
IMET Metric	**Evidence**	**Score**
	one-digit numbers and add multiple of 10 to 2-digit numbers. Because grade 1 content doesn't include work with addition within 100 in MP 4, the work in grade 2, MP 2 focuses on grade 1 material, rather than meeting grade-level expectations, as evidenced in 10 SLTs in grade 2, MP 2, weeks 2-4, which are aligned to 1.1.NBT.4. Delaying the work of grade 2 — fluency with adding within 100 to grade 2, MP 2, Week 4 — means less time in grade 2 for all students to meet grade 2 expectations. Note: In grade 2, MP Week 8, there is a link to a teacher-facing resource called "Graphs of Categorical Data" which states, "In Kindergarten, Grade 1, and Grade 2, students work with graphs with single-unit scales." However, there is no standard related to graphing in Kindergarten. (This document was noted as being created in 2000.) It was not in the scope of this review to assess whether the Kindergarten SLTs on MD aligned to grade-level expectations.	
NN 2D: Lessons that only include mathematics from previous grades are clearly identified as such to the teacher.	There are entire lessons devoted to previous-grade-level content in grade 2 that are not identified as such to the teacher. In grade 2, MP 2, there are lessons that align to 1.1.NBT.4, which are identified as aligning to 1.2.C.5.	☐ Meets ☒ Does Not Meet
Rating (Focus and Coherence):	**Non-Negotiables**	
	Are All NNs Met? ☐ **Yes** ☒ **No**	

2. Rigor and Balance			
IMET Metric →	**Guiding Questions**	**Evidence**	**Score**
AC 1A: The materials support the development of students' conceptual understanding of key mathematical concepts, especially where called for in specific content standards or cluster headings.	- Where the standards explicitly require students to understand concepts, do the assignments that students work on build that understanding, and do assessment tasks reveal whether students understand the mathematics in question? - Do the materials feature high-quality conceptual problems and conceptual discussion questions? - Do the materials feature opportunities to identify correspondences across mathematical representations? When manipulatives are used, are they faithful representations of the mathematical objects they represent? Are manipulatives connected to written methods?	The materials provide limited support for the development of students' conceptual understanding. There are activities within SLTs that could support conceptual understanding, but there is a lack of conceptual discussion questions provided. Discussion questions that are present are general and rarely address mathematical concepts but instead ask about strategies or processes. In addition, there is not a clear progression of mathematical representations or support for teachers on when and how to use them. For example, in grade 1: - MP 1, Week 1, students are asked to group sets of Digi Blocks into 10s and 1s in the first SLT. The second SLT has students counting collection of classroom objects. The discussion question recommended is "How does discussing different strategies for keeping track of objects help you count?" There is no mention of connecting the work of the previous SLT to students' work with counting. - MP 2, Week 3, SLT 3 focuses on solving a variety of addition and subtraction problem types. The discussion question recommended is "How does using different strategies and representations help you solve an addition and subtraction word problem?" There is no guidance for teachers about which mathematical representations to use or ways to identify connections across representations. In grade 2: - MP 1, Week 2, there is an SLT titled: "Explain how the value of the digits in multiples of 100 and their number names are related." While this could address the conceptual understanding required by 1.2.C.1, the SLT does not provide support for students to develop	☐ 2 ☒ 1 ☐ 0

2. Rigor and Balance			
IMET Metric →	**Guiding Questions**	**Evidence**	**Score**
		this conceptual understanding. This is the complete SLT: "Explain how the value of the digits in multiples of 100 and their number names are related. Represent several 3-digit multiples of 100 with numerals or number names (e.g., 300, four hundred). Lead a discussion about what is similar in each of these 3-digit numbers. If necessary, scaffold the discussion with questions such as: - How many tens are in each number? How many ones? - Which words represent the hundreds/tens/ones? *Ask:* How does sharing ideas with others help you understand how place value and number names for these special 3-digit numbers are related? *Note to teacher:* To differentiate the task, challenge students to find all the 3-digit numbers that can be made using three words. Ask: How can you use what you know about hundreds, tens, and ones to determine when you have found all possible answers? *Check for Student Understanding*: Note the extent to which each student is able to explain that the number names for multiples of 100 refer to the number of hundreds." This type of discussion question is common throughout the materials and does not develop understanding of mathematical ideas but instead prompts students to discuss strategies and processes.	
AC 1B: The materials are designed so that students attain the	- Do the materials in grades K–6 provide repeated practice toward attainment	There is an intent in the materials to support students' development of the fluencies and procedural skills. The framing documents provide good information for teachers,	☐ 2 ☒ 1

2. Rigor and Balance			
IMET Metric	**Guiding Questions**	**Evidence**	**Score**
fluencies and procedural skills required by the Standards.	of fluency standards? Do assessment tasks reveal whether students have the fluencies the standards require? - Is progress toward fluency and procedural skill interwoven with students' developing conceptual understanding of the operations in question?	about how to connect conceptual understanding and procedural skill and fluency. However, this support is not built into lessons consistently and there is not clarity on how teachers can ensure all students will meet fluency expectations by the end of the year. The document "Grade 1 Diagnostic Data Collection Tool" provides helpful background information to teachers on developing fluency based on conceptual understanding. On page 2, it says: "The goal is computational fluency with conceptual understanding. Therefore, a student who knows the facts from memory, but who cannot reason with and explain a Level 2 or Level 3 Method has not met the expectations for conceptual understanding in Curriculum 2.0." This reinforces the importance of the two aspects of rigor supporting each other. Both the grade 1 and grade 2 versions of this document emphasize that the path to knowing facts from memory happens over the K–2 progression. They also suggest an approach to timed tests that is consistent with the expectations of the standards. There is one deviation from the standards in the benchmark for the end of Grade 1. The document states that students at the end of Grade 1 are responsible for "Within 10: Continue to model and reason with Level 2 methods using fingers or mental strategies." This is not a clear indication that students are expected to have the fluency outlined in 1.1.OA.6. The interweaving of conceptual understanding and procedural skill is also emphasized in the resources "Diagnostic Data Collection Tool: Fluently Add and Subtract within 100", and the professional-development resource: "Developing Fluency: Addition and Subtraction within 100." Although these resources provide solid background information, this does not carry through to the SLTs.	☐ 0

2. Rigor and Balance			
IMET Metric →	**Guiding Questions**	**Evidence**	**Score**

		- Grade 1, MP 2, Week 6: There are several SLTs that focus on students demonstrating fluency for adding and subtracting within 10. These SLTs provide a variety of activities for students to engage in, but are lacking information for teachers on how these activities specifically relate to addition and subtraction fluency and procedural skill.
		- Grade 1, MP 2, Week 4 presents the following SLTs:
		  - Use the strategy of doubles plus one to solve addition problems
		  - Use counting strategies, counting on to add and counting back to subtract
		  - Demonstrate fluency for addition and subtraction within 10
		  - Use addition and subtraction within 20 to solve a put together/take apart addend unknown word problem
		  - Use Make 10 strategy to add single-digit numbers
		  - Solve and create problems involving addition and subtraction situations
		The first SLT introduces the strategy of doubles plus one, the second SLT focuses on counting up and back, the third SLT focuses on adding and subtracting 0, and the next SLT has students solving word problems. There is no connection among models used in any of the lessons or specific notes to teachers about how to encourage students to make connections in this series of lessons.	

AC 1C: The materials are designed so that teachers and students spend sufficient time working with	- Are there single- and multi-step contextual problems that develop the mathematics of the grade, afford opportunities for practice, and	There is much attention paid in the materials to the variety of addition and subtraction problem types named in Table 1 of the Common Core State Standards. The Formative Assessments in both grades 1 and 2 give teachers the opportunity to note students' performance on all of the	☒ 2 ☐ 1 ☐ 0

2. Rigor and Balance			
IMET Metric	**Guiding Questions**	**Evidence**	**Score**
applications, without losing focus on the Major Work of each grade.	engage students in problem-solving? Where the standards require students to solve multistep and real-world problems, do the assignments that students work on allow them to do that, and do assessment tasks reveal whether students can do that? - Do application problems particularly stress applying the Major Work of the grade? - Does modeling build slowly across K–8, with applications that are relatively simple in earlier grades and when students are encountering new content? In grades 6–8, do the problems begin to provide opportunities for students to make their own assumptions or simplifications in order to model a situation mathematically?	problem types required for the grade. In addition, the SLTs focus on a specific problem type for instruction, but then allow mixed practice in order for students to be able to make sense of and solve problems. For example, Grade 1, MP 2, Week 3 includes the following SLTs: - Use addition and subtraction within 20 to solve an add to/change unknown word problem - Use addition and subtraction within 20 to solve a take from/change unknown word problem - Use addition and subtraction within 20 to a solve a compare/bigger unknown word problem - Use addition and subtraction within 20 to solve equations with the unknown in any position - Use addition and subtraction within 20 to solve a take from/result unknown word problems In each of these lessons, the SLT titles focus on a specific situation type, and the worksheets give students practice with a variety of situation types in order to make sure students can make sense of and solve problems.	
Rating (Rigor and Balance):		**Alignment Criteria**	
		Section Points: 4/6	

3. Standards for Mathematical Practice			
IMET Metric →	**Guiding Questions**	**Evidence**	**Score**

AC 2A: Materials address the practice standards in such a way as to enrich the Major Work of the grade; practice standards strengthen the focus on Major Work instead of detracting from it, in both teacher and student materials.		Materials unevenly address the Standards for Mathematical Practice (SMPs) in connection with Major Work. There is no reference to the SMPs in the MCPS Overview or SLTs. While there are some activities within SLTs that may allow students to engage in the SMPs, there is no support for teachers on how to encourage students to engage in those SMPs due to limited questions and prompts in the SLTs. For example:
		- SMP1: This practice is most thoroughly addressed, as students are given word problems to make sense of quite frequently in the materials. At times however, the sequence of questions limits students' autonomy to independently make sense of the problem as expected by SMP1. For example, the questions and sample answer provided in Grade 1, MP 2, Week 3:
		  - What do you notice about the problem (e.g., I notice that Jennifer purchased 9 books from the book fair and Natalie purchased 4 more than Jennifer.)?
		  - What do you wonder (e.g., I wonder how many more books Natalie has than Jennifer.)?
		  - What is known and what is unknown in the problem, and what symbols (e.g., ? or ___) could be used to represent what is unknown?
		  - How does thinking about what is known and unknown help you solve the problem?
		- SMP3: Some activities provide opportunities for students to critique others' work. For example, in Grade 1, MP 2, Week 6, SLT 2, the teacher directions
			☐ 2
			☒ 1
			☐ 0

3. Standards for Mathematical Practice			
IMET Metric →	**Guiding Questions**	**Evidence**	**Score**
		state "Encourage students to ask questions about others' explanations if a strategy does not make sense to them." - SMP7: In Grade 1, MP 3, Week 8, SLT 2, students play a game called "Making Sums," which could provide an opportunity for them to use the structure of the place value system to create target numbers. The questions teachers are directed to ask students (Which addends were easy to make? Why? Were any equations more difficult to complete? Why?) do not bring structure of the place value system into the conversation, representing a significant missed opportunity.	
AC 2B: Tasks and assessments of student learning are designed to provide evidence of students' proficiency in the Standards for Mathematical Practice.		Overall, few of the tasks and assessments allow students to show proficiency with SMPs. There were a few examples of assessment tasks that did show opportunities to engage in the SMPs, but these were not called out to teachers within the materials. For example: Grade 1: - "Math G1 EMAT A" could allow students to show proficiency of SMP5, as they name missing addends to make 10. However, the prompts require students to use their fingers, which may not be the appropriate tool for all students. - In MP 4, "Formative Assessment: Diagnostic Data Collection Tool". Teachers can assess for SMP 5, as they note students' models and strategies for solving different types of computations with addition and subtraction within 100. - The "Progress Checks" reviewed (only Checks 1 and 2 were live links) did not show opportunities for students to provide evidence of engaging in the SMPs.	☐ 2 ☒ 1 ☐ 0

3. Standards for Mathematical Practice			
IMET Metric →	**Guiding Questions**	**Evidence**	**Score**
		- None of the tasks in the MP 4 "Formative Assessments" had clear evidence (or notes to teachers) about how to collect evidence on students' proficiencies with the SMPS. Grade 2: - "Math G2 EMAT A" provides opportunities for students to use the structure of the ten frame (SMP8) and the relationship between addition and subtraction to solve problems within 20. Since this is the first task of the year, it serves as an assessment of 1.1.A.6, rather than grade 2 content. - In the formative assessment for MP 2, OA Task 6 and 7 require students to move between a contextualized word problem and equations. (SMP2) - In the formative assessment for MP 2, NBT Task 1, teachers can assess for SMP 5, as they note students' models and strategies for solving different types of computations with addition and subtraction within 1,000.Progress Checks were not accessible through the links in the Google document "Elem Math Formative Assessment Overview - Grade 2."	
AC 2C: Materials support the Standards' emphasis on mathematical reasoning.	- Do the materials support students in constructing viable arguments and critiquing the arguments of others concerning grade-level mathematics that is detailed in the content standards? - Do the materials support students in producing not only answers and solutions but also,	The materials support the standards' emphasis on reasoning most strongly in the thorough description of numerical reasoning described in the "Diagnostic Data Collection Tool" related to adding and subtracting within 20. Many strategies are listed and teachers are encouraged to take notes on how students are reasoning about adding and subtracting within 20. Beyond that, there are limited opportunities for students to express their mathematical reasoning. Discussion questions are more often about the strategies students	☐ 2 ☒ 1 ☐ 0

3. Standards for Mathematical Practice			
IMET Metric →	**Guiding Questions**	**Evidence**	**Score**
	in a grade-appropriate way, arguments, explanations, diagrams, mathematical models, etc., especially in the Major Work of the grade? - Do materials explicitly attend to the specialized language of mathematics? Is the language of argument, problem solving, and mathematical explanations taught rather than assumed?	are asked to employ rather than the mathematics. For example: - Grade 1, MP 2, Week 5: How does using different strategies and representation help you represent an addition or subtraction situation in an equation? - Grade 1, MP 4, Week 1: How does using different materials and tools help you relate strategies to written methods for adding a 2-digit number and a 2-digit number ending in zero? - Grade 2, MP 2, Week 7: How does listening to ideas about the different ways to make a sum help you to add or subtract quickly? - Grade 2, MP 4, Week 5: How can trying a new strategy help you create your own written methods for subtraction?	
Rating (Standards for Mathematical Practice):		**Alignment Criteria**	
		Section Points: 3/6	

4. Supporting All Students		
IMET Metric	**Evidence**	**Score**
AC 3A: Support for English Language Learners and other special populations is thoughtful and helps those students meet the same Standards as all other students. The language in which problems are posed is carefully considered.	There is very little support for English Language Learners and other special populations, and some of the supports do not aid students in meeting the same standards as all other students. There is a "Curriculum 2.0 ESOL Connections" document available for each MP in each grade. This document includes general support and planning templates for working with English Language Learners. Each document also provides two math-specific resources: "Selected Curriculum 2.0 Mathematics Content Headers Correlated to WIDA Standard 3," which gives some content-specific academic language functions and structures that connect to the math in the MP, and an "Example ESOL Sample Learning Task." Because these documents only provide a small number of example ESOL SLTs, it is not clear that these supports will help students meet grade-level expectations on a day-to-day basis. Of the four Example ESOL SLTs, one (MP 2) adjusts the magnitude of the numbers students are comparing, which means that students are not engaging in grade-level mathematics. In the Math SLT, students are comparing 53 and 36. In the ESOL SLT, students are comparing 8 and 10, which is aligned to Kindergarten expectations. There is no indication in the ESOL SLT that students should work up to the magnitude of numbers expected in grade 2. The other ESOL SLTs are aligned to grade-level expectations.	☐ 2 ☐ 1 ☒ 0
AC 3B: Materials provide appropriate level and type of scaffolding, differentiation, intervention, and support for a broad range of learners with gradual removal of supports, when needed, to allow students to demonstrate their mathematical understanding independently.	There are extensive resources offered for students who are above grade-level, but there is little scaffolding or intervention guidance built into the SLTs. Besides the recommendations to allow students to use concrete materials as needed, there weren't other explicit scaffolding suggestions offered in the materials reviewed. There were a few instances of structures for discussion that could be supportive of a range of learners (for example, Grade 1, MP 1, Week 3 suggests using the Numbered Heads Strategy which is supportive of learners at different levels.) The materials provide more resources for supporting above-grade-level students to go deeper into grade-level content rather than address later-grade content. Each MP provides a section that offers suggested tasks and activities for students who have met the week's grade-level expectations. For example, the activities in Grade 1, MP 1, Week 4 for enrichment all give students the opportunity for deeper engagement with the concept of place value, as per 1.NBT Brain Teaser - Shells at the Shore	☐ 2 ☒ 1 ☐ 0

4. Supporting All Students		
IMET Metric	**Evidence**	**Score**
	Brain Teaser - Hot Dog Stand Guess My Number A Model for Tens and Ones You've Got My Number Zig Zag Numbers	
AC 3C: Design of lessons attends to the needs of a variety of learners (e.g., using multiple representations, deconstructing/ reconstructing the language of problems, providing suggestions for addressing common student difficulties).	The design of lessons attends in only very limited ways to the needs of a variety of learners. Some lessons include a section called "Note to Teacher." Most of these provide technical support for the activities in the lesson. For example: - Grade 1, MP 4, Week 1 "*Note to Teacher*: After each scenario, stop the video clip so students can model and record an equation that represents the action in the problem." Some note common student difficulties but do not provide suggestions for addressing them. For example: - Grade 1, MP 2, Week 7: *Note to Teacher:* In the resource "Collection of Word Problems – 10", it says "Problem B is an example of a compare/smaller unknown (more version) problem, one of the more difficult problem types. Students may need more guidance with this problem." Many SLTs are lacking in detail for the teacher that would allow them to attend to the needs of a variety of learners. In Grade 1, MP 1, Week 2, there are 6 SLTs. They are short activities and routines that students could engage with, but do not include enough guidance for teachers on how to support learners. For example: "Ask students to number a section of a NUMBER LINE (0 through 120). Provide time for small groups to count on or count back from an assigned number to label missing numbers." Discussion questions, teaching points, or common student difficulties are not named. In this week of SLTs, there is only one place where there are specific questions for a teacher to use to prompt discussion.	☐ 2 ☐ 1 ☒ 0
Overall Rating (Supporting All Students):	**Alignment Criteria**	
	Section Points: 1/6	

Grade-Level Evidence and Ratings (Grade 4)

Section	# of Non-Negotiables Met	Does This Section Meet All Non-Negotiables?	Alignment Criteria Points
1. Focus and Coherence	4/5	☐ YES ☒ NO	
2. Rigor and Balance			5/6
3. Standards for Mathematical Practice			3/6
4. Supporting All Students			2/6

1. Focus and Coherence		
IMET Metric	**Evidence**	**Score**
NN 1A: Materials reflect the basic architecture of the Standards by not assessing the topics listed below before the grade level indicated. · Probability, including chance, likely outcomes, probability models. · Statistical distributions, including center, variation, clumping, outliers, mean, median, mode, range, quartiles; and statistical association or trends, including two-way tables, bivariate measurement data, scatter plots, trend line, line of best fit, correlation. · Coordinate transformations or formal definition of congruence or similarity. · Symmetry of shapes, including line/reflection symmetry, rotational symmetry.	The grade 4 assessments do not assess any listed topics before they are required by the MCCRS. Symmetry is assessed in Marking Period 4 of fourth grade. This is an appropriate placement, as this is the grade where symmetry concepts are introduced. Grade 4 Math Formative Assessments for Marking Periods 1-4 were reviewed for this metric.	☒ Meets ☐ Does Not Meet
NN 2A: Students and teachers using the materials as designed devote the large majority of time to the Major Work of the grade.	The materials are designed so that a large majority of time is spent on the Major Work of the grade in grade 4. - 23/36 weeks of instruction solely address Major Work clusters - 5/36 weeks of instruction address Major and Supporting Work together, with a stronger emphasis on Supporting Work (MP 2, Weeks 8–9 and MP 3, Weeks 5, 6, 8, 9) - 8/36 weeks of instruction focus solely on Supporting or Additional Work (MP 2, weeks 3–4, MP 3, Week 1 and MP 4, Weeks 7–9) This equates to approximately 70% of instructional time spent on Major Work of the grade.	☒ Meets ☐ Does Not Meet

1. Focus and Coherence		
IMET Metric	**Evidence**	**Score**
NN 2B: Supporting Work enhances focus and coherence simultaneously by also engaging students in the Major Work of the grade.	The materials are designed so that the supporting work enhances focus and coherence. Connections present for grade 4 standards are: - MP 2, Weeks 8–9: Students are solving multistep word problems using all 4 operations in measurement contexts, connecting the work of 1.4.B.3 and 2.4.A.2 - MP 3, Week 5: The work of MD and NF are connected, as students are asked to interpret data by answering questions that require students to use fraction operations. - MP 3, Weeks 8 and 9: The work of MD and NF are connected as students solve problems involving measurement that include computing with fractions and comparing decimals. - MP 4, Week 1: The work of Measurement and Data, solving problems involving measurement, is connected to the work of Number and Operations-Fractions, understanding and comparing decimals. The standards alignment is not listed for teachers, but the use of the meter stick and problems involving liquid capacity involves reasoning about the size of decimals.	☒ Meets ☐ Does Not Meet
NN 2C: Materials follow the grade-by-grade progressions in the Standards. Content from previous or future grades does not unduly interfere with on-grade-level content.	No content from previous or future grades was found that interfered with Grade 4 content. However, the individual SLTs do not always create a clear progression of mathematical ideas, as called for in the standards. There is not always a clear coherence of content within the grade level. Weekly topics are introduced and activities are provided in lesson, but teacher-facing materials lack guidance for connecting mathematical ideas, strategies and models throughout the week. Examples from the multiplication and division work in MP 2 include: - Week 1, SLT 2: Students are asked to split numbers and visualize the area model. This abstract thinking is premature in developing place value concepts and the meaning of the representation. - Week 1, SLT 2, Teachers are directed to facilitate a discussion about multiplication patterns and the relationship between multiplication and division. There is no clear link to division and it is unclear why the questioning includes division. - Week 2, SLT 2: Students use virtual base ten blocks for 6 x 418. The concrete model has not been introduced in the previous week or SLT 1.	☐ Meets ☒ Does Not Meet

1. Focus and Coherence		
IMET Metric	**Evidence**	**Score**
	- Weeks 1 and 2: The size of numbers progresses. However the SLTs do not go to the depth of the 1.4.C.5 in regards to multiplication activities involving 10, 100 and 1,000 as factors. - Weeks 5 and 6: The SLTs do not include opportunity to adequately explore the connection to multiplication through the use of examples such as 45/9, 450/9, 4,500/9. - Week 5, SLT 1: The remainder is introduced with little connection back to previous work back to 1.3.B.3 and the meaning of division with equal groups. Examples from the fraction equivalence and comparing work in MP 3 include: - Week 2, SLT 1: Students are lead to explain that in fractions equal to one-half, the denominator is twice the numerator. This rule is not generalizable or connected to the expectations of 1.4.D.1 - Week 2, SLT 3: The title of the SLT is "Use visual fraction models to explain comparison of fractions." The text of the lessons provides sample answers that involve reasoning based on benchmarks, but the game provided "Fraction Capture" has visual representations of fractions which does not encourage reasoning about size of fractions. - Week 3: There are two lessons focused on 1.4.D.1 and both involve using visual models (the number line in SLT 1 and the area model in SLT 2) to generate and identify equivalent fractions. This does not get to the full intent of the standard is for students to be able to generalize and apply the principle of multiplying the numerator and denominator by the same factor. - Week 3, SLT 3: This is the penultimate lesson on comparing fractions, some of the content of the lesson is focused on grade 3 expectations (1.3.D.3), which is a missed opportunity to begin the grade 4 comparing work by building on grade 3 work. The lesson begins by reviewing how to compare fractions with the same denominator. The interactive activities provided are limited to grade 3 work (comparing units fractions and comparing fractions with the same denominators.) - Week 4, SLT 1: This is the first lesson aligned to 1.4.D.3. This lesson has students composing fractions, a new concept, without any models or representations to help students make sense of the mathematics.	

1. Focus and Coherence		
IMET Metric	**Evidence**	**Score**
	- Week 5, SLT 4: This is the same activity from Week 4, SLT 1 but composing fractions greater than 1 with fractions of the same denominator. There is no clear link to the previous activity and it is unclear why this lesson comes almost 2 weeks after the similar lesson. Almost all of the activities reviewed are aligned to grade 4 expectations. However, without a clear coherence of mathematical topics, ideas and models across SLTs, the progression of the grade 4 standards is not thoroughly attended to.	
NN 2D: Lessons that only include mathematics from previous grades are clearly identified as such to the teacher.	While there are components of lessons that include mathematics from previous grades, no SLTs solely include mathematics from previous grades.	☒ Meets ☐ Does Not Meet
Rating (Focus and Coherence):	**Non-Negotiables** ***Are All NNs Met?*** ☐ **Yes** ☒ **No**	

2. Rigor and Balance			
IMET Metric →	**Guiding Questions**	**Evidence**	**Score**
AC 1A: The materials support the development of students' conceptual understanding of key mathematical concepts, especially where called for in specific content standards or cluster headings.	- Where the standards explicitly require students to understand concepts, do the assignments that students work on build that understanding, and do assessment tasks reveal whether students understand the mathematics in question? - Do the materials feature high-quality conceptual problems and conceptual discussion questions? - Do the materials feature opportunities to identify correspondences across mathematical representations? When manipulatives are used, are they faithful representations of the mathematical objects they represent? Are manipulatives connected to written methods?	The materials provide some support for the development of students' conceptual understanding. There are activities within SLTS that support conceptual understanding, but few conceptual discussion questions were found. Discussion questions that are present are general and do not always address mathematical concepts. In addition, there is not clear support for teachers on when and how to use mathematical representations. In the work with decimals, there was attention to developing conceptual understanding. For example: - MP 3, Week 9: There is a Teacher Note about building conceptual understanding of decimals and using the correct language of decimals. - MP 4, Week 1: Decimal representations and comparisons are taught conceptually. Students are asked questions where they must consider the whole and justify their response, deepening their understanding of the material. There are concepts that require more time and attention to develop conceptual understanding. For example: - MP 2, Weeks 5 and 6: Work with division with remainders does not reach the full intent of the standard. SLTs do not allow for students to develop conceptual understanding that the remainder is a number added to a product. For example, 86/7 is (12 x 7 + 4). The remainder of 4 and should be explored and understood as a number not an "extra." Remainders are frequently depicted as R quantity, or 12 R 4, as in the previous example. The note about remainder notation from 2006 in Week 5, SLT 1, should be updated to reflect the Progression documents. - MP 3, Week 2: The sequence of lessons in moves between comparison and equivalence without a clear indication of how the models and ideas of the SLTs are connected.	☐ 2 ☒ 1 ☐ 0

2. Rigor and Balance			
IMET Metric →	**Guiding Questions**	**Evidence**	**Score**
		- MP 3, Weeks 2 and 3: The use of context distracts from deepening conceptual understanding of fraction equivalence and ordering (e.g., Use ½ to Compare).	
AC 1B: The materials are designed so that students attain the fluencies and procedural skills required by the Standards.	- Do the materials in grades K–6 provide repeated practice toward attainment of fluency standards? Do assessment tasks reveal whether students have the fluencies the standards require? - Is progress toward fluency and procedural skill interwoven with students' developing conceptual understanding of the operations in question?	The materials are designed to include attention to grade level procedural skills and fluencies. For example, - The "Multi-Digit Multiplication and Division: Data Collection Tool" is designed to monitor and assess student progress toward procedural skill in MP2 and MP4. - MP2, Weeks 1 and 2: SLTs develop procedural skill using area models and partial products for multiplication. - MP1, Weeks 5 and 6: SLTs attend to the addition and subtraction grade 4 fluency expectation although increased opportunities to practice fluency throughout the year would help students build and maintain fluency.	☒ 2 ☐ 1 ☐ 0
AC 1C: The materials are designed so that teachers and students spend sufficient time working with applications, without losing focus on the Major Work of each grade.	- Are there single- and multi-step contextual problems that develop the mathematics of the grade, afford opportunities for practice, and engage students in problem-solving? Where the standards require students to solve multistep and real-world problems, do the assignments that students work on allow them to do that, and do assessment tasks reveal whether students can do that? - Do application problems	The materials are designed so that sufficient time is spent working with applications. For example: - MP 1, Weeks 7–9: Real-world application problems are used in lessons addressing 1.4.B.3 for addition and subtraction. Multiplicative compare problems are set in real-world context aligning with 1.4.B.2. - MP 3, Weeks 5, 6 and 8: Real-world application problems are used in lessons addressing 14.D.3a, c1.4.D.4, and 2.4.A.2. - "Grade 4 Word Problem Data Collection Tool": Grounded in Table 1 and Table 2 from the Common Core Standards, there is attention to the different situations and problem types. Their introduction and assessment is in line with the appropriate marking period content.	☒ 2 ☐ 1 ☐ 0

2. Rigor and Balance			
IMET Metric →	**Guiding Questions**	**Evidence**	**Score**
	particularly stress applying the Major Work of the grade? - Does modeling build slowly across K–8, with applications that are relatively simple in earlier grades and when students are encountering new content? In grades 6–8, do the problems begin to provide opportunities for students to make their own assumptions or simplifications in order to model a situation mathematically?		
Rating (Rigor and Balance):		**Alignment Criteria**	
		Section Points: 5/6	

3. Standards for Mathematical Practice			
IMET Metric → **Guiding Questions**		**Evidence**	**Score**
AC 2A: Materials address the practice standards in such a way as to enrich the Major Work of the grade; practice standards strengthen the focus on Major Work instead of detracting from it, in both teacher and student materials.		Student materials unevenly address the Standards for Mathematical Practice (SMPs) in connecting with the Major Work. There is no reference to the SMPs in the MCPS Overview or SLTs. While there are some activities within SLTs that may allow students to engage in the SMPs, there is no support for teachers on how to encourage students to engage in those SMPs due to limited questions and prompts in the SLTs. For example: - SMP1: Students interpret remainders and are making meaning of contexts in MP 2, Week 5. - SMP3: Many lesson activities involve partner and small-group work. During these opportunities, students engage in reasoning, sense making, and defending arguments. A specific example is found in MP3, Week 8: "Mount Vernon Activity". - SMP7: Students work with partial products as a place value strategy in MP 2, Weeks 1–2.	☐ 2 ☒ 1 ☐ 0
AC 2B: Tasks and assessments of student learning are designed to provide evidence of students' proficiency in the Standards for Mathematical Practice.		Overall, few of the tasks and assessments allow students to show proficiency with SMPs. The "Elementary Math Formative Assessment Overview" includes no reference to the SMPs. SMPs are explicitly listed in the enrichment/acceleration section for each week and are a component of the NRICH tasks, but are not listed in the daily SLTs. There are a few examples of assessment tasks that did show opportunities to engage in the SMPs, but these were not called out to teachers within the materials. For example: - "EMAT 1" includes questions that require students to use related facts for multiplication. This could be an opportunity to elicit SMP7. Since this is the first task of the year, it serves as an assessment of 1.3.B.7, rather than grade 4 content. - MP 1, Task 1, MP 2, Task 1 and MP 4 Task 1in the "Formative Assessments" give students an opportunity to engage in SMP1 by making sense of a variety of word	☐ 2 ☒ 1 ☐ 0

3. Standards for Mathematical Practice			
IMET Metric → **Guiding Questions**		**Evidence**	**Score**
		problems. - MP 3, Task 1 could elicit SMP5 and SMP7 as students reason about fraction operations to place fractions and expressions on a number line. - Progress Checks were not accessible through the links in the Google document: "Elem Math Formative Assessment Overview - Grade 4."	
AC 2C: Materials support the Standards' emphasis on mathematical reasoning.	- Do the materials support students in constructing viable arguments and critiquing the arguments of others concerning grade-level mathematics that is detailed in the content standards? - Do the materials support students in producing not only answers and solutions but also, in a grade-appropriate way, arguments, explanations, diagrams, mathematical models, etc., especially in the Major Work of the grade? - Do materials explicitly attend to the specialized language of mathematics? Is the language of argument, problem-solving, and mathematical explanations taught rather than assumed?	The materials partially support the standards' emphasis on reasoning. This is found most strongly in the thorough description of numerical reasoning described in the "Diagnostic Data Collection Tool" related to operations. Many strategies are listed and teachers are encouraged to take notes on student reasoning. Additionally, in MP 3, Week 9, the Teacher Note specifically reminds teachers and students to use the correct language of decimals. Beyond that, there are limited opportunities for students to express their mathematical reasoning. Discussion questions are more often about the strategies students are asked to employ rather than mathematical ideas. Some examples include: - MP 1, Week 7: What strategy might you use to solve for the unknown in your equation? - MP 4, Week 2: What strategy could you use to determine the product of 60 × 4 (e.g., If you think about 60 as 6 tens, the problem becomes 6 tens × 4 or 24 tens; the product is 240.)? What strategy could you use to determine the last product (e.g., The product will also be 240 because it's 6 × 4 tens.)?	☐ 2 ☒ 1 ☐ 0
Rating (Standards for Mathematical Practice):		**Alignment Criteria**	
		Section Points: 3/6	

4. Supporting All Students		
IMET Metric	**Evidence**	**Score**
AC 3A: Support for English Language Learners and other special populations is thoughtful and helps those students meet the same Standards as all other students. The language in which problems are posed is carefully considered.	The materials do not provide adequate supports for English Language Learners and other special populations. The approach to supporting English Language Learners is inconsistent; a few examples were found where language was not attended to at all, and other examples were found where over-scaffolding occurred: - MP 1, Week 8: Language of multiplicative comparisons is very challenging. Recess Word Problems does not consider language lift for English Learners. - MP 1, Week 9: "Represent and Solve Comparison Word Problems" While questions to pose to students are included within the SLTs, there is no signal to teachers in how to use these to support ELL and other special populations. MCPS provides general guidance on roles of ESOL and content teaching partnerships as well as breakdowns of WIDA standards with grade-level connections to the Language of Mathematics. The ESOL general grade-level vocabulary document supports language acquisition as a whole, but not does explicitly connect to the Marking Period guidance or the lessons provided.	☐ 2 ☐ 1 ☒ 0
AC 3B: Materials provide appropriate level and type of scaffolding, differentiation, intervention, and support for a broad range of learners with gradual removal of supports, when needed, to allow students to demonstrate their mathematical understanding independently.	The materials partially provide appropriate level and type of supports for a broad range of learners. For example: - Basic Fact Fluency support was only found in MP 4, week 2. The supports address grade-3 fluency expectations for intervention and is placed at the end of the year. - MP 1, Week 7: Note to Teacher notes a possible need to intervene but offers no direct guidance. *"To scaffold the task for students who may have difficulty reading the table in the resource, consider thinking aloud to model how to determine the distance between two cities. Provide time for students to practice reading the table to determine distances between other cities on the table."* - Strategies and models are sometimes introduced in a quick one-lesson format and not carried throughout the week and topic. For example, making a line plot and using operations to solve word problems, one lesson direct overview in "Solving Measurement Problems Using Line Plots," (MP 3 Week 5). - Checks for understanding often are general language that does not guide teachers in supporting a broad range of learners. One example of vague	☐ 2 ☒ 1 ☐ 0

4. Supporting All Students		
IMET Metric	**Evidence**	**Score**
	language is found throughout MP 1, Week 6: *Check for Student Understanding*: Note the extent to which each student is able to add and subtract multi-digit numbers fluently."	

AC 3C: Design of lessons attends to the needs of a variety of learners (e.g., using multiple representations, deconstructing/ reconstructing the language of problems, providing suggestions for addressing common student difficulties).	The design of the lesson partially attends to the needs of a variety of learners. For example:
	- Nearly every lesson attends to the needs for enrichment/acceleration with an NRICH task or other supplement. Only one instance identified where this opportunity was not included, MP 4, week 1.
	- Some lessons include a section called "Note to Teacher." These often address teacher moves to address common student difficulties, for example: In MP 1, Week 6, teachers are directed to limit the number of digits in an equation and prompted to provide base ten blocks. However, the "Note to Teacher" suggestions are repeated throughout the week and little attention is given to attending to day-to-day specific lesson considerations.
	- Multiple representations are used in some lessons and weeks to support student understanding. For example:
	  - MP 1, Week 8: Uses bar models to teach multiplicative comparisons, in the "School Lunch Activity".
	  - MP 4, Week 1: Use of number lines and decimal box comparisons.
		☐ 2
		☒ 1
		☐ 0

Rating (Supporting All Students):	**Alignment Criteria**	
	Section Points: 2/6	