Instructional Materials Evaluation - Student Standards Review

Louisiana educators engaged in a professional review of the state's academic standards for English language arts (ELA) and mathematics to ensure they continue to maintain strong expectations for teaching and learning aligned with college and workplace demands. The new ELA and math standards will be effective beginning with the 2016-2017 school year. As part of the Louisiana Department of Education's support for a seamless transition to these new standards, the LDOE identified the major changes of the standards and their potential impact upon criteria used to review instructional materials.

Title: **Zearn Math**

Grade: **1-5**

Publisher: **Zearn, Inc.**

Copyright: **2015**

Overall Rating: **Tier I, Exemplifies quality**

This Mathematics review has been examined for the following major shifts in alignment resulting from the Louisiana Student Standards Review:

- Include standards for money in grades K, 1, and 3 to ensure connections that provide smooth transitions from one grade to the next
- Provide developmentally appropriate content for all grades or courses while maintaining high expectations:
    - Additive area is moved to grade 4 from grade 3
    - The Statistics - Conditional Probability and the Rules of Probability (S-CP) domain is moved from Algebra II to Geometry
    - The standards provide extra clarity around the distinction between Algebra I and II

The following two indicators may be impacted:

- Focus on Major Work (Non-Negotiable)
- Consistent, Coherent Content (Non-Negotiable)

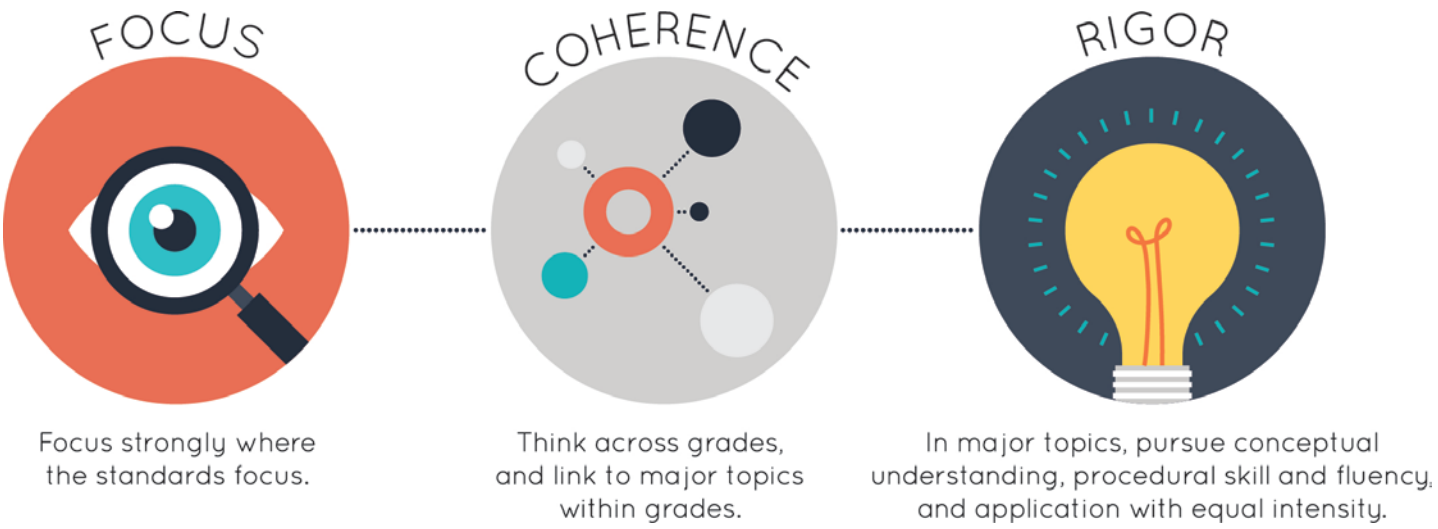
This review remains a Tier 1 rating. As a result of these changes, the following chart identifies the potential impact on specific elements in the current review. The LDOE recommends that district curriculum staff, principals, and teachers take these findings into consideration when using these instructional materials.

Criteria	Currently in the Rubric	Next Steps for Educators
Focus on Major Work (Non-Negotiable)	This program currently is reviewed as "Yes" for this criterion because the materials focus the majority of class time on the major work of the grade at all grade levels. In addition, there is no assessment that holds students or teachers responsible for content that is beyond the scope of the correlating grade.	Make sure to review all assessment materials to ensure alignment to new clarifications/limitations and the revised, as well as, the placement of standards by grade/course.
Consistent, Coherent Content (Non-Negotiable)	This program currently is reviewed as "Yes" for this criterion because the materials were consistently found to feature problems and activities that combine standards that address multiple clusters and domains while the supporting content supports the major work of the grade.	Make sure to review instructional materials focused on new supporting content (e.g., money in Grades K and 1) to ensure it supports the major work of the grade/course.

Instructional Materials Evaluation Review for Alignment in Mathematics Grades K – 12 (IMET)

FULL CURRICULUM
Instructional Materials

Strong mathematics instruction contains the following elements:



Title: **Zearn Math**

Grade/Course: **1-5**

Publisher: **Zearn, Inc.**

Copyright: **2015**

Overall Rating: **Tier I, Exemplifies quality**

Tier I, Tier II, Tier III Elements of this review:

STRONG	WEAK
1. Focus on Major Work (Non-Negotiable)	
2. Consistent, Coherent Content (Non-Negotiable)	
3. Rigor and Balance (Non-Negotiable)	
4. Focus Coh. via Practice Std (Non-Negotiable)	
5. Alignment Criteria for Stnds. for Math Content	
6. Alignment Criteria for Stnds. for Math Practice	
7. Indicators of Quality	

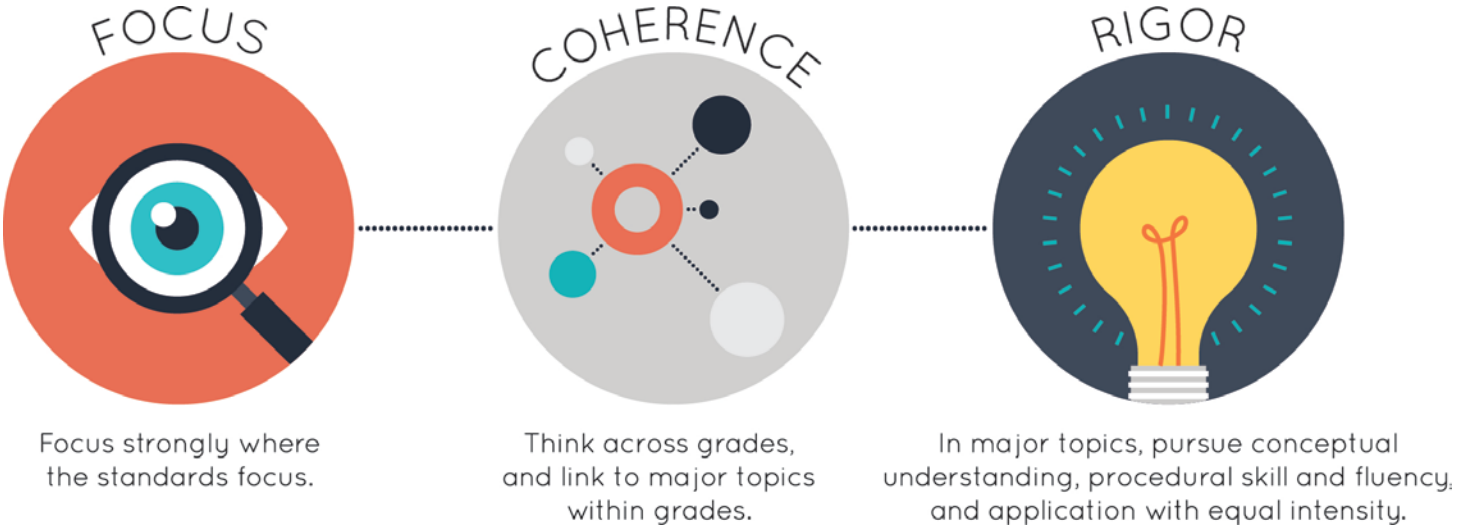
Each set of submitted materials was evaluated for alignment with the standards beginning with a review of the indicators for the non-negotiable criteria. If those criteria were met, a review of the other criteria ensued.

Tier 1 ratings receive a "Yes" in Column 1 for Criteria 1 – 7.
Tier 2 ratings receive a "Yes" in Column 1 for all non-negotiable criteria (Criteria 1 – 4), but at least one "No" in Column 1 for the remaining criteria.
Tier 3 ratings receive a "No" in Column 1 for at least one of the non-negotiable criteria.

Click below for complete grade-level reviews:

Grade 1 (Tier 1) Grade 2 (Tier 1) Grade 3 (Tier 1) Grade 4 (Tier 1) Grade 5 (Tier 1)

Strong mathematics instruction contains the following elements:



Title: **Zearn Math** Grade/Course: **1**

Publisher: **Zearn, Inc.** Copyright: **2015**

Overall Rating: **Tier I, Exemplifies quality**

Tier I, Tier II, Tier III Elements of this review:

STRONG	WEAK
1. Focus on Major Work (Non-Negotiable)	
2. Consistent, Coherent Content (Non-Negotiable)	
3. Rigor and Balance (Non-Negotiable)	
4. Focus Coh. via Practice Std (Non-Negotiable)	
5. Alignment Criteria for Stnds. for Math Content	
6. Alignment Criteria for Stnds. for Math Practice	
7. Indicators of Quality	

To evaluate each set of submitted materials for alignment with the Standards, begin by reviewing the indicators listed in Column 2 for the non-negotiable criteria in Section I. If there is a "Yes" for all indicators in Column 2 for Section I, then the materials receive a "Yes" in Column 1. If there is a "No" for any indicator in Column 2 for Section I, then the materials receive a "No" in Column 1.

For Section II, begin by reviewing the required indicators in Column 2 for each criterion. If there is a "Yes" for all required indicators in Column 2, then the materials receive a "Yes" in Column 1. If there is a "No" for any required indicators in Column 2, then the materials receive a "No" in Column 1.

Tier 1 ratings receive a "Yes" in Column 1 for Criteria 1 – 7.
Tier 2 ratings receive a "Yes" in Column 1 for all non-negotiable criteria (Criteria 1 – 4), but at least one "No" in Column 1 for the remaining criteria.
Tier 3 ratings receive a "No" in Column 1 for at least one of the non-negotiable criteria.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
SECTION I: NON-NEGOTIABLE CRITERIA: Submissions must meet all of the non-negotiable criteria in order for the review to continue.			
Non-Negotiable **1. FOCUS ON MAJOR WORK[1]:** Students and teachers using the materials as designed devote the large majority[2] of time to the major work of the grade/course. ☒ Yes ☐ No	**REQUIRED** **1a)** Materials should devote the large majority of class time to the major work of each grade/course. Each grade/course must meet the criterion; do not average across two or more grades.	**Yes**	The majority of class time is devoted to the major work of the grade. Approximately 97 % (i.e., 91 of 94 lessons) focus on major standards, 3% (i.e., 3 of 94 lessons) focus on supporting standards, while 0% (i.e., 0 of 94) cover additional clusters. These percentages were derived using information from the program overview (this correlation document is found on the Curriculum tab).
	REQUIRED **1b)** In any one grade/course, aligned materials should spend minimal time on content outside of the appropriate grade/course. Previous grade/course content should be used only for scaffolding instruction. In aligned materials there are no chapter tests, unit tests, or other such assessment components that make students or teachers responsible for any topics before the grade/course in which they are introduced in the Standards.[3]	**Yes**	The materials spend minimal time on content outside the grade level. All materials covered are addressed in the first grade standards. In addition, there is no content assessed that is beyond the scope of the grade level.
Non-Negotiable **2. CONSISTENT, COHERENT CONTENT** Each course's instructional materials are coherent and consistent with the content in the	**REQUIRED** **2a)** Materials connect supporting content to major content in meaningful ways so that focus and coherence are enhanced throughout the year.[4]	**Yes**	The materials connect the supporting standard 1.MD.C.4 to the major work of the grade level. In Mission 3, Lessons 10, 11, and 13--- 1.MD.C.4 is connected to 1.OA.A.1. In these 3 lessons, students solve word problems based on data obtained from tables and graphs they created. (1.MD.C.4 is the only supporting cluster in 1st grade.)

[1] For more on the major work of the grade, see Focus by Grade Level.
[2] The materials should devote at least 65% and up to approximately 85% of class time to the major work of the grade with Grades K–2 nearer the upper end of that range, i.e., 85%.
[3] Refer also to criterion #2 in the K–8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).
[4] Refer also to criterion #3 in the K–8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
Standards. ☒ Yes ☐ No	**REQUIRED** **2b)** Materials include problems and activities that serve to connect two or more clusters in a domain, or two or more domains in a grade/course, in cases where these connections are natural and important. [5]	**Yes**	There are many times throughout the digital content that two or more clusters in a domain are connected. One example of this is Mission 2, Lesson 7. In the problem "Heaps of Hats" 1.OA.C.6 is connected to 1.OA.A.1 as students add within 20 to solve word problems. Mission 3, Topic C, Lessons 7-9 include standards, 1.MD.A.2 and 1.OA.A.1. These 3 lessons covers standard and non-standard units of length. Mission 3, Topic D, Lessons 10-13 includes standards, 1.OA.A.1, 1.MD.C.4. These 3 lessons cover interpreting data.
Non-Negotiable **3. RIGOR AND BALANCE:** Each grade's instructional materials reflect the balances in the Standards and help students meet the Standards' rigorous expectations, by helping students develop conceptual understanding, procedural skill and fluency, and application.[6] ☒ Yes ☐ No	**REQUIRED** **3a)** ***Attention to Conceptual Understanding:*** Materials develop conceptual understanding of key mathematical concepts, especially where called for explicitly in specific content standards or cluster headings by amply featuring high-quality conceptual problems and discussion questions.	**Yes**	Materials develop conceptual understanding of key mathematical concepts. The Concept Development portion of the lesson includes this understanding in detail. 1.OA.B.3 and 1.NBT.2 are addressed. For example, Mission 1, Topic E, Lesson 19, the students must understand the concept of representing the same story scenario with addends re-positioned (the commutative property). Example of understanding on Page 234: Tell your friend two number sentences that matches your materials. (1.OA.B.3) Another example, Mission 4, Topic A, Lesson 1, the students must understand the concept of comparing the efficiency of counting by ones and counting by tens. Example of understanding on Page 14: Show me this same number of cubes using your own set. Organize them efficiently, like the ones on the board. (1.NBT.B.2) In Mission 4, Lesson 2 students participate in an online lesson about tens and ones (1.NBT.B.2). This lesson presents the concept conceptually and asks questions such as "What 2 parts make 17? What does the 1 stand for? What does the 7 stand for? What is 1 ten and 7 ones?" In Mission 1, Lesson 17 students learn about equal signs (1.OA.D.7). In the Tower of Power students demonstrate their understanding with this problem: "Write an addition expression to represent the pieces of fruit (4+3). Write an addition expression to

[5] Refer also to criterion #6 in the K–8 Publishers' Criteria and #4 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).
[6] Refer also to criterion #4 in the K–8 Publishers' Criteria and #2 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
			represent the pieces of fruit (5+2). Does 4 + 3 = 5 + 2?
	REQUIRED **3b) *Attention to Procedural Skill and Fluency:*** The materials are designed so that students attain the fluencies and procedural skills required by the Standards. Materials give attention throughout the year to individual standards that set an expectation of procedural skill and fluency. In grades K-6, materials provide repeated practice toward attainment of fluency standards. In higher grades, sufficient practice with algebraic operations is provided in order for students to have the foundation for later work in algebra.	**Yes**	The materials are designed so that students attain fluencies and procedural skills. For example, the fluency standard 1.OA.C.6 is addressed explicitly throughout the text. The Zearn website provides students with fluency practice called the Number Gym which includes Sprints, Multiply Mania, and Pair Compare. For example, the lessons provide students with daily practice in procedural skill and fluency through "Number Gym" activities. These activities are unique to each student based on their past performance and are designed to build automaticity and fluency. The text also provides daily fluency practice within each lesson and practice fluency worksheets called Sprints for the required fluencies for grade 1, addition/subtraction within 10. 37 the 94 lessons offer Sprints, which help build the required fluency for 1st grade (1.OA.C.6 - Add and Subtract within 10). Each lesson also provides practice with the lesson topic through the "Tower of Power" exercises provided in every lesson.
	REQUIRED **3c) *Attention to Applications:*** Materials are designed so that teachers and students spend sufficient time working with engaging applications, without losing focus on the major work of each grade/course including ample practice with single-step and multi-step contextual problems, including non-routine problems, that develop the mathematics of the grade/course, afford opportunities for practice, and engage students in problem solving. The problems attend thoroughly to those places in the content Standards where expectations for multi-step and real-world problems are explicit.	**Yes**	The materials are designed so that the teachers and students spend sufficient time working with engaging applications. For example standards 1.OA.A.1 and 1.OA.A.2 are explicitly included in the lessons throughout the text. For example, Mission 4, Topic E, Lesson 19 Problem Set feature word problems with the above standards. Example: Kiana caught 6 lizards. Her brother caught 6 lizards. How many reptiles do they have altogether? (1.OA.A.1) Mission 2, Topic A, Lesson 1 also feature word problems with the above standards. Example: Maria gets some new toys for her birthday. She gets 4 dolls, 7 balls, and 3 games. How many toys did she receive? (1.OA.A.2) Standard 1.OA.A.1 is also incorporated into every Mission. These lessons have a "Story Time" feature in the digital content that has

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
			application problems. For example: Mission 1, Lesson 9 asks, "There were 4 students waiting at the bus stop. After a little while, 2 more students come to the bus stop. How many students are there at the bus stop now?" Mission 6, Lesson 26 asks: "Sophie listened to 13 songs on the radio. Sophie listened to 4 fewer songs than Lucas. How many songs did Lucas listen to?"
	REQUIRED **3d)** ***Balance:*** The three aspects of rigor are not always treated together and are not always treated separately.	**Yes**	The materials provide a balance of the three aspects of rigor. Digital content gives students the opportunity to develop Procedural Skill and Fluency throughout the year through Number Gym, Sprints, and Tower of Power. Application is addressed in the "Story Time Lessons." While the online interactive video lessons develop conceptual understanding and give students the opportunity to demonstrate this conceptual understanding. The publisher does a good job addressing the three aspects of rigor separately and/or together depending on the standard being addressed. Mission 2, Topic A, Lesson 1 includes all aspects of rigor, but addresses multiple standards. For example, conceptual understanding example is on page 18. Example: Assign partners, and hand out blocks. The following is a suggested sequence of stories to tell as students work with a partner to represent each problem on their personal white boards. Students should put their boards next to one another to make a larger board. Together, they write the expression, circle 10, and solve for the unknown (addressing 1.OA.A.2). Lesson 1 also includes a Fluency practice on page 15 (addressing standards 1.NBT.2, 1.OA.5, and 1.OA.6). The application component is on page 17. Example: John, Emma, and Alice each had 10 raisins. John ate 3 raisins, Emma ate 4 raisins, and Alice ate 5 raisins. How many raisins do they each have now? Write a number bond and a number sentence for each (addressing standard 1.OA.A.2).
Non-Negotiable	**REQUIRED**	**Yes**	The materials address the practice standards in a

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
4. FOCUS AND COHERENCE VIA PRACTICE STANDARDS: Materials promote focus and coherence by connecting practice standards with content that is emphasized in the Standards.[7] ☒ Yes ☐ No	**4a)** Materials address the practice standards in such a way as to enrich the major work of the grade/course; practices strengthen the focus on major work instead of detracting from it, in both teacher and student materials.		way to enrich the major work of the grade. The Math Practices are included in the lesson overview for each lesson and throughout the scripted discussions for the lessons. It must be noted that the mathematical practices are not explicitly addressed in each lesson of the digital content available for the students; however, the practices are mentioned briefly in the one page curriculum overview in the Tips section for each mission. For example Mission 6 states "MP 3: Challenge students to construct viable arguments and critique the reasoning of others. With a year of 1st grade math strategies in their toolboxes, encourage students to better understand their classmates' reasoning as preparation for more rigorous types of word problems in 2nd grade." If the teacher clicks the link "…Complete EngageNY Module", there can be found more information on the math practices for each Mission.
SECTION II: ADDITIONAL ALIGNMENT CRITERIA AND INDICATORS OF QUALITY			
Additional Criterion **5. ALIGNMENT CRITERIA FOR STANDARDS FOR MATHEMATICAL CONTENT:** Materials foster focus and coherence by linking topics (across domains and clusters) and across grades/courses by staying consistent with the progressions in the Standards.	**REQUIRED** **5a)** Materials provide all students extensive work with course-level problems. Review of material from previous grades and courses is clearly identified as such to the teacher, and teachers and students can see what their specific responsibility is for the current year.[10]	**Yes**	Materials provide extensive work for a variety of learners through the use of sprints, tower of power, and bonus problems. By following the link to the EngageNY modules, there is more work available with course-level problems. Through the curriculum page teachers are easily able to identify student responsibilities for the current year. Materials provide all students extensive work with course level problems within each module. For example, Mission 4, Lesson 1, has 13 guided practice problems, 25 independent practice problems and two word problems. Review of material is also clearly identified at the beginning of each lesson where the required previous knowledge standards are given.

[7] Refer also to criterion #8 in the K–8 Publishers' Criteria and #6 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013)

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
☒ Yes ☐ No	**REQUIRED** **5b)** Materials relate course-level concepts explicitly to prior knowledge from earlier grades and courses. The materials are designed so that prior knowledge becomes reorganized and extended to accommodate the new knowledge.[10]	**Yes**	The materials link prior knowledge at the beginning of each lesson as it applies to the lesson being taught. The fluency practice and application problem correlates the prior knowledge to the new knowledge. Students are then led to the concept development, which represents the new material. There are also links to the complete EngageNY module, which provide information on current standards and the foundational standards. For example, in Grade 1 Mission 3, 4 standards are listed that are the focus of this mission (e.g., 1.OA.1, 1.MD.1, 1.MD.2, AND 1.MD.4). It also lists the Kindergarten foundational standards that are the required previous knowledge (e.g., K.CC.5, K.CC.6, K.CC.7, K.MD.1, and K.MD.2).
	5c) Materials base content progressions on the progressions in the Standards. [8]	**Yes**	Concepts are taught in a logical order and maintain progressions that are consistent with grade-by-grade progressions that are contained in the standards. The materials content spirals across grade level. The module overview includes the focus standards for the current grade level. The foundational standards for the previous grade is also included in the overview.
	5d) Materials include learning objectives that are visibly shaped by CCSSM cluster headings and/or standards.[9]	**Yes**	Materials include learning objectives that are visibly shaped by the standards cluster headings. For example, Mission 1, Topic C, heading is Addition Word Problems. Standard 1.OA.1 focuses on using addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. On each Mission page, each lesson is listed by Topic and Lesson name. The lesson names are closely linked to the standards headings. For example, in Grade 1, Mission 6, Topic C is "Addition to 100 Using Place

[8] Refer also to criterion #5 in the K–8 Publishers' Criteria and #3 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).
[9] Refer also to criterion #6 in the K–8 Publishers' Criteria and #4 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

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			Value Understanding" which clearly aligns with standard 1.NBT.C.4.
	5e) Materials preserve the focus, coherence, and rigor of the Standards even when targeting specific objectives. [11]	**Yes**	Materials preserve the focus, coherence , and rigor of the Standards. Coherence is a strong component of materials, in that connections are both explicit and implicit across all lessons, materials, and activities For example, at the beginning of each topic, the text includes the focus standard, instructional days, and coherence. The text also includes a detailed explanation of the content for each lesson.
Additional Criterion **6. ALIGNMENT CRITERIA FOR STANDARDS FOR MATHEMATICAL PRACTICE:** Aligned materials make meaningful and purposeful connections that enhance the focus and coherence of the Standards rather than detract from the focus and include additional content/skills to teach which are not included in the Standards. ☒ Yes ☐ No	**6a)** Careful Attention to Each Practice Standard: Materials attend to the full meaning of each practice standard.[10] Over the course of any given year of instruction, each mathematical practice standard is meaningfully present in the form of assignments, activities, or problems that stimulate students to develop the habits of mind described in the practice standard.[11] There are teacher-directed materials that explain the role of the practice standards in the classroom and in students' mathematical development. Alignments to practice standards are accurate.	**Yes**	The teacher materials attend to the full meaning of the practice standards. Lesson plans include fluency practice, application problem, concept development, and student debrief. Teacher materials also include a problem set and exit ticket to support instruction. On each Mission page the main Mathematical Practice is listed. For example, for 1st Grade, Mission 4 there is guidance on using Mathematical Practice 3. By clicking the link to the complete EngageNY module, teachers are able to access other Math Practices important to this Mission.
	6b) Materials Support the Standards' Emphasis on Mathematical Reasoning: Materials provide sufficient opportunities for students to construct viable arguments and critique the arguments of others concerning key grade-level mathematics that is detailed in the content standards (cf. MP.3). Materials engage students in problem solving as a form of argument, attending thoroughly to places in the Standards that explicitly set expectations for multi-step problems. [12]	**Yes**	Mathematic reasoning is embedded into the video lessons. MP3 is addressed in whole group instruction during concept development. It is also addressed in the student debrief and in some of the problems in the Problem Set. There are also plenty of resources for the teacher to target mathematical reasoning in small group instruction. For example, in Grade 1 Mission 4, the EngageNY module provides these questions for the student debrief, "How many tens and how many ones are in the number 29? What amount is greater—2 tens or 9 ones? Explain

[10] Refer also to criterion #9 in the K–8 Publishers' Criteria and #7 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).
[11] Refer also to criterion #7 in the K–8 Publishers' Criteria and #5 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).
[12] Refer also to criterion #10 in the K–8 Publishers' Criteria and #8 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
			your thinking. Use your cubes and your place value chart. Look at Problem 18. How did you complete your place value chart? Explain your thinking. What new math tool did we use to show how many tens and ones are in a number? (Place value chart.) How does the place value chart help us? (It helps us see numbers taken apart into tens and ones.)"
	6c) Materials explicitly attend to the specialized language of mathematics.[12]	**Yes**	Materials focus on mathematical terminology. Each Mission has a vocabulary list included to help clarify instruction. The top of this list includes new or recently introduced terms. The bottom of this list includes familiar terms or symbols. Math vocabulary is carefully introduced in the 1st grade lessons, and then used in context throughout the missions. For Example, in Mission 2, Lesson 2 the instructor introduces the term "addends" in the Make 10 portion of the lesson. The term addends is then used as part of the instruction in the Circle 10 portion of the Math Chat. The term addends is seen again in the Tower of Power portion of the Mission.
Additional Criterion **7. INDICATORS OF QUALITY:** Quality materials should exhibit the indicators outlined here in order to give teachers and students the tools they need to meet the expectations of the Standards. [13] ☒ Yes ☐ No	**7a)** There is variety in what students produce. For example, students are asked to produce answers and solutions, but also, in a grade-appropriate way, arguments and explanations, diagrams, mathematical models, etc.	**Yes**	The students are required complete work both on the computer and using paper and pencil. Students are often engaged with manipulatives during both the computer time and the small group instruction. Students have opportunities to show their understanding many ways during the small group instruction. For example, in Grade 1, Mission 1, Lesson 37, Students are asked to Subtract, then, write the related subtraction sentence, make a math drawing if needed, and complete a number bond.
	7b) There are separate teacher materials that support and reward teacher study including, but not limited to: discussion of the mathematics of the units and the mathematical point of each lesson as it relates to the organizing concepts of the unit, discussion on student	**Yes**	There are separate teacher materials that include: module overview, distribution of instructional minutes, focus standards, overview of each topic and lesson objectives, terminology, suggested tools, and scaffolds. The text also includes information to aid in possible misunderstandings. Each Mission

[13] Refer also to pages 18-20 in the K – 8 Publishers' Criteria and pages 16-18 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
	ways of thinking and anticipating a variety of students responses, guidance on lesson flow, guidance on questions that prompt students thinking, and discussion of desired mathematical behaviors being elicited among students.		provides tips for teaching the Mission and a link to the EngageNY module with extensive resources for the teacher to use during small group instruction. For example, Grade 1, Mission 6 offers these tips: "Zearn has omitted several lessons from this Module. Below are some helpful tips on how to tackle some of these lessons in your classroom. Use Lesson 3 with Hide Zero cards and quick tens drawings to practice naming numbers; Use Lessons 7 and 8 to explore unit form, patterns, and the value of each digit when efficiently counting to 120. Lesson 10 builds upon these using dimes; Lessons 20 - 24 cover money. These are good lessons to use as daily practice to teach and review coins and their values; and MP 3: Challenge students to construct viable arguments and critique the reasoning of others. With a year of 1st grade math strategies in their toolboxes, encourage students to better understand their classmates' reasoning as preparation for more rigorous types of word problems in 2nd grade." By clicking the link to the EngageNY module, the teacher has access to another 365 pages of resources to aid in small group instruction.
	7c) 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.	**Yes**	Support for English Language Learners is provided in the EngageNY modules through scaffolding notes. Missions offer text-to-speech capability for Guided Practice and the Tower of Power. There is supportive feedback offered throughout the digital content which helps the ELL students move at their own pace and supports student understanding.
	7d) The underlying design of the materials distinguishes between problems and exercises. In essence the difference is that in solving problems, students learn new mathematics, whereas in working exercises, students apply what they have already learned to build mastery. Each problem or exercise has a purpose.	**Yes**	The concept development during each lesson allows students to understand the concept of each skill with guided instruction. The problem set is individual practice problems. This allows the students to apply what they learn. The exit ticket is used as an informal assessment to check for mastery of the lesson for the day.

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	7e) Lessons are appropriately structured and scaffolded to support student mastery.	**Yes**	The supporting modules provide information on scaffolding throughout the module. Strategically placed margin notes are provided within each lesson elaborating on the use of specific scaffolds at applicable times. The materials address many needs in regards to English language learners, students with disabilities, students performing above grade level, and students performing below grade level.
	7f) Materials support the uses of technology as called for in the Standards.	**Yes**	The materials are a technology-based curriculum that combines technology with paper and pencil work. The digital lessons include activities to support classroom instruction. Zearn is built to directly correlate and support the Engage NY/Eureka Math curriculum. The materials reviewed for Grade 1 consist of two main parts, the Independent Zearn Time and the Small Group Instruction. During the independent time the students are engaged with personalized digital lessons, which can be done on iPads, laptops, and computers as long as students have access to the internet. During the Small Group Instruction, students are working with the teacher personally in a small group setting.

FINAL EVALUATION

Tier 1 ratings receive a "Yes" in Column 1 for Criteria 1 – 7.

Tier 2 ratings receive a "Yes" in Column 1 for all non-negotiable criteria (Criteria 1 – 4), but at least one "No" in Column 1 for the remaining criteria.

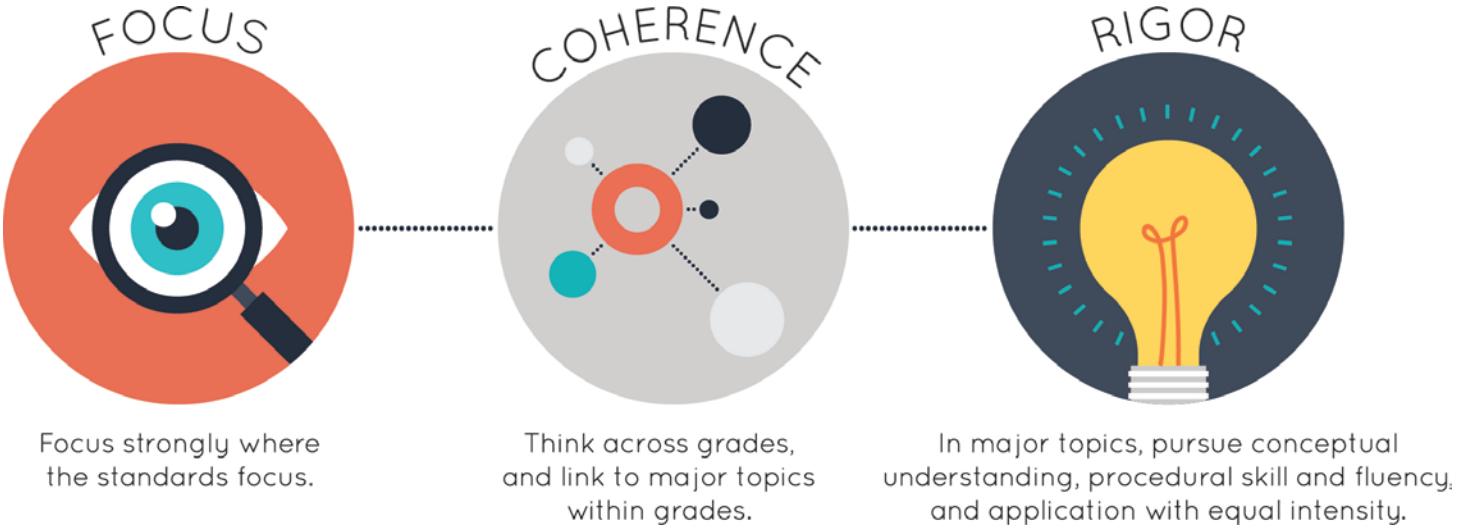
Tier 3 ratings receive a "No" in Column 1 for at least one of the non-negotiable criteria.

Compile the results for Sections I and II to make a final decision for the material under review.

Section	Criteria	Yes/No	Final Justification/Comments
I: Non-Negotiables	1. Focus on Major Work	**Yes**	The materials focus the majority of class time on the major work of the grade. In addition, there is no assessment that holds students or teachers responsible for content that is beyond the scope of the grade.
	2. Consistent, Coherent Content	**Yes**	Supporting content supports the major work of the grade and materials feature problems and activities that combine standards that address multiple

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
			clusters and domains.
	3. Rigor and Balance	**Yes**	Materials present content both separately and together in correlation with the three aspects of rigor as required by the standard.
	4. Focus and Coherence via Practice Standards	**Yes**	Math practices and their descriptions enrich the content of the grade level.
II: Additional Alignment Criteria and Indicators of Quality	5. Alignment Criteria for Standards for Mathematical Content	**Yes**	Materials are aligned to the mathematical practices, relate prior knowledge to current topics, and represent the standards accurately.
	6. Alignment Criteria for Standards for Mathematical Practice	**Yes**	Materials attend to the specialized vocabulary for mathematics and align as intended to the mathematical practices, especially MP.3.
	7. Indicators of Quality	**Yes**	Materials are scaffolded to accommodate new learning, support is provided for ELL learners and special populations, and materials use technology as called for in the standards.
FINAL DECISION FOR THIS MATERIAL: **Tier I, Exemplifies quality**			

Strong mathematics instruction contains the following elements:



Title: **Zearn Math** Grade/Course: **2**

Publisher: **Zearn, Inc.** Copyright: **2015**

Overall Rating: **Tier I, Exemplifies quality**

Tier I, Tier II, Tier III Elements of this review:

STRONG	WEAK
1. Focus on Major Work (Non-Negotiable)	
2. Consistent, Coherent Content (Non-Negotiable)	
3. Rigor and Balance (Non-Negotiable)	
4. Focus Coh. via Practice Std (Non-Negotiable)	
5. Alignment Criteria for Stnds. for Math Content	
6. Alignment Criteria for Stnds. for Math Practice	
7. Indicators of Quality	

To evaluate each set of submitted materials for alignment with the Standards, begin by reviewing the indicators listed in Column 2 for the non-negotiable criteria in Section I. If there is a "Yes" for all indicators in Column 2 for Section I, then the materials receive a "Yes" in Column 1. If there is a "No" for any indicator in Column 2 for Section I, then the materials receive a "No" in Column 1.

For Section II, begin by reviewing the required indicators in Column 2 for each criterion. If there is a "Yes" for all required indicators in Column 2, then the materials receive a "Yes" in Column 1. If there is a "No" for any required indicators in Column 2, then the materials receive a "No" in Column 1.

Tier 1 ratings receive a "Yes" in Column 1 for Criteria 1 – 7.
Tier 2 ratings receive a "Yes" in Column 1 for all non-negotiable criteria (Criteria 1 – 4), but at least one "No" in Column 1 for the remaining criteria.
Tier 3 ratings receive a "No" in Column 1 for at least one of the non-negotiable criteria.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
SECTION I: NON-NEGOTIABLE CRITERIA: Submissions must meet all of the non-negotiable criteria in order for the review to continue.			
Non-Negotiable **1. FOCUS ON MAJOR WORK[14]:** Students and teachers using the materials as designed devote the large majority[15] of time to the major work of the grade/course. ☒ Yes ☐ No	**REQUIRED** **1a)** Materials should devote the large majority of class time to the major work of each grade/course. Each grade/course must meet the criterion; do not average across two or more grades.	**Yes**	The materials devote the majority of class time to the major work of the grade. 78% (i.e., 100 of 129 lessons) focus on the major standards; 9% (i.e., 11 of 129) focus on supporting standards; and 14% (i.e., 18 of 129) focus on additional standards. These percentages were derived using the teacher's edition program overview for Grade 2 (see the correlation document on the Curriculum tab).
	REQUIRED **1b)** In any one grade/course, aligned materials should spend minimal time on content outside of the appropriate grade/course. Previous grade/course content should be used only for scaffolding instruction. In aligned materials there are no chapter tests, unit tests, or other such assessment components that make students or teachers responsible for any topics before the grade/course in which they are introduced in the Standards.[16]	**Yes**	The materials spend minimal time on content outside the grade level. All materials covered are addressed in the second grade standards. In addition, there is no content assessed that is beyond the scope of the grade level.
Non-Negotiable **2. CONSISTENT, COHERENT CONTENT** Each course's instructional materials are coherent and consistent with the content in the Standards. ☒ Yes ☐ No	**REQUIRED** **2a)** Materials connect supporting content to major content in meaningful ways so that focus and coherence are enhanced throughout the year.[17]	**Yes**	The majority of supporting content is connected to major content. For example, Masson 7 Topic A, Lessons 1-5, includes supporting standard, 2.MD.D.10, to connect with major standard 2.MD.B.6 as students draw picture and bar graphs using whole numbers as lengths on a number line. In Mission 6, Lessons 1, 2, and 4, 2.OA.C.4 is connected to 2.NBT.A.2 and 2.NBT.B.6 as students use manipulatives, drawings, and tape diagrams to count within 1000 while grouping objects in arrays and determine if a group of objects is even or odd.

[14] For more on the major work of the grade, see Focus by Grade Level.
[15] The materials should devote at least 65% and up to approximately 85% of class time to the major work of the grade with Grades K–2 nearer the upper end of that range, i.e., 85%.
[16] Refer also to criterion #2 in the K–8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).
[17] Refer also to criterion #3 in the K–8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
	REQUIRED **2b)** Materials include problems and activities that serve to connect two or more clusters in a domain, or two or more domains in a grade/course, in cases where these connections are natural and important. [18]	**Yes**	Materials include problems and activities that serve to connect two or more clusters in a domain or two or more domains in a grade. For example, Masson 1 includes standards, 2.OA.A.1, 2.OA.A.2, and 2.NBT.B.5. All of these lessons cover initiating fluency with addition and subtraction within 100. In another example of connecting across clusters is Mission 2, Topic D connects 2.MD.B.5 and 2.MD.B.6 to 2.MD.A.1, 2.MD.A.3, and 2.MD.A.4. An example of connection across domains would be Mission 4, Topic F that connects 2.NBT.B.7 and 2.NBT.B.9 to 2.OA.A.1.
Non-Negotiable **3. RIGOR AND BALANCE:** Each grade's instructional materials reflect the balances in the Standards and help students meet the Standards' rigorous expectations, by helping students develop conceptual understanding, procedural skill and fluency, and application.[19] ☒ Yes ☐ No	**REQUIRED** **3a)** ***Attention to Conceptual Understanding:*** Materials develop conceptual understanding of key mathematical concepts, especially where called for explicitly in specific content standards or cluster headings by amply featuring high-quality conceptual problems and discussion questions.	**Yes**	Materials develop conceptual understanding of key mathematical concepts. For example, Mission 2 Topic B, Lesson 3, the students must understand the concept of creating and using unit rulers. Example of understanding on Page 31: What was different about using the mark and move forward strategy from using the ruler? Why is using the ruler more efficient than counting hash marks? (2.MD.A.3) Another example, Topic D, Lesson 10, the students must understand the concept of solving two-step and three step measurement word problems. Example of understanding on Page 119: With your partner, compare your tape diagrams for Problem 2, Step 2. How did you label them? Where did you place your addends? How did you show the change (smaller, taller)? Where did you draw brackets? (2.MD.B.6) Mission 6, Lesson 18 asks, "Eggs come in cartons of 12. Use pictures, numbers, or words to explain whether 12 is even or not even. Draw a picture to represent the egg carton and write your answer in a complete sentence." (2.OA.C.3) Mission 5, Lesson 20 asks, "Solve 499 + 166. What strategy did you use to solve? Explain." (2.NBT.B.9)

[18] Refer also to criterion #6 in the K–8 Publishers' Criteria and #4 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).
[19] Refer also to criterion #4 in the K–8 Publishers' Criteria and #2 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
	REQUIRED **3b) *Attention to Procedural Skill and Fluency:*** The materials are designed so that students attain the fluencies and procedural skills required by the Standards. Materials give attention throughout the year to individual standards that set an expectation of procedural skill and fluency. In grades K-6, materials provide repeated practice toward attainment of fluency standards. In higher grades, sufficient practice with algebraic operations is provided in order for students to have the foundation for later work in algebra.	**Yes**	The materials are designed so that students attain fluencies and procedural skills required by the standards. For example, the fluency standard 2.NBT.B.5 is addressed explicitly throughout the text. The Zearn website provides students with fluency practice called the Number Gym which includes Sprints, Multiply Mania, and Pair Compare. The text also provides daily fluency practice within each lesson and practice fluency worksheets called Sprints for the required fluencies for grade 2, addition/subtraction within 100. These activities are unique to each student based on their past performance and are designed to build automaticity and fluency. Sixty-nine of the 129 lessons offer Sprints, which help build the required fluency for 2nd grade (2.OA.B.2 - Add and Subtract within 20). Each lesson also provides practice with the lesson topic through the "Tower of Power" exercises provided in every lesson.
	REQUIRED **3c) *Attention to Applications:*** Materials are designed so that teachers and students spend sufficient time working with engaging applications, without losing focus on the major work of each grade/course including ample practice with single-step and multi-step contextual problems, including non-routine problems, that develop the mathematics of the grade/course, afford opportunities for practice, and engage students in problem solving. The problems attend thoroughly to those places in the content Standards where expectations for multi-step and real-world problems are explicit.	**Yes**	The materials are designed so that the teachers and students spend sufficient time working with engaging applications. Standards 2.OA.A.1 and 2.MD.B.5 are explicitly included in the lessons throughout the text and indicate application. For example, Mission 1, Topic B, Lesson 4 feature word problems with one of the above standards. Example: Lisa has 2 blue beads and 9 purple beads. How many beads does Lisa have in all? (see 2.OA.A.1) Mission 2 Topic D Lesson 8 Problem Set also feature word problems with the above standards. Example: Marty made a train of red and yellow centimeter cubes that measured 16 centimeters in length. He added 11 more yellow cubes and removed 8 red cubes. What is the length of the train now? (see 2.MD.B.5) Mission 2, Lesson 10 asks, "Maura's block tower is 30 cm tall. Colleen's block tower is 9 cm shorter than Maura's. How tall is Colleen's tower? Write a number sentence to find the height of Colleen's tower."(see 2.MD.B.5) Mission 7, Lesson 7 asks: "Braydon has 3 dimes and 2 nickels in one pocket and 1 quarter and 7 pennies in another pocket. How

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
			much money is in his pockets? Draw a picture to represent the money in his pockets. Don't solve yet. Use your drawing to write an equation that will help you solve. Then write your answer in a complete sentence."(see 2.MD.C.8)
	REQUIRED **3d) *Balance:*** The three aspects of rigor are not always treated together and are not always treated separately.	**Yes**	The materials provide a balance of the three aspects of rigor. Digital content gives students the opportunity to develop Procedural Skill and Fluency throughout the year through Number Gym, Sprints, and Tower of Power. Application is addressed in the "Story Time Lessons." While the online interactive video lessons develop conceptual understanding and give students the opportunity to demonstrate this conceptual understanding. The publisher does a good job addressing the three aspects of rigor separately and/or together depending on the standard being addressed. Mission 1, Topic B, Lesson 5 includes all aspects of rigor, but addresses multiple standards. For example, conceptual understanding example is on page 73. Example: Let's show 39 + 4 using a number bond. We started with 39. How did we break apart 4 so we can make 40? Lesson 5 also includes a Fluency practice on page 71 (addressing 2.OA.B.2). The application component is on page 76. Example: Jessa collected 78 shells on the beach. Susan collected 6 more shells than Jessa. How many shells did Susan collect? (addressing 2.OA.A.1).
Non-Negotiable **4. FOCUS AND COHERENCE VIA PRACTICE STANDARDS:** Materials promote focus and coherence by connecting practice standards with content that is emphasized in the Standards.[20]	**REQUIRED** **4a)** Materials address the practice standards in such a way as to enrich the major work of the grade/course; practices strengthen the focus on major work instead of detracting from it, in both teacher and student materials.	**Yes**	The materials address the practice standards in a way to enrich the major work of the grade. The Math Practices are included in the lesson overview for each lesson and throughout the scripted discussions for the lessons. It must be noted that the mathematical practices are not explicitly addressed in each lesson of the digital content available for the students; however, the practices are mentioned briefly in the one page curriculum overview in the

[20] Refer also to criterion #8 in the K–8 Publishers' Criteria and #6 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013)

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
☒ Yes ☐ No			Tips section for each mission. For example Mission 6 states "MP 7 : Students look for patterns as they move from base ten blocks, to money, to place value disks." If the teacher clicks the link "…Complete EngageNY Module", more information can be found on the math practices for each Mission.
SECTION II: ADDITIONAL ALIGNMENT CRITERIA AND INDICATORS OF QUALITY			
Additional Criterion **5. ALIGNMENT CRITERIA FOR STANDARDS FOR MATHEMATICAL CONTENT:** Materials foster focus and coherence by linking topics (across domains and clusters) and across grades/courses by staying consistent with the progressions in the Standards.	**REQUIRED** **5a)** Materials provide all students extensive work with course-level problems. Review of material from previous grades and courses is clearly identified as such to the teacher, and teachers and students can see what their specific responsibility is for the current year.[10]	**Yes**	Materials provide extensive work for a variety of learners through the use of sprints, tower of power, and bonus problems. By following the link to the EngageNY modules, there is more work available with course-level problems. Through the curriculum page teachers are easily able to identify student responsibilities for the current year. Materials provide all students extensive work with course level problems within each module. For example, Mission 2 Lesson 3 , has 17 guided practice problems, 20 independent practice problems and two word problems.
☒ Yes ☐ No	**REQUIRED** **5b)** Materials relate course-level concepts explicitly to prior knowledge from earlier grades and courses. The materials are designed so that prior knowledge becomes reorganized and extended to accommodate the new knowledge.[10]	**Yes**	The materials link prior knowledge at the beginning of each lesson as it applies to the lesson being taught. The fluency practice and application problem correlates the prior knowledge to the new knowledge. Students are then led to the concept development, which represents the new material. There are also links to the complete EngageNY module, which provide information on current standards and the foundational standards. For example, in Grade 2 Mission 5, 4 standards are listed that are the focus of this mission (e.g., 2.NBT.7, 2.NBT.8, AND 2.NBT.9). It also lists the first and second grade foundational standards that are the required previous knowledge (e.g., 1.OA.3, 1.OA.4, 1.NBT.5, 1.NBT.6, 2.NBT.1, 2.NBT.2, 2.NBT.3, and 1.NBT.5).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
	5c) Materials base content progressions on the progressions in the Standards. [21]	**Yes**	Concepts are taught in a logical order and maintain progressions that are consistent with grade-by-grade progressions that are contained in the standards. The materials content spirals across grade level. The module overview includes the focus standards for the current grade level. The foundational standards for the previous grade is also included in the overview.
	5d) Materials include learning objectives that are visibly shaped by CCSSM cluster headings and/or standards.[22]	**Yes**	Materials include learning objectives that are visibly shaped by the standards cluster headings. For example, Mission 4, Topic A, heading is Sums and Differences within 100. Standard 2.NBT.5 focuses on fluently adding and subtracting within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. On each Mission page, each lesson is listed by topic and lesson name. The lesson names are closely linked to the standards headings. For example, in Grade 2, Mission 2, Topic B is "Measure and Estimate Length Using Different Measurement Tools" which clearly aligns with standard 2.MD.A.1.
	5e) Materials preserve the focus, coherence, and rigor of the Standards even when targeting specific objectives. [11]	**Yes**	Materials preserve the focus, coherence , and rigor of the Standards. Coherence is a strong component of materials, in that connections are both explicit and implicit across all lessons, materials, and activities. For example, at the beginning of each topic, the text includes the focus standard, instructional days, and coherence. The text also includes a detailed explanation of the content for each lesson.
Additional Criterion 6. ALIGNMENT CRITERIA FOR STANDARDS FOR MATHEMATICAL	**6a)** Careful Attention to Each Practice Standard: Materials attend to the full meaning of each practice standard.[23] Over the course of any given year of instruction, each	**Yes**	The teacher materials attend to the full meaning of the practice standards. Lesson plans include fluency practice, application problem, concept

[21] Refer also to criterion #5 in the K–8 Publishers' Criteria and #3 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).
[22] Refer also to criterion #6 in the K–8 Publishers' Criteria and #4 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).
[23] Refer also to criterion #9 in the K–8 Publishers' Criteria and #7 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
PRACTICE: Aligned materials make meaningful and purposeful connections that enhance the focus and coherence of the Standards rather than detract from the focus and include additional content/skills to teach which are not included in the Standards. ☒ Yes ☐ No	mathematical practice standard is meaningfully present in the form of assignments, activities, or problems that stimulate students to develop the habits of mind described in the practice standard.[24] There are teacher-directed materials that explain the role of the practice standards in the classroom and in students' mathematical development. Alignments to practice standards are accurate.		development, and student debrief. Teacher materials also include a problem set and exit ticket to support instruction. On each Mission page the main Mathematical Practice is listed. For example, for 2nd Grade, Mission 1 there is guidance on using Mathematical Practice 2. By clicking the link to the complete EngageNY module, teachers are able to access other Math Practices important to this Mission (5, 7, and 8).
	6b) Materials Support the Standards' Emphasis on Mathematical Reasoning: Materials provide sufficient opportunities for students to construct viable arguments and critique the arguments of others concerning key grade-level mathematics that is detailed in the content standards (cf. MP.3). Materials engage students in problem solving as a form of argument, attending thoroughly to places in the Standards that explicitly set expectations for multi-step problems.[25]	**Yes**	Mathematical reasoning is embedded into the video lessons. There are also plenty of resources for the teacher to target mathematical reasoning in small group instruction. For example, in Grade 2 Mission 1, Lesson 3 the students debrief asks these questions: "What is another problem that could be added to Problem 1(a)? Compare 24 + 5 to 24 + 50 with your partner. What's different? Share your explanation from Problem 4. What is another pair of addition sentences that has this same relationship? Do you think you could teach what you learned to someone else? How? Can you figure out the math goal of today's lesson? What name would you give this lesson? "
	6c) Materials explicitly attend to the specialized language of mathematics.[12]	**Yes**	Materials focus on mathematical terminology. Each Mission has a vocabulary list included to help clarify instruction. The top of this list includes new or recently introduced terms. The bottom of this list includes familiar terms or symbols. Math vocabulary is carefully introduced in the 2nd grade lessons, and then used in context throughout the missions. For Example, in Mission 6, Lesson 2 the instructor introduces the term "repeated addition". The term repeated addition is then used as part of the instruction in the next portion of the Math Chat. The term repeated addition is seen again in the Tower of Power portion of the Mission.

[24] Refer also to criterion #7 in the K–8 Publishers' Criteria and #5 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).
[25] Refer also to criterion #10 in the K–8 Publishers' Criteria and #8 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

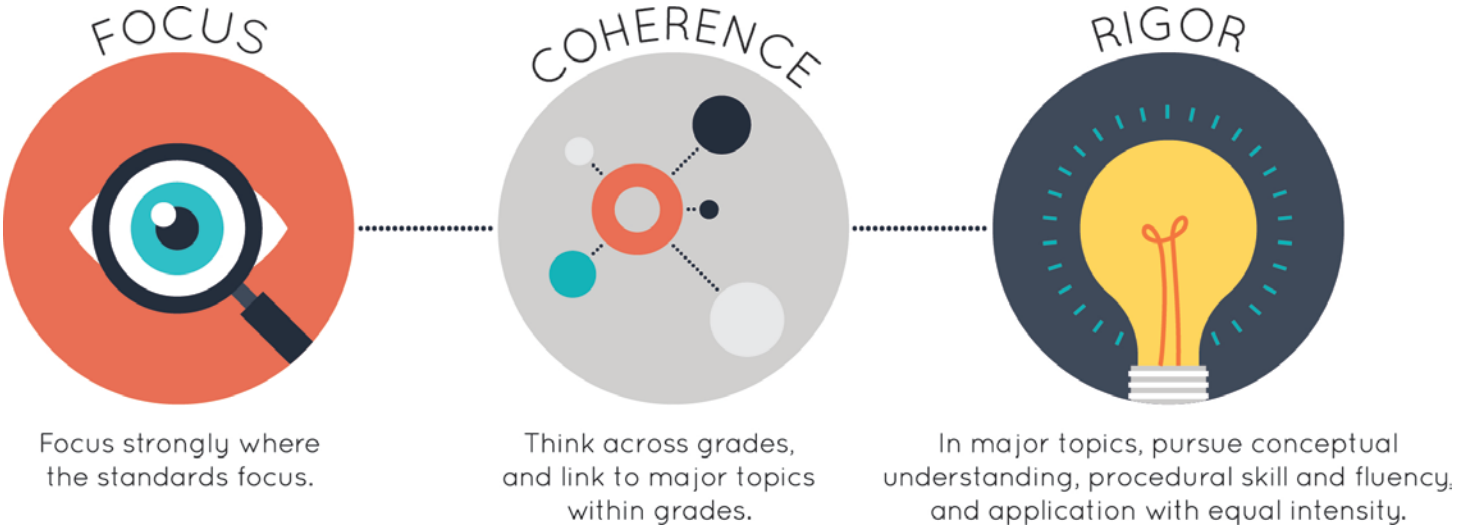
CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
Additional Criterion **7. INDICATORS OF QUALITY:** Quality materials should exhibit the indicators outlined here in order to give teachers and students the tools they need to meet the expectations of the Standards. [26] ☒ Yes ☐ No	**7a)** There is variety in what students produce. For example, students are asked to produce answers and solutions, but also, in a grade-appropriate way, arguments and explanations, diagrams, mathematical models, etc.	**Yes**	The students are required complete work both on the computer and using paper and pencil. Students are often engaged with manipulatives during both the computer time and the small group instruction. Students have opportunities to show their understanding many ways during the small group instruction. For example, in Grade 2, Mission 4, Lesson 12, students are given this task, "Terry and Pam both solved the problem 64 – 49. They came up with different answers and cannot agree on who is correct. Terry answered 25 and Pam answered 15. Use place value disks to explain who is correct, and rewrite the problem vertically to solve."
	7b) There are separate teacher materials that support and reward teacher study including, but not limited to: discussion of the mathematics of the units and the mathematical point of each lesson as it relates to the organizing concepts of the unit, discussion on student ways of thinking and anticipating a variety of students responses, guidance on lesson flow, guidance on questions that prompt students thinking, and discussion of desired mathematical behaviors being elicited among students.	**Yes**	There are separate teacher materials that include: module overview, distribution of instructional minutes, focus standards, overview of each topic and lesson objectives, terminology, suggested tools, and scaffolds. The text also includes information to aid in possible misunderstandings. Each Mission provides tips for teaching the Mission and a link to the EngageNY module with extensive resources for the teacher to use during small group instruction. For example, Grade 2, Mission 4 offers this tip: "Solve different types of addition and subtraction word problems with your students. Celebrate different ways of solving, including place value charts, algorithms, and friendly, simplifying strategies." By clicking the link to the EngageNY Module, the teacher has access to another 414 pages of resources to aid in small group instruction.
	7c) 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	**Yes**	Support for English Language Learners is provided in the EngageNY modules through scaffolding notes. Missions offer text-to-speech capability for Guided Practice and the Tower of Power. There is supportive feedback offered throughout the digital

[26] Refer also to pages 18-20 in the K – 8 Publishers' Criteria and pages 16-18 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
	considered.		content which helps the ELL students move at their own pace and supports student understanding.
	7d) The underlying design of the materials distinguishes between problems and exercises. In essence the difference is that in solving problems, students learn new mathematics, whereas in working exercises, students apply what they have already learned to build mastery. Each problem or exercise has a purpose.	**Yes**	The concept development during each lesson allows students to understand the concept of each skill with guided instruction. The problem set is individual practice problems. This allows the students to apply what they learn. The exit ticket is used as an informal assessment to check for mastery of the lesson for the day.
	7e) Lessons are appropriately structured and scaffolded to support student mastery.	**Yes**	The supporting modules provide information on scaffolding throughout the module. Strategically placed margin notes are provided within each lesson elaborating on the use of specific scaffolds at applicable times. The materials address many needs in regards to English language learners, students with disabilities, students performing above grade level, and students performing below grade level.
	7f) Materials support the uses of technology as called for in the Standards.	**Yes**	The materials are a technology-based curriculum that combines technology with paper and pencil work. The digital lessons include activities to support classroom instruction. Zearn is built to directly correlate and support the Engage NY/Eureka Math curriculum. The materials reviewed for Grade 2 consist of two main parts, the Independent Zearn Time and the Small Group Instruction. During the independent time the students are engaged with personalized digital lessons, which can be done on iPads, laptops, and computers as long as students have access to the internet. During the Small Group Instruction, students are working with the teacher personally in a small group setting.
FINAL EVALUATION ***Tier 1 ratings*** receive a "Yes" in Column 1 for Criteria 1 – 7. ***Tier 2 ratings*** receive a "Yes" in Column 1 for all non-negotiable criteria (Criteria 1 – 4), but at least one "No" in Column 1 for the remaining criteria. ***Tier 3 ratings*** receive a "No" in Column 1 for at least one of the non-negotiable criteria.			

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
Compile the results for Sections I and II to make a final decision for the material under review.			
Section	**Criteria**	**Yes/No**	**Final Justification/Comments**
I: Non-Negotiables	1. Focus on Major Work	**Yes**	The materials focus the majority of class time on the major work of the grade. In addition, there is no assessment that holds students or teachers responsible for content that is beyond the scope of the grade.
	2. Consistent, Coherent Content	**Yes**	Supporting content supports the major work of the grade and materials feature problems and activities that combine standards that address multiple clusters and domains.
	3. Rigor and Balance	**Yes**	Materials present content both separately and together in correlation with the three aspects of rigor as required by the standard.
	4. Focus and Coherence via Practice Standards	**Yes**	Math practices and their descriptions enrich the content of the grade level.
II: Additional Alignment Criteria and Indicators of Quality	5. Alignment Criteria for Standards for Mathematical Content	**Yes**	Materials are aligned to the mathematical practices, relate prior knowledge to current topics, and represent the standards accurately.
	6. Alignment Criteria for Standards for Mathematical Practice	**Yes**	Materials attend to the specialized vocabulary for mathematics and align as intended to the mathematical practices, especially MP.3.
	7. Indicators of Quality	**Yes**	Materials are scaffolded to accommodate new learning, support is provided for ELL learners and special populations, and materials use technology as called for in the standards.
FINAL DECISION FOR THIS MATERIAL: **Tier I, Exemplifies quality**			

Strong mathematics instruction contains the following elements:



Title: **Zearn Math** Grade/Course: **3**

Publisher: **Zearn, Inc.** Copyright: **2015**

Overall Rating: **Tier I, Exemplifies quality**

Tier I, Tier II, Tier III Elements of this review:

STRONG	WEAK
1. Focus on Major Work (Non-Negotiable)	
2. Consistent, Coherent Content (Non-Negotiable)	
3. Rigor and Balance (Non-Negotiable)	
4. Focus Coh. via Practice Std (Non-Negotiable)	
5. Alignment Criteria for Stnds. for Math Content	
6. Alignment Criteria for Stnds. for Math Practice	
7. Indicators of Quality	

To evaluate each set of submitted materials for alignment with the Standards, begin by reviewing the indicators listed in Column 2 for the non-negotiable criteria in Section I. If there is a "Yes" for all indicators in Column 2 for Section I, then the materials receive a "Yes" in Column 1. If there is a "No" for any indicator in Column 2 for Section I, then the materials receive a "No" in Column 1.

For Section II, begin by reviewing the required indicators in Column 2 for each criterion. If there is a "Yes" for all required indicators in Column 2, then the materials receive a "Yes" in Column 1. If there is a "No" for any required indicators in Column 2, then the materials receive a "No" in Column 1.

Tier 1 ratings receive a "Yes" in Column 1 for Criteria 1 – 7.
Tier 2 ratings receive a "Yes" in Column 1 for all non-negotiable criteria (Criteria 1 – 4), but at least one "No" in Column 1 for the remaining criteria.
Tier 3 ratings receive a "No" in Column 1 for at least one of the non-negotiable criteria.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
SECTION I: NON-NEGOTIABLE CRITERIA: Submissions must meet all of the non-negotiable criteria in order for the review to continue.			
Non-Negotiable **1. FOCUS ON MAJOR WORK[27]:** Students and teachers using the materials as designed devote the large majority[28] of time to the major work of the grade/course. ☒ Yes ☐ No	**REQUIRED** **1a)** Materials should devote the large majority of class time to the major work of each grade/course. Each grade/course must meet the criterion; do not average across two or more grades.	**Yes**	The materials devote the majority of class time to the major work of grade. There are 7 Missions that are based on the Engage New York Modules with a total of 129 lessons. 81% (i.e., 105 out of 129 lessons) focus on the major standards, 11% (14 out of 129 lessons) focus on the supporting standards, and 8% (10 out of 129 lessons) focus on the additional standards of grade 3. This information is based on information available in the Grade 3 Overview.
	REQUIRED **1b)** In any one grade/course, aligned materials should spend minimal time on content outside of the appropriate grade/course. Previous grade/course content should be used only for scaffolding instruction. In aligned materials there are no chapter tests, unit tests, or other such assessment components that make students or teachers responsible for any topics before the grade/course in which they are introduced in the Standards.[29]	**Yes**	The materials spend minimal time on content outside the grade level. All materials covered address in the third grade standards and there are no assessments that hold students or teachers responsible for content outside the scope of 3rd grade.
Non-Negotiable **2. CONSISTENT, COHERENT CONTENT** Each course's instructional materials are coherent and consistent with the content in the Standards.	**REQUIRED** **2a)** Materials connect supporting content to major content in meaningful ways so that focus and coherence are enhanced throughout the year.[30]	**Yes**	The materials connect supporting content to major content in meaningful ways so that focus and coherence are enhanced throughout the year. In Mission 5, Lessons 1, 2, 3, and 4 combine the major standards of 3.NF.1, and 3.NF.3 with the supporting standard of 3.G.2. In these lessons the students are partitioning shapes into parts with equal areas and expressing each part as a unit fraction of the whole. These lessons take this 3rd grade supplemental standard and combines it with the major standards of understanding that a fraction is the quantity

[27] For more on the major work of the grade, see Focus by Grade Level.
[28] The materials should devote at least 65% and up to approximately 85% of class time to the major work of the grade with Grades K–2 nearer the upper end of that range, i.e., 85%.
[29] Refer also to criterion #2 in the K–8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).
[30] Refer also to criterion #3 in the K–8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
☒ Yes ☐ No			formed by 1 part when a whole is partitioned into equal parts, and understanding that two fractions as equivalent if they are the same size. Lesson 1, in the "Math Chat" the students use rulers to measure different shapes and section them into equal parts of the whole. Lesson 2, in the "Learning Lab" the students partition different objects into equal parts of the whole and name them as unit fractions.
	REQUIRED **2b)** Materials include problems and activities that serve to connect two or more clusters in a domain, or two or more domains in a grade/course, in cases where these connections are natural and important. [31]	**Yes**	The materials include problems and activities that serve to connect two or more clusters in a domain, and two or more domains in grade 3. For example, Mission 1 has lessons that introduce drawing arrays to solve and show multiplication and division problems through the major standard of 3.OA.3. Mission 3 expands on this same idea of arrays converted to tape diagrams to continue to multiply and divide by recognizing the arithmetic patterns and explain them using properties of operations through the major standard of 3.OA.9. Later in Mission 4 the lessons use the same idea of arrays for multiplication and division to show problems of area through the major standard of 3.MD.7. Finally in Mission 5 lessons this same concept of arrays is related to show partitions in shapes to show understanding of fractions as numbers through the major standard of 3.NF.1.
Non-Negotiable **3. RIGOR AND BALANCE:** Each grade's instructional materials reflect the balances in the Standards and help students meet the Standards' rigorous expectations, by helping students develop conceptual understanding,	**REQUIRED** **3a)** ***Attention to Conceptual Understanding:*** Materials develop conceptual understanding of key mathematical concepts, especially where called for explicitly in specific content standards or cluster headings by amply featuring high-quality conceptual problems and discussion questions.	**Yes**	The materials' deliberate progression in conceptual development, purposeful use of representation, and explicit instruction about making connections among representations exists to help teachers analyze developing mathematicians. For example, in Mission 1 lessons, the major conceptual understanding standard 3.OA.1 interpreting products of whole numbers is explained and discussed in the "Math Chat" and "Learning Lab" sections of the materials. These two sections in the

[31] Refer also to criterion #6 in the K–8 Publishers' Criteria and #4 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
procedural skill and fluency, and application.[32] ☒ Yes ☐ No			materials are videos that explain the concept of multiplying whole numbers as the total number of objects in a number of groups with a number of objects in each. Lesson 1 has a video that shows putting the same number of objects in groups to make a total of objects representing a multiplication sentence in the "Math Chat" section and then the students must answer questions and manipulate objects to complete multiplication sentences. Lesson 2 has a video of showing objects in arrays to represent multiplication of 2 whole numbers in the "Learning Lab" section. Then this video has the students manipulate objects to show an array to represent a multiplication fact. Then finally it has students answer questions such as, "How do arrays represent equal groups?" Mission 3 lessons develop the major conceptual understanding standard 3.OA.5 (Apply properties of operation as strategies to multiply and divide.) in the "Math Chat" and "Learning Lab" sections. In Mission 3, Lesson 1, the "Learning Lab" section of the video, begins by using an array and then asks the students to give two different multiplication sentences to represent the array to teach the conceptual understanding of the commutative property of multiplication. As the video continues, it asks the students put in the products of factors using a multiplication table and the commutative property of multiplication.
	REQUIRED **3b) *Attention to Procedural Skill and Fluency:*** The materials are designed so that students attain the fluencies and procedural skills required by the Standards. Materials give attention throughout the year to individual standards that set an expectation of procedural skill and fluency. In grades K-6, materials provide repeated practice toward attainment of fluency standards. In higher grades, sufficient practice with algebraic	**Yes**	Throughout each mission, students are provided opportunity to develop necessary, foundational understanding of grade-level math concepts. This understanding naturally and coherently leads to the development of particular procedural skills and, through repeated exposure, fluencies. For example, in Grade 3, students are expected to fluently add and subtract within 1,000 using the standard algorithm (addressing 3.NBT.A.2). Additionally, Mission 3, Lessons 4 and 13 have "Sprints" that cover the major fluency standard 3.OA.7 (i.e.,

[32] Refer also to criterion #4 in the K–8 Publishers' Criteria and #2 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
	operations is provided in order for students to have the foundation for later work in algebra.		Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division or properties of operations.) In Mission 5, Lessons 3 and 4 have "Sprints" that also cover the major fluency standard of 3.OA.7. Mission 3, Lesson 12 has a "Multiply Mania" section that also practices the major fluency standard of 3.OA.7. Another example is in Mission 2, Lessons 12 and 16 where there is a "Sprint" to cover the additional fluency standard of 3.NBT.2, fluently adding and subtracting within 1000. The materials reviewed also have a "Fluency Activities" section in each Mission that serves as a fluency resource for small group instruction.
	REQUIRED **3c) *Attention to Applications:*** Materials are designed so that teachers and students spend sufficient time working with engaging applications, without losing focus on the major work of each grade/course including ample practice with single-step and multi-step contextual problems, including non-routine problems, that develop the mathematics of the grade/course, afford opportunities for practice, and engage students in problem solving. The problems attend thoroughly to those places in the content Standards where expectations for multi-step and real-world problems are explicit.	**Yes**	The materials are designed so that the teachers and students spend sufficient time working with engaging applications. For example, application problems occur in every Mission, depending upon the focus mathematics of the lesson in each Mission. In Masson 4, Lesson 12, the materials have a section called "Z-Squad" that focuses on the major application standard 3.MD.C.7.b (i.e., Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products are rectangular areas in mathematical reasoning.) Each of the Missions also have a section called, "Problem Solving Activities" , that go into more detail on the application standards that are being taught during the Mission and it also serves as a resource to be used during small group instruction to help with problem solving skills. In Mission 1, Lessons 20 and 21 have a section called "Z-Squad" that focuses on the major application standard of 3.OA.8, solving two-step word problems using the four operations. In Mission 2, Lesson 5 the materials have another "Z-Squad" section that focuses on another of the major application standards of 3.MD.1, solving word problems involving addition and subtraction of time intervals in minutes.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
	REQUIRED **3d) *Balance:*** The three aspects of rigor are not always treated together and are not always treated separately.	**Yes**	The materials provide a balance of the three aspects of rigor. The materials' lessons have "Sprint," "Multiply Mania," and "Pair Compare" sections that focus on the fluency standards in the 3rd grade (addressed in Mission 5, Lesson 3 and 4). The materials have some lessons with sections of the "Math Chat," "Learning Lab," and "Tower of Power" that focus on the conceptual understanding standards of grade 3 (addressed in Mission 1, Lessons 1 and 2). Finally, there are lessons that have "Z-Squad," and application problems found in the Guided Practice of lessons that focus on the application standards (addressed in Mission 2, Lesson 5). The materials also have some lessons that combine all three of the aspects in the "Tower of Power" section, which is basically the independent practice material for the students.
Non-Negotiable **4. FOCUS AND COHERENCE VIA PRACTICE STANDARDS:** Materials promote focus and coherence by connecting practice standards with content that is emphasized in the Standards.[33] ☒ Yes ☐ No	**REQUIRED** **4a)** Materials address the practice standards in such a way as to enrich the major work of the grade/course; practices strengthen the focus on major work instead of detracting from it, in both teacher and student materials.	**Yes**	Mathematical content is connected to mathematical practices by incorporating lessons that include meaningful, challenging tasks or problems. The Standards for Mathematical Practice are identified in detail in the Mission Overview page. For example, Mission 5 focuses on Math Practice 7: Look for and make use of structure. Mission 5 does this by giving students lots of opportunities to work with concrete and pictorial representations of fractions. Students are asked to use everything from pans of lasagna and cereal boxes to area models and circles to model fractions. Students learn that fractions can be used to compose and decompose any number and are therefore the basic building blocks of fractions. Mission 4 focuses on the math practice 8-look for and express regularity in repeated reasoning. Mission 4 does this through the students working with tiles and rows of tiles repeatedly to understand the principle of area. In Mission 7 the focus is on Math Practice 3-construct viable arguments and critique the reasoning of others. Mission 7 does this through the teacher's instruction and their pushing

[33] Refer also to criterion #8 in the K–8 Publishers' Criteria and #6 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013)

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
			the students to defend their arguments with evidence from all of the missions used throughout the third grade year.
SECTION II: ADDITIONAL ALIGNMENT CRITERIA AND INDICATORS OF QUALITY			
Additional Criterion **5. ALIGNMENT CRITERIA FOR STANDARDS FOR MATHEMATICAL CONTENT:** Materials foster focus and coherence by linking topics (across domains and clusters) and across grades/courses by staying consistent with the progressions in the Standards. ☒ Yes ☐ No	**REQUIRED** **5a)** Materials provide all students extensive work with course-level problems. Review of material from previous grades and courses is clearly identified as such to the teacher, and teachers and students can see what their specific responsibility is for the current year.[10]	**Yes**	Materials provide extensive work for a variety of learners through the use of sprints, tower of power, and bonus problems. By following the link to the EngageNY modules, there is more work available with course-level problems. Through the curriculum page teachers are easily able to identify student responsibilities for the current year. Materials provide all students extensive work with course level problems within each module.
	REQUIRED **5b)** Materials relate course-level concepts explicitly to prior knowledge from earlier grades and courses. The materials are designed so that prior knowledge becomes reorganized and extended to accommodate the new knowledge.[10]	**Yes**	The materials relate the course-level concepts to prior knowledge and extends it from earlier grades and courses. For example on the "Mission" page for Mission 1 of grade 3 it says that the Foundational Mission is Mission 6 of grade 2. The lessons in Mission 1 of grade 3, "Multiply and Divide Friendly Numbers" build from the lessons that were in Mission 6, "Equal Groups" of grade 2. In Mission 2 of grade 3 it says that the Foundational Missions are grade 2, Missions 3, 4, and 5. Mission 2, "Measure It" lessons extend on the previous knowledge gained in the lessons of grade 2 in Mission 3, "Counting and Place Value," Mission 4, "Add, Subtract, and Solve," and Mission 5, "Add and Subtract Big Numbers."
	5c) Materials base content progressions on the progressions in the Standards. [34]	**Yes**	Concepts are taught in a logical order and maintain progressions that are consistent with grade-by-grade progressions that are contained in the standards. The materials content spirals across grade level. The module overview includes the focus standards for the current grade level. The foundational standards for the previous grade is also included in the overview. For example, the types of

[34] Refer also to criterion #5 in the K–8 Publishers' Criteria and #3 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
			problems included in the application problems show an increasing level of difficulty in multiplication. Also, foundational standards from Grade 2 are included for each Mission; in later Missions, standards from earlier in the school year are listed as foundational standards. For example, 3.OA.1 and 3.OA.2 are taught in Mission 1 and then listed as foundational standards in Mission 3, and standards 3.MD.5, 3.MD.6 and 3.MD.7 are taught in Mission 4 and then listed as foundational standards in Mission 7. Also, problem sets in each Mission offer students extensive work on grade-level problems; students are asked to multiply and divide with 2, 3, 4, 5, and 10 before working with 6, 7, 8, and 9; and students are reminded of their work in Grade 2 with fractional halves, thirds, and quarters before working with sixths.
	5d) Materials include learning objectives that are visibly shaped by CCSSM cluster headings and/or standards.[35]	**Yes**	Each lesson is listed by its topic and lesson title on the "Mission" page. It also contains each lesson's objective. For example in grade 3, Mission 3, in Topic A, "The Properties of Multiplication and Division" Lesson 1, "Multiplication Madness" the objective is to study commutatively to find known facts of 6, 7, 8, and 9. Mission 4 “Find the Area”, in Topic A, "Foundations for Understanding Area" Lesson 1, "Unit, Square Unit", the objective is to “Understand area as an attribute of plane figures” (see 3.MD.D), which is clearly under the cluster heading, “Measurement and Data.”
	5e) Materials preserve the focus, coherence, and rigor of the Standards even when targeting specific objectives. [11]	**Yes**	Materials preserve the focus, coherence , and rigor of the Standards. Coherence is a strong component of materials, in that connections are both explicit and implicit across all lessons, materials, and activities. For example, at the beginning of each topic, the text includes the focus standard, instructional days, and coherence. The text also includes a detailed explanation of the content for each lesson. For example in Mission 3 "Multiply and

[35] Refer also to criterion #6 in the K–8 Publishers' Criteria and #4 in the High School Publishers’ Criteria for the Common Core State Standards for Mathematics (Spring 2013).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
			Divide Tricky Numbers" of grade 3, Topic A "The Properties of Multiplication," Lesson 3 "Math A to Z" has a focus on two of the major standards. 3.OA.3 using multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities by using drawings and equations with a symbol for the unknown number to represent the problem and 3.OA.4 determining the unknown whole number in a multiplication or division equation relating three whole numbers are introduced through the "Math Chat" section, then some Guided Practice is applied in the "Tower of Power" section. Throughout these sections the focus is on the two standards with consistency and rigorous questioning, like "What are we solving for?" and rigor in the application, like "Write the equation to represent this problem using a symbol for the unknown."
Additional Criterion **6. ALIGNMENT CRITERIA FOR STANDARDS FOR MATHEMATICAL PRACTICE:** Aligned materials make meaningful and purposeful connections that enhance the focus and coherence of the Standards rather than detract from the focus and include additional content/skills to teach which are not included in the Standards. ☒ Yes ☐ No	**6a)** Careful Attention to Each Practice Standard: Materials attend to the full meaning of each practice standard.[36] Over the course of any given year of instruction, each mathematical practice standard is meaningfully present in the form of assignments, activities, or problems that stimulate students to develop the habits of mind described in the practice standard.[37] There are teacher-directed materials that explain the role of the practice standards in the classroom and in students' mathematical development. Alignments to practice standards are accurate.	**Yes**	The Mathematical Practice Standards are listed on each "Mission" page within the "Curriculum" page. For example in grade 3, Mission 4 lessons have a focus on the Math Practice 7-look for and make use of structure. This is done by the students learning that unit fractions can be used to compose and decompose any number and are therefore the basic building blocks of fractions. Mission 2 lessons have a focus on the Math Practice 2: Reason abstractly and quantitatively. This is done by encouraging the students to make sense of units of measurements and time, round to estimate and then precisely solve, and evaluate solutions with real world context.
	6b) Materials Support the Standards' Emphasis on Mathematical Reasoning: Materials provide sufficient opportunities for students to construct viable arguments and critique the arguments of others concerning key	**Yes**	Mathematical reasoning is embedded into the video lessons (e.g., Math Chat). There are also plenty of resources for use by the teacher that will target mathematical reasoning in small group instruction

[36] Refer also to criterion #9 in the K–8 Publishers' Criteria and #7 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).
[37] Refer also to criterion #7 in the K–8 Publishers' Criteria and #5 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
	grade-level mathematics that is detailed in the content standards (cf. MP.3). Materials engage students in problem solving as a form of argument, attending thoroughly to places in the Standards that explicitly set expectations for multi-step problems. [38]		with students. For example, in Grade 3 Mission 3 (Multiply and Divide Tricky Numbers), the EngageNY Module link provides the following questions in the student debrief section that target mathematical reasoning in students: "How did commutativity help you solve more facts than you thought you knew in Problem 1(a)?", "In Problems 3(a), 3(b), and 3(c), what do you notice about the words and numbers on each side of the equal sign? How are they related?", "Explain to your partner how 1 fact can help you solve 2 new facts", "Explain why you used multiplication or division to solve Problem 4. How does a division sentence in this problem relate to a multiplication sentence?" and "How might you use the strategy we practiced today to solve other problems? For example, how might you use 5 X 7 to help you solve 7 X 7?".
	6c) Materials explicitly attend to the specialized language of mathematics.[12]	**Yes**	In the sections such as "Math Chat," "Learning Lab," and "Z-Squad" the materials explicitly attend to the specialized language of mathematics. The videos also use precise mathematical language. For example, if you click on the Mission 3 Complete EngageNY Module link you will find that the module lists terminology for the module including "new or recently introduced terms" and "familiar terms and symbols."
Additional Criterion **7. INDICATORS OF QUALITY:** Quality materials should exhibit the indicators outlined here in order to give teachers and students the tools they need to meet the expectations of the Standards. [39]	**7a)** There is variety in what students produce. For example, students are asked to produce answers and solutions, but also, in a grade-appropriate way, arguments and explanations, diagrams, mathematical models, etc.	**Yes**	The materials allow the students to produce a wide variety of answers to solutions in a grade appropriate way. For example , in Mission 1, Lesson 2 the students are asked to give answers to math questions using words, use math manipulatives to make multiplication arrays, make arrays, produce multiplication equations to represent an array, and fill in missing factors and products. This is just for this lesson, there are other lessons that require the

[38] Refer also to criterion #10 in the K–8 Publishers' Criteria and #8 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

[39] Refer also to pages 18-20 in the K – 8 Publishers' Criteria and pages 16-18 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
☒ Yes ☐ No			students to draw models, tape diagrams, explain reasoning, justify answers, use place value charts, diagrams, and other types of solutions. In each Mission you will find links on the right side of each Mission's page titled "Exit Tickets", "Homework', "Fluency Activities" and "Problem Solving Activities", which each allow students to produce a wide variety of answers to solutions at some point in the Missions. For example, throughout the fluency activities and in some problem sets, students are expected to produce answers and solutions to problems. In Mission 3, Topic D, Lesson 18 "Homework", problems 4 and 6, students are asked to use the Read, Draw, Write (RDW) process to solve each problem and to explain why their answer is reasonable, which is having the student produce arguments and explanations for their solutions, which is also the basis for the debriefing section of each lesson. The RDW procedure also requires students to represent the problem in a drawing and make connections between the drawing and the equations. Also, throughout the missions and lessons students produce a variety of solutions, using concrete, pictorial and abstract representations.
	7b) There are separate teacher materials that support and reward teacher study including, but not limited to: discussion of the mathematics of the units and the mathematical point of each lesson as it relates to the organizing concepts of the unit, discussion on student ways of thinking and anticipating a variety of students responses, guidance on lesson flow, guidance on questions that prompt students thinking, and discussion of desired mathematical behaviors being elicited among students.	**Yes**	Each Mission provides tips for teaching the Mission and a link to the EngageNY module with extensive resources for the teacher to use during small group instruction. For example, Grade 3, Mission 5 list the following tips: "Give students lots of opportunities with concrete and pictorial representations. Ask students to use everything from pans of lasagna and cereal boxes to area models and circles to model fractions. Abstraction too early will confuse students. MP 7: Students learn that unit fractions can be used to compose and decompose any number and are therefore the basic building blocks of fractions." Mission 7 list the following tips: "Zearn built Topics B and C. Use Topics A and D as collaboration opportunities for your students, in small groups or partners, to problem solve and

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
			review content from the year. MP 3: In your live instruction, push students to defend their arguments with evidence from all modules this year."
	7c) 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.	**Yes**	Support for English Language Learners is provided in the EngageNY modules through scaffolding notes. Missions offer text-to-speech capability for Guided Practice and the Tower of Power. There is supportive feedback offered throughout the digital content which helps the ELL students move at their own pace and supports student understanding. For example, see the "G3 M3 Complete EngageNY Module" link on the right side of the Curriculum page, it will take you to the complete Module 3 unit. At the end of Lesson 1 there is a grey box titled, "Notes on Multiple Means for Action and Expression" and in that box it states the following about English Language Learners: "English language learners and others will benefit from reviewing commutative property and commutativity during the Debrief. Allow students to explain the property to a partner in their first language, and/or record the term, with an example, in a personal math dictionary."
	7d) The underlying design of the materials distinguishes between problems and exercises. In essence the difference is that in solving problems, students learn new mathematics, whereas in working exercises, students apply what they have already learned to build mastery. Each problem or exercise has a purpose.	**Yes**	The concept development during each lesson allows students to understand the concept of each skill with guided instruction. The problem set is individual practice problems. This allows the students to apply what they learn. The exit ticket is used as an informal assessment to check for mastery of the lesson for the day.
	7e) Lessons are appropriately structured and scaffolded to support student mastery.	**Yes**	The supporting EngageNY modules provide information on scaffolding throughout the module. Strategically placed margin notes are provided within each lesson elaborating on the use of specific scaffolds at applicable times. The materials address many needs in regards to English language learners, students with disabilities, students performing

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
			above grade level, and students performing below grade level. For example, problem sets within the lessons include guidance on how to select and sequence the exercises and fluency exercises within the lessons include guidance on the purpose of each activity, the homework gives students additional practice on the skills they learned in class each day, and the bank of fluency activities for the lessons is intentionally organized so that activities revisit previously-learned material to develop automaticity, anticipate future concepts and strategically preview or build skills for the days "Concept Development".
	7f) Materials support the uses of technology as called for in the Standards.	**Yes**	The materials are a technology-based curriculum that combines technology with paper and pencil work. The digital lessons include activities to support classroom instruction. Zearn is built to directly correlate and support the Engage NY/Eureka Math curriculum. The materials reviewed for Grade 3 consist of two main parts, the Independent Zearn Time and the Small Group Instruction. During the independent time the students are engaged with personalized digital lessons, which can be done on iPads, laptops, and computers as long as students have access to the internet. During the Small Group Instruction, students are working with the teacher personally in a small group setting.

FINAL EVALUATION

Tier 1 ratings receive a "Yes" in Column 1 for Criteria 1 – 7.

Tier 2 ratings receive a "Yes" in Column 1 for all non-negotiable criteria (Criteria 1 – 4), but at least one "No" in Column 1 for the remaining criteria.

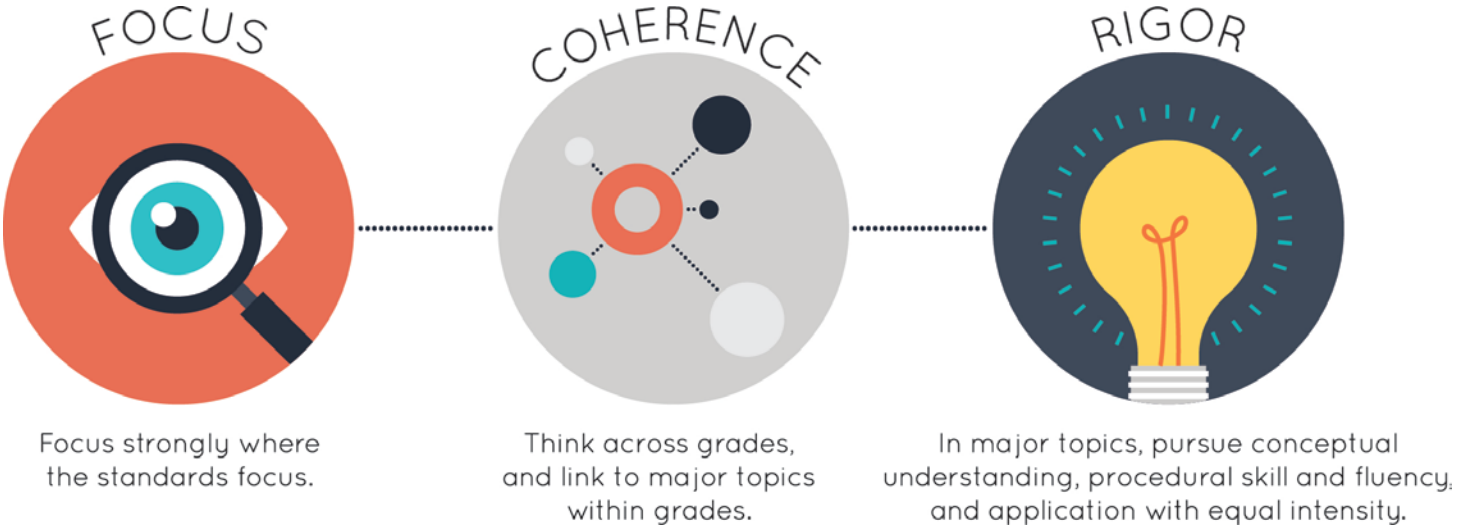
Tier 3 ratings receive a "No" in Column 1 for at least one of the non-negotiable criteria.

Compile the results for Sections I and II to make a final decision for the material under review.

Section	Criteria	Yes/No	Final Justification/Comments
I: Non-Negotiables	1. Focus on Major Work	**Yes**	The materials focus the majority of class time on the major work of the grade. In addition, there is no assessment that holds students or teachers responsible for content that is beyond the scope of the grade.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
	2. Consistent, Coherent Content	**Yes**	Supporting content supports the major work of the grade and materials feature problems and activities that combine standards that address multiple clusters and domains.
	3. Rigor and Balance	**Yes**	Materials present content both separately and together in correlation with the three aspects of rigor as required by the standards.
	4. Focus and Coherence via Practice Standards	**Yes**	Math practices and their descriptions enrich the content of the grade level.
II: Additional Alignment Criteria and Indicators of Quality	5. Alignment Criteria for Standards for Mathematical Content	**Yes**	Materials are aligned to the mathematical practices, relate prior knowledge to current topics, and represent the standards accurately.
	6. Alignment Criteria for Standards for Mathematical Practice	**Yes**	Materials attend to the specialized vocabulary for mathematics and align as intended to the mathematical practices, especially MP.3.
	7. Indicators of Quality	**Yes**	Materials are scaffolded to accommodate new learning, support is provided for ELL learners and special populations, and materials use technology as called for in the standards.
FINAL DECISION FOR THIS MATERIAL: **Tier I, Exemplifies quality**			

Strong mathematics instruction contains the following elements:



Title: **Zearn Math** Grade/Course: **4**

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Overall Rating: **Tier I, Exemplifies quality**

Tier I, Tier II, Tier III Elements of this review:

STRONG	WEAK
1. Focus on Major Work (Non-Negotiable)	
2. Consistent, Coherent Content (Non-Negotiable)	
3. Rigor and Balance (Non-Negotiable)	
4. Focus Coh. via Practice Std (Non-Negotiable)	
5. Alignment Criteria for Stnds. for Math Content	
6. Alignment Criteria for Stnds. for Math Practice	
7. Indicators of Quality	

To evaluate each set of submitted materials for alignment with the Standards, begin by reviewing the indicators listed in Column 2 for the non-negotiable criteria in Section I. If there is a "Yes" for all indicators in Column 2 for Section I, then the materials receive a "Yes" in Column 1. If there is a "No" for any indicator in Column 2 for Section I, then the materials receive a "No" in Column 1.

For Section II, begin by reviewing the required indicators in Column 2 for each criterion. If there is a "Yes" for all required indicators in Column 2, then the materials receive a "Yes" in Column 1. If there is a "No" for any required indicators in Column 2, then the materials receive a "No" in Column 1.

Tier 1 ratings receive a "Yes" in Column 1 for Criteria 1 – 7.
Tier 2 ratings receive a "Yes" in Column 1 for all non-negotiable criteria (Criteria 1 – 4), but at least one "No" in Column 1 for the remaining criteria.
Tier 3 ratings receive a "No" in Column 1 for at least one of the non-negotiable criteria.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
SECTION I: NON-NEGOTIABLE CRITERIA: Submissions must meet all of the non-negotiable criteria in order for the review to continue.			
Non-Negotiable **1. FOCUS ON MAJOR WORK[40]:** Students and teachers using the materials as designed devote the large majority[41] of time to the major work of the grade/course. ☒ Yes ☐ No	**REQUIRED** **1a)** Materials should devote the large majority of class time to the major work of each grade/course. Each grade/course must meet the criterion; do not average across two or more grades.	**Yes**	The materials devote the majority of class time to the major work of the grade. There are 7 Missions that are based on the Engage New York Modules with a total of 137 lessons. 82% (i.e., 112 out of the 137 lessons) focus on the major standards, 8% (i.e., 11 out of 137 lessons) focus on supporting standards, and 10% (i.e., 13 out of 137 lessons) focus on additional standards of grade 4.
	REQUIRED **1b)** In any one grade/course, aligned materials should spend minimal time on content outside of the appropriate grade/course. Previous grade/course content should be used only for scaffolding instruction. In aligned materials there are no chapter tests, unit tests, or other such assessment components that make students or teachers responsible for any topics before the grade/course in which they are introduced in the Standards.[42]	**Yes**	The materials spend minimal time on content outside the grade level. The materials are designed to remediate within the content of Grade 4. It should be noted that all assessments and topics relate to the Grade 4 standards or below. There is no content assessed that is beyond the scope of the grade level.
Non-Negotiable **2. CONSISTENT, COHERENT CONTENT** Each course's instructional materials are coherent and consistent with the content in the Standards. ☒ Yes ☐ No	**REQUIRED** **2a)** Materials connect supporting content to major content in meaningful ways so that focus and coherence are enhanced throughout the year.[43]	**Yes**	When the supporting content is present, it does enhance the focus and coherence by engaging students in the major work of the grade. For example, in Mission 2, students are solving measurement word problems (i.e., Supporting Cluster 4.MD.A: Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit) using the four operations (i.e., Major Cluster 4.OA.A: Use the four operations with whole numbers to solve problems). In Mission 3, factors and multiples (i.e., Supporting Cluster 4.OA.B: Gain familiarity with factors and multiples) are used for multi-digit arithmetic (i.e.,

[40] For more on the major work of the grade, see Focus by Grade Level.
[41] The materials should devote at least 65% and up to approximately 85% of class time to the major work of the grade with Grades K–2 nearer the upper end of that range, i.e., 85%.
[42] Refer also to criterion #2 in the K–8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).
[43] Refer also to criterion #3 in the K–8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
			Major Cluster 4.NBT.B: Use place value understanding and properties of operations to perform multi-digit arithmetic.) In Mission 5, Lesson 28 combines the major standards of 4.NF.1, 4.NF.2, 4.NF.3, and 4.NF.4a with the supporting standard of 4.MD.4. In this lesson the students during "Z-Squad," use equivalent fractions, compare fractions, add fractions, and understand a fraction as a multiple with solving word problems with line plots. In Mission 5, Lesson 19 combines the major standards of 4.NF.3a, 4.NF.3d, and 4.NF.1 with the supporting standard of 4.MD.2. In the "Word Play" section of this lesson the students solve word problems that use measurement units by adding and subtracting fractions using models.
	REQUIRED **2b)** Materials include problems and activities that serve to connect two or more clusters in a domain, or two or more domains in a grade/course, in cases where these connections are natural and important. [44]	**Yes**	The materials include problems and activities that serve to connect two or more clusters in a domain or two or more domains in a grade. For example, Mission 5 connects 4.NF.A (i.e., Extend understanding of fraction equivalence and ordering) to 4.NF.B (i.e., Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers) and connects both to 4.MD.A (i.e., Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit) and 4.MD.B (i.e., Represent and interpret data). Mission 3 connects clusters 4.NBT.A (i.e., Generalize place value understanding for multi-digit whole numbers and 4.NBT.B (i.e., Use place value understanding and properties of operations to perform multi-digit arithmetic) to cluster 4.OA.A (i.e., Use the four operations with whole numbers to solve problems). Mission 3 also connects the cluster 4.OA.A (i.e., Use the four operations with whole numbers to solve problems) to cluster 4.MD.A (i.e., Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit). In Mission 6, Lessons 1, 2, and 3 combine the major standards of 4.NF.6 and 4.NBT.1

[44] Refer also to criterion #6 in the K–8 Publishers' Criteria and #4 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
			with the supporting standard of 4.MD.1. These standards focused on in these lessons come from the three different domains of "Number and Operations-Fractions," "Number and Operations in Base Ten," and "Measurement and Data." In Lesson 1 "Learning Lab" section and Lessons 2 and 3 "Math Chat" section the students use decimal notation for fractions with denominators 10 and 100 and recognize that a digit in one place represents ten times what it represents in the place to its right, while knowing the relative sizes of measurement units within a system of units.
Non-Negotiable **3. RIGOR AND BALANCE:** Each grade's instructional materials reflect the balances in the Standards and help students meet the Standards' rigorous expectations, by helping students develop conceptual understanding, procedural skill and fluency, and application.[45] ☒ Yes ☐ No	**REQUIRED** **3a)** ***Attention to Conceptual Understanding:*** Materials develop conceptual understanding of key mathematical concepts, especially where called for explicitly in specific content standards or cluster headings by amply featuring high-quality conceptual problems and discussion questions.	**Yes**	The materials develop conceptual understanding of key mathematical concepts, and contains high-quality conceptual problems and discussion questions. In Mission 3 Lessons 1-3 the major conceptual understanding standard 4.OA.1 (i.e., interpreting multiplication equations as a comparison) is explained and discussed in the "Math Chat," "Learning Lab," and "Z-Squad" sections of the materials. These three sections in the materials are videos that explain the concept of representing verbal statements of multiplicative comparisons as multiplication equations. Lesson 1 has a video that has the students investigate and use the formulas for area and perimeter of rectangles to do multiplicative comparisons in the "Math Chat" section and then the students must answer questions and solve multiplication with models by putting units so many times the rectangle's width and length. Lesson 2 has a video in the "Learning Lab" section that has the students use multiplicative comparisons to solve perimeter and area problems involving measurement units. Then finally it has students answer problems such as, "Find the perimeter of a rectangle that is 3 times the width and length of the original one." The materials also contain a Deep Understanding Resource section for each Mission in grade 4. This section contains

[45] Refer also to criterion #4 in the K–8 Publishers' Criteria and #2 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
			different lessons to help with conceptual understanding standards covered in the different Missions and it serves as a resource for teachers to chose for students during small group instruction.
	REQUIRED **3b) *Attention to Procedural Skill and Fluency:*** The materials are designed so that students attain the fluencies and procedural skills required by the Standards. Materials give attention throughout the year to individual standards that set an expectation of procedural skill and fluency. In grades K-6, materials provide repeated practice toward attainment of fluency standards. In higher grades, sufficient practice with algebraic operations is provided in order for students to have the foundation for later work in algebra.	**Yes**	The materials are designed so that students attain the fluencies and procedural skills required by the standards. The lessons in the materials throughout the Missions have "Sprints" to practice for the fluency standards. For example, Mission 5 Lesson 3 has a "Sprint" that covers the supporting fluency standard of 4.OA.4, telling factor pairs for whole numbers in the range from 1-100 and determining if it's prime or composite. Mission 3, Lesson 9 has a "Multiply Mania" section that also practices the supporting fluency standard of 4.OA.4. Another example is in Mission 1, Lesson 6 where there is a "Sprint" to cover the major fluency standard of 4.NBT.4, fluently adding and subtracting. Mission 5 contains "Sprints" in Lessons 1 and 18 that focus on the major procedural skills and fluency standard 4.NBT.6 finding quotients with remainders. The materials also contain a section called "Pair Compare" in Mission 5 Lessons 8-11 that focus on the major procedural skill and fluency standard of 4.NF.2, comparing fractions. The materials reviewed also have a "Fluency Activities" section in each Mission that serves as a fluency resource for small group instruction.
	REQUIRED **3c) *Attention to Applications:*** Materials are designed so that teachers and students spend sufficient time working with engaging applications, without losing focus on the major work of each grade/course including ample practice with single-step and multi-step contextual problems, including non-routine problems, that develop the mathematics of the grade/course, afford opportunities for practice, and engage students in	**Yes**	The materials are designed so that the teachers and students spend sufficient time working with engaging applications. For example in Mission 5, Lessons 39 and 40 have a section called "Z-Squad" that focuses on the major application standard of 4.NF.4c, solving word problems involving the multiplication of a whole number and a fraction using a visual model. In Mission 3, Lesson 12 the materials have another "Z-Squad" section that focuses on another of the major application standards of 4.OA.2, multiply or divide to solve word

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
	problem solving. The problems attend thoroughly to those places in the content Standards where expectations for multi-step and real-world problems are explicit.		problems involving multiplicative comparisons. Each of the Missions also have a "Problem Solving Activities" section that works on the application standards and serves as a problem solving resource for small group instruction.
	REQUIRED **3d) *Balance:*** The three aspects of rigor are not always treated together and are not always treated separately.	**Yes**	The materials provide a balance of the three aspects of rigor. The materials' lessons have "Sprint," "Multiply Mania," and "Pair Compare" sections that focus on the fluency standards in the 4th grade (addressed in Missions 1 and 5). While some lessons contain sections of the "Math Chat," "Learning Lab," and "Tower of Power" that focus on the conceptual understanding standards of grade 4 (addressed in Mission 3). Finally, there are lessons that have "Z-Squad," and applications problems that are found in the Guided Practice of lessons that focus on the application standards (addressed in Missions 3 and 5). The materials also have some lessons that combine all three of the aspects of rigor in the "Tower of Power" section, which is basically the independent practice material for the students.
Non-Negotiable **4. FOCUS AND COHERENCE VIA PRACTICE STANDARDS:** Materials promote focus and coherence by connecting practice standards with content that is emphasized in the Standards.[46] ☒ Yes ☐ No	**REQUIRED** **4a)** Materials address the practice standards in such a way as to enrich the major work of the grade/course; practices strengthen the focus on major work instead of detracting from it, in both teacher and student materials.	**Yes**	The materials address the practice standards in a way to enrich the major work of grade 4. Each Mission has the math practice that is focused on listed on the Mission Overview page. For example, Mission 2 focuses on the math practice 7-look for and make use of structure. Mission 2 does this through the students recognize patterns on the place value chart to convert between metric units. In Mission 5 the focus is on Math Practice 4-model with mathematics. Mission 5 does this through the students having to represent fractions visually throughout the lessons with area models and number lines reinforcing a solid foundation for abstract reasoning.

[46] Refer also to criterion #8 in the K–8 Publishers' Criteria and #6 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013)

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
SECTION II: ADDITIONAL ALIGNMENT CRITERIA AND INDICATORS OF QUALITY			
Additional Criterion **5. ALIGNMENT CRITERIA FOR STANDARDS FOR MATHEMATICAL CONTENT:** Materials foster focus and coherence by linking topics (across domains and clusters) and across grades/courses by staying consistent with the progressions in the Standards. ☒ Yes ☐ No	**REQUIRED** **5a)** Materials provide all students extensive work with course-level problems. Review of material from previous grades and courses is clearly identified as such to the teacher, and teachers and students can see what their specific responsibility is for the current year.[10]	**Yes**	The Grade 4 materials do provide students extensive work with course-level problems. The review of material of previous grade work is clearly identified such that the teachers and students can see what they are expected to learn for the entire school year and what they should have learned in Grade 3. The materials are correlated to the Engage New York/Eureka Math curricula and it is visible to see on the "Curriculum" page how these Missions relate to one another across grade levels. Foundational standards from Grade 3 or from previous Grade 4 work are included in each Mission. In later Missions, standards from earlier in the school year are listed as foundational standards. For example, 4.OA.3 and 4.NBT.4 are taught in Mission 1 and then listed as foundational standards in Mission 2. Problem sets in each Mission offer students extensive work on grade-level problems. Within the differentiation sections, teachers are given suggestions for supporting struggling students while continuing to expect that students work on grade-level problems.
	REQUIRED **5b)** Materials relate course-level concepts explicitly to prior knowledge from earlier grades and courses. The materials are designed so that prior knowledge becomes reorganized and extended to accommodate the new knowledge.[10]	**Yes**	The materials relate the course-level concepts to prior knowledge and extends it to accommodate the new knowledge. For example, on the "Mission" page for Mission 2 it says that the Foundational Missions are Grade 2/Mission 2, Grade 2/Mission 7, and Grade 3/Mission 2. The lessons in Grade 4, Mission 2, "Measure and Solve" build from the lessons that were previously taught in Grade 2/Mission 2 "Explore Length", Grade 2/Mission 7 "Length, Money and Data" and Grade 3/Mission 2 "Measure It."
	5c) Materials base content progressions on the progressions in the Standards. [47]	**Yes**	Concepts are taught in a logical order and maintain progressions that are consistent with grade-by-grade progressions that are contained in the

[47] Refer also to criterion #5 in the K–8 Publishers' Criteria and #3 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
			standards. The materials content spirals across grade level. The module overview includes the focus standards for the current grade level. The foundational standards for the previous grade is also included in the overview. For example, within the fraction progression, students first work with unit fractions, then fraction equivalence and ordering, then addition and subtraction and finally multiplication of fractions.
	5d) Materials include learning objectives that are visibly shaped by CCSSM cluster headings and/or standards.[48]	**Yes**	Each lesson is listed by its topic and lesson title on the "Curriculum" page. It also contains each lesson's objective. For example on the Curriculum page for Grade 4, Mission 4 “Construct Lines, Angles, and Shapes”, in Topic A, "Lines and Angles" Lesson 1, "Points, Lines, and Rays! Oh My!", the objective is to “Identify and draw points, lines, line segments, rays, and angles and recognize them in various contexts and familiar figures” (see 4.G.A), which is clearly under the cluster heading, “Geometry”.
	5e) Materials preserve the focus, coherence, and rigor of the Standards even when targeting specific objectives. [11]	**Yes**	Materials preserve the focus, coherence , and rigor of the Standards. Coherence is a strong component of materials, in that connections are both explicit and implicit across all lessons, materials, and activities For example, at the beginning of each topic, the text includes the focus standard, instructional days, and coherence. The text also includes a detailed explanation of the content for each lesson. For example, in Grade 4 Mission 3 "Multiply and Divide Big Numbers", Topic B "Multiplication by 10, 100, and 1,000," Lesson 9 "Twinsies!" has a focus on the major standard 4.NBT.B: Use place value understanding and properties of operations to perform multi-digit arithmetic. Throughout these sections the focus is on the major standard with consistency and rigorous questioning, like: "Based on your thought, what might be a strategy for generating the most money from t-shirt sales?" and rigor in the application.

[48] Refer also to criterion #6 in the K–8 Publishers' Criteria and #4 in the High School Publishers’ Criteria for the Common Core State Standards for Mathematics (Spring 2013).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
Additional Criterion **6. ALIGNMENT CRITERIA FOR STANDARDS FOR MATHEMATICAL PRACTICE:** Aligned materials make meaningful and purposeful connections that enhance the focus and coherence of the Standards rather than detract from the focus and include additional content/skills to teach which are not included in the Standards. ☒ Yes ☐ No	**6a)** Careful Attention to Each Practice Standard: Materials attend to the full meaning of each practice standard.[49] Over the course of any given year of instruction, each mathematical practice standard is meaningfully present in the form of assignments, activities, or problems that stimulate students to develop the habits of mind described in the practice standard.[50] There are teacher-directed materials that explain the role of the practice standards in the classroom and in students' mathematical development. Alignments to practice standards are accurate.	**Yes**	The Mathematical Practice Standards are listed on each "Mission" page within the "Curriculum" tab. For example in grade 4, Mission 2 lessons have a focus on the Math Practice 7: Look for and make use of structure. This is done by having students recognize patterns on the place value chart to convert between metric units making the connection between 1,000 ones and 1 kilogram. Mission 4 "Construct Lines, Angles, and Shapes" lessons have a focus on the Math Practice 6-attend to precision. This is done by the students learning new vocabulary and use it to precisely analyze, classify, compose, and decompose shapes.
	6b) Materials Support the Standards' Emphasis on Mathematical Reasoning: Materials provide sufficient opportunities for students to construct viable arguments and critique the arguments of others concerning key grade-level mathematics that is detailed in the content standards (cf. MP.3). Materials engage students in problem solving as a form of argument, attending thoroughly to places in the Standards that explicitly set expectations for multi-step problems.[51]	**Yes**	Mathematical reasoning is embedded into the video lessons (e.g., Math Chat). There are also plenty of resources for use by the teacher that will target mathematical reasoning in small group instruction with students. For example, in Grade 4 Mission 3 Student understanding materials, teachers are instructed to encourage student discourse around the lesson and question others thinking. Students are also asked to look at other student work to provide feedback.
	6c) Materials explicitly attend to the specialized language of mathematics.[12]	**Yes**	In the sections such as "Math Chat," "Learning Lab," and "Z-Squad" the materials explicitly attend to the specialized language of mathematics. The videos also use precise mathematical language. For example, if you click on the Mission 3 Complete EngageNY Module link you will find that the module lists terminology for the module including "new or recently introduced terms" and "familiar terms and symbols."
Additional Criterion **7. INDICATORS OF QUALITY:**	**7a)** There is variety in what students produce. For example, students are asked to produce answers and	**Yes**	The materials allow the students to produce a wide variety of answers to solutions in a grade appropriate way. In each Mission links on the right

[49] Refer also to criterion #9 in the K–8 Publishers' Criteria and #7 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).
[50] Refer also to criterion #7 in the K–8 Publishers' Criteria and #5 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).
[51] Refer also to criterion #10 in the K–8 Publishers' Criteria and #8 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
Quality materials should exhibit the indicators outlined here in order to give teachers and students the tools they need to meet the expectations of the Standards. [52] ☒ Yes ☐ No	solutions, but also, in a grade-appropriate way, arguments and explanations, diagrams, mathematical models, etc.		side of each Mission's page titled "Exit Tickets", "Homework', "Fluency Activities" and "Problem Solving Activities" allow students to produce a wide variety of answers to solutions at some point in the Missions. For example, throughout the fluency activities and in some problem sets, students are expected to produce answers and solutions to problems. In Mission 3, Topic B, Lesson 5 problem 3, students are asked to use the Read, Draw, Write (RDW) process to solve each problem and to explain why their answer is reasonable, which is having the student produce arguments and explanations for their solutions, which is also the basis for the debriefing section of each lesson. The RDW procedure also requires students to represent the problem in a drawing and make connections between the drawing and the equations. Also, throughout the missions and lessons students produce a variety of solutions, using concrete, pictorial and abstract representations. Mission 1, Lesson 1 the students are asked to give answers to math questions using a place value chart, use math manipulatives to trade in tens for a unit 10 times greater, and write equations to represent the trade in happening in the place value chart. This is just for this lesson, there are other lessons that require the students to draw models, tape diagrams, explain reasoning, justify answers, use charts, diagrams, and other types of solutions.
	7b) There are separate teacher materials that support and reward teacher study including, but not limited to: discussion of the mathematics of the units and the mathematical point of each lesson as it relates to the organizing concepts of the unit, discussion on student ways of thinking and anticipating a variety of students responses, guidance on lesson flow, guidance on	**Yes**	Each Mission provides tips for teaching the Mission and a link to the EngageNY module with extensive resources for the teacher to use during small group instruction. For example, Grade 4, Mission 7 list the following tips: "Use your live instruction to prove conversions concretely for mass, capacity, and length using scales, containers, and rulers using familiar objects. MP 8: Using tables and explicitly taught strategies, students are asked to note

[52] Refer also to pages 18-20 in the K – 8 Publishers' Criteria and pages 16-18 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
	questions that prompt students thinking, and discussion of desired mathematical behaviors being elicited among students.		patterns and use patterns to convert and solve problems."
	7c) 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.	**Yes**	Support for English Language Learners is provided in the EngageNY modules through scaffolding notes. Missions offer text-to-speech capability for Guided Practice and the Tower of Power. There is supportive feedback offered throughout the digital content which helps the ELL students move at their own pace and supports student understanding. For example, see the Grade 4 Mission 3 "Deep Understanding Activities" link on the right side of the Mission page, scroll down to page 7 to the section titled, "Notes on Multiple Means of Action and Expression." Under that section it states the following, "Teach English language learners and others to track information from the word problem as notes or as a model as they read sentence by sentence."
	7d) The underlying design of the materials distinguishes between problems and exercises. In essence the difference is that in solving problems, students learn new mathematics, whereas in working exercises, students apply what they have already learned to build mastery. Each problem or exercise has a purpose.	**Yes**	The concept development during each lesson allows students to understand the concept of each skill with guided instruction. The problem set is individual practice problems. This allows the students to apply what they learn. The exit ticket is used as an informal assessment to check for mastery of the lesson for the day.
	7e) Lessons are appropriately structured and scaffolded to support student mastery.	**Yes**	The supporting modules provide information on scaffolding throughout the module. Strategically placed margin notes are provided within each lesson elaborating on the use of specific scaffolds at applicable times. The materials address many needs in regards to English language learners, students with disabilities, students performing above grade level, and students performing below grade level.
	7f) Materials support the uses of technology as called for in the Standards.	**Yes**	The materials are a technology-based curriculum that combines technology with paper and pencil work. The digital lessons include activities to support classroom instruction. Zearn is built to directly

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
			correlate and support the Engage NY/Eureka Math curriculum. The materials reviewed for Grade 4 consist of two main parts, the Independent Zearn Time and the Small Group Instruction. During the independent time the students are engaged with personalized digital lessons, which can be done on iPads, laptops, and computers as long as students have access to the internet. During the Small Group Instruction, students are working with the teacher personally in a small group setting.

FINAL EVALUATION

Tier 1 ratings receive a "Yes" in Column 1 for Criteria 1 – 7.

Tier 2 ratings receive a "Yes" in Column 1 for all non-negotiable criteria (Criteria 1 – 4), but at least one "No" in Column 1 for the remaining criteria.

Tier 3 ratings receive a "No" in Column 1 for at least one of the non-negotiable criteria.

Compile the results for Sections I and II to make a final decision for the material under review.

Section	Criteria	Yes/No	Final Justification/Comments
I: Non-Negotiables	1. Focus on Major Work	**Yes**	The materials focus the majority of class time on the major work of the grade. In addition, there is no assessment that holds students or teachers responsible for content that is beyond the scope of the grade.
	2. Consistent, Coherent Content	**Yes**	Supporting content supports the major work of the grade and materials feature problems and activities that combine standards that address multiple clusters and domains.
	3. Rigor and Balance	**Yes**	Materials present content both separately and together in correlation with the three aspects of rigor required by the standards.
	4. Focus and Coherence via Practice Standards	**Yes**	Math practices and their descriptions enrich the content of the grade level.
II: Additional Alignment Criteria and Indicators of Quality	5. Alignment Criteria for Standards for Mathematical Content	**Yes**	Materials are aligned to the mathematical practices, relate prior knowledge to current topics, and represent the standards accurately.

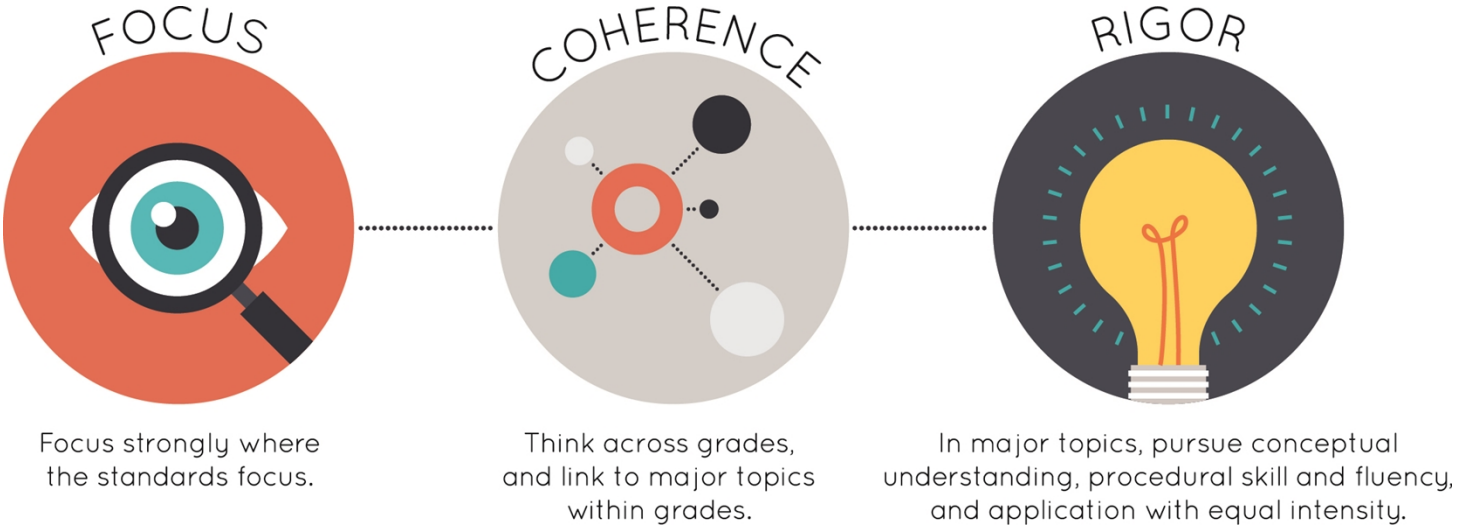
CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Yes/No)	JUSTIFICATION/ COMMENTS WITH EXAMPLES
	6. Alignment Criteria for Standards for Mathematical Practice	**Yes**	Materials attend to the specialized vocabulary for mathematics and align as intended to the mathematical practices, especially MP.3.
	7. Indicators of Quality	**Yes**	Materials are scaffolded to accommodate new learning, support is provided for ELL learners and special populations, and materials use technology as called for in the standards.
FINAL DECISION FOR THIS MATERIAL: **Tier I, Exemplifies quality**			

DEPARTMENT of EDUCATION
Louisiana Believes

Instructional Materials Evaluation Tool for Alignment in Mathematics Grades K – 12 (IMET)

FULL CURRICULUM
Instructional Materials

Strong mathematics instruction contains the following elements:



Title: **Zearn Math**

Grade/Course: **5**

Publisher: **Zearn, Inc.**

Copyright: **2015**

Overall Rating: **Tier I, Exemplifies quality**

Tier I, Tier II, Tier III Elements of this review:

STRONG	WEAK
1. Focus on Major Work (Non-Negotiable)	
2. Consistent, Coherent Content (Non-Negotiable)	
3. Rigor and Balance (Non-Negotiable)	
4. Focus & Coh. via Practice Std (Non-Negotiable)	
5. Alignment Criteria for Stnds. for Math Content	
6. Alignment Criteria for Stnds. for Math Practice	
7. Indicators of Quality	

To evaluate each set of submitted materials for alignment with the Standards, begin by reviewing the indicators listed in Column 2 for the non-negotiable criteria in Section I. If there is a "Yes" for all indicators in Column 2 for Section I, then the materials receive a "Yes" in Column 1. If there is a "No" for any indicator in Column 2 for Section I, then the materials receive a "No" in Column 1.

For Section II, begin by reviewing the required indicators in Column 2 for each criterion. If there is a "Yes" for all required indicators in Column 2, then the materials receive a "Yes" in Column 1. If there is a "No" for any required indicators in Column 2, then the materials receive a "No" in Column 1.

Tier 1 ratings receive a "Yes" in Column 1 for Criteria 1 – 7.
Tier 2 ratings receive a "Yes" in Column 1 for all non-negotiable criteria (Criteria 1 – 4), but at least one "No" in Column 1 for the remaining criteria.
Tier 3 ratings receive a "No" in Column 1 for at least one of the non-negotiable criteria.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
SECTION I: NON-NEGOTIABLE CRITERIA: Submissions must meet all of the non-negotiable criteria in order for the review to continue.			
Non-Negotiable **1. FOCUS ON MAJOR WORK[1]:** Students and teachers using the materials as designed devote the large majority[2] of time to the major work of the grade/course. ☒ Yes ☐ No	**REQUIRED** **1a)** Materials should devote the large majority of class time to the major work of each grade/course. Each grade/course must meet the criterion; do not average across two or more grades.	**Yes**	There are 115 lessons in the currently available five missions. Mission 6 is not yet available, and therefore, could not be evaluated. Of these 115 lessons, 102, or 89%, are devoted to major content. Two lessons, or 2%, are devoted to supporting content standards, and 9 lessons, or 8%, are devoted to additional content standards. An additional two lessons are devoted to Grade 4 standards for the purpose of review. These percentages were derived using the Overview of Module Topics and Lesson Objectives pages from each module found by clicking on the link to the full ENY modules on each Mission Overview page.
	REQUIRED **1b)** In any one grade/course, instructional materials should spend minimal time on content outside of the appropriate grade/course. Previous grade/course content should be used only for scaffolding instruction. In assessment materials there are no chapter tests, unit tests, or other such assessment components that make students or teachers responsible for any topics before the grade/course in which they are introduced in the Standards.	**Yes**	The Grade 5 materials spend minimal time on content outside of Grade 5. For example, in Mission 3 where students are exploring addition and subtraction of fractions, minimal time is spent on revisiting foundational standards from Grade 4 to support students' new learning in Grade 5. Lessons 1 and 2 revisit fraction equivalence (4.NF.A.1), where students are focusing on making fractions equivalent, which continues to build throughout the mission for mastery of Grade 5 Standards (5.NF..1 and 5.NF.A.2). While the majority of the assessment items assess Grade 5 content, one assessment in the materials includes problems that assess one standard beyond Grade 5. On the Mission 1 End-of Module Assessment, Problem 4 goes beyond the standards of Grade 5. Part b of this problem requires students to add and subtract decimals to the thousandths place and Part c requires students to divide with decimals to the thousandths place. Standard 5.NBT.B.7 states that students should add, subtract, multiply, and divide decimals to hundredths.

[1] For more on the major work of the grade, see Focus by Grade Level.
[2] The materials should devote at least 65% and up to approximately 85% of class time to the major work of the grade with Grades K–2 nearer the upper end of that range, i.e., 85%.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Problem 4 aligns with 6.NS.B.3, which states that students should perform operations with multi-digit decimals.
Non-Negotiable **2. CONSISTENT, COHERENT CONTENT** Each course's instructional materials are coherent and consistent with the content in the Standards. ☒ Yes ☐ No	**REQUIRED** **2a)** Materials connect supporting content to major content in meaningful ways so that focus and coherence are enhanced throughout the year.	**Yes**	Materials connect supporting content to major content in meaningful ways. For example, in Mission 1, Lesson 4, students apply their knowledge of exponents in converting larger units to smaller units in the metric system, effectively connecting supporting Standard 5.MD.A.1 to major Standard 5.NBT.A.2. In Mission 2, Lessons 13-15 focus on supporting Standard 5.MD.A.1. The lessons are designed in a way that teach Standard 5.MD.A.1 but also focus on the major standards in Domain 5.NBT. The curriculum connects the conceptual understanding and fluency built from the 5.NBT. standard domain to the supporting Standard 5.MD.A.1 by having students multiply to convert metric units using measurements in whole number, fraction, and decimal forms. In Mission 4, Lesson 9, students convert different-sized standard measurement units , including fractional measurements. For example, they find how many minutes 2/5 of an hour is. This effectively connects supporting Standard 5.MD.A.1 to major Standard 5.NF.B.4.
	REQUIRED **2b)** Materials include problems and activities that serve to connect two or more clusters in a domain, or two or more domains in a grade/course, in cases where these connections are natural and important.	**Yes**	Materials include problems and activities that serve to connect two or more clusters in a domain or two or more domains in Grade 5 in ways that are natural and important. For example, in Mission 2, Lesson 16, students use the understanding that in a multi-digit number, a digit represents 1/10 of what it represents in the place to its left (5.NBT.A.1) to help them find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors (5.NBT.B.6), effectively connecting Clusters 5.NBT.A, Understand the place value system, and 5.NBT.B, Perform operations with multi-digit whole numbers and with decimals to hundredths. In Mission 4, Lesson 10, students use parentheses in numerical expressions, evaluate numerical expressions with these symbols, and write

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			simple expressions that record calculations with whole numbers and fractions, effectively connecting Domains 5.OA with Domain 5.NF. In Mission 5, students recognize volume as an attribute of solid figures and understand concepts of volume measurement (5.MD.C.3) while applying and extending previous understandings of multiplication to multiply a fraction or whole number by a fraction (5.NF.B.4).
Non-Negotiable **3. RIGOR AND BALANCE:** Each grade's instructional materials reflect the balances in the Standards and help students meet the Standards' rigorous expectations, by helping students develop conceptual understanding, procedural skill and fluency, and application. ☒ Yes ☐ No	**REQUIRED** **3a) *Attention to Conceptual Understanding:*** Materials develop conceptual understanding of key mathematical concepts, especially where called for explicitly in specific content standards or cluster headings by amply featuring high-quality conceptual problems and discussion questions.	**Yes**	Materials develop conceptual understanding of key mathematical concepts, especially where called for explicitly in specific standards. For example, 5.NBT.A.1 calls for students to develop conceptual understanding of place value. Mission 1, Lesson 1 gives students the opportunity to reason concretely and pictorially relating millions to thousandths using a place value chart. In Module 2, Lesson 2, Problem Set Problem 3 requires students to determine for which of the expressions given would 200,000 be a reasonable estimate and explain how they know, developing students' conceptual understanding of 5.NBT.A.1 as required by the standards. Mission 3, Lesson 5 develops students' conceptual understanding of 5.NF.A.1 by using concrete models of adding and subtracting fractions with unlike denominators, moving to pictorial, and finally abstract representations. Mission 4, Lesson 2 uses equal sharing with area models, both concrete and pictorial, to develop students' conceptual understanding of Standard 5.NF.B.3, interpreting a fraction as division of the numerator by the denominator, as explicitly called for by the standard.
	REQUIRED **3b) *Attention to Procedural Skill and Fluency:*** The materials are designed so that students attain the fluencies and procedural skills required by the Standards. Materials give attention throughout the year to individual standards that set an expectation of procedural skill and fluency. In grades K-6, materials provide repeated practice toward attainment of fluency	**Yes**	Materials for Zearn Math are designed so that students attain fluencies and procedural skills in both small group and independent digital lessons. Sprints, Number Gym, Mix and Match, and Blast are activities used daily with students for practice in procedural skill and fluency. There are also fluency warm-ups during small group instruction within each mission. For example, Mission 4, Lesson 5 has a Mix and Match activity which requires students to relate fractions to division. This allows them to

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	standards. In higher grades, sufficient practice with algebraic operations is provided in order for students to have the foundation for later work in algebra.		develop fluency with 5.NF.B.3 Interpret a fraction as division of the numerator by the denominator. The Sprint in Mission 5, Lesson 3 has students multiplying fractions by whole numbers and vice versa, building procedural skill with 5.NF.B.4 Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. 5.NF.A.1 is a standard that calls for procedural skill of adding and subtracting fractions with unlike denominators. Module 3 Lesson 3 has 6 problems for students to practice adding fractions with unlike denominators, in addition to three word problems. In the next lesson, students solve four problems with the class, and then solve 6 more problems in the problem set. In addition, some of the Sprints and fluency practices are focused on helping students develop this procedural skill. For example, the Module 3 Lesson 12 paper/pencil Sprint and online Sprint are on subtracting fractions with unlike units and the Lesson 13 Fluency Practice includes Adding and Subtracting Fractions with Unlike Units. The materials do not, however, provide repeated practice toward attainment of multi-digit multiplication using the standard algorithm, which is the one standard in Grade 5, 5.NBT.B.5, that explicitly calls for fluency: Fluently multiply multi-digit whole numbers using the standard algorithm. Module 2, Topic B focuses on this standard. Lessons 5, 6, and 7 make connections between the area model and the standard algorithm, gradually building the number of digits in the factors. Lesson 8 has nine problems to develop this procedural skill, in addition to three word problems. Lesson 9 requires students to apply multi-digit multiplication to solve multi-step word problems. There are few other opportunities throughout the materials for students to build fluency with this skill as required by the standards.
	REQUIRED	**Yes**	Materials include many opportunities for students

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	3c) ***Attention to Applications:*** Materials are designed so that teachers and students spend sufficient time working with engaging applications, including ample practice with single-step and multi-step contextual problems, including non-routine problems, that develop the mathematics of the grade/course, afford opportunities for practice, and engage students in problem solving. The problems attend thoroughly to those places in the content Standards where expectations for multi-step and real-world problems are explicit.		to engage in ample practice with single-step and multi-step word problems, especially where explicitly called for in the standards. Standard 5.NF.A.2 specifically calls for application to real-world problems. In Module 3, Lesson 4 Problem Set, Problem 2 requires students to solve a real-world problem involving addition of fractions to find out how much flour someone used during baking. Problem 3 in the same Problem set requires students to add and subtract fractions to find the total amount of time someone practiced piano and how much longer he will need to practice to meet his goal. Lesson 7 in this same Module is focused on solving two-step word problems with fractions. In this lesson, students solve 5 two-step word problems on the Problem Set. Standard 5.NF.B.6 also explicitly calls for application of multiplying fractions and mixed numbers to real-world problems. Module 4, Lessons 11 and 12 focus specifically on solving word problems involving addition, subtraction, and multiplication of fractions, and together, include 8 word problems. Lesson 16 also focuses on Standard 5.NF.B.6. Students must solve word problems using strategies such as tape diagrams and fraction by fraction multiplication. Another example is in Mission 4, Lesson 27. The materials have a section called "Z-Squad" that focuses on the major application Standard 5.NF.B.7c. This video immediately begins with a fraction division word problem which students are encouraged to read the problem and imagine what is happening. The interactive video walks students through understanding and applying the skill of fraction division to the real-world problem.
	REQUIRED **3d)** ***Balance:*** The three aspects of rigor are not always treated together and are not always treated separately.	**Yes**	The three aspects of rigor are not always treated together and are not always treated separately. Conceptual understanding, procedural skill, and application are developed in a way that supports students' understanding and mastery of the standards. For example, in Module 1, students develop conceptual understanding of place value with decimals using place value charts and disks in

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			Lesson 1. They explain how and why the value of the digits change when dividing by 10, 100 or 1,000 (5.NBT.A.1). Then they apply this knowledge to solve a real-world problem. In the next lesson, students continue to develop their conceptual understanding while still using the place value chart, but they begin to transition to the abstract level of thinking. On the problem set, there are 14 problems to help students develop their procedural skill of multiplying and dividing decimals by base ten units. In another example, Mission 4 addresses all three components of rigor. Lessons 1 through 12 strategically move through all components of rigor. The mission begins with a focus on procedural skill and fluency, then moves to conceptual understanding as the focus, and ends the topic with procedural skill and fluency and application as the foci for rigor. The remaining lessons, Lessons 13 through 33 strategically move from conceptual understanding to procedural skill and fluency and application. The components are found throughout the lessons to provide balance to the curriculum for the components of rigor. Digital content gives students the opportunity to develop fluency and procedural skills through the use of Sprints, Number Gym, and Tower of Power. Interactive video lessons develop conceptual understanding. Mission 5 Lesson 5 covers all aspects of rigor. First students build fluency and procedural skill with multiplying a fraction by a fraction in a Blast activity. Then during the Learning Lab interactive video, students develop conceptual understanding of volume by showing that the volume is the same when packing with cubes and when multiplying the edge lengths (5.MD.C.5). During the video, students also begin to develop procedural skill as they are given several opportunities to find the volume of given rectangular prisms by multiplying the edge lengths. During the Tower of Power activity, students have more opportunities to develop their procedural skill with finding volume by multiplying.
Non-Negotiable	**REQUIRED**	**Yes**	Materials address the practice standards in ways

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4. FOCUS AND COHERENCE VIA PRACTICE STANDARDS: Materials promote focus and coherence by connecting practice standards with content that is emphasized in the Standards. ☒ Yes ☐ No	**4a)** Materials address the practice standards in such a way as to enrich the content standards of the grade/course; practices strengthen the focus on the content standards instead of detracting from them, in both teacher and student materials.		that enrich the content of Grade 5. For example, in Mission 4, Lesson 5, students are making sense of problems (MP.1) and modeling with mathematics (MP.4) in Problem 5 when they discuss the practicality of serving pizza in fortieths and determine how to solve the problem using models. In Mission 3, Lesson 16, students use tape diagrams to make sense of problems and persevere in solving them (MP.1) as they explore part to whole relationships. In Mission 2, Lesson 4, Problem Set Problem 4 asks students to explain how knowing 14x50 can help them solve 14x49, helping students develop their ability to look for and make use of structure (MP.7). There are many problems that engage students in MP.3, construct viable arguments and critique the reasoning of others, around the content standards. For example, in Mission 2, Lesson 17, Problem Set Problem 3 requires students to critique a given student's reasoning about how to estimate the quotient of 637 divided by 78. Students must determine if the given reasoning is correct, and if so, explain why, and if not, explain a correct solution. Another example is in Mission 3, Lesson 13. Students engage in MP.3, constructing a viable argument, in the Problem Set Problem 4 when they determine if 4 ⅗ - 3 ⅔ = 1 + ⅗ + ⅔ and prove their answer.
SECTION II: ADDITIONAL ALIGNMENT CRITERIA AND INDICATORS OF QUALITY			
Additional Criterion **5. ALIGNMENT CRITERIA FOR STANDARDS FOR MATHEMATICAL CONTENT:** Materials foster focus and coherence by linking topics (across domains and clusters) and across grades/courses by staying consistent with the progressions in the Standards.	**REQUIRED** **5a)** Materials provide all students extensive work with course-level problems. Review of material from previous grades and courses is clearly identified as such to the teacher, and teachers and students can see what their specific responsibility is for the current year.	**Yes**	Zearn utilizes guided practice and independent practice with course-level problems that meet Grade 5 standards. For example, Mission 2, Lesson 1 provides students with problems that address the Standard 5.NBT.A.1. Also, Mission 2, Lesson 3 provides students with problems that address Standards 5.OA.A.1 and 5.OA.A.2. Zearn notifies teachers when review of material from previous grades are included. The curriculum also provides a rationale that states the purpose for the review from previous grades. For example, Mission 3, Topic A revisits foundational Grade 4 standards that address fraction equivalence (4.NF.A.1, 4.NF.B.3). This knowledge builds throughout the mission which

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☒ Yes ☐ No			allows students to master the Grade 5 Numbers and Operations--Fractions standard domain.
	REQUIRED **5b)** Materials relate course-level concepts explicitly to prior knowledge from earlier grades and courses. The materials are designed so that prior knowledge becomes reorganized and extended to accommodate the new knowledge.	**Yes**	Materials relate Grade 5 concepts to prior knowledge from earlier grades. For example, Mission 3, Add and Subtract Fractions, begins with two lessons focused on Standard 4.NF.A.1, making equivalent fractions, to ready students to be able to add and subtract fractions with unlike denominators (5.NF.A.1) by creating equivalent fractions with like denominators. In addition, as students solve word problems with addition and subtraction of fractions in this module, they are encouraged to draw tape diagrams to help them recognize the part-whole relationship of the fractions, a concept they have learned in previous grades with whole numbers. In Mission 3, Lesson 9, there is a side note to teachers to continue to discuss the need for like units when adding or subtracting fractions and to remind students that fractions follow the same rules as whole numbers. Like units are always necessary to add or subtract. On each Mission page, foundational missions are listed from earlier grade levels, and there are also links to the complete Eureka Math modules. For example, Grade 5 Mission 1 Place Value with Decimal Fractions links to Grade 4 Mission 1 Add, Subtract and Round (4.NBT.A.3) and Grade 4 Mission 6 Decimal Fractions (4.NF.C.6). Mission 5 covers the concept of volume. It is linked with foundational missions Grade 3 Mission 4 Find the Area (3.MD.C.5-7) and Grade 3 Mission 7 Shapes and Measurement (3.G.A.1).
	5c) Materials base content progressions on the progressions in the Standards.	**Yes**	In Grade 5, materials base content progressions on the progressions in the Standards. The progression of each standard is clearly visible throughout the missions. For example, in Mission 3, students heavily focus on equivalent fractions with addition and subtraction of fractions. The conceptual understanding, procedural skill and fluency, and application gained in Mission 3 continue to build in Mission 4. In Mission 4, students are expected to

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			master multiplying and dividing fractions. These two missions work together coherently to allow for mastery of the Number and Operations--Fractions standard domain.
	5d) Materials include learning objectives that are visibly shaped by CCSSM cluster headings and/or standards.	**Yes**	Materials include learning objectives that are shaped by the LSSM standard domains and clusters. For example, the learning objective for Mission 1, Lessons 7 and 8 is shaped directly from Standard 5.NBT.A.4. The objective states, “Round a given decimal to any place using place value understanding and the vertical number line.” 5.NBT.A.4 states that students use place value understanding to round decimals to any place. The learning objective for Module 1, Lesson 15 is, "Divide decimals using place value understanding, including remainders in the smallest unit," which clearly aligns with Standard 5.NBT.B.7. In Mission 4, the learning objective for Lessons 2 and 3 is shaped directly from Standard 5.NF.B.3. The objective states, “Interpret a fraction as division.” Standard 5.NF.B.3 states that students interpret a fraction as division of the numerator by the denominator. In Mission 5, the learning objective for Lesson 1 is shaped directly from Standard 5.MD.C.4, which states, “Measure volumes by counting unit cubes, …”. The objective states, “Explore volume by building with and counting unit cubes.”
	5e) Materials preserve the focus, coherence, and rigor of the Standards even when targeting specific objectives.	**Yes**	Materials preserve the focus, coherence, and rigor of the Standards even when targeting specific objectives. Coherence is a strong component of the materials in that the connections are both explicit and implicit across all lessons, materials, and activities. For example, at the beginning of each topic, the text includes the focus standard, instructional days, and coherence. The text also includes a detailed description of the content of each lesson. Mission 4, Lesson 1 fully addresses the Standard 5.MD.A.2. Students are expected to measure and compare pencil lengths to the nearest 1/2, 1/4, and 1/8 of an inch, and analyze the data through line plots. Standard 5.MD.A.2 calls for students to make a line plot to display a data set of

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			measurements in fractions of a unit (1/2, /1/4, AND 1/8).
Additional Criterion **6. ALIGNMENT CRITERIA FOR STANDARDS FOR MATHEMATICAL PRACTICE:** Aligned materials make meaningful and purposeful connections that enhance the focus and coherence of the Standards rather than detract from the focus and include additional content/skills to teach which are not included in the Standards. ☒ Yes ☐ No	**REQUIRED** **6a)** Materials attend to the full meaning of each practice standard. Over the course of any given year of instruction, each mathematical practice standard is meaningfully present in the form of assignments, activities, or problems that stimulate students to develop the habits of mind described in the practice standard. Alignments to practice standards are accurate.	**Yes**	Materials attend to the full meaning of each practice standard. In Module 1, Lesson 2, students engage in MP.3 when they compare the answers of 367 x 10 and 367/10 and explain how they got their answers. Then they engage in MP.2 as they reason abstractly by trying to visualize the place value chart to help them find the product and quotient of two more similar problems. Teachers support students in reasoning abstractly and quantitatively by asking questions such as, "What patterns do you notice in the number of zeros in the product and the placement of the decimal in the quotient? What do you notice about the number of zeros in your factors and the shift in the places in your product? What do you notice about the number of zeros in your divisor and the shift in places in your quotient?"
	REQUIRED **6b)** Materials provide sufficient opportunities for students to construct viable arguments and critique the arguments of others concerning key grade-level mathematics that is detailed in the content standards (cf. MP.3). Materials engage students in problem solving as a form of argument, attending thoroughly to places in the Standards that explicitly set expectations for multi-step problems.	**Yes**	While not always labeled in the materials, there are sufficient opportunities for students to construct viable arguments and critique the reasoning of others. In the Module 3, Lesson 5 Problem Set, Problem 3 provides students with an incorrect reasoning about subtracting fractions. Students are required to construct an argument about why the reasoning is wrong and are encouraged to draw a model to support their argument. In the Module 3, Lesson 8 Problem Set, Problem 4 requires students to draw a model to prove why a given reasoning about subtracting mixed numbers is wrong. In Module 4, MP.3 is labeled for teachers as students test their hypothesis that when they multiplied a fraction by 2 halves, the quantity did not change because they multiplied by 1. Students work with a partner to find 3/3 by 3/4 by multiplying the fractions and drawing an area model and then discuss their findings. Students again engage in MP.3 in this lesson in the problem set on Problem 3. The problem provides students with the following reasoning: "Jack said if you take a number and multiply it by a fraction, the product will always be smaller than what you started with." Students must

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			determine if he is correct or incorrect, explain why, and provide two examples to support their thinking.
	6c) There are teacher-directed materials that explain the role of the practice standards in the classroom and in students' mathematical development.	**Yes**	There are teacher-directed materials that very clearly explain the role of the math practice standards and the purpose and importance of those standards in the math classroom. In the Module overviews, there are explanations about the role of the Practice Standards in the classroom. For example, the Focus Standards for Mathematical Practice are listed on page 6 of the Mission 2 guide. For MP.1, the materials explain, "Students make sense of problems when they use place value disks and area models to conceptualize and solve multiplication and division problems." In the Module 4 overview, Practice Standards MP.2, MP.4, and MP.5 are listed as the Focus Standards for Mathematical Practice. The materials explain how students will engage in these practices during the module. For MP.2, it explains, "Students reason abstractly and quantitatively as they interpret the size of a product in relation to the size of a factor, as well as interpret terms in a multiplication sentence as a quantity and scaling factor. Then, students create a coherent representation of the problem at hand while attending to the meaning of the quantities." In the Module 5 overview, the materials explain how students will engage in MP.2 again with the content of this module: "Students make sense of quantities and their relationships when they analyze geometric shape or real-life scenario and identify, represent, and manipulate the relevant measurements. Students decontextualize when they represent geometric figures symbolically and apply formulas."
	6d) Materials explicitly attend to the specialized language of mathematics.	**Yes**	Materials explicitly attend to the specialized language of mathematics. At the beginning of each module, there is a list of terminology for teachers. This list identifies which terms are new for students as well as which ones are familiar but still important. For example, on page 11 of Module 4, new terms listed are decimal divisor (the number that divides the whole and has units of tenths, hundredths,

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			thousandths, etc.) and simplify (using the largest fractional unit possible to express an equivalent fraction). These terms are used throughout the module in both the teacher notes and the student work pages. In Mission 1, the term exponent is introduced and is consistently and clearly used within in the lessons to build understanding and application of knowledge. In Mission 3, the terms like denominators and unlike denominators are introduced and are consistently and clearly used within in the lessons to build understanding and application of knowledge. There are notes throughout the modules to help teachers enhance student use of the math vocabulary. For example, in Mission 3, Lesson 6, there is a side note for teachers to have students orally label the parts of the rectangular fraction model to practice using the specialized fraction language, such as halves and sixths.
Additional Criterion **7. INDICATORS OF QUALITY:** Quality materials should exhibit the indicators outlined here in order to give teachers and students the tools they need to meet the expectations of the Standards. ☒ Yes ☐ No	**REQUIRED** **7a)** There is variety in what students produce. For example, students are asked to produce answers and solutions, but also, in a grade-appropriate way, arguments and explanations, diagrams, mathematical models, etc.	**Yes**	There is a variety in what students are asked to produce. For example, in the Module 1, Lesson 13 Problem Set, students write given equations in unit form before solving, find quotients of whole-numbers as well as decimals divided by whole numbers, and they use words, numbers, or pictures to describe relationships between the pairs of problems and quotients (5.NBT.A.1). They also write to explain if given quotients are reasonable and explain their thinking. Another example is in the Module 3, Lesson 4 Problem Set. Problems 1 a-f require students to solve addition of fractions by drawing a rectangular fractions model (5.NF.A.1). In Module 3, Lesson 10, students add fractions with a sum greater than 2 (5.NF.A.1) and represent their thinking using a number line diagram. Students are required to complete work both on the computer and using paper/pencil. Students engage with digital manipulatives throughout Zearn math lessons and hands-on opportunities during small group instruction. For example, during small group instruction, Topic F Dividing Decimals concludes Module 1 with an exploration of division of decimal

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			numbers by one-digit whole-number divisors using place value charts and disks.
	REQUIRED **7b)** There are separate teacher materials that support and reward teacher study including, but not limited to: discussion of the mathematics of the units and the mathematical point of each lesson as it relates to the organizing concepts of the unit, discussion on student ways of thinking and anticipating a variety of students responses, guidance on lesson flow, guidance on questions that prompt students thinking, and discussion of desired mathematical behaviors being elicited among students.	**Yes**	There are separate teacher materials that support and reward teacher study. At the beginning of each module and each topic, there is an overview that explains how the content progresses in the module or topic and how it links to previously learned content. For example, the Module 2, Topic C overview explains that students will make connections between what they know of whole number multiplication to multiplication with decimals and how students will use knowledge of multiplicative patterns from Grade 4 to provide support for converting decimal multiplication to whole number multiplication. In another example, the Module 5, Topic A overview explains how students will begin to extend their spatial structuring to three dimensions through an exploration of volume, and that by developing a systematic approach to counting the unit cubes, students will make connections between area and volume. In addition to the overviews, each lesson has a sample conversation between teacher and students to provide ideas to the teacher for questions to prompt student thinking and to anticipate a variety of student responses. For example, in Module 1, Lesson 13, during the concept development, students are learning to divide decimals by single-digit whole numbers by reading the equations in unit form. A sample question is provided, "How does unit form help us divide?" Sample student responses are also provided, "When we identify the units, it's just like dividing 9 apples into 3 groups," and "If you know what unit you are sharing, then it's just like whole-number division. You can just think about the basic fact." There are notes that are provided to further explain and clarify for teachers areas where students may need more help and guidance, explanations on math practice standards, and tips are also provided.

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	7c) 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.	**Yes**	Support for English language learners and other special populations is evident throughout the materials. Zearn provides English Language Learners and special populations with clear explanations and pictures and models for concepts and vocabulary. For example, in Mission 3, Lesson 1, students are given very clear fraction models and representations with clear language and explanations to help them master the Standards. Also, the notes provided for teachers allow for teachers to purposefully target where students may need more support and modeling or instruction with vocabulary and language to master grade level standards. In Mission 3, Lesson 9, there is a side note for teachers on using a Turn and Talk structure to support English language learners. It explains that using this structure provides students with an opportunity to practice the academic language in a low-stakes setting. In Mission 3, Lesson 11, there is side note to teachers that the language of whole numbers, compared to fractions, is much more familiar to English language learners and provides teachers with the idea to present the application problem using whole numbers. In Mission 4, Lesson 5, there is a teacher note regarding supporting English language learners as they explain their thinking. Sample sentence frames and a word bank are given. Real-world problems provided in the materials use simple language and are based on familiar situations to students at this grade level. For example, Mission 3, Lesson 8 has two word problems on the Problem Set. Problem 2 is about determining the fraction of time a boy spent making faces at his stuffed tiger during time out. Problem 3 is about the amount of time a girl needs to practice playing piano to reach her goal. In the online lessons, each piece of text can be read aloud to students by clicking on the speaker icon.
	7d) The underlying design of the materials distinguishes between problems and exercises. In essence the difference is that in solving problems, students learn new mathematics, whereas in working exercises,	**Yes**	The design of the materials reviewed for Grade 5 provide students with ongoing opportunities to practice previously learned skills as they learn new content. The materials use problem sets and

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	students apply what they have already learned to build mastery. Each problem or exercise has a purpose.		application problems to develop their understanding of new mathematics. These materials use homework, application problems and fluency sessions to practice previously learned concepts. For example, problem sets within the lessons include guidance on how to select and sequence the exercises and fluency exercises within the lessons include guidance on the purpose of each activity, the homework gives students additional practice on the skills they learned in class each day, and the bank of fluency activities for the lessons is intentionally organized so that activities revisit previously-learned material to develop automaticity, anticipate future concepts and strategically preview or build skills for the day's "Concept Development". This design is also how the the online lessons are built. For example, Mission 4, Lesson 7, Tape Fractions, has a Learning Lab where students learn how to find a fraction of a number using tape diagrams. Following the Learning Lab, students engage in the Tower of Power and solve exercises similar to the problems solved during the Learning Lab to build mastery.
	7e) Lessons are appropriately structured and scaffolded to support student mastery.	**Yes**	The materials reviewed for Grade 5 are appropriately structured and scaffolded to support student mastery. For example, the lessons are sequenced to build from conceptual understanding using concrete and pictorial representations to more abstract representations. The marginal notes on the Deep Understanding Activities section often suggest ways to support students as a whole and subgroups of students who might need extra support. This includes support for vocabulary, representations, engagement options and materials. Also, lessons and mathematical topics are sequenced according to the CCSSM progressions of learning. Also, a description of the Mission sequence and layout is provided.
	7f) Materials support the uses of technology as called for in the Standards.	**Yes**	The materials are a technology-based curriculum that combines technology with paper and pencil

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			work. The digital lessons include activities to support classroom instruction. Zearn is built to directly correlate and support the Engage NY/Eureka Math curriculum. The materials reviewed for Grade 5 consist of two main parts, the Independent Zearn Time and the Small Group Instruction. During the independent time the students are engaged with personalized digital lessons, which can be done on iPads, laptops, and computer as long as students have access to the internet. During the Small Group Instruction, students are working with the teacher personally in a small group setting.

FINAL EVALUATION

Tier 1 ratings receive a "Yes" in Column 1 for Criteria 1 – 7.

Tier 2 ratings receive a "Yes" in Column 1 for all non-negotiable criteria (Criteria 1 – 4), but at least one "No" in Column 1 for the remaining criteria.

Tier 3 ratings receive a "No" in Column 1 for at least one of the non-negotiable criteria.

Compile the results for Sections I and II to make a final decision for the material under review.

Section	Criteria	Yes/No	Final Justification/Comments
I: Non-Negotiables	1. Focus on Major Work	**Yes**	89% (102 out of 115 lessons) focus on major content for Grade 5, and minimal time is spent on content outside the grade level.
	2. Consistent, Coherent Content	**Yes**	Supporting content supports the major work of the grade and materials feature problems and activities that combine standards that address multiple clusters and domains.
	3. Rigor and Balance	**Yes**	Materials present content both separately and together in correlation with the three aspects of rigor as required by the standards.
	4. Focus and Coherence via Practice Standards	**Yes**	The use of the Mathematical Practices enrich the content of the grade level.
II: Additional Alignment Criteria and Indicators of Quality	5. Alignment Criteria for Standards for Mathematical Content	**Yes**	Materials provide students with ample course-level problems, relate prior knowledge to new learning, and follow the progressions as outlined in the standards.
	6. Alignment Criteria for Standards for Mathematical Practice	**Yes**	Materials attend to the full meaning of the Practice Standards over the course of a year and attend to the specialized vocabulary for mathematics.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
	7. Indicators of Quality	**Yes**	There is a variety in what students produce, and there are materials to support teacher study. Materials are scaffolded to accommodate new learning, support is provided for ELL learners and special populations, and materials use technology as called for in the standards.
FINAL DECISION FOR THIS MATERIAL: **Tier I, Exemplifies quality**			

Appendix I.

Publisher Response

The publisher had no response.

Appendix II.

Public Comments

There were no public comments submitted.