

EQuIP Review Feedback



Lesson/Unit Name: Rates, Ratios, and Percents

Content Area: Mathematics

Grade Level: 6

Reviewer 1

Overall Rating:

E

Exemplar

Dimension I – Alignment to the Depth of the CCSS

<p><i>The lesson/unit aligns with the letter and spirit of the CCSS:</i></p> <ul style="list-style-type: none"> ✓ Targets a set of grade-level CCSS mathematics standard(s) to the full depth of the standards for teaching and learning. ✓ Standards for Mathematical Practice that are central to the lesson are identified, handled in a grade-appropriate way, and well connected to the content being addressed. ✓ Presents a balance of mathematical procedures and deeper conceptual understanding inherent in the CCSS. 	<p>Lessons definitely target grade-level CCSS standards to their full depth.</p> <p>SMPs are clearly identified. Connections to the RP lesson content are made to provide teachers with an idea of which student behaviors and levels of proficiency are appropriately observed while completing activities. These SMPs are defined prior to each activity and then referenced within activities.</p> <p>The lessons' activities present an appropriate balance of procedural skills and deep conceptual understanding.</p>
<p>Rating: 3 – Meets most to all of the criteria in the dimension</p>	

Dimension II – Key Shifts the CCSS

<p><i>The lesson/unit reflects evidence of key shifts that are reflected in the CCSS:</i></p> <ul style="list-style-type: none"> ✓ Focus: Lessons and units targeting the major work of the grade provide an especially in-depth treatment, with especially high expectations. Lessons and units targeting supporting work of the grade have visible connection to the major work of the grade and are sufficiently brief. Lessons and units do not hold students responsible for material from later grades. ✓ Coherence: The content develops through reasoning about the new concepts on the basis of previous understandings. Where appropriate, provides opportunities for students to connect knowledge and skills within or across clusters, domains and learning progressions. ✓ Rigor: Requires students to engage with and demonstrate challenging mathematics with appropriate balance among the following: <ul style="list-style-type: none"> – Application: Provides opportunities for students to independently apply mathematical concepts in real-world situations and solve challenging problems with persistence, choosing and applying an appropriate model or strategy to new situations. – Conceptual Understanding: Develops students' conceptual understanding through tasks, brief problems, questions, 	<p>Focus is clearly evident in the lessons, as 6.RP.A.1, 2, and 3 represent work from a major Domain/Cluster.</p> <p>Grade-to-grade coherence is present. Each lesson introduction includes a list of skills/understanding from prior grades that is needed for success in the grade 6 activities. SUGGESTION: Developer also should identify the prior skills/understandings by CC code so that teachers can refer back to specific standards, if necessary, without having to "hunt" for them. SUGGESTION: Introduction should also include reference to the "next steps" in grade 7 for which these lessons are laying a foundation, for example the various aspects of proportional relationships.</p> <p>Within-grade coherence is not readily evident. SUGGESTION: Include activities that interrelate other grade 6 standards, such as 6.EE.C.9., 6.NS1, 2, and 3, and 6.NS.C.8, among others. When teachers increasingly see obvious connections between standards from different domains in the same grade, they will be able to teach more efficiently and manage instructional time more effectively. These same-grade, cross-cluster connections also help make the mathematics content and procedures more recognizable/relevant for students.</p> <p>Rigor is present. (1) Application. Activities draw on authentic scenarios and provide multiple opportunities for students to model ratios and rates, etc. The activities represent varying levels of challenge, including high-level, that encourage students to persevere and make independent choices. (2) Conceptual Understanding. In the lessons as an entirety, the various aspects of this shift are clearly present.</p>
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<p>multiple representations and opportunities for students to write and speak about their understanding.</p> <ul style="list-style-type: none"> - Procedural Skill and Fluency: Expects, supports and provides guidelines for procedural skill and fluency with core calculations and mathematical procedures (when called for in the standards for the grade) to be performed quickly and accurately. 	<p>(3) Procedural Skill and Fluency. When performing the tasks/activities in these lessons, students have opportunities to build their fluency with skills/knowledge for which they should have mastery by grade 6, for example 6.NS.A.1.</p>
<p>Rating: 2 – Meets many of the criteria in the dimension</p>	

Dimension III – Instructional Supports

<p><i>The lesson/unit is responsive to varied student learning needs:</i></p> <ul style="list-style-type: none"> ✓ Includes clear and sufficient guidance to support teaching and learning of the targeted standards, including, when appropriate, the use of technology and media. ✓ Uses and encourages precise and accurate mathematics, academic language, terminology and concrete or abstract representations (e.g., pictures, symbols, expressions, equations, graphics, models) in the discipline. ✓ Engages students in productive struggle through relevant, thought-provoking questions, problems and tasks that stimulate interest and elicit mathematical thinking. ✓ Addresses instructional expectations and is easy to understand and use. ✓ Provides appropriate level and type of scaffolding, differentiation, intervention and support for a broad range of learners. <ul style="list-style-type: none"> - Supports diverse cultural and linguistic backgrounds, interests and styles. - Provides extra supports for students working below grade level. - Provides extensions for students with high interest or working above grade level. <p><i>A unit or longer lesson should:</i></p> <ul style="list-style-type: none"> ✓ Recommend and facilitate a mix of instructional approaches for a variety of learners such as using multiple representations (e.g., including models, using a range of questions, checking for understanding, flexible grouping, pair-share). ✓ Gradually remove supports, requiring students to demonstrate their mathematical understanding independently. ✓ Demonstrate an effective sequence and a progression of learning where the concepts or skills advance and deepen over time. ✓ Expect, support and provide guidelines for procedural skill and fluency with core calculations and mathematical procedures (when called for in 	<p>Each lesson includes guidance for teachers regarding: what students should know and be able to do, essential questions, goals, connections to reading and writing standards, targeted SMPs, teacher notes with diagrams and explanations, descriptions of possible student misconceptions, strategies to avoid initially (e.g., cross multiplication), among others.</p> <p>From what I can tell, the lesson activities use and encourage precise and accurate mathematics, academic language, terminology, and concrete or abstract representations. However, I have not had the opportunity to complete every activity. I suggest that the developers allow mathematics educators who have not seen the activities before to go through them thoroughly.</p> <p>REALLY, REALLY like all of the diagrams, especially those like the ones on p. 9, p. 56, and p. 61!!! They are edifying for all students, but especially useful for ELLs and students who are visual learners.</p> <p>As one progresses through this suite of lessons, one can clearly identify appropriate levels and types of scaffolding, differentiation, intervention and support for the broad range of learners noted in the Dimension III description.</p>
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the standards for the grade) to be performed quickly and accurately.	
Rating: 3 – Meets most to all of the criteria in the dimension	

Dimension IV – Assessment

<p><i>The lesson/unit regularly assesses whether students are mastering standards-based content and skills:</i></p> <ul style="list-style-type: none"> ✓ Is designed to elicit direct, observable evidence of the degree to which a student can independently demonstrate the targeted CCSS. ✓ Assesses student proficiency using methods that are accessible and unbiased, including the use of grade-level language in student prompts. ✓ Includes aligned rubrics, answer keys and scoring guidelines that provide sufficient guidance for interpreting student performance. <p><u><i>A unit or longer lesson should:</i></u></p> <ul style="list-style-type: none"> ✓ Use varied modes of curriculum-embedded assessments that may include pre-, formative, summative and self-assessment measures. 	<p>Clear evidence exists to strongly support all four bullets. The Curriculum Embedded Performance Assessment (CEPA) introduces a highly valuable dimension for assessing levels of individual student achievement; CEPA complements the other formal, and informal, assessment formats used in these lessons.</p>
Rating: 3 – Meets most to all of the criteria in the dimension	

Summary Comments

<p>This sequence of lessons is logical, thorough, well-conceived, closely aligned to the targeted standards, child appropriate, and clear.</p> <p>Developer needs to be attentive to gender bias. Lesson 3 contains examples in which the boy is faster than the girl. Suggest including an example in which the girl is faster than the boy.</p> <p>For more detailed discussion, see comments in specific Dimension sections.</p> <p>Overall rating: $3 + 2 + 3 + 3 = 11$</p> <p>Exemplar</p>
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Reviewer 2

Dimension I – Alignment to the Depth of the CCSS

<p><i>The lesson/unit aligns with the letter and spirit of the CCSS:</i></p> <ul style="list-style-type: none"> ✓ Targets a set of grade-level CCSS mathematics standard(s) to the full depth of the standards for teaching and learning. ✓ Standards for Mathematical Practice that are central to the lesson are identified, handled in a grade-appropriate way, and well connected to the content being addressed. ✓ Presents a balance of mathematical procedures and deeper conceptual understanding inherent in the CCSS. 	<p>This unit is well-aligned to the CCSS for the grade-level band. The standards that the unit covers are clear and the standards are fully addressed. The standards are addressed to the full depth of teaching and learning.</p> <p>The Standards for Mathematical Practice are highlighted throughout the unit. They are appropriate to the unit and the lesson. There are explicit connections made between the Standards for Mathematical Practice and how they tie into the lesson. Examples are given within the lesson sequence about which Standard for Mathematical Practice is addressed at that point in instruction.</p> <p>Overall, the unit has a balance of mathematical procedures and deeper conceptual understanding. The presentation of ratios builds from a visual</p>
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representation to using tables and graphs. The unit makes a point to note which procedures are appropriate for the grade and which will come into play in a later grade. For example, it is explicitly stated that students should not use solving a proportion by cross-multiplying and dividing because that is not learned until 7th grade.

Rating: 3 – Meets most to all of the criteria in the dimension

Dimension II – Key Shifts the CCSS

The lesson/unit reflects evidence of key shifts that are reflected in the CCSS:

- ✓ **Focus:** Lessons and units targeting the major work of the grade provide an especially in-depth treatment, with especially high expectations. Lessons and units targeting supporting work of the grade have visible connection to the major work of the grade and are sufficiently brief. Lessons and units do not hold students responsible for material from later grades.
- ✓ **Coherence:** The content develops through reasoning about the new concepts on the basis of previous understandings. Where appropriate, provides opportunities for students to connect knowledge and skills within or across clusters, domains and learning progressions.
- ✓ **Rigor:** Requires students to engage with and demonstrate challenging mathematics with appropriate balance among the following:
 - **Application:** Provides opportunities for students to independently apply mathematical concepts in real-world situations and solve challenging problems with persistence, choosing and applying an appropriate model or strategy to new situations.
 - **Conceptual Understanding:** Develops students’ conceptual understanding through tasks, brief problems, questions, multiple representations and opportunities for students to write and speak about their understanding.
 - **Procedural Skill and Fluency:** Expects, supports and provides guidelines for procedural skill and fluency with core calculations and mathematical procedures (when called for in the standards for the grade) to be performed quickly and accurately.

This unit is focused on the major work of the grade – it gives the in-depth treatment that is required to meet the standards. Students are not responsible for material from later grades.

The content of the unit builds on students’ previous understandings from lesson to lesson. The coherence of this unit could be improved by incorporating more information about how the work of this unit builds on standards from previous grades. Although there is reference to previous skills such as equivalent fractions, it is not clear which grade level or standard it correlates to. Adding this information will help improve the coherence of the unit. There is some reference to where the work of this unit goes in later grades, but adding a clear explanation of where the work is going will also improve the coherence.

Overall, this unit demonstrates alignment to the rigor shift. The unit builds students’ conceptual understanding of ratios, proportions, and percents in a clear manner and students have opportunities to understand multiple representations of the concepts. The unit also incorporates opportunities for students to build procedural fluency as their understanding of ratios, rates, and percents deepens.

Rating: 2 – Meets many of the criteria in the dimension

Dimension III – Instructional Supports

The lesson/unit is responsive to varied student learning needs:

- ✓ Includes clear and sufficient guidance to support

This unit includes clear guidance to support the teaching and learning of targeted standards and incorporates the use of technology appropriately. The language used is precise, including how to differentiate between the

<p>teaching and learning of the targeted standards, including, when appropriate, the use of technology and media.</p> <ul style="list-style-type: none"> ✓ Uses and encourages precise and accurate mathematics, academic language, terminology and concrete or abstract representations (e.g., pictures, symbols, expressions, equations, graphics, models) in the discipline. ✓ Engages students in productive struggle through relevant, thought-provoking questions, problems and tasks that stimulate interest and elicit mathematical thinking. ✓ Addresses instructional expectations and is easy to understand and use. ✓ Provides appropriate level and type of scaffolding, differentiation, intervention and support for a broad range of learners. <ul style="list-style-type: none"> – Supports diverse cultural and linguistic backgrounds, interests and styles. – Provides extra supports for students working below grade level. – Provides extensions for students with high interest or working above grade level. <p><u>A unit or longer lesson should:</u></p> <ul style="list-style-type: none"> ✓ Recommend and facilitate a mix of instructional approaches for a variety of learners such as using multiple representations (e.g., including models, using a range of questions, checking for understanding, flexible grouping, pair-share). ☐ Gradually remove supports, requiring students to demonstrate their mathematical understanding independently. ✓ Demonstrate an effective sequence and a progression of learning where the concepts or skills advance and deepen over time. ✓ Expect, support and provide guidelines for procedural skill and fluency with core calculations and mathematical procedures (when called for in the standards for the grade) to be performed quickly and accurately. 	<p>term rate and ratio. The visual organizers include precise language and also offer supports to students. There is a balance between concrete and abstract representations. Throughout the lessons, students are engaged in productive struggle – tasks are thought-provoking and elicit mathematical thinking.</p> <p>The lesson overviews give clear expectations for what students should know and be able to do. The explanations are clear and easy to use. The inclusion of student preconceptions and misconceptions gives teachers possible entry points for their students.</p> <p>Within the lessons, supports are given for both students who are struggling and students who need a challenge. One way to strengthen this aspect of the unit would be to include when and how some of those extra supports can be removed.</p> <p>The multiple representations of ratios, rates, and percents reach a variety of learners and there is also variety in the instructional approaches. The learning progression is clear and guidance is given for how the skills advance and deepen over time. The expectations for procedural skill are also evident and the unit also addresses which procedural skills (cross-multiplying proportions) are not appropriate for the grade level.</p>
<p>Rating: 3 – Meets most to all of the criteria in the dimension</p>	

Dimension IV – Assessment

<p><i>The lesson/unit regularly assesses whether students are mastering standards-based content and skills:</i></p> <ul style="list-style-type: none"> ✓ Is designed to elicit direct, observable evidence of the degree to which a student can independently demonstrate the targeted CCSS. ✓ Assesses student proficiency using methods that are accessible and unbiased, including the use of grade-level language in student prompts. ✓ Includes aligned rubrics, answer keys and scoring guidelines that provide sufficient 	<p>Assessment is a strength of this unit. Each day includes a method for the teacher to get direct evidence to assess the degree to which students can independently demonstrate their understanding of the targeted standard. The assessments are accessible and unbiased and the language is appropriate to the grade level. All assessments include answer keys or scoring rubrics.</p> <p>The assessments are varied and offer a wide range of assessment type. The daily assessments serve as strong formative assessments that can give teachers direct evidence of their students' understanding of the topics at hand. The unit concludes with a performance task that will require students</p>
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<p>guidance for interpreting student performance.</p> <p><u>A unit or longer lesson should:</u></p> <ul style="list-style-type: none"> ✓ Use varied modes of curriculum-embedded assessments that may include pre-, formative, summative and self-assessment measures. 	<p>to show their understanding of the unit as a whole.</p>
<p>Rating: 3 – Meets most to all of the criteria in the dimension</p>	

Summary Comments

<p>This unit meets all of the dimensions of the rubric to be considered exemplar. It goes to the full depth of the standards, focuses on the major work of the grade, and balances students conceptual understanding, procedural fluency and skill, and opportunities for application. This unit is well-aligned to the Common Core Standards and demonstrates evidence of the three instructional shifts.</p> <p>The expectations for teachers and students are clear and easy to use. Each lesson provides guidance that will allow the students to deepen their understanding of the ratios, rates, and percents over time. The instructional supports are clear and the assessments are well-aligned to the lessons. The inclusion of a performance assessment will inform the teacher to students' understanding of the unit as a whole.</p>

Reviewer 3

Dimension I – Alignment to the Depth of the CCSS

<p><i>The lesson/unit aligns with the letter and spirit of the CCSS:</i></p> <ul style="list-style-type: none"> ✓ Targets a set of grade-level CCSS mathematics standard(s) to the full depth of the standards for teaching and learning. ✓ Standards for Mathematical Practice that are central to the lesson are identified, handled in a grade-appropriate way, and well connected to the content being addressed. ✓ Presents a balance of mathematical procedures and deeper conceptual understanding inherent in the CCSS. 	<p>This unit targets grade-level standards to the depth inferred by the CCSS. Students are engaged in the content of each lesson via the Standards for mathematical Practice.</p> <p>The lessons in the unit use multiple representations to develop student understanding and the exercises and tasks move students toward developing procedures for solving ratio/rate problems.</p>
<p>Rating: 3 – Meets most to all of the criteria in the dimension</p>	

Dimension II – Key Shifts the CCSS

<p><i>The lesson/unit reflects evidence of key shifts that are reflected in the CCSS:</i></p> <ul style="list-style-type: none"> ✓ Focus: Lessons and units targeting the major work of the grade provide an especially in-depth treatment, with especially high expectations. Lessons and units targeting supporting work of the grade have visible connection to the major work of the grade and are sufficiently brief. Lessons and units do not hold students responsible for material from later grades. ✓ Coherence: The content develops through reasoning about the new concepts on the basis of previous understandings. Where appropriate, provides opportunities for students to connect knowledge and skills within or across clusters, 	<p>Each lesson in the unit targets standards that are major work of grade 6 and goes in depth in the treatment of the standards. Each lesson builds upon prior lesson(s) and creates a logical progression of content while engaging students in a variety of tasks that challenge students in applying their understanding of the concepts with real world applications. Coherence within grade plays out in each lesson with attention given to required student prior knowledge and with previews of next lesson. Reference to prior grade standards (4.NF.4a) and future standards (8.F.4) provides an aspect of cross-grade coherence. Because it is the nature of this lesson to go deep into major content of the grade, references to past grades' work are not a necessary component.</p> <p>The rigor of this unit is evident in the many real world context problems, in tasks for students (ex. create a story problem for a given computation). The instruction in this unit provides multiple opportunities for students to develop their understanding via multiple means of representation for solving</p>
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<p>domains and learning progressions.</p> <p>✓ Rigor: Requires students to engage with and demonstrate challenging mathematics with appropriate balance among the following:</p> <ul style="list-style-type: none"> – Application: Provides opportunities for students to independently apply mathematical concepts in real-world situations and solve challenging problems with persistence, choosing and applying an appropriate model or strategy to new situations. – Conceptual Understanding: Develops students' conceptual understanding through tasks, brief problems, questions, multiple representations and opportunities for students to write and speak about their understanding. – Procedural Skill and Fluency: Expects, supports and provides guidelines for procedural skill and fluency with core calculations and mathematical procedures (when called for in the standards for the grade) to be performed quickly and accurately. 	<p>problems.</p>
<p>Rating: 3 – Meets most to all of the criteria in the dimension</p>	

Dimension III – Instructional Supports

<p><i>The lesson/unit is responsive to varied student learning needs:</i></p> <ul style="list-style-type: none"> ✓ Includes clear and sufficient guidance to support teaching and learning of the targeted standards, including, when appropriate, the use of technology and media. ✓ Uses and encourages precise and accurate mathematics, academic language, terminology and concrete or abstract representations (e.g., pictures, symbols, expressions, equations, graphics, models) in the discipline. ✓ Engages students in productive struggle through relevant, thought-provoking questions, problems and tasks that stimulate interest and elicit mathematical thinking. ✓ Addresses instructional expectations and is easy to understand and use. ✓ Provides appropriate level and type of scaffolding, differentiation, intervention and support for a broad range of learners. <ul style="list-style-type: none"> – Supports diverse cultural and linguistic backgrounds, interests and styles. – Provides extra supports for students working below grade level. – Provides extensions for students with high interest or working above grade level. <p><i>A unit or longer lesson should:</i></p>	<p>The instructional supports for teachers to use this lesson in the classroom are more than sufficient. Each lesson provides teachers with an overview of the lesson, as well as students' required prior knowledge, pre-conceptions and misconceptions, resources, and teacher notes. The teacher notes support the development of teacher understanding of the content and areas where students may have difficulty with the content.</p> <p>The use of academic language is noted throughout the lessons and teacher notes include information for teachers where they need to focus on vocabulary. The Math Wall supports diverse learners and is in the first lesson so that the support for students is there throughout the unit.</p> <p>The unit has a variety of instructional approaches including individual work, pair work, and group work that engages students in the content.</p>
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<ul style="list-style-type: none"> ✓ Recommend and facilitate a mix of instructional approaches for a variety of learners such as using multiple representations (e.g., including models, using a range of questions, checking for understanding, flexible grouping, pair-share). ✓ Gradually remove supports, requiring students to demonstrate their mathematical understanding independently. ✓ Demonstrate an effective sequence and a progression of learning where the concepts or skills advance and deepen over time. ✓ Expect, support and provide guidelines for procedural skill and fluency with core calculations and mathematical procedures (when called for in the standards for the grade) to be performed quickly and accurately. 	
<p>Rating: 3 – Meets most to all of the criteria in the dimension</p>	

Dimension IV – Assessment

<p><i>The lesson/unit regularly assesses whether students are mastering standards-based content and skills:</i></p> <ul style="list-style-type: none"> ✓ Is designed to elicit direct, observable evidence of the degree to which a student can independently demonstrate the targeted CCSS. ✓ Assesses student proficiency using methods that are accessible and unbiased, including the use of grade-level language in student prompts. ✓ Includes aligned rubrics, answer keys and scoring guidelines that provide sufficient guidance for interpreting student performance. <p><u><i>A unit or longer lesson should:</i></u></p> <ul style="list-style-type: none"> ✓ Use varied modes of curriculum-embedded assessments that may include pre-, formative, summative and self-assessment measures. 	<p>The unit addresses a balance of assessment types: pre-assessments, formative, summative, and CEPA as well as student reflection in journal writing.</p> <p>The assessments in the unit provide teachers with evidence of students’ conceptual understanding as well as their procedures for problem solving individually as well as in groups.</p> <p>Teacher notes about the assessments in some lessons provide information on ways to support diverse student needs.</p> <p>Answer keys for each handout and assessment are provided. Two rubrics are provided for the CEPA.</p>
<p>Rating: 3 – Meets most to all of the criteria in the dimension</p>	

Summary Comments

<p>This unit provides an in-depth treatment of the major work of grade 6. It is complete with teacher notes, student supports, and a variety of assessments. It develops student conceptual understanding through a variety of instructional approaches, the use of multiple representations and student engagement in the content via the Standards for Mathematical Practice.</p> <p>The teacher notes are strong in developing teacher understanding for the progression of ratio concepts. It may be helpful to add notes to lessons, where appropriate, that provide teachers with standards of prior grades and future grades for which ratios impact. This would help teachers develop understanding of the progression for this very important content.</p>

Rating Scales

Rating Scale for Dimensions I, II, III, IV:

- 3: Meets most to all of the criteria in the dimension
 - 2: Meets many of the criteria in the dimension
 - 1: Meets some of the criteria in the dimension
 - 0: Does not meet the criteria in the dimension
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Overall Rating for the Lesson/Unit:

- E: Exemplar – Aligned and meets most to all of the criteria in dimensions II, III, IV **(total 11 – 12)**
 - E/I: Exemplar *if* Improved – Aligned and needs some improvement in one or more dimensions **(total 8 – 10)**
 - R: Revision Needed – Aligned partially and needs significant revision in one or more dimensions **(total 3 – 7)**
 - N: Not Ready to Review – Not aligned and does not meet criteria **(total 0 – 2)**
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Rating Descriptors

Descriptors for Dimensions I, II, III, IV:

- 3: **Exemplifies CCSS Quality** - meets the standard described by criteria in the dimension, as explained in criterion-based observations.
 - 2: **Approaching CCSS Quality** - meets many criteria but will benefit from revision in others, as suggested in criterion-based observations.
 - 1: **Developing toward CCSS Quality** - needs significant revision, as suggested in criterion-based observations.
 - 0: **Not representing CCSS Quality** - does not address the criteria in the dimension.
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Descriptor for Overall Ratings:

- E: **Exemplifies CCSS Quality** – Aligned and exemplifies the quality standard and exemplifies most of the criteria across Dimensions II, III, IV of the rubric.
- E/I: **Approaching CCSS Quality** – Aligned and exemplifies the quality standard in some dimensions but will benefit from some revision in others.
- R: **Developing toward CCSS Quality** – Aligned partially and approaches the quality standard in some dimensions and needs significant revision in others.
- N: **Not representing CCSS Quality** – Not aligned and does not address criteria.