

EQIP Review Feedback



Lesson/Unit Name: Describing Variability

Content Area: Mathematics

Grade Level: 9

<p>Overall Rating:</p> <p style="font-size: 2em; font-weight: bold;">E</p> <p>Exemplar</p>

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 standards HSS-ID.A.1, HSS-ID.A.2, and HSS-ID.A.3 to the full depth of the CCSS.</p> <p>The Standards for Mathematical Practice are addressed in a grade-appropriate manner and the materials are directly connected to the content being addressed in the unit. The standards for Mathematical Practice are identified in the unit overview and are explicitly pointed out in each lesson. Each lesson has additional support for the standards that may not be explicitly referenced.</p> <p>There is a balance between mathematical procedures and conceptual understanding throughout the unit. The lessons teach procedures within the context of real world problems. The lessons continually move students back and forth between task that require conceptual understanding and development and tasks that are designed to hone procedures and efficiency.</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 	<p>These standards are not major work of the grade/course and are therefore sufficiently brief, though they are given enough time to ensure well-developed conceptual understanding. The materials ask questions and provide tasks that maintain appropriately high expectations (e.g. requiring students to access and extend prior knowledge to complete a task without guidance, "How do you suppose you might fill in the row if this table?" on page 11).</p> <p>Coherence is evident in this unit. The Module begins with an Overview that explains the connection between this module and statistics and probability work in Grades 6, 7, and 8. The Module Overview lists specific Foundational Standards from grades 6 and 8. The Overview ends with the following statement: "This module sets the stage for more extensive work with sampling and inference in later grades." Lesson notes also illustrate the coherence of this unit. For example, the Lesson Notes for Lesson 4 state "The lesson prepares students for a future understanding of the standard deviation of a data set, focusing on the role of the deviations from the mean."</p> <p>The materials balance conceptual understanding, application, and fluency. All tasks are framed in meaningful applications, and students are continually asked to interpret their work and solutions with respect the the context. Tasks include multiple representations (graphs, calculations, and verbal interpretations) and focus on the connections among them. Students are frequently asked to write and speak about their understandings ("Expect that there will be disagreement among students"). The problem sets that</p>
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<p>situations.</p> <ul style="list-style-type: none"> - 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>accompany each lesson are designed to build fluency for all concepts in the lesson set. For example, when introducing standard deviation, the steps of the process are explored in the context of a real-world problem and questions are provided to help guide student understanding of the formula.</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><u><i>A unit or longer lesson should:</i></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 	<p>These lessons provide exceptional guidance to support teachers as they facilitate learning, including clear explanations of mathematical procedures (page 14), focus questions strategically placed throughout the lesson, clearly defined lesson closure summaries and questions, and anticipated student struggles and misconceptions. Appropriate technology is used to support instruction, and explicit directions for the use of that technology is provided. For example, in Lesson 6 "students use a calculator to compute the mean and the standard deviation of a data set and compare the variability of data sets." The procedures for calculator usage are provided in the lesson. To further improve these lessons, consideration could be given to alternate forms of technology.</p> <p>Terms, vocabulary, and models central to the learning are identified and clearly and precisely explained in the unit overview, as are Standards for Mathematical Practice. Students are engaged in productive struggle at appropriate times throughout the learning sequence as evidenced by statements such as "solutions may not be obvious..." (page 32).</p> <p>The unit does not provide the teacher with guidance on scaffolding, differentiation, intervention and/or support for a broad range of learners.</p> <p>Since this is a longer sequence of lessons, appropriate attention has been given to providing a variety of learning activities and strategies and a clear and logical sequence of learning. To further improve these lessons, consider varying the structure of some of the lessons to model how teachers might choose to implement the tasks. For example, one lesson may model a small-group environment, while another lesson may demonstrate stations. Including these aspects might model several possibilities throughout the unit to expand teacher skills and provide variety to support varying student needs.</p>
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<p>skills advance and deepen over time.</p> <p>✓ 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>	
<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> <p>✓ Is designed to elicit direct, observable evidence of the degree to which a student can independently demonstrate the targeted CCSS.</p> <p>✓ Assesses student proficiency using methods that are accessible and unbiased, including the use of grade-level language in student prompts.</p> <p>✓ Includes aligned rubrics, answer keys and scoring guidelines that provide sufficient guidance for interpreting student performance.</p> <p><i>A unit or longer lesson should:</i></p> <p>✓ Use varied modes of curriculum-embedded assessments that may include pre-, formative, summative and self-assessment measures.</p>	<p>Each lesson in the sequence contains well-aligned and clearly constructed formative assessment "exit tickets." Answers are provided for these tasks as well as for the larger assessment instrument at the end of the sequence. The larger assessment also includes an exemplary rubric that defines a progression towards student mastery, describing clear evidence and criteria for each stage performance. Scoring tools are not provided for each exit ticket, though the rubric at the end of the sequence can be used to help teachers define levels of success on each exit ticket. Sample student responses are also provided to further define appropriate performance. Further, the lesson set provides a mix of different types of items and tasks (SR, short answer, performance, reasoning) so that students can demonstrate understanding in a variety of ways.</p> <p>A suggestion for improvement is to explicitly draw attention to other informal formative assessment opportunities within each lesson. For example, point out places that teachers might use questioning or observation to check for student understanding within the lesson. Another suggestion is to provide possible re-teaching strategies.</p>
<p>Rating: 3 – Meets most to all of the criteria in the dimension</p>	

Summary Comments

This unit addresses three statistics standards in very well-balanced manner. The lessons are engaging because they are grounded in real-world problems. Through these problems, students build conceptual understanding of statistics and fluency. The materials are teacher friendly, engaging and easily implemented for teachers.

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

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**)

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.

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.