**Questions to Support Designing of a Coherent Math Unit/Lesson**

**Using the EQuIP Criteria Aligned to the Unit Planner**

**Standards**

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| **Dimension I:**  **Alignment to the Depth of the Math Core** | **Questions to guide development of units that meet the instructional intent of the CCSS** |
| The lesson/unit content and performance aligns with the spirit and letter of the Math Core: |
| **Targets** a set of grade-level CCSS mathematics standard(s) to the full **depth** of the standards for teaching and learning | * Does the teacher/developer articulate alignment to a reasonable set of standards? Do they make sense as a group? Too many? Too few? * Are only a few math standards the focus of instruction for a multi-day plan or unit? * Will the selected standards be directly assessed? * Will the selected standards be explicitly taught? * Do the assignments, tasks and activities suggest a set of standards that should be targeted for instruction? * Do the assignments, tasks, and activities make sense given the standards listed? * Overall, is the lesson/unit instructionally tight? |
| Other Questions / Criteria: | |
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| **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. | * Are Standards for Mathematical Practice identified? * Do the assignments and activities/tasks (aligned to the practices) make sense for the grade or age? * Does the identified math practice(s) say central to the work of the unit? * Are the mathematical practices tied closely to the content of the lesson or unit? |
| Other Questions / Criteria: | |
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| Presents a **balance** of mathematical procedures and deeper conceptual understanding inherent in the CCSS. | * Do the assignments and activities/tasks provide opportunities for students to practice mathematical procedures and deepen the emphasized concepts with a balance appropriate for the content and for the grade level? |
| Other Questions / Criteria: | |
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| **Dimension II: Key Shifts in the Math Core** | **Questions to guide development of units that meet the instructional intent of the CCSS** |
| The lesson/unit reflects evidence of key shifts that are reflected in the Math Core: |
| **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. | * Does the content of the lesson/unit belong to the Common Core State Standards’ emphases (major work) for the grade? * Are any aspects of the lesson that relate to supporting work of the grade closely tied to this grade-level focus? |
| Other Questions / Criteria: | |
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| **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. | * Does the lesson/unit provide teachers with connections to related expectations in earlier and later grades? * Does it address the “big picture” as specified in the relevant cluster heading? * Does it help students make connections among standards within a cluster, clusters within a domain, or domains within a grade? |
| Other Questions / Criteria: | |
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**Texts**

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| **Dimension I:**  **Alignment to the Depth of the ELA Core** | **Questions to guide development of units that meet the instructional intent of the CCSS** |
| The lesson/unit content and performance aligns with the spirit and letter of the ELA Core: |
| Selects texts that measure within the grade-level text complexity band and are of sufficient quality and scope for the stated purpose.\*\* (i.e., present vocabulary, syntax, text structures, levels of meaning/purpose, and other qualitative characteristics that are similar to CCSS grade-level exemplars [Appendices A /B) | * Does the text measure within the grade-level complexity band, both quantitatively and qualitatively? (grades 2-12) * Is the text of sufficient quality and scope for the instructional purpose? Are the texts of sufficient quality? * Can the selected texts sustain the work that students are being asked to do? * Do the texts relate to focus and coherence of the unit? * Do the texts relate clearly to the key ideas / understandings of the unit? * Are a variety of genres represented over time? * What scaffolding will be needed to help all students have access to the text? * Are the students engaged in a balance of reading, speaking, listening, and viewing?   Note: The point is to discern whether or not the texts are rich enough and worth the time for study. Determine whether or not the texts can sustain the work that students are being asked to do. If some of the texts measure below the grade level of complexity, have a rationale for including them. Every text within a unit does not need to be at the complexity of the grade band. When considering text complexity, take into account the associated tasks as well as the place in the sequence of instruction where students encounter it. |
| Other Questions / Criteria: | |
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| **Dimension II: Key Shifts in the ELA Core** | **Questions to guide development of units that meet the instructional intent of the CCSS** |
| The lesson/unit reflects evidence of key shifts that are reflected in the ELA Core: |
| **Increasing Text Complexity:** Focuses students on reading of a progression of complex texts drawn from the grade-level band. Provides text-centered learning that is sequenced, scaffolded, and supported to advance students toward independent reading of complex texts at the CCR level. | * Does the sequence of text advance students to independence with the standards? * Are students supported with multiple representations? * Are texts focused on the standards? |
| Other Questions / Criteria: | |
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| **Balance of Texts:** Within a collection of grade level units, a balance of informational and literary texts is included according to guidelines in the CCSS. | * Are a variety of genres represented over time? |
| Other Questions / Criteria: | |
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| **Building Disciplinary Knowledge:** Provides opportunities for students to build knowledge about a topic or subject through analysis of a coherent selection of strategically sequenced, discipline-specific texts. *(Grades 3-5): Build students’ content knowledge and their understanding of reading and writing in social studies, the arts, science or technical subjects (math) through the coherent selection of texts.* | * Are the materials being used specific to the math discipline? * Are the activities sequenced for building math knowledge?   **Note:** This criterion is about carrying knowledge forward versus thematic knowledge. It is about gaining knowledge like mathematicians. It is about reading, writing in significant context. |
| Other Questions / Criteria: | |
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| **Dimension III:**  **Alignment to the Depth of the ELA Core** | **Questions to guide development of units that meet the instructional intent of the CCSS** |
| The lesson/unit is responsive to teacher needs and to varied student learning needs. |
| Indicate how students are accountable for independent reading based on student choice and interest to build stamina, confidence and motivation (may be more applicable across the year or several units). | * Are students accountable for independent reading? * Is the accountability manageable? |
| Other Questions / Criteria: | |
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**Academic Vocabulary**

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| **Dimension III:**  **Alignment to the Depth of the Math Core** | **Questions to guide development of units that meet the instructional intent of the CCSS** |
| The lesson/unit is responsive to teacher needs and to varied student learning needs. |
| 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. | * Is there evidence of conscious, intentional thought about the vocabulary that should be focused on when studying a particular text? * Is the vocabulary selected from the text under study consequential to the meaning of the text? * Are the vocabulary linked to the text NOT drills. * Is there a focus on the critical few words? * Are pictures and models used to support learners?   **Note to K-2**: Academic vocabulary is important in K-2 and there may be instances where lessons/units focus on vocabulary more overtly than others.  **Note**: There can be a variety of ways to focus on vocabulary – some can be teacher directed and others can be student directed.  Academic vocabulary are really useful words that are transferrable across disciplines. Are they being develop from the text?  This is about the meaning of the words. |
| Other Questions / Criteria: | |
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**Writing Assignments**

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| **Dimension II: Key Shifts in the ELA Core** | **Questions to guide development of units that meet the instructional intent of the CCSS** |
| The lesson/unit reflects evidence of key shifts that are reflected in the ELA Core: |
| **Writing from Sources:** Routinely expects that students draw evidence from texts to produce clear and coherent writing that informs, explains, or makes an argument in various written forms (notes, summaries, short responses, or formal essays).\*\* | * Does the type of writing that students are engaged in require them to draw evidence from text and is appropriate to the context of instruction (e.g., writing about their thinking, representing their thinking) * Over the course of time, are there several short pieces of writing that build to a longer piece of writing? * Does the writing support the instruction? |
| Other Questions / Criteria: | |
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| **Balance of Writing:** Includes a balance of on-demand and process writing (e.g. multiple drafts and revisions over time) and short, focused research projects, incorporating digital texts where appropriate. | * Does the unit include short writing? |
| Other Questions / Criteria: | |
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| **Dimension III:**  **Alignment to the Depth of the ELA Core** | **Questions to guide development of units that meet the instructional intent of the CCSS** |
| The lesson/unit is responsive to teacher needs and to varied student learning needs. |
| Integrates targeted instruction in such areas as grammar and conventions, writing strategies, discussion rules, and all aspects of foundational reading for grades 3-5. | * Are class discussion rules taught? * Do student receive feedback on using discussion rules?   **Note**: Elementary grades must take the opportunity to support literacy in all contents. That being said lessons and units cannot do everything. The key is not to waste any opportunity. |
| Other Questions / Criteria: | |
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**Instruction**

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| **Dimension III:**  **Alignment to the Depth of the Math Core** | **Questions to guide development of units that meet the instructional intent of the CCSS** |
| The lesson/unit is responsive to varied student learning needs: |
| Includes clear and sufficient guidance to support teaching and learning of the targeted standards, including, when appropriate, the use of technology and media. | * Does the lesson/unit provide clear directions and guidance so anyone user can guide students to an understanding of the targeted standards? * If appropriate to learning the math, is technology and/or media applied in the lesson/unit? |
| Other Questions / Criteria: | |
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| 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. | * Do the instructional materials clearly identify and work to develop key academic language and accurate and precise mathematics? |
| Other Questions / Criteria: | |
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| Engages students in productive struggle through relevant, thought-provoking questions, problems and tasks that stimulate interest and elicit mathematical thinking. | * Are all students given opportunities to engage with problems and tasks that require them to struggle productively in their solution? * Do the questions require students to think?   **Note:** This criterion does not require evidence of scaffolds specific to special learning or language needs. Rather, it asks that all students are expected to and given the opportunity to do challenging mathematical work. |
| Other Questions / Criteria: | |
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| Addresses instructional expectations and is easy to understand and use. | * Is the unit/lesson organization/format easy for the user to follow? * Does the unit/lesson describe what unit occurs before and after this unit? |
| Other Questions / Criteria: | |
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| Provides appropriate level and type of scaffolding, differentiation, intervention and support for a broad range of learners.   * 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. | * Does the unit/lesson support ELL? * Does the unit support student working below grade level? * Does the unit support students working above grade level? |
| Other Questions / Criteria: | |
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| A unit or longer lesson should: |  |
| *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).* | * Do students have the opportunity to learn and show what they know in various ways? |
| Other Questions / Criteria: | |
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| *Gradually remove supports, requiring students to demonstrate their mathematical understanding independently.* | * Are supports gradually reduced? * Do the activities form an effective sequence supportive of the unit learning targets and practices? * Are students becoming self-reliant, and independent learners of the unit content? |
| Other Questions / Criteria: | |
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| *Demonstrate an effective sequence and a progression of learning where the concepts or skills advance and deepen over time.* | * Do students deepen their understanding over the course of the unit/lesson? |
| Other Questions / Criteria: | |
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| *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.* | * Does the lesson/unit emphasize and support an appropriate balance of procedural and conceptual understanding? |
| Other Questions / Criteria | |
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| **Dimension II: Key Shifts in the Math Core** | **Questions to guide development of units that meet the instructional intent of the CCSS** |
| The lesson/unit reflects evidence of key shifts that are reflected in the Math Core: |
| **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. | * Does the lesson or unit emphasize some aspect(s) more than others? (For example, the lesson or unit might emphasize conceptual understanding but not application or procedure.) * Given the goals of the lesson or unit, is the emphasis appropriate and logical? (A lesson involving only a single aspect of rigor may be just right, provided the single aspect of rigor that is present is handled well in the lesson.) * For a unit or longer lesson: How do the instructional materials present a balance of application, conceptual understanding, and procedural skill and fluency? |
| Other Questions / Criteria: | |
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**Scaffolding for Success**

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| **Dimension III:**  **Alignment to the Depth of the Math Core** | **Questions to guide development of units that meet the instructional intent of the CCSS** |
| The lesson/unit is responsive to varied student learning needs: |
| Provides appropriate level and type of scaffolding, differentiation, intervention and support for a broad range of learners.   * 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. | * Do instructional supports vary depending on student needs and background(s)? * Do supports for students working below grade level help them reach independence with the learning targets? * Do supports for ELL students help them reach independence with the learning targets? * Do students working above grade level receive extended learning opportunities? |
| Other Questions / Criteria: | |
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| A unit or longer lesson should: |  |
| *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).* | * Do students have the opportunity to learn and show what they know in various ways? |
| Other Questions / Criteria: | |
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| *Gradually remove supports, requiring students to demonstrate their mathematical understanding independently.* | * Are supports gradually reduced? * Do the activities form an effective sequence supportive of the unit learning targets and practices? * Are students becoming self-reliant, and independent learners of the unit content? |
| Other Questions / Criteria: | |
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**Assessment**

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| **Dimension IV:**  **Alignment to the Depth of the Math Core** | **Questions to guide development of units that meet the instructional intent of the CCSS** |
| The lesson/unit regularly assesses whether students are mastering standards-based content and skills: |
| Is designed to elicit direct, observable evidence of the degree to which a student can independently demonstrate the targeted CCSS. | * Are the assessments aligned to the major targeted standards and to the instructional activities/tasks? * Is there a coherent assessment strategy that is related to the instruction and sustained throughout the unit? * Is there a match between the targeted standards, instructional activities/tasks, methods of assessment, and the Depth of Knowledge?   **Note:** Evidence of what students can do may be produced by the assessment but it may not provide evidence of proficiency of the targeted standards. When developing the unit for this criterion, developers should consider all of the assessment across the entire unit, not only the summative assessment at the end. This is not about looking good, but a true alignment of standards, tasks, and assessment. |
| Other Questions / Criteria: | |
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| Assesses student proficiency using methods that are accessible and unbiased, including the use of grade-level language in student prompts. | * How will students be allowed to show what they have learned? * Does the unit support the user by providing for possible student responses to discussion questions? * Does the unit/lesson provide teacher and student with exemplars? * Does the formative and summative exemplar(s) model the standards? * Do tasks use age-appropriate contexts as well as reflect the experience of the students? |
| Other Questions / Criteria: | |
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| Includes aligned rubrics, answer keys and scoring guidelines that provide sufficient guidance for interpreting student performance. | * Does the unit provide users with clear criteria for interpreting student work as developing toward or mastery of the targeted instruction? * Does the unit provide students annotated student work or descriptive rubrics/checklists directly aligned to the targeted standards? |
| Other Questions / Criteria: | |
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| A unit or longer lesson should: |  |
| *Use varied modes of curriculum-embedded assessments that may include pre-, formative, summative and self-assessment measures.* | * Does will the unit provide for assessment for and of learning? |
| Other Questions / Criteria: | |
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