**High School**

**Implementing the 2010 Iowa Core Math Standards**



Some ways to use these leveled vetted tools /resources to reach a deep investment and implementation of the Iowa Core Math are:

* In-depth study of a specific shift like a book study
* Confirmation that I/we are on the right track
* Create shift experts to support the teacher leadership grant
* In-house PLC where the staff implement together
* Independent study

**T**his self-guided, or team, driven professional learning series is a tool designed to help classroom teachers facilitate and maintain the implementation of the Iowa Core Math Standards. The framework levels are organized so that the individual, or team, can progress at their own pace, or revisit prior learnings.

There are three levels within the framework, each of which contains vetted tools/resources aligned to the appropriate phase of implementation described by each level. This is a work in progress that brings together the Core’s synergy. It is not intended to describe everything that needs to be done, or can be done to support student success. Curriculum development remains a local responsibility.

 **Put Into Practice**

**Build Readiness**

A short description of each level is provided. Think about what you want to learn about, **CLICK the linked material(s)**, and begin engaging with tools/resources through the corresponding questions. Graphic organizers have been inserted into this document before each step/level to use in processing the content.

Note: *Documents housed on the MISIC website will require the user name ( misic ) and the password ( together ) to access the PDF or Word files.*

**Level I – Building Readiness: Knowledge and Understanding**

The first level of the Core implementation in the classroom is building readiness through developing awareness and understanding of the standards. Resources at this level help teachers gain the basic information or foundational knowledge needed for initial classroom implementation. The Iowa Core standards raise expectations for students, rely on strong content knowledge from teachers, and will require a shift in how and when some content is taught. Transitioning to these new standards will no doubt require hard work. These resources are meant to help with implementing the Iowa Core intent.

**The success criteria for level I are:**

* I can confidently navigate the Iowa Core Math standards documents.
* I can explain the structure of the standards to a colleague.
* I can describe the critical areas (focus) for my grade level.
* I can locate my grade level content standards and explain the differences among standards, clusters, and domains.
* I can appreciate the complexity and coherence of the standards.
* I can explain how grade level standards contribute to the post-secondary readiness of students.
* I can consider implications for teaching and student learning.
* I can explain how a district might use Appendix A.

Use the organizer below for organizing your thoughts while you pace yourself internalizing the information at level 1.1:

|  |
| --- |
| **1.1 Understanding the 2010 Iowa Core Math Standards (Content, Practices, and Organization)** |
|  | **Essential Elements Already in Place That I/We Can Build On** | **What I/We Need To STOP/ OR Change** | **Essential Next Steps for Moving Forward** | **Questions I/We Have** **OR Help I/We Need** |
| **Content** |  |  |  |  |
| **Instruction** |  |  |  |  |
| **Learning Supports** |  |  |  |  |
| **Assessment** |  |  |  |  |
| * 1. **Understanding the 2010 Iowa Core Math Standards (Content, Practices, and Organization)**
 |
| **If you want to learn about:** | **Then go to this source/URL:** | **Ponder these guiding questions as you learn:** |
|  **Background** |
| Understanding the state leadership *motivatio*n behind writing a new set of standards in ELA and Math* Fewer
* Clearer
* Higher

Understanding what the standards themselves do not define:* All that can and should be taught
* Nature of advanced work beyond the core
* Student interventions needed for students well below grade level
* Support for ELL, Sp. Ed., TAG
* Everything needed to be college and career ready
 | <http://www.youtube.com/watch?v=dnjbwJdcPjE> (8 minute video by one of the writers of the Common Core Math) | * What were the original ideas behind the development of the standards?
 |
| Defining the connection of the core to *career readiness* | Go to page 2 <http://www.careerreadynow.org/docs/CRPC_4pager.pdf> (definition used by Smarter Balanced Assessment) | * How does the definition relate to all careers?
 |
| Connecting the core to the broad concepts of what students should be able to do for success in careers *(career ready practices)* | Pages 1-2 <http://www.careertech.org/file_download/9bd9d89e-8e55-4a90-86cc-30bf49a1505f> (career practices developed by the fifty state career-directors professional organization) | * How do the career practices support 21st century learners who are thinkers, collaborators, innovators, and communicators?
 |
| **Why** |
| Appreciating the expectations of the math core from a secondary math teacher perspective  | <http://www.ted.com/talks/dan_meyer_math_curriculum_makeover.html> (11 minute video) | * How does the young math teacher in the video create excitement for math content and mathematical thinking?
 |
| Holding yourself to the intent of the Iowa Core *(The Why)* | Do you want this to be said of your child/students? Activity at:<http://misiciowa.org/uploads/CCSS_4_Do_You_Want_This_To_Be_Said_of_Your_Child.pdf> *(This document was created word for word from the Iowa Core ELA and Math documents.)(Math follows the ELA)**(user name is misic and password is together)* | * Do you know what the Iowa Core is really asking us to help students get good at?
* How would you use this document as a guide to keep you focused on the intent of the core, as you work to implement the content, strategies, and assessments of the Iowa Core into your classroom?
 |
| **Organization** |
| Understanding that the standards were organized to support the learning of the discipline of math *(organization)* | <http://commoncoretools.me/2012/02/16/the-structure-is-the-standards/> (the author of this blog is an author of the core math) and<http://commoncoretools.me/wp-content/uploads/2011/07/ccssatlas_2011_07_06_0956_p1p2.pdf> | * What role do student misconceptions play in your planning a unit of instruction?
 |
| Locating the Iowa State Board of Education approved 2010 K-12 Iowa Core Standards for MathUnderstanding and appreciating the layers of *organization* in the standards* K-8 by grade level
* HS organized by conceptual theme
* Standards, clusters of related standards, and domains progressing across grades
* Domains contain content standards that may progress across grade levels
* Domains do not dictate curriculum or teaching methods
* Standards within domains are not meant to be taught in the order presented in the doc.
* Standards have a connection to earlier and subsequent concepts and skills.

Understanding that the critical area narratives are important descriptions at the beginning of each grade level or HS conceptual area providing the intent of the mathUnderstanding the themes that organize the math standards:The CCSS embody key, reoccurring themes for student learning that can serve as guideposts in analyzing and understanding the standards. Below are the themes found in the Math Core:1. *Students value evidence*. They understand and use stated assumptions, definitions, previously established results, and counter examples as they reason through an argument to a conclusion, and they are able to critique others’ reasoning and use of evidence.2. *Students communicate effectively.* In discussions with others and in their own reasoning, they use clear definitions, specify units of measurement, label quantities, and use precise language. They can ask useful questions to challenge or clarify mathematical reasoning.3. *Students develop a deep understanding* of mathematical topics and make connections within and across topics and domains.4. *Students approach mathematical content strategically*. They consistently apply productive mathematical practices when approaching unfamiliar content, planning a solution strategy, or persevering towards proficiency.5. *Students achieve both conceptual understanding and procedural fluency*. They comprehend mathematical concepts, operations, and relations, and they are able to select and carry out appropriate procedures with accuracy and efficiency.6. *Students apply mathematics to practical situations*. They can identify the important quantities and relationships in a real-world context and represent them mathematically. They translate their mathematical results to the language of the original problem and reflect on whether the results make*. (standards)* | Go to this link and click on *Iowa Core Math with DOK (.doc)* in the blue center field:<https://www.educateiowa.gov/pk-12/standards-curriculum/iowa-core/mathematics>and read the web page text under the Iowa Core Literacy Standards that describe the history of the Iowa Core. Also the Introduction starting on page 3 of the standards documentHow to read the standards link at <https://www.educateiowa.gov/pk-12/standards-curriculum/iowa-core/mathematics/how-read-grade-level-standards>  | * How are the standards organized? (p 7 and p. 61)
* How are standards for advanced high school classes marked?
* What are the focal areas (those areas that would receive 70% of the instructional time) for your grade level as noted on the first page of each MS grade, and on the first page of the HS conceptual categories?
* How are the additional IA-specific standards marked in the Common Core State Standards that Iowa added November 17, 2010?
* Why did the authors place mathematical practices with the content standards?
 |
| *Navigating* the math core document | <http://katm.org/wp/wp-content/uploads/2011/06/CCOverviews.pdf> and<https://www.educateiowa.gov/pk-12/standards-curriculum/iowa-core/mathematics> | * Where is the information on the pdf in the Iowa Core?
 |
| **Focus** |
| Understanding *focus* is a key organizational structure to the math standards *(to make that clear the following links reformat the original standard document to show the focal points)*Understanding that the critical areas of focal points of each grade or HS conceptual area provide a sense of the sophistication for mathematical understanding at each grade level, the learning progressions for the grade, extensions from prior standards, and what’s important at the grade level. |  <http://www.engageny.org/resource/common-core-in-mathematics-shift-1-focus> (15 minute video) and <https://www.educateiowa.gov/pk-12/standards-curriculum/iowa-core/mathematics> | * What are the focal areas (those areas that would receive 70% of the instructional time) for your grade level as noted on the first page of each grade, and on the first page of the HS conceptual categories?
* How do the focal areas or critical areas help you prioritize for your grade level?
* What are the supporting and additional clusters for your grade?
* Are there standards which fit into more than one critical area?
* Are there standards that do not fit in any critical area?
* What changes would you need to make locally to move to that 70% focus?
 |
| **Coherence** |
| Visualizing the *coherence* of the math core | <http://ime.math.arizona.edu/2011-12/ccssm-hyperlinked-map1.ppsx> (interactive PPt) | * How does your grade connect to the other grades?
 |
| **Practices** |
| Understanding what would count as general evidence for the *math practices* and what teacher’s actions would alignUnderstanding how the math *practices* bring rigor to the standards | <http://www.rockwood.k12.mo.us/committees/professionaldevelopment/Lists/Meeting%20Information/Attachments/34/Standards%20for%20Mathematical%20Practice%20in%20Action.pdf> (just keep clicking on the ok and you will get in without a password) | * What implications might the standards for mathematical practice have on your teaching, learning, and assessment in your classroom?
 |
| Understanding that the *math practices* were designed backward withprogressions | <https://www.k12.wa.us/Corestandards/pubdocs/MPbyGradeLevel.pdf> and<http://static.pdesas.org/content/documents/Math_Practices_and_Grade_Progressions_rev%201-24-13.pdf> | * How does each K-8 standard progress from grade level to grade level to reach the intent of the anchor standard ?
* Why is it important to do the math practices at your grade level?
 |
| **Appendix** |
| Organizing the secondary math curriculum offerings | p. 2-3 overview and,p. 6 how to read document<http://www.corestandards.org/assets/CCSSI_Mathematics_Appendix_A.pdf> | * What percent of your students are accelerated on the average?
* What are HS teachers saying about those students once they get to HS year 3, and 4 math? Do they know the concepts?
 |
| Explaining four pathways in Math *Appendix A* | pp. 8-43 traditional44-79 integrated82-116 accelerated traditional117-147 accelerated integrated<http://www.corestandards.org/assets/CCSSI_Mathematics_Appendix_A.pdf>  | * What is your current practice at your school in comparison to the CCSS recommendations?
 |
| Thinking about acceleration in middle school math *(Appendix A)* | pp. 80-81 at <http://www.corestandards.org/assets/CCSSI_Mathematics_Appendix_A.pdf> and consider the following: content covered, when students identified, how students identified, options for math beyond the 3rd year in HS | * What is the current practice at your school in comparison to the authors of the math appendix?
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Use the organizer below for organizing your thoughts while you pace yourself internalizing the information at level 1.2:

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| **1.1 Understanding the 2010 Iowa Core Math Standards (Content, Practices, and Organization)** |
|  | **Essential Elements Already in Place That I/We Can Build On** | **What I/We Need To STOP/ OR Change** | **Essential Next Steps for Moving Forward** | **Questions I/We Have** **OR Help I/We Need** |
| **Content** |  |  |  |  |
| **Instruction** |  |  |  |  |
| **Learning Supports** |  |  |  |  |
| **Assessment** |  |  |  |  |

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| * 1. **Understanding Instructional Changes That Support the Instructional Shifts Implied by the Iowa Core Math Standards and Appendix**
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| * + 1. **Shift 1: Focus strongly where the standards focus.**
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| **If you want to learn about:** | **Then go to this source/URL:** | **Ponder these questions as you learn:** |
| Describing the shift in practical terms | [http://www.achievethecore.org/file/1224 (2](http://www.achievethecore.org/file/1224%20%282) minute video)and<http://www.achievethecore.org/content/upload/122113_Shifts%20MATH%20ONLY.pdf>and p. 1 of <http://misiciowa.org/uploads/Math_Shifts_3_With_Green_and_Red_and_Implications.doc>*(user name is misic and password is together)* | * Describe the shift in your own words?
* How does it affect curriculum?
 |
| Stating the rationale for the shift | P, 1<http://misiciowa.org/uploads/Math_Shifts_3_With_Green_and_Red_and_Implications.doc>*(user name is misic and password is together)* | * How does focus provide time for balancing conceptual understanding and fluency?
 |
| Knowing what the implications of this shift for students | P, 3<http://misiciowa.org/uploads/Math_Shifts_3_With_Green_and_Red_and_Implications.doc>*(user name is misic and password is together)* | * What will be the most challenging for students?
 |
| Knowing what the implications of this shift mean for parents | p. 3<http://misiciowa.org/uploads/Math_Shifts_3_With_Green_and_Red_and_Implications.doc>*(user name is misic and password is together)* | * What will be the most challenging for parents?
 |
| Knowing the instructional implications | P. 1 and 3<http://misiciowa.org/uploads/Math_Shifts_3_With_Green_and_Red_and_Implications.doc>*(user name is misic and password is together)* | * What current practices will you continue to use?
* What current practices do you need to discontinue?
* What changes to your practice will support students reaching the intent of the core?
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| * + 1. **Shift 2: Coherence: think across grades, and link to major topics within grades.**
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| **If you want to learn about:** | **Then go to this source/URL:** | **Ponder these questions as you learn:** |
| Describing the shift in practical terms | [http://www.achievethecore.org/content/upload/William\_McCallum\_-\_The\_Importance\_of\_Coherence\_in\_Mathematics.mp4.mp4 (2](http://www.achievethecore.org/content/upload/William_McCallum_-_The_Importance_of_Coherence_in_Mathematics.mp4.mp4%20%282) minute video on coherence)and<http://www.achievethecore.org/content/upload/122113_Shifts%20MATH%20ONLY.pdf> | * Describe the shift in your own words?
* How does it affect curriculum?
 |
| Stating the rationale for the shift | p. 6 and 8<http://misiciowa.or5g/uploads/Math_Shifts_3_With_Green_and_Red_and_Implications.doc> *(user name is misic and password is together)* | * Why is vertical and horizontal alignment so important to learning math K-12?
 |
| Knowing what the implications of this shift for students | P, 8<http://misiciowa.org/uploads/Math_Shifts_3_With_Green_and_Red_and_Implications.doc>*(user name is misic and password is together)* | * What will be the most challenging for students?
 |
| Knowing what the implications of this shift mean for parents | p. 8<http://misiciowa.org/uploads/Math_Shifts_3_With_Green_and_Red_and_Implications.doc>*(user name is misic and password is together)* | * What will be the most challenging for parents?
 |
| Knowing the instructional implications | p. 6 and 8<http://misiciowa.org/uploads/Math_Shifts_3_With_Green_and_Red_and_Implications.doc>*(user name is misic and password is together)* | * What current practices will you continue to use?
* What current practices do you need to discontinue?
* What changes to your practice will support students reaching the intent of the core?
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| **1.2.3 Shift 3: Rigor: in major topics pursue – conceptual understanding, procedural skills and fluency, and application with equal intensity.** |
| **If you want to learn about:** | **Then go to this source/URL:** | **Ponder these questions as you learn:** |
| Describing the shift in practical terms | <http://www.youtube.com/watch?v=uyeebGEDtio> (5 minute video)and<http://www.achievethecore.org/content/upload/122113_Shifts%20MATH%20ONLY.pdf>and p. 10-11<http://misiciowa.org/uploads/Math_Shifts_3_With_Green_and_Red_and_Implications.doc> *(user name is misic and password is together)* | * Describe the shift in your own words?
	+ Rigor
	+ Conceptual understanding
	+ Procedural skill and fluency
	+ Application
* How does it affect curriculum?
	+ Rigor
	+ Conceptual understanding
	+ Procedural skill and fluency
	+ Application
 |
| Stating the rationale for the shift | p. 11, 15, 19, 21<http://misiciowa.org/uploads/Math_Shifts_3_With_Green_and_Red_and_Implications.doc>*(user name is misic and password is together)* | * What will be the most challenging for teachers as them implement instructional practices aligned to rigor?
* How will they provide for depth of understanding, communication of math, and collaboration?
 |
| Knowing what the implications of this shift for students | p. 12, 16, 20, 22<http://misiciowa.org/uploads/Math_Shifts_3_With_Green_and_Red_and_Implications.doc>*(user name is misic and password is together)* | * What will be the most challenging for students?
 |
| Knowing what the implications of this shift mean for parents | p. 12, 16, 20, 22<http://misiciowa.org/uploads/Math_Shifts_3_With_Green_and_Red_and_Implications.doc>*(user name is misic and password is together)* | * What will be the most challenging for parents?
 |
| Knowing the instructional implications | p. 10, 11, 12, 16, 19, 22<http://misiciowa.org/uploads/Math_Shifts_3_With_Green_and_Red_and_Implications.doc>*(user name is misic and password is together)* | * What current practices will you continue to use?
* What current practices do you need to discontinue?
* What changes to your practice will support students reaching the intent of the core?
 |

 **Level II – Putting Standards into Practice: Content Knowledge and Application**

The second level of the Core implementation is moving to the new standards through deep content knowledge and purposeful application. Vetted resources within this level correspond to the four dimensions (depth/rigor, key shifts, instructional supports, and aligned assessment) of the Achieve *EquIP*, or Tri-State Rubric. These resources are designed to help teachers **integrate** the core dimensions into daily classroom lessons and units.

**The success criteria for level II are:**

* I understand how cognitive complexity can shed light on how students interact with content/
* I know the critical areas for my grade level.
* I know how the math topics at my grade connect to each other as well as to other grades.
* I can describe how I could increase the rigor in my classroom math lessons through student communication, collaboration, critical thinking, and fluency.
* I can consider how focus, coherence, and rigor influenced instructional decisions.
* I can further support students below and above grade level in math.
* I know that formative assessment must support math instruction.
* I understand that assessment of the Iowa Core Math requires more than a multiple choice test items.

Use the organizer below for organizing your thoughts while you pace yourself internalizing the information at level 2:

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| **1.2 Understanding Instructional Strategies That Support the Instructional Shifts Implied by the Iowa Core Math Standards and Appendix** |
| **How will you balance directly teaching a standard while at same time living up to the intended shifts?** |
|  | **What do I/We Need to Keep Doing/****What Can I/We Build On** | **What I/We Need To STOP Doing/ OR Change** | **Essential Next Steps for Moving Forward** | **Questions I/We Have** **OR Help I/We Need** |
| **Content** |  |  |  |  |
| **Instruction** |  |  |  |  |
| **Learning** **Supports** |  |  |  |  |
| **Assessment** |  |  |  |  |

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| **2.1 Understanding Cognitive Complexity Implied by the Iowa Core Math** |
| **If you want to learn about:** | **Then go to this source/URL:** | **Ponder these questions as you learn:** |
| Understanding a framework for how students interact with content *(Webb)* | <http://schools.nyc.gov/Academics/CommonCoreLibrary/ProfessionalLearning/DOK/default.htm> ( 5 minute video) | * Does Webb’s framework add value to how you mindfully create learning activities?
 |
| Understanding how Webb’s Depth of Knowledge support the Common Core State StandardsUnderstanding the role of teacher and student in using Webb’s DOK with the CCSSClassifying student learning activities by Webb’s categories | <http://cliu21cng.wikispaces.com/file/view/WebsDepthofKnowledgeFlipChart.pdf/457670878/WebsDepthofKnowledgeFlipChart.pdf>  | * What type of activities can be increased in your classroom?
 |
| Understanding Webb’s Depth of Knowledge in *Career and Tech* and *other* courses (*Webb’*s Depth of Knowledge classification was used by assessment providers to align test items to the common core. Webb’s Depth of Knowledge is often used to add another layer of mindfulness to creating instructional activities.) | <http://www.aps.edu/rda/documents/resources/Webbs_DOK_Guide.pdf> | * What question stems could you use more frequently?
* How might you change activities to align more with the higher levels of Webb’s framework?
 |
| Comparing Bloom to Webb’s Depth of Knowledge in *Math/Science (Webb’s* *Depth of Knowledge classification was used by assessment providers to align test items to the common core. Webb’s Depth of Knowledge is often used to add another layer of mindfulness to creating instructional activities*.) | <http://misiciowa.org/uploads/3a-Cognitive_Rigor_Matrix_ELA.pdf> *(user name is misic and password is together)* | * Can a question be hard yet low on Bloom’s levels?
 |
| Categorizing student learning activities around Webb’s Depth of Knowledge (Quick Reference Chart) | <http://misiciowa.org/uploads/CCSS_Webb_Depth_of_Thinking_Chart_from_Lockett.doc> *(user name is misic and password is together)* | * What type of activities can be increased in your classroom?
 |
| Understanding what type of questions fit *Webb*’s Depth of Knowledge categories (Quick Reference Chart) | <http://misiciowa.org/uploads/2_DOK_Question_Stems.pdf> *(user name is misic and password is together)* | * What question stems could you use more frequently?
 |
| Looking for examples of activities that model Webb’s Depth of Knowledge | <http://education.ky.gov/curriculum/docs/Documents/CCA_DOK_SUPPORT_808_Mathematics.pdf>  | * What can you add to your classes?
 |

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| **2.2 Understanding Instructional Strategies That Support the Instructional Shifts Implied by the Iowa Core Math Standards and Practices** |
| Use the following unit planner as a graphic organizer as you learn at level 2 and write where you see the three shifts in the unit planner at <http://misiciowa.org/uploads/CCSS_53_Unit_Plan_Tri_State_Rubric_11x17_v_4.3.pdf> or use graphic organizer on the preceding page of this document |
| * + 1. **Shift 1: Focus strongly where the standards focus.**
 |
| **If you want to learn about:** | **Then go to this source/URL:** | **Ponder these questions as you learn:** |
| Unpacking the knowledge, skills and understanding of each year-end expectation or standard and assessment and instructional strategies for literacy and informational and grade above and below is *(unpacking the standards)* | HS<http://katm.org/wp/wp-content/uploads/flipbooks/High-School-CCSS-Flip-Book-USD-259-2012.pdf>  | * How does the unpacked standard document for your grade show the focal points for the grade?
* How does the 2010 Iowa Core focal points compare your previous district power standards?
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| * + 1. **Shift 2: Coherence: think across grades, and link to major topics within grades.**
 |
| **If you want to learn about:** | **Then go to this source/URL:** | **Ponder these questions as you learn:** |
| Unpacking the knowledge, skills and understanding of each year-end expectation or standard, assessment, instructional strategies for the standard *(unpacking the standards)* |  HS<http://katm.org/wp/wp-content/uploads/flipbooks/High-School-CCSS-Flip-Book-USD-259-2012.pdf>  | * How does the unpacked standard for your grade show the connection of the standard to other standards in the domain and cluster, as well as to math practices?
 |
| Understanding the power of the *progressions* in the core math in building math knowledge | Select a progression to read from your grade level:Overview<http://commoncoretools.me/wp-content/uploads/2013/07/ccss_progression_frontmatter_2013_07_30.pdf> HS Statistics and Probability<http://commoncoretools.me/wp-content/uploads/2012/06/ccss_progression_sp_hs_2012_04_21_bis.pdf> HS Algebra<http://commoncoretools.me/wp-content/uploads/2013/07/ccss_progression_algebra_2013_07_03.pdf> HS Functions<http://commoncoretools.me/wp-content/uploads/2013/07/ccss_progression_functions_2013_07_02.pdf> HS Modeling<http://commoncoretools.me/wp-content/uploads/2013/07/ccss_progression_modeling_2013_07_04.pdf>  | * What concepts addressed in the domain are similar in difficulty to the concepts you are already teaching? In what ways similar?
* What concepts addressed in the domain are more challenging than the concepts you have been teaching? In what ways are they more challenging?
* What resources or information will you need to be able to implement the standards in this domain?
* How is your grade level instruction critical to student success in the next grade?
* How are strategies and algorithms different?
* How will mathematical practices influence instruction in the domain?
* How did the examples support your understanding of the progression?
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| **2.2.3 Shift 3: Rigor: in major topics pursue – conceptual understanding, procedural skills and fluency, and application with equal intensity.** |
| **If you want to learn about:** | **Then go to this source/URL:** | **Ponder these questions as you learn:** |
| Reflecting on *math* instruction in the USA | <http://www.youtube.com/watch?v=B6UQcwzyE1U> (5 minute video) | * How did we accumulate so much curriculum to teach?
 |
| Seeing the *math practices* in actionUnderstand that the word understand in the standards means a student can explain the concept with mathematical reasoning including giving concrete illustrations and providing mathematical representations and example applications. A lack of understanding effectively prevents a student from engaging in the mathematical practices. Standards that begin with understand are good opportunities to connect the practices to the content. | Choose a Public Lesson video (1-12) at:<http://www.insidemathematics.org/index.php/classroom-video-visits>**and** Choose a number talk video (2, 4, 5, 6, 7) at:<http://www.insidemathematics.org/index.php/number-talks>**and** Choose various Problem of the Month videos by clicking on a cluster and then a grade level on next screen at:<http://www.insidemathematics.org/index.php/tools-for-teachers/problems-of-the-month>and Choose reengaging lessons at (1-12): <http://www.insidemathematics.org/index.php/formative-re-engaging-lessons#formativelist> (you have to click on red video to next video lesson to get to next lesson) | * Do your math students have the opportunity to engage in math tasks that promote students’ attainment of the mathematical practices on a regular basis?
* What did you see the lives up to the rigor of the IA Math Core?
 |
| Seeing the *math practices in* action by cognitive process *(K-12)*Understanding that the math practices are a means to an end | <http://www.mathedleadership.org/ccss/itp/index.html>  | * What verbs describe doing math?
 |
| Developing tasks that teach content and practices (*rubric for developing tasks)*Identifying one resource to help with each *math practice* | <http://ime.math.arizona.edu/2011-12/FebProducts/ResourcestoSupplementMPRubric.pdf> | * What resources would be helpful?
* What is your plan in using them?
 |
| Viewing what other teachers do to meet the Math Core intent | Select one to three of the 58 videos in math to view:<https://www.teachingchannel.org/videos?page=1&categories=subjects_math,topics_common-core&load=1> | * What makes sense in what you viewed?
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| **2.3 Understanding Instructional Supports** |
| **If you want to learn about:** | **Then go to this source/URL:** | **Ponder these questions as you learn:** |
| **ELL** |
| Designing K-12 math curriculum so that it is responsive to the needs of *ELL* students (*sample tasks on website adapted tasks that had been written for the general population to provide the support for ELL students.)* | <http://ell.stanford.edu/teaching_resources/math>  | * What do the learning activities do to support ELL students?
 |
| Designing math instructional materials for *ELL* students | <http://ell.stanford.edu/sites/default/files/math_archives/Full%20set_UL%20Math%20Resources%2010-28-13%20updated.pdf>  | * What suggestion(s) would increase ELL student access when applied to units you are creating or revising?
 |
| **Talking and Writing Math** |
| Thinking about how to make learning accessible to students *(talking)* | Slides 29-34 of PPt with notes<http://maccss.ncdpi.wikispaces.net/file/view/Making%20Mathematics%20Accessibe%20power%20point.pdf/300592878/Making%20Mathematics%20Accessibe%20power%20point.pdf>PPt without notes<http://maccss.ncdpi.wikispaces.net/file/view/Making%20Mathematics%20Accessible%20power%20point%20with%20notes.pdf/300593044/Making%20Mathematics%20Accessible%20power%20point%20with%20notes.pdf> | * How can you increase student talk about math in your classroom?
 |
| Learning about how to get students to *talk* about math | <http://www.mathsolutions.com/documents/How_to_Get_Students_Talking.pdf>  | * Which of the five practices make sense at this time? What is your plan to move in that direction?
 |
| Scaffolding student thinking using *writing* | 2 hour 33 minute video, transcript, and handouts at:<http://www.pattan.net/Videos/Browse/Single/?code_name=rtii_implementers_forum_-_session_52_c>  | * How could you incorporate writing in math class?
 |
| **Fast Learners** |
| Increasing expectations for the students who learn math easily | HS[http://ncaigirp.ncdpi.wikispaces.net/High+School+Math](http://ncaigirp.ncdpi.wikispaces.net/High%2BSchool%2BMath)  | * Did you see any lessons you could use with the top 15% of your students?
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| **2.4 Understanding the Alignment of Assessment to the Core Standards** |
| If you want to learn about: | Then go to this source/URL: | Ponder these questions as you learn: |
| Understanding formative assessment in general | <http://www.learningpt.org/pdfs/FormativeAssessment.pdf>  | * In a nutshell, what is formative assessment?
 |
| Appreciate the wide variety of forms that *formative* assessment can take in the classroom setting | <http://www.isbe.net/common_core/pdf/da-form-asmt-chart.pdf>  | * What is one example of formative assessment you could try out immediately?
 |
| Review some sample grade 3-11 math test performance tasks | HS<http://dese.mo.gov/divimprove/assess/documents/asmt-sbac-math-hs-sample-items.pdf>  | * How do the questions differ from traditional assessments?
 |
| Review sample CCSS ELA or Math Test items in Math by big idea in the Common Core | <http://www.ode.state.or.us/search/page/?id=3747> | * How to the questions align to the standards being measured?
 |
| Take the Smarter Balanced Student sample test on-line (scroll down to green button and select grades 3-11) | <http://sbac.portal.airast.org/Practice-Test/> (click on green practice test button at bottom) | * How do the questions differ from traditional assessments?
 |
| Understanding the criteria of a good content performance *tasks* | <http://standards.dpi.wi.gov/files/cal/pdf/dev-performance-tasks.pdf>  | * Which criteria are the most important in living up the intent of the communication, collaboration, fluency, and critical thinking of the core?
 |
| Understanding the math targets for *alternate* assessment students | <https://www.educateiowa.gov/sites/files/ed/documents/Iowa%20Core%20Essential%20Elements-%20Math%2010-28-13.pdf> | * Why did the alternate assessment students end up with a separate target document?
 |
| Viewing tasks in the high school setting | <http://educore.ascd.org/channels/view.aspx?guid=3b6bc7ec-3f01-499a-85ca-f000e7bb2d56&tab=5>  | * What peaked your interest as you watched the high school videos?
 |

**Level III – Continually Refining Teaching and Learning: Deep Understanding and Integration**

The third level is continually refining and reflecting on the implementation criteria as outlined within the Achieve EQuIP or Tri-State Rubrics. Success at this level requires deep understanding and **cohesive integration** of core practices.

One of the opportunities provided by transitioning and implementing the Iowa Core is the opportunity to” talk shop.” Yet determining alignment of instructional materials to the core is a challenge. After all, the standards are nothing unless implemented.

To support this challenge this level uses the Achieve EQuIP (Educators Evaluating the Quality of Instructional Products) rubric.

The rubrics may be used for:

* Guiding the development of lessons and units that you wish to align to the core;
* Identifying lesson/units that can serve as models;
* Critiquing existing lessons and units to identify improvements needed to align with the core; and
* Building individual or group capacity of teachers to gain a deeper understanding of the instructional demands of the core.

The rubrics are designed to critique: 1) lessons that include instructional activities and assessments aligned to the Math Core that may extend over a few class periods or days, 2) units that include integrated and focused lessons aligned to the Core that extend over a longer period of time. The rubrics intentionally do not require a specific template for lesson or unit design.

The rubrics have four main parts: 1) alignment to the depth of the core, 2) shifts in the core, 3) instructional support, and 4) assessment.

The rubrics are meant to provide guidance on how to strengthen teacher made or commercial lessons or units. They are a tool for professional learning team conversations, not administrative evaluation.

The following principles should guide conversations among teachers when the rubrics are being used:

* Teacher made lessons and units are works in progress.
* Recommendations should be evidence-based.
* Emphasis should be on inquiry around the criteria.

**The success criteria for level III are:**

* I can confidently utilize a rubric to critique lessons and units to increase alignment to the core.
* I can locate model units.
* I can locate reflective tools.
* I can locate materials about the core to send home with parent so they know what we are teaching.

Use this organizer for recording your thoughts while you move forward with Iowa Core implementation at level 3:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Most important key element already in place…** | **Next step(s) to undertake…** | **Greatest need in moving forward…** | **Three most important resources/tools to use to move forward…** |
| **Content** |  |  |  |  |
| **Instruction** |  |  |  |  |
| **Learning Supports** |  |  |  |  |
| **Assessment** |  |  |  |  |

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| **3.1 Refining Instructional Planning for Implementing the Iowa Core ELA standards** |
| **If you want to learn about:** | **Then go to this source/URL:** | **Ponder these questions as you learn:** |
| Looking for a math curriculum template that reminds you of all of the key themes and shifts of the Math Core as you build units (targets, rich tasks, math practices, vocabulary, scaffolding for success, assessment)Understanding that standards are important, but insufficient in themselves. To be effective standards must be partnered with content-rich curriculum and robust assessments, and support for learning.*Note: You could use this Word document as a alternate graphic organizer and write in additional notes as you add to your background on the 3 shifts, depth, assessment, and instructional support.* | <http://misiciowa.org/uploads/CCSS_76_Unit_Plan_Tri_State_Rubric_11x17Math_v_4.docx> *(user name is misic and password is together)* | * Would this template help the transition to writing curriculum aligned to the core?
 |
| Understanding how to evaluate HS commercial or teacher-made math units so that they align to the Math Core *(PARCC)* | <http://www.achievethecore.org/content/upload/Math_Publishers_Criteria_HS_Spring_2013_FINAL.pdf> | * Focus and coherence are the two major design principles of the Common Core State Standards Mathematics. Why are these two principles so important in the selection of instructional material selected at each grade level?
* Aside from purchasing decisions, in what ways can you use the Publishers’ Criteria?
* Discuss how the shift toward focus in mathematics is evident in the first three criteria. How are the first three criteria similar and how are they different?
* Discuss how understanding criteria #4 can have an impact on instruction.
* Criteria #5 and #6 directly address the coherence evident in the Standards. Give examples of ways that some textbooks have previously lacked coherence.
* The role the Standards for Mathematical Practice should play in materials is described in criteria #7-#10. Using evidence from the Publishers’ Criteria, discuss ways in which materials can assist teachers in fully understanding the practices.
* Which of the criteria present the most significant challenge in your current materials?
* Which indicators of quality (on pages 17-19) seem most urgent to address for the needs of your students/classroom/district? Why?
 |
| Critiquing units or lessons as an individual or a group with a nationally recognized rubric aligned to the Math Core *(EquIP)* | [http://misiciowa.org/uploads/63B\_EquIP\_Review\_Process\_Feedback\_Form\_Math\_K-8.pdf](http://misiciowa.org/uploads/63B_EQuIP_Review_Process_Feedback_Form_Math_K-8.pdf) (form you can write in)and<http://misiciowa.org/uploads/63_Tri-State_Quality_Review_Rubric_-_Math.pdf> (rubric only)*(user name is misic and password is together)* | * Why is support for student success so important to the success of the Math Core?
* Why is it important to align assessment to the learning targets?
* How could our PLT use the rubric and form to discuss units you are building together?
 |
| Practicing the *EquIP* Math Rubric | Lesson at :<http://www.achieve.org/files/SumsandDifferencesto20.pdf> Critique of lesson at: ::<http://www.achieve.org/files/EQuIPFeedbackSumsandDifferences091613final.pdf>  | * Do you agree with the critiques of the lesson’s alignment to the core?
 |
| Searching for *model K-12* math units that I can compare my/our work against (Full-year of units for each grade)*Note: the State of Iowa provides only the learning targets. Local districts are expected to design the local curriculum to meet the learning standards. These models are meant to save you time not replace local decision making. Teacher creativity is crucial to the success of implementing the Iowa Core.* | High school courses at <https://www.georgiastandards.org/Common-Core/Pages/Math-9-12.aspx> | * Do the units offer ideas for your local curriculum development?
 |
| Searching for *model K-12* math units that I can compare my/our work against (Full-year of units for each grade)*Note: the State of Iowa provides only the learning targets. Local districts are expected to design the local curriculum to meet the learning standards. These models are meant to save you time not replace local decision making. Teacher creativity is crucial to the success of implementing the Iowa Core.* | <http://www.isbe.net/common_core/htmls/math-model-units.htm> | * Do the units offer ideas for your local curriculum development?
 |
| Looking for *math practice* posters to use with my students | 6-12<http://www.aea1.k12.ia.us/documents/filelibrary/curriculum_instruction_and_assessment/math/mathpracticesiconsbeans1_0270C86187F12.doc>  Math practices aligned to Higher Order Thinking<http://commoncoretools.files.wordpress.com/2011/03/practices.pdf> | * How could you use these posters?
* At what point would they limit the students?
 |
| Incorporating frequent *reflection* about my practice (daily or end of year forms) | <http://misiciowa.org/uploads/CCSS_85_Evidence_Guide_Math_K-8.pdf>*(user name is misic and password is together)* | * How would reflection on your progress in implementing the core increase student access to the opportunities that the Math Core presents?
 |
| Looking for a *framework* for your grade that reminds you of everything Common Core that needs to be taught at your grade | Algebra I<http://www.parcconline.org/sites/parcc/files/PARCCMCFMathematicsAlgI_Nov2012V3_FINAL.pdf> Geometry<http://www.parcconline.org/sites/parcc/files/PARCCMCFMathematicsGeo_Nov2012V3_FINAL.pdf> Algebra II<http://www.parcconline.org/sites/parcc/files/PARCCMCFMathematicsAlgII_Nov2012V3_FINAL.pdf> Math I<http://www.parcconline.org/sites/parcc/files/PARCCMCFMathematicsMathI_Nov2012V3_FINAL.pdf> Math II<http://www.parcconline.org/sites/parcc/files/PARCCMCFMathematicsMath%20II_Nov2012V3_FINAL.pdf> Math III<http://www.parcconline.org/sites/parcc/files/PARCCMCFMathematicsMathIII_Nov2012V3_FINAL.pdf>  | * What do you need to change to align to the core? *(Note: the Iowa Core includes standards beyond the Common Core. Common Core aligned materials only include the original June 2010 adoption of Iowa Standards in Math.)*
 |
| Searching for resources for teaching the *Iowa HS additions* to math core | <https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnxrYWVhMWludmVzdGlnYXRpbmdpY21hdGh8Z3g6M2I1NmIyYmUxZWIyN2ZlNA>  | * How is your HS dealing with the additions to the common core by the state of Iowa?
 |
| *Reflecting* on what practices are occurring in your classroom | <http://www.aea1.k12.ia.us/documents/filelibrary/math/PSLookFors1_629DD662B111D.docx>  | * How are student and teacher behaviors connected when looking at math practices?
 |
| Connecting to a teacher *implementing* the core | <http://blog.mrmeyer.com/> | * What is the benefit in checking out the blogger periodically?
 |
| Connecting to the latest thoughts on implementing the math core from one of the core authors | <http://commoncoretools.me/>  | * What’s the advantage in checking the thinking of a math core author on the math core periodically?
 |
| Exploring mixed ability math class instructional solutions | <http://www.ode.state.or.us/wma/teachlearn/commoncore/structuring-acad-discuss-.pdf>  | * What might be something you could do in your classroom?
 |
| **Parents** |
| Sharing the essence of the standards with *parents* so they can support student growth and success | Two-page guides to success for each grade in English and Spanish at <http://pta.org/parents/content.cfm?ItemNumber=2910> Four-page guides to success for each grade in English and Spanish at <http://pta.org/content.cfm?ItemNumber=2909> and K-12 parents guide to student success at <http://pta.org/files/Common%20Core%20State%20Standards%20Resources/2013%20Guide%20Bundle_082213.pdf>  | * How might you use these with parents to help them support the Iowa Core?
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| **3.2 Integrating Technology into Lessons or Units** |
| **If you want to learn about:** | **Then go to this source/URL:** | **Ponder these questions as you learn:** |
| Understanding the role of tech in math | <http://community.ksde.org/LinkClick.aspx?fileticket=geSrRp-2Ws8%3d&tabid=5276&mid=13067>  | What is the author’s main idea? Do you agree? Disagree? |
| Appreciating a new to the professions math teacher’s use of technology to support communication and collaboration in math class | <http://vimeo.com/1228744?pg=embed&sec=1228744>  | What are possible obstacles to making the changes Meyer made? How could you overcome them? |