

CCR High School Mathematics Protocol 4a

Slide Number	Narrative / Facilitator Notes
	<ul style="list-style-type: none"> ○ Please distribute copies of the handout to each participant. ○ CCR.Sec.Protocol.4a-High School.Understanding Common Core State Standards Structure.HO1
Slide 1	<ul style="list-style-type: none"> ○ Welcome to the College and Career Ready Secondary Protocol for Grades 6 - 8 Mathematics - ○ Understanding the structure of the Common Core State Standards.
Slide 2	<ul style="list-style-type: none"> ○ This protocol is the second of five protocols for the Secondary Series. The protocol will focus on the ○ structure of the structure and organization of the Common Core State Standards for grades 6 to 8 mathematics
Slide 3	<ul style="list-style-type: none"> ○ By understanding the structure of the Common Core State Standards, we directly align to the formative ○ instructional practice of understanding and making our targets clear. As we understand the Common Core State Standards, we, as teachers, understand the targets and expectations and can make them clear for our students.
Slide 4	<ul style="list-style-type: none"> ○ For this protocol, our desired outcomes are to: <ul style="list-style-type: none"> ➤ Understand the structure and design of the CCSS in grades 6 to 8 mathematics ➤ Discuss the implications of our understanding to make the connection for instruction ○ Participants will develop a common understanding of the structure of the standards and essential ideas ○ needed to make informed decisions about instruction and assessment. That includes addressing the different parts and notations included throughout the standards which provide information to clarify the expectations and components. ○ Within this protocol we will utilize structured tools to promote conversations and collaboration as well as to guide decision making about teaching, learning, and assessment.
Slide 5	<ul style="list-style-type: none"> ○ The Common Core State Standards articulate a set of rigorous expectations for ALL students to be college and career ready. ○ This includes our English Language Learners and Special Education students. ○ These students will likely require additional instructional support.

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Slide 6	<ul style="list-style-type: none"> ○ Let's review the Key Design Considerations found in the Mathematics standards. ○ The Common Core State Math Standards are made up of two corresponding and connected sets of tandards: (click) ○ Standards for Mathematical Practices - describe the habits of mind used by a mathematically expert student. They represent the process standards and proficiencies that are important in math education. There are eight standards for mathematical practice which are components for all students from Kindergarten to grade 12. (click) ○ The Standards for mathematical content represent the content which defines what students should understand and be able to do through their study of mathematics. They stress a balance between procedure and conceptual understanding of the key ideas. (click) ○ Although separate in organization, these two sets of standards must be carefully intertwined to build students mathematical understanding.
Slide 7	<ul style="list-style-type: none"> ○ We begin our review of structure with the Standards for Mathematical Practice. ○ The Standards for Mathematical Practice are eight critical habits of mind. These practices describe the expertise that teachers seek to develop in their students. It is important to note that the practices describe what students are expected to do. These standards are based on the NCTM process standards and the National Research Council's report Adding It Up. ○ As you read the Standards for Mathematical Practices, it is important to look at each of the components. ○ The eight practice standards are organized with two parts: the standard title and the narrative description. The Standard Title summarizes the expected practice; however, it is meaningless without the narrative description. This description explains the attitudes & proficiencies expected for students. ○ Facilitators Notes: Key for identifying the elements: It is important to have the Key visible for the participants. You may consider printing it out on large chart paper or providing each participant with their own copy within their materials packet.

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Slide 8	<ul style="list-style-type: none"> ○ Let's look at the structure - turn to page 6 in the math document. ○ Underline the standard title <u>Make sense of problems and persevere in solving them.</u> ○ Next, read the paragraph below the title. Consider what is expected for students as they make sense of problems and persevere in solving them. Bracket this narrative description.
Slide 9	<ul style="list-style-type: none"> ○ After you mark your copy of the Standards for Mathematical Practice, Page 6 should look like this. You ○ will have underlined the Standard Title. The Narrative Description will be surrounded by a bracket. ○ Facilitator's Note: Ensure that each participant follows along in their packet.
Slide 10	<ul style="list-style-type: none"> ○ Take the next few minutes to review the remaining seven Standards for Mathematical Practice which will be found on pages 6 to 8 in your packet. Be sure to underline the Standard Title and Bracket the narrative description. ○ Please note: We will address the Standards for Mathematical Practice in more depth in a later protocol. ○ In the meantime, consider what questions might you have about building students mathematical habits of mind and proficiencies? ○ Facilitator notes: Allow a few minutes to complete task. Be sure to answer all questions. Remind participants that the Standards for Mathematical practice are completely intertwined with the Standards for Math Content. Each set of mathematical standards cannot stand alone. Remind participants that the Standards for Mathematical Practice are competencies that we expect to see in students.

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Slide 11	<ul style="list-style-type: none"> ○ Moving to the Common Core State Standards for Mathematical Content, it is important to understand the overall format of these standards. ○ We begin by considering the structure of the Hawaii Content and Performance Standards III (HCPS III) math standards. These standards were built around 5 strands and 14 standards with grade level benchmarks. This format was used for standards for grades K to 12. ○ Common Core formatting is different. The HCPS III strands and standards covered benchmarks for all grade levels. The Common Core State Standards is organized into grade level domains and clusters. In CCSS, topics continue as long as they are appropriate. Compare the grade level domains for the K-5 and 6-8 grade bands. For example, counting and cardinality is addressed in the early grades, however, those foundational skills and concepts are phased out in upper grades. ○ Standards for high school are arranged into conceptual categories, domains, clusters, and standards. For more information about the specific organization of K-8 documents, refer to the College and Career Ready Secondary Math Protocol 4a for Grades 6-8. ○ Facilitators Notes: Key for identifying the elements: It is important to have the Key visible for the participants. You may consider printing it out on large chart paper or providing each participant with their own copy within their materials packet.
Slide 12	<ul style="list-style-type: none"> ○ The domains and clusters found in the CCSS are similar to the HCPS III strands and standards. ○ High school standards are arranged into conceptual categories to provide a coherent structure for mathematics. ○ Domains are groups of related standards. Each domain is organized into clusters of supporting mathematical ideas called Cluster Heading. The clusters are further refined into specific standards which define what students should understand and be able to do within that cluster. Common Core State Standards are at the same level as benchmarks under the HCPS III system. ○ As we move to CCSS we need to familiarize ourselves with the new naming format

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Slide 13	<ul style="list-style-type: none"> ○ Our review of the mathematics content standards begins on page 57. Take a look at the conceptual categories found in the middle of the page and place a box around them. ○ Next highlight the second sentence in the first paragraph. ○ Finally, highlight the first sentence in the last paragraph. ○ At first glance at the standards, these markings are not obvious. However, they have significant impact on the high school mathematics content standards. We will discuss the symbols further later in this presentation.
Slide 14	<ul style="list-style-type: none"> ○ After marking page 57 your document will look like this (click) with the conceptual categories boxed. (click) ○ The sentence with the plus symbol should be marked. The plus symbol indicates content needed for advanced courses (click) and the sentence with the star symbol should also be highlighted. The star symbol shows the content that should be taught through the lens of modeling.
Slide 15	<ul style="list-style-type: none"> ○ As you notice, there are six conceptual categories. ○ Look at pg 72 - note that there are no Modeling standards. . . Modeling is embedded in all the other conceptual categories. ○ Modeling is more than showing students how to conduct a procedure. It involves linking math to real-world situations in a meaningful way. Technology is an expected part of classroom instruction. ○ NOTE: Making mathematical models is a Standard for Mathematical Practice AND specific modeling standards appear throughout the high standards as indicated by a star symbol (*). ○ NOTE: When the star symbol appears at the conceptual category, cluster, or domain level - this indicates that modeling should be done throughout that conceptual category, cluster or domain level.

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Slide 16	<ul style="list-style-type: none">○ Each conceptual category, with the exception of modeling is organized with the following format:○ The first page begins with the name of the conceptual category and an summarizing introduction. Please turn to page 67 to look at the Functions category. We use the marking key to box the conceptual category - Functions. (click)○ Next read the introduction. (At this time the facilitator will pause this recording for a moment. Place a bracket around the introduction when you have completed reading the section.)○ Facilitator Note: Pause for 1 minute○ (click) Your completed document should look like this
Slide 17	<ul style="list-style-type: none">○ As you notice, there are six conceptual categories.○ Look at pg 72 - note that there are no Modeling standards. . . Modeling is embedded in all the other conceptual categories.○ Modeling is more than showing students how to conduct a procedure. It involves linking math to real-world situations in a meaningful way. Technology is an expected part of classroom instruction.○ NOTE: Making mathematical models is a Standard for Mathematical Practice AND specific modeling standards appear throughout the high standards as indicated by a star symbol (*).○ Please turn to your packet and select another Conceptual category to explore. Be sure to box the conceptual category and then bracket the introduction for the category. The page numbers are noted on your screen. (The facilitator will pause the presentation to allow you to complete this task.)○ NOTE: When the star symbol appears at the conceptual category, cluster, or domain level - this indicates that modeling should be done throughout that conceptual category, cluster or domain level.
Slide 18	<p>Now we will explore the conceptual category of modeling. Look at the Algebra category which begins on page 62. Carefully review the section to identify all of the standards marked with the star symbol. (the facilitator will pause the presentation to give you time to complete the task)</p>

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Slide 19	<ul style="list-style-type: none">○ There are 8 Modeling Standards in the Algebra conceptual category. Your facilitator will pause this presentation to lead a discussion on the standards you identified and the level at which the star was found. As you discuss, consider the implications for planning for instruction.○ Facilitator's Notes - lead a discussion to identify the modeling standards within the Algebra category: ANSWER KEY:<ul style="list-style-type: none">A.SSE.1a / A.SSE.1b (Star at the Standard level)A.SSE.3a / A.SSE.3b / A.SSE.3c (Star at the Standard Level)A.SSE.4 (Star at the standard level)A.CED1 (Star at the Cluster Heading Level)A.CED2 (Star at the Cluster Heading Level)A.CED3 (Star at the Cluster Heading Level)A.CED4 (Star at the Cluster Heading Level)A.REI.11 (Star at the standard Level)○ Please turn to page 79 in your packet - Statistics and Probability -In this instance, the Star symbol is at the conceptual category level. . . This means that the entire category should be presented through the lens of modeling.○ The star symbol sometimes appears on the heading for a group of standards; in that case, it should be understood to apply to all standards in that section.
Slide 20	<ul style="list-style-type: none">○ Now that we have explored the six conceptual categories and their introductions, we move the to overview which is part of each category. Turn to page 68. We will use the marking key to organize this page.○ Box the conceptual category (click)○ Next circle the domains. (click) This category has four domains○ Under each domain, you will find the cluster heading. Underline each of the cluster headings (click)

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Slide 21	<ul style="list-style-type: none"> ○ Turn to the next page in your packet. We will use the marking key to organize the document. ○ Circle domain (click) ○ Note the code: This is marked F for the conceptual category and IF the domain of interpreting functions (click) ○ Next underline - conceptual categories ○ Check mark - for the individual standards ○ Be sure to note special symbols - the star (modeling) ○ And + additional mathematics
Slide 22	<ul style="list-style-type: none"> ○ How to read the HS Mathematics Standards code. The first letter A that you see in the code stands for Algebra. This is the conceptual category (click). ○ The Seeing Structure in Expressions is marked as SSE which is the domain. ○ Lastly, the number (and possibly a lower case letter) after the period indicates the number (and possibly letter) within the standard within the cluster. (click) ○ Note that if there are multiple letters below a number, this means that there are multiple parts to that particular standard. (click)
Slide 23	<ul style="list-style-type: none"> ○ This is another example of how the coding works. ○ The (+) indicates that this is probably a content standard that will be included in an advanced mathematics course. (click) ○ The N indicates the conceptual category. (click) ○ The CN indicates the domain. (click) ○ And the 4 indicates the standard number within the cluster heading. (click)

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Slide 24	<ul style="list-style-type: none"> ○ Additional Mathematics indicated with a (+) symbol features math concepts that may usually be found in Advanced mathematics courses such as calculus, trigonometry, advanced statistics or discrete mathematics. ○ Note that all standards without a (+) symbol should be found in courses intended for all students to promote college and career readiness. ○ However, sometimes you could find the (+) symbol in courses intended for all students. There may not be many, but you may find them in courses intended for all students.
Slide 25	<ul style="list-style-type: none"> ○ Again, look at page 64-66. Look for all of the standards with a (+) symbol within the Conceptual Category of Algebra. Circle all of the standards that are indicated with the (+) symbol. (At this time your facilitator will pause this video for a moment so you can identify all of the standards for advanced courses in the conceptual category of Algebra.)
Slide 26	<ul style="list-style-type: none"> ○ How did you do? Did you find all of the standards for advanced mathematics in the conceptual category of Algebra? At this time, your facilitator will pause this video so you can discuss the following questions with a partner: ○ Where did you find these advanced standards? ○ What are the implications for planning for instruction? ○ There are 4 Additional Standards in the Algebra conceptual category. <p style="text-align: center;">ANSWER KEY: A.APR.5 A.APR.7 A-REI.8 A-REI.9</p>
Slide 27	<ul style="list-style-type: none"> □ Here are additional resources to help support you in understanding the Common Core State Standards. □ For additional information, you can contact the State Mathematics Specialist, Dewey Gottlieb
Slide 28	<ul style="list-style-type: none"> □ Please take this survey on PDE3 to ensure you receive your non-PD hours for this training.